

Capital SouthEast Connector – A1/A2 Kammerer Road Project

SACRAMENTO COUNTY, CALIFORNIA
DISTRICT 3 – SAC-5 (PM 8.0/9.0)
STPL 5479(037)

Environmental Assessment



Prepared by the
State of California, Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated May 27, 2022 and executed by FHWA and Caltrans.



February 2023

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GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document:

The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), in cooperation with the City of Elk Grove (City) and Capital SouthEast Connector Joint Powers Authority (Connector JPA), has prepared this Environmental Assessment (EA), which examines the potential environmental impacts of the alternatives being considered for the Capital SouthEast Connector – A1/A2 Kammerer Road Project (Project) located in Sacramento County, California. The City and Connector JPA are proposing to use funds from FHWA for this local roadway project. The document describes why the Project is being proposed, what alternatives we have considered for the Project, how the existing environment could be affected by the Project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:

Please read this document. Additional copies of this document are available for review at the Department District 3 Office, 703 B Street, Marysville, CA 95901. Related technical studies are available for review upon request.

This Environmental Assessment may also be reviewed at the City of Elk Grove City Hall, 8401 Laguna Palms Way, Elk Grove, CA 95758, and downloaded at the following website: http://www.elkgrovecity.org/city_hall/departments_divisions/public_works/environmental_review

We'd like to hear what you think. If you have any comments about the Project, please send your written comments to the Department, District 3 office by the deadline.

Send comments via postal mail to:

California Department of Transportation, District 3,
Attn: Cara Lambirth, Branch Chief, M1
Division of Environmental,
Local Assistance and Capital Outlay,
703 B Street, Marysville, CA 95901

Or send comments via email to: cara.lambirth@dot.ca.gov

Be sure to send comments by the deadline: March 30, 2023

What happens next:

After comments are received from the public and reviewing agencies, the Department, as assigned by the FHWA, and in cooperation with the City of Elk Grove and Connector JPA, may: (1) give environmental approval to the Project, (2) undertake additional environmental studies, (3) abandon the Project, or (4) modify the Project based on comments received. If the Project is given environmental approval and funding is appropriated, the Department and/or the implementing public agencies could design and construct all or part of the Project.

Alternative Formats

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to California Department of Transportation, District 3, Attn: Stacie Gandy, District 3 Equal Employment Officer, 703 B Street, Marysville, CA 95901; (530) 218-0632 or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice), or 711.

Extend Kammerer Road between State Route 99 and Interstate 5, as a widened four-lane thoroughfare.

Environmental Assessment

Submitted Pursuant to:
(Federal) 42 USC 4332(2)(C), 49 USC 303, and/or 23 USC 138

THE STATE OF CALIFORNIA
Department of Transportation

Cooperating Agencies:
Capital SouthEast Connector Joint Powers Authority (CEQA Lead Agency)
City of Elk Grove
Sacramento County

2-16-2023

Date



Suzanne Melim, Division Chief
North Region, Division of Environmental
District 3, Marysville
California Department of Transportation

The following persons may be contacted for more information about this document:

California Department of Transportation
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Local Assistance and Capital Outlay
703 B Street, Marysville, CA 95901
(530) 714-4134

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EXECUTIVE SUMMARY

NEPA Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the Department entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on May 27, 2022 for a term of ten years. In summary, the Department continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and the Department assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

Project Summary

The Project is subject to federal as well as state environmental review requirements because the City of Elk Grove (City) and Capital SouthEast Connector Joint Powers Authority (Connector JPA) propose the use of federal funds from the Federal Highway Administration (FHWA) and/or the Project requires an approval from FHWA. Project documentation, therefore, has been prepared in compliance with the National Environmental Policy Act (NEPA). The City and Connector JPA are the Project proponents and the Connector JPA is the lead agency under the California Environmental Quality Act (CEQA). FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by the Department under its assumption of responsibility pursuant to the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (23 U.S.C. 327).

While this project is subject to the requirements of both NEPA and CEQA, separate environmental documents have been prepared, one that complies with NEPA and another that complies with CEQA. This Environmental Assessment (EA) complies with the requirements of NEPA and other federal environmental laws. Compliance with CEQA and state environmental laws is provided in the *Capital SouthEast Connector – Program Environmental Impact Report*, which was adopted by the Connector JPA Board on March 7, 2012 and the *A1/A2 Kammerer Road Project Tiered Initial Study with Mitigated Negative Declaration*, which was approved for public circulation by the Connector JPA Board of Directors on February 26, 2018, and adopted by the Connector JPA Board on December 14, 2018. The Project is located in the City of Elk Grove and Sacramento County, California. The extent of the Project area is from the SR 99/Grant Line Road/Kammerer Road Interchange to the I-5/Hood Franklin Road Interchange.

After receiving comments from the public and reviewing agencies, a final NEPA environmental document will be prepared. The Department may prepare additional environmental and/or engineering studies to address comments. The final environmental document will include responses to comments received on the Draft EA and will identify the preferred alternative. If the

decision is made to approve the Project, the Department will decide whether to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS) for compliance with the National Environmental Policy Act (NEPA). A Notice of Availability (NOA) of the FONSI will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

The Project functions independently and will provide a link in the roadway infrastructure that serves the City of Elk Grove and Sacramento County. The Project is anticipated to be phased from a 2-lane to a 4-lane facility. The expressway will require a grade separated crossing of the Union Pacific Railroad line and include modifications to the I-5 Interchange. Both the thoroughfare and the expressway will include a Class I bidirectional, multiuse pathway along the northern extent of the roadway. The thoroughfare will also include Class II bike lanes within the roadway shoulders in both directions. Additional Project features will include utility relocation, potential new utilities, drainage improvements, and drainage facilities.

The Project meets the goals of the Project analyzed in the Connector JPA Program Environmental Impact Report (PEIR). The goals include improving mobility, access, and connections between residential and nonresidential land uses, which have been compromised by increasing congestion, and to assist in preservation of open space and threatened habitats. The Project is intended to link employment centers and residential areas in the corridor and contribute to the remedy for current and future deficiencies in transportation capacity, safety, and land use compatibility.

The Project is needed because existing roadways in the Project vicinity and adjacent transportation corridors between the SR-99 and I-5 are insufficient to meet existing and forecasted traffic demand; planned growth in the Project area is expected to increase, which will lead to deteriorating Level of Service (LOS) and traffic conditions; existing Kammerer Road is insufficient for pedestrian and bicycle traffic; and the Project area needs an east-west evacuation route that is higher than the 100-year flood elevation to enable normal mobility and emergency vehicle access.

Summary of Project Effects

Table ES-1 summarizes the potential environmental effects of the Build Alternative in comparison to the No-Build Alternative. The proposed avoidance, minimization, and/or mitigation measures to reduce the effects of the Build Alternative are also summarized. For a complete description of potential adverse effects and recommended measures, including temporary construction effects, refer to Chapter 2. The proposed avoidance and minimization measures and mitigation measures are also compiled in the Avoidance, Minimization, and/or Mitigation Summary in Appendix D.

Table ES-1. Summary of Environmental Effects and Avoidance, Minimization, and/or Mitigation Measures by Alternative

Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
Land Use			
Existing and Future Land Use	None.	Approximately 116.46 acres converted from other uses.	None, beyond implementation of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.
Consistency with state, regional, and local plans and programs	Not consistent with local and regional transportation plans and policies for the Sacramento County and City of Rancho Cordova area.	Project is consistent with state, local, and regional plans and programs.	None.
Compatibility with habitat conservation plan	No conflict.	Compatible.	None.
Parks and Recreational Facilities	None.	None.	None.
Farmlands/Timberlands			
Timberlands	None.	None.	None.
Farmlands	None.	Project implementation would result in the conversion of approximately 1.5 acres of Prime Farmland, 35.72 acres of Farmland of Statewide Importance, 95.46 acres of Farmland of Local Importance, and 3.75 acres of Grazing Land, for a total of 136.43 acres.	<p>AG-1: Design the Project to avoid or minimize the direct conversion of important farmland to nonagricultural uses and indirect conversion of farmland through severance or fragmentation. During future design phases, the implementing agency will locate the Project to avoid or minimize loss of agricultural lands and the potential for fragmenting agricultural lands or production in a manner that would make them uneconomical to farm, to the extent that doing so would not compromise safety or standard design criteria for a road of this type.</p> <p>AG-2: For important farmland (prime, statewide, unique, and local) converted by the Project, either directly or indirectly as described above, important farmland of the same category will be permanently protected from development at a minimum ratio of 1:1. Productive offsite agricultural land subject to conversion will be protected through the purchase or transfer of its development rights and establishment of a farmland conservation easement over the agricultural land pursuant to California Civil Code Section 815, et seq. or other statute providing for its conservation in perpetuity for agricultural use. The implementing agency will provide funds to an agricultural land trust or similar nongovernmental entity for the purchase of agricultural land or development rights on agricultural and establishment of a farmland conservation easement. The implementing agency shall fund only a land trust or nongovernmental entity with an established record of responsible agricultural land stewardship.</p>
Growth			
Induce unplanned growth	None expected.	None expected.	None.
Community Impacts			
Community character and cohesion	None.	None expected.	None.
Relocations and real property acquisition	None.	Full acquisition of up to 3 residential properties and 1 commercial property.	<p>COM-1: Before proceeding with final design, the implementing agency will develop and implement a relocation plan consistent with Federal regulations and California Code of Regulations, Title 25, Section 6038 to ensure that eligible residential, commercial, and industrial uses are compensated for moving and residential/business replacement costs. Eligibility of specific residences or businesses for compensation will be determined after evaluation of the impact on the specific use(s) to be relocated but would include both full and partial property/parcel acquisitions.</p> <p>The implementing agency will use applicable relocation assistance programs (including those administered by local, state and federal governments) to compensate owners and tenants for the relocation costs of residential, commercial, and industrial uses displaced by the Project components.</p>
Disproportionate impacts on Environmental Justice population	None.	None.	None.
Utilities and Emergency Services			
Utilities	None.	Some relocations of existing water, sewer, gas, and electrical facilities consistent with future plans.	<p>UTL-1: To minimize interruptions of service to utility customers, a series of coordination letters shall be sent to all impacted utility companies to identify utilities within the Project. Letters will indicate where utility relocations are to be performed and the required time to relocate them. Design plans will be sent to involved utility owners during the Project development phase.</p> <p>UTL-2: The implementing agency will ensure that the Project design will employ LID techniques and features to maintain the site's predevelopment runoff rates and volumes to the extent feasible. The objective of the LID design is to mimic the site's predevelopment hydrology by including project features and techniques that infiltrate, filter, store, evaporate, and detain stormwater runoff close to the source. LID design features and techniques can incorporate (but are not limited to) minimizing impermeable surfaces where practical; inclusion of bioretention facilities or rain gardens; preserving natural</p>

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			<p>drainages, vegetation, and buffer zones; inclusion of grass swales and channels to direct storm drainage; construction of cisterns to collect water for later use in irrigation; inclusion of vegetated filter strips; and use of permeable pavements.</p> <p>UTL-3: The implementing agency will ensure that the design of the Project will include a landscaping and irrigation plan that is based on the use of drought-resistant landscaping materials. This includes the use of suitable drought-resistant native plants, where feasible, and nonnative plants that are suitable to the site, such as grasses. Suitable plants are those matched to the climate, soils, and the Sacramento region. No invasive, nonnative plants (as inventoried by the California Invasive Plant Council) or noxious weeds (as listed by the California Department of Food and Agriculture) will be used in the landscaping plan. The irrigation system design will rely on recycled water or non-potable water (including water from LID cisterns) whenever available, consistent with quality and health standards. The irrigation system design will include the use of smart irrigation controllers to minimize the amount of supplemental water required to maintain the landscaping.</p> <p>UTL-4: The implementing agency will require that the contractor will employ one of the following options for recycling construction and demolition debris:</p> <p>1. If there is room at the construction site for multiple sorting bins, construction and demolition debris will be sorted and dropped off at recycling facilities. Currently, the following facilities accept sorted construction and demolition waste:</p> <ul style="list-style-type: none"> • Kiefer Landfill • Crete Crush, LLC, which accepts brick, gravel, sand, asphalt, concrete, and soil • Elder Creek Recovery & Transfer Station BFI • EBI Aggregates, which accepts concrete and asphalt • Vulcan Materials, which accepts concrete and asphalt • Sims Metal Management • Granite Construction Company, which accepts only clean, separated concrete and asphalt • Bell Marine Company, Inc., which accepts concrete and asphalt • L and D Landfill Company • Sacramento Recycling & Transfer Station • Sacramento Habitat for Humanity, which accepts tax deductible donations of clean wood and various building materials • Second Cycle, Inc. <p>2. If the construction site is crowded, or mixed recycling is preferable for another reason, the Sacramento Regional Solid Waste Authority provides a list of certified construction and demolition debris sorting facilities.</p> <ul style="list-style-type: none"> • Allied Waste/Elder Creek Transfer and Recovery • L and D Landfill Company • Waste Management/K&M Recycle America • Florin-Perkins Public Disposal <p>If a waste type produced by project construction is a type not accepted by regional landfills, the Project engineer(s) will ensure that the waste is disposed of in accordance with all federal, state, and local statutes and regulations related to solid waste.</p>
Emergency services	None.	Potential detours during construction.	See Traffic and Transportation/Pedestrian and Bicycle Facilities TRF-1 below. Traffic Management Plan will be implemented.
Traffic and Transportation/Pedestrian and Bicycle Facilities			
Conflict with applicable plans, ordinances, policies or programs	Yes.	None.	None.
Increase traffic congestion	Yes: 5 intersections would fail City and County LOS standards under the No-Build Alternative.	<p>Temporary traffic congestion during the construction phase.</p> <p>Reduce traffic congestion for multiple intersections in opening year 2024, interim 2-lane phase 2034, and future 4-lane forecast year 2044.</p>	TRF-1: The implementing agency, as applicable, will require that the contractor(s) prepare a traffic management plan (TMP) during the final stage of project design to ensure there is no interference with emergency vehicles/services or response/evacuation plans. The plan will list procedures, specific emergency response, and evacuation measures to be followed during emergencies. The contractor will prepare this manual, subject to review and approval by the implementing agency, and distribute the approved plan to contract workers involved in the Project before construction and during operation of the Project. Implementation of the approved plan will be a requirement of the construction contract. The implementing agency will provide project maps to emergency personnel (e.g., fire protection agencies, police and sheriff departments,

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			<p>California Highway Patrol) that describe construction activities as well as access roads to ensure proper emergency response to all parts of the Project.</p> <p>Standards found in the Department' TMP guidelines (2009) outline the basic requirements for such plans. The implementing agency will require the following measures to be implemented as part of project construction.</p> <ul style="list-style-type: none"> • The contractor will be required to prepare and implement a TMP that identifies the locations of temporary detours and signage to facilitate local traffic/truck patterns and through-traffic requirements. • The contractor will provide emergency service providers (i.e., law enforcement, fire protection, and ambulance services) adequate notice of any street closures during the construction phases of the Project. • Construction activities will be coordinated to avoid blocking or limiting auto, truck, bike, and pedestrian access to homes and businesses to the extent possible. Residents will be notified in advance about potential access or parking effects before construction activities begin. Facilities such as traffic lights, turn pockets, or common driveway access will be provided continued access. Alternative methods of providing access could also be provided, such as relocation of existing access driveways and sidewalks, provision of frontage roads, construction of joint parking areas and pedestrian access from parking areas. • A comprehensive marketing campaign throughout the larger market area will be provided to ensure that customers know that businesses are operating during construction, and how to reach them. This would include signage posted well outside the impacted area, on routes leading into the construction area. • Any interchange, ramp, or road closures required during construction will, to the extent possible, be limited to nighttime hours to reduce effects on businesses within or adjacent to the Project limits. • Construction activities will be coordinated to avoid blocking or limiting access to businesses in or adjacent to the Project area during business hours. Businesses will be notified in advance concerning construction activities before construction begins near businesses. • The TMP will be prepared to address short-term disruptions in existing circulation patterns during construction. For example, the TMP will identify the locations of temporary detours or temporary roads to facilitate local traffic circulation and through-traffic requirements.
Increase hazards as a result of a design feature	None.	None.	None.
Visual Resources			
Adverse effect on scenic views/damage scenic resources	None expected.	No damage to scenic resources.	None.
Degradation of existing visual character or quality	None expected.	Slightly lower visual quality due to disturbance, construction, noise wall and grade separation structure.	<p>VIS-1: To minimize visual impacts of staged construction equipment, adherence of the Department Standard Specification for Construction would occur. Construction materials and debris shall be stored away from highly visible areas, which shall include, but not be limited to, residences along Kammerer Road, Bruceville Road, Franklin Boulevard, and the Rancho Verde residential development.</p> <p>VIS-2: To minimize visual impacts to the Rancho Verde residential development, design and construction of the overhead grade separation structure would incorporate design features to minimize the appearance of the structure. These design features may include vegetative cover and the use of cut and fill around the structure so it appears to grow out of and blend in with the surrounding landscape. Any hydroseed or vegetation cover would be composed of native species.</p>

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Create a new source of light or glare	None expected.	New light sources at intersections. Temporary construction lighting and visual disturbance of construction equipment.	<p>VIS-3: During the final design of the Project, the implementing agency will prepare and implement a plan for construction lighting that minimizes the release of light and glare either upward or toward properties and residences adjoining the construction site. At a minimum, the plan will contain the following elements:</p> <ul style="list-style-type: none"> To minimize trespass lighting to the skies, use full cutoff luminaires. Full cutoff luminaires are designed to not emit any light above 90 degrees, thereby reducing sky glow. Use internal or external shields when necessary to minimize light trespass onto neighboring properties. <p>VIS-4: Operational lighting of the Project will be designed for safety and will include features that minimize the release of light and glare either upward or toward properties and residences adjoining the Project corridor. The lighting design will conform to all applicable City, County, State, Federal and public safety standards, as appropriate. Features could include shielding lighting elements, using lower voltage lighting, incorporating downward casting lighting, using lighting features that conform to the visual character of the area, and similar design measures as listed below:</p> <ul style="list-style-type: none"> Consider the least intrusive lighting when improvements are made at an intersection, when lighting is needed for safety reason, or when a new intersection is constructed. Minimize continuous roadway lighting, Calculate the optimum location, height and spacing for alternative lighting solutions at each intersection using computer software. Do not permit the use of high pressure sodium lamps. Metal halide is preferred because of the more natural color rendition and pure white light. Minimize trespass lighting to the skies by using full cutoff luminaires. Full cutoff luminaires are designed to not emit any light above 90 degrees, thereby reducing sky glow. Reduce the amount of light required for an intersection by using the Department, Sacramento County, and City of Elk Grove minimum requirements as appropriate. Use internal or external shields when necessary to minimize light trespass onto neighboring properties.
Cultural Resources			
Create an adverse change in the significance of a historical resource	No effect.	No effect.	None.
Create an adverse change in the significance of an archaeological resource	No effect.	No effect; however, potential for unidentified resources cannot be known.	<p>CR-1: The Kammerer Programmatic Agreement shall be executed between the SHPO and the Department and shall detail the remaining actions needed to complete cultural resource identification efforts, evaluation of potential historic properties, assess the potential for substantial adverse changes, and potential mitigation of substantial adverse changes for the Project. As it is anticipated that the Project shall be constructed in phases, all requirements of the Kammerer Programmatic Agreement shall be completed as access is gained for each design/construction phase but prior to ground disturbing activities for each design/construction phase of the Project. Although the Kammerer Programmatic Agreement will specifically discuss compliance with Section 106 of the National Historic Preservation Act, the stipulations therein will also ensure that any previously unidentified resources will be treated appropriately in accordance with CEQA.</p> <p>CR-2: Should cultural resources be identified during construction, the actions outlined in the Kammerer Programmatic Agreement regarding cultural resource discovery during construction shall be implemented, including implementation of ESA fencing, evaluation for listing on the NRHP if it cannot be protected in place, and appropriate curation or repatriation.</p>
Disturbance to human remains	No effect.	No effect; however, potential for unidentified resources cannot be known.	<p>CR-3: Should human remains be discovered during implementation of the Project, they will be treated in accordance with the requirements of Section 7050.5(b) of the California Health and Safety Code. If, pursuant to Section 7050(c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of Section 5097.98(a)-(d) of the California Public Resources Code, which states that the coroner will notify the Native American Heritage Commission (NAHC), who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendant (MLD). Additionally, the Department District 3 Environmental Branch Manager shall be contacted, so that the Department can work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.</p> <p>CR-4: If Native American human remains are discovered and the Wilton Rancheria is identified as a Most Likely Descendant by the Native American Heritage Commission, the Memorandum of Understanding between the Capital SouthEast Connector Joint Powers Authority, the City of Elk Grove, the Sacramento County, the California Department of Transportation, and the Wilton Rancheria Regarding the Treatment and Disposition of Native American Human Remains Encountered during the Capital SouthEast Connector A1/A2 Kammerer Road Project (Kammerer MOU) will become</p>

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			effective. The Kammerer MOU identifies the appropriate human remains treatment, recovery methodology, documentation, disposition, and information dissemination. Should the Native American Heritage Commission identify a Most Likely Descendant other than the Wilton Rancheria, the implementing agency will initiate consultation with the designated MLD.
Hydrology and Floodplain			
Within a 100-year floodplain	No effects.	Project would encroach into 100-year floodplain; however, Project implementation would not impact floodplain or 100-year floodplain elevation.	To implement source controls, low impact development controls, treatment controls, and hydromodification controls. (discussed in Section 2.2.2 "Water Quality and Stormwater Runoff.")
Water Quality and Stormwater Runoff			
Result in substantial drainage pattern alteration	None expected.	No change. Culverts would continue to convey existing drainage patterns. Planned roadway storm drainage plans would adequately accommodate increase impervious surface run-off.	<p>HYD-1: The implementing agency will implement the following actions either directly or through contract specifications:</p> <ol style="list-style-type: none"> 1. During the design of individual projects, in consultation with the applicable regulatory agencies, develop specific design and construction standards for stream crossings, including, but not limited to, maintaining open surface (bridged versus closed culvert) crossings, infrastructure setbacks, erosion control measures, sediment controlling excavation/fill practices, and other BMPs as described in item 3 below. 2. The implementing agency will obtain the required permits from the appropriate agencies for impacts to waters. 3. During and after construction activities, monitor and ensure compliance with water quality objectives outlined in the Central Valley RWQCB Basin Plan. 4. Minimize sediment transport caused by construction by following BMPs undertaken as part of National Pollutant Discharge Elimination System (NPDES) Permit and Storm Water Pollution Prevention Plan (SWPPP) requirements that will be included in construction permits. The BMPs will be designed so that, when employed in concert, they will meet the requirement of the NPDES permit and avoid the transport of sediment from the Project site. BMPs may include, but are not limited to, measures such as the following: <ol style="list-style-type: none"> a. providing permeable surfaces where feasible and where this would not result in erosion or the release of sediment; b. retaining and treating stormwater on site using catch basins and filtering wet basins; c. minimizing the contact of construction materials, equipment, and maintenance supplies with stormwater; d. reducing erosion through soil stabilization, watering for dust control, installing perimeter silt fences, placing rice straw bales, and installing sediment basins; and e. maintaining water quality by using infiltration systems, detention systems, retention systems, constructed wetland systems, filtration systems, biofiltration/bioretention systems, grass buffer strips, ponding areas, organic mulch layers, planting soil beds, sand beds, and vegetated systems such as swales and grass filter strips that are designed to convey and treat either fallow flow (swales) or sheet flow (filter strips) runoff. 5. Develop and implement a procedure for spill prevention and control to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during all construction activities. If a spill should occur during construction that causes a release of a hazardous material, including oil and radioactive materials, the proper agencies will be notified and an Emergency Release Follow-up Notice Reporting Form will be submitted no more than 30 days following the release. 6. Use methods such as habitat restoration, reconstruction of [habitat] on site, and habitat replacement off site to minimize surface water quality impacts. 7. Comply with conditions included in permits issued under Sections 404 and 401 of the federal CWA. 8. Comply with the requirements of a state Streambed Alteration Agreement for work along the banks of various surface water bodies. 9. Where feasible, avoid significant development of facilities in areas that may have substantial erosion risk, including areas with erosive soils or steep slopes. <p>HYD-4: The implementing agency will conduct drainage studies for later projects on a site-specific basis. The results of the studies will be integrated into the design of the later project's drainage systems. The studies will address county and City drainage study requirements that typically include the following topics:</p> <ul style="list-style-type: none"> • A calculation of predevelopment runoff conditions and post-development runoff scenarios using appropriate engineering methods. This analysis will evaluate potential changes to runoff through specific design criteria and account for increased surface runoff. • An assessment of existing drainage facilities within the project area and an inventory of necessary upgrades,

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	No-Build Alternative	Build Alternative	
			<p>replacements, redesigns, or rehabilitation, including the sizing of onsite stormwater detention features and pump stations.</p> <ul style="list-style-type: none"> • A description of the proposed maintenance program for the onsite drainage system. • Standards for drainage systems to be installed on a project-/parcel-specific basis. • Design measures to ensure structures will not impact 100-year floodplain areas. <p>Drainage systems for the individual project will be designed in accordance with the findings of the studies, the requirements of the applicable local flood control agencies, and flood control design criteria established under applicable local ordinances. As a performance standard, the systems will provide for no net increase in peak stormwater discharge relative to current conditions to ensure that 100-year flooding and its potential impacts are maintained at or below current levels and that people and structures are not exposed to additional flood risk.</p> <p>HYD-5: The implementing agency will include infiltration systems, where feasible. Infiltration devices will be installed to replace the natural recharge rate of the soil to be paved over, reduce stormwater peak discharges and volumes to downstream catchments, and improve the quality of stormwater discharged to water bodies. Examples of infiltration devices include, but are not limited to, infiltration basins, pervious concrete, retention trenches, and bioretention measures. As discussed in HYD-3, LID techniques will be implemented to increase soil infiltration. Much of the proposed project is located within areas with Hydrologic Soil Group (HSG) D soils where certain infiltration devices do not work well. In these cases, other measures such as detention basins or vegetative barriers that will help retain waters.</p>
Violation of water quality standards	None expected.	No violations of water quality. Potential hydromodification effects due to excavation and construction activities.	<p>HYD-1, HYD-4 and HYD-5 Above. Also:</p> <p>HYD-2: The implementing agency will require the following actions as part of construction contract specifications. Before discharging any dewatered effluent to surface water the contractor will determine whether the volume of water from the dewatering operation is covered under the NPDES Construction General Permit. If it is deemed that the volume is greater than the Construction General Permit allows, the contractor will obtain coverage under an NPDES Low Threat Discharge and Dewatering Permit from the Central Valley RWQCB. The NPDES Low Threat Discharge and Dewatering Permit will require the water from the dewatering operation to be treated prior to discharge to any local water way.</p> <p>HYD-3: Final design will include, and the implementing agency will implement, either directly or through contract specifications, source and treatment control measures contained in Central Valley Region Phase I MS4 NPDES Permit. General site housekeeping and design control measures incorporated into the Project design can include, but are not limited to, conserving natural areas, protecting slopes and channels, and minimizing impervious areas. Treatment control measures may include use of vegetated swales and buffers, detention basins, wet ponds, or constructed wetlands, infiltration basins, and other measures. LID approaches will be incorporated into site design and stormwater management to maintain the site's predevelopment runoff rates and volumes. Examples of such measures include, but are not limited to, sidewalk storage, vegetated swales, landscaped buffers and strips, tree preservation, permeable pavers, and impervious surface reduction and disconnection. The implementing agency will select and implement specific LID measures and techniques depending on project size and stormwater treatment needs.</p> <p>HYD-6: Potential impacts of flooding that could result from the Project would be alleviated through the FEMA Letter of Map Revision (LOMR) approval process, as well as the requirements of the Central Valley Flood Protection Board, when applicable. The design of the Project will proceed in accordance with the best available mapping from DWR, FEMA, and USACE. The Project design will comply with the requirements of the applicable local flood control agencies, and flood control design criteria established under applicable local ordinances. If unavoidable construction would occur within a 100-year floodplain, the implementing agency will prepare a letter of map amendments and submit to FEMA before construction of the Project. The LOMR will include revised local base flood elevations for projects constructed within flood-prone areas. If the LOMR is approved, the design will reflect its provisions.</p> <p>HYD-7: During the design of individual projects, the implementing agency will consult with the applicable flood control agencies to ensure that the flooding risks of pre-project conditions will not increase as a result of construction of the individual projects. If a project has the potential to impede or redirect flows from a levee or dam failure, such that there would be less than a 1% chance that flooding would extend to areas not previously mapped as inundation areas, the Project will be redesigned to the maximum extent practicable so that the Project would not expand the area subject to pre-project inundation conditions. This may be achieved through incorporation of culverts or bridges into the Project design.</p>

Table ES-1. Summary of Environmental Effects and Avoidance, Minimization, and/or Mitigation Measures by Alternative

Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
Change to groundwater supply or groundwater recharge	None expected.	None expected.	None.
Substantially degrade water quality	None expected.	Potential construction effects.	HYD-1 through HYD-7: (See above.)
Geology/Soils/Seismic/Topography			
Expected likelihood of seismic related issues, including ground shaking and liquefaction	None expected.	None expected.	GEO-1: Prior to construction, the implementing agency will ensure that the Project is designed and constructed in compliance with the latest California Building Standards Code, the Department seismic design criteria, and County and City General Plans seismic standards to ensure that all project components can withstand moderate to strong earthquake-shaking.
Expose people or structures to potential adverse effects	None.	None.	GEO-2: Prior to construction, the implementing agency will prepare project-specific geotechnical investigations to guide the design of earthworks and foundations for proposed structures. Based on the subsurface conditions expressed through geotechnical investigation, the implementing agency, in conjunction with soil scientists or engineers, will ensure that specific project elements are designed to accommodate the effects of liquefaction of expansive soils. For roadways and bridges, subsurface borings at regular intervals along proposed roadways and in the vicinity of proposed bridges are recommended as part of the geotechnical evaluations. If the site specific geotechnical investigations find that liquefiable soils, soils susceptible to seismically induced settlement, or expansive soils are present at any location where project activities would occur, corrective actions will be taken. These actions may include, depending on the extent and depth of susceptible soils and findings of the geotechnical evaluations, removal and replacement of soils; on site densification; grouting; and design of special foundations or other similar measures. All of these measures reduce pore water pressure during ground shaking by making the soil denser or improving its drainage capacity. The implementing agency will ensure that their contractors implement one or more of these measures in consultation with a qualified engineer prior to beginning and during construction. The implementing agency will ensure, as a contract specification, that their contractors implement the recommendations of site specific geotechnical reports pertaining to site clearing and preparation, organic removal, engineered fill placement, trench backfilling, foundation design, soundwall systems, exterior flatwork, pavement design, and site drainage to minimize any adverse effects associated with runoff, erosion, and sedimentation
Paleontology			
Destruction of paleontological resources (i.e., fossil remains and sites) as a result of ground disturbance	None.	Potential to discover unknown paleontological resources within the Project footprint.	<p>PAL-1: The implementing agency shall retain a qualified paleontologist to develop an acceptable monitoring and fossil remains treatment plan or Paleontological Mitigation Plan (PMP) for construction-related activities that could disturb potential unique paleontological resources within the Project area. This plan shall be implemented and enforced by the implementing agency during the full phase of construction, and will include:</p> <ul style="list-style-type: none"> • Paleontological late discovery plan; • Specifications for paleontological spot-check monitoring; and • Guidelines for recordation, evaluation, recovery, and treatment of resources as required by state and local governmental guidelines. <p>PAL-2: Due to the continual potential for discovery of subsurface fossil deposits, a qualified paleontological monitor will be present for activities in sensitive areas defined in the PMP. The monitor may recommend decreasing the amount of monitoring and recommend spot-check monitoring.</p> <p>PAL-3: Prior to the start of construction, all construction personnel would receive a paleontological sensitivity training, detailing the types of paleontological resources that may be encountered and procedures to follow if a find should occur.</p> <p>PAL-4: If paleontological resources (i.e., fossils) are discovered during ground-disturbing activities, the implementing agency will immediately be notified, and will ensure that their contractors shall stop work in that area and within 100 feet of the find until a qualified paleontologist can assess the significance of the find and develop appropriate treatment measures. Treatment measures will be made in consultation with the implementing agency, and would be included in the PMP.</p> <p>PAL-5: Grading plan notes will state that there is a potential for paleontological resources to be discovered during ground disturbance, and procedures to follow if a find should occur.</p>
Hazardous Waste/Materials			
Create a hazard to the environment	None.	Potential to discover unknown hazardous waste or materials.	HAZ-1: Prior to construction, a visual survey of those areas not accessed at the time of the field reconnaissance visits should be performed. If spills, leaks, or stains from equipment, ASTs, or other containers are observed, soil sampling should be performed to assess the presence of hazardous materials that may pose a potential hazardous waste to the proposed

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			<p>roadway alignment areas.</p> <p>HAZ-2: The potential exists for herbicides, petroleum hydrocarbons and metals to be present in shallow soil in the vicinity of the UPRR right-of-way. The Project proposes to construct a bridge over the railroad. Prior to construction, soil samples should be collected within the UPRR right-of-way and analyzed for chlorinated herbicides, petroleum hydrocarbons, and metals using US EPA Methods 8151, 8260B, and 6010/7471A, respectively.</p> <p>HAZ-3: PG&E and SMUD should be contacted to assess the locations of their pipelines prior to construction of the proposed bridge over the UPRR tracks.</p> <p>HAZ-4: The potential exists for persistent pesticides to be present in soil as a result of historical agricultural use of the area. Additionally, the potential exists for buried asbestos-containing cementitious pipe (“transite”), which was commonly used for water transportation as part of historical agricultural practices, to be present within the Project area. To assess the presence of persistent pesticides and/or asbestos in soil, sampling and analysis is recommended. Soil samples should be analyzed for OCPs using US EPA Method 8081. Additionally, if signs of transite piping are observed during construction activity, sampling and analysis should be conducted at that time.</p> <p>HAZ-5: Elevated concentrations of lead (from use of leaded gasoline) and other metals are sometimes associated with older roadways. Based on a review of historical sources, a roadway at the location of Kammerer Road was present from SR-99 west to Bruceville Road since at least 1937. Roads were also present at the locations of Franklin Road and Bruceville Road as early as 1894. In addition, I-5 was present since the mid- to late-1970s. Sampling for ADL in unpaved areas along the existing roadways where soil will be disturbed as part of the proposed Project improvement areas is recommended.</p> <p>HAZ-6: Comply with Caltrans’ Standard Special Provision 14-11.12 “Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue” regarding yellow striping and pavement marking materials to avoid impacts from the removal of pavement striping during construction.</p> <p>HAZ-7: Although not anticipated, should impacted soil (as evidenced by staining and/or odors) be encountered during construction activities, construction shall cease in the affected area and the District Construction Emergency contract procedures implemented. The resident engineer overseeing construction shall not allow the construction contractor to work in the affected area until cleared by the District Environmental staff.</p> <p>HAZ-8: Groundwater is anticipated to be encountered at depths greater than 50 feet bgs. Should groundwater be encountered during construction/excavation activities and dewatering become necessary, regulatory compliance and permitting consistent with the CVRWQCB and NPDES requirements should be adhered to, and groundwater sampling should be conducted.</p> <p>HAZ-9: Should domestic or agricultural water wells be affected by the proposed roadway alignment, they should be abandoned or relocated in accordance with local and state guidelines/regulations.</p> <p>HAZ-10: Many of the observed pole-mounted transformers are unlikely to be impacted by the Project. Should transformer removal be required, the utility company be contacted prior to handling or removing of electrical transformers. Should wooden utility poles require removal, it is recommended that additional sampling and analysis be conducted to assess the presence of creosote (often associated with the preservation of wooden utility poles) and resultant waste managed appropriately.</p> <p>HAZ-11: Should the Project require the demolition of building structures, a survey and sampling for ACMs and LBP should be performed of these building structures after property acquisition and prior to demolition. The surveys should be performed in conformance with the US EPA NESHAPs 40 CFR and Sacramento Metropolitan Air Quality Management District guidelines.</p> <p>HAZ-12: If access to conduct the Phase II PSI is not granted prior, testing would occur during the appraisal of the property, prior to ROW acquisition, so that special handling, treatment, or disposal provisions associated with hazardous wastes can be included in construction documents.</p>

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Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
			<p>HAZ-13: Prior to the issuance of demolition permits for existing onsite structures, asbestos material sampling shall be conducted to determine if materials are present. Any identified asbestos containing building materials present in each of the structures to be dismantled shall be removed under acceptable engineering methods and work practices by a licensed asbestos abatement contractor prior to removal. These practices include, but are not limited to: containment of the area by plastic, negative air filtration, wet removal techniques and personal respiratory protection and decontamination. The process shall be designed and monitored by a California Certified Asbestos Consultant. The abatement and monitoring plan shall be developed and submitted for review and approval by the appropriate regulatory agency (the Sacramento Metropolitan Air Pollution Management District).</p> <p>HAZ-14: Prior to the issuance of demolition permits for existing onsite structures, all loose and peeling paint shall be removed and disposed of by a licensed and certified lead paint removal contractor. in accordance with local, state, and federal regulations.</p> <p>HAZ-15: For any parcels determined to be contaminated during Phase II testing and anticipated to be relinquished to Caltrans, and acquisition of these sites is unavoidable, then the Request for Acquisition of Contaminated Properties (RACP) shall be in compliance with the approval process defined in Caltrans Project Delivery Directive 02. Acquisition by Caltrans of any contaminated parcel will only occur after mitigation of any contamination by the owner or relinquishing party.</p> <p>HAZ-16: For any parcels determined to be contaminated during Phase II testing the project design will be modified to avoid the contaminated parcel or portion of the parcel, if feasible by the implementing agency.</p>
Create a hazard to the public	None, but no additional cleanup would occur either.	Potential to discover unknown hazardous waste or materials.	HAZ-1 through HAZ-16 (see above)
Be located on a site which is included on a list of hazardous materials sites, and, as a result, would create a hazard to the public or the environment	No.	Potential to discover unknown hazardous waste or materials.	HAZ-1 through HAZ-16 (see above)
Air Quality			
Operational emissions	Increase of emissions due to congestion at intersections during peak-hour conditions due to non-conformance with SACOG's 2016 MTP/SCS.	Lower emissions. Received a not a Project of Air Quality Concern rating.	None.
Emissions from construction equipment	None.	Potential temporary construction effects to air quality.	<p>AQ-1: Implement SMAQMD Basic and Enhanced Construction Emission Control Practices to Reduce Fugitive Dust, where feasible and applicable to the Project, where feasible and applicable to the Project.</p> <p>The implementing agency will require, as a standard or specification of their contract, the construction contractor(s) to implement basic and enhanced control measures to reduce construction-related fugitive dust. Although the following measures are outlined in the SMAQMD's CEQA guidelines, they are required for the entirety of the construction area. The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.</p> <ul style="list-style-type: none"> Water all exposed surfaces two times daily. Exposed surfaces include (but are not limited to) soil piles, graded areas, unpaved parking areas, staging areas, and access roads. Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered. Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited. Limit vehicle speeds on unpaved roads to 15 miles per hour. All roadway, driveway, sidewalk, and parking lot paving should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. <p>Enhanced Control Measures – Disturbance Areas</p> <ul style="list-style-type: none"> Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site.

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Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
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			<ul style="list-style-type: none"> Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph. Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas. Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established. <p>Enhanced Control Measures – Unpaved Roads (Entrained Road Dust)</p> <ul style="list-style-type: none"> Install wheel washers for all exiting trucks, or wash off all trucks and "equipment leaving the site. Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance. <p>Additional Control Measures – Off-Site Mitigation Fees Payable to the SMAQMD</p> <ul style="list-style-type: none"> In the event that the SMAQMD basic and enhanced construction mitigation measures are not sufficient to reduce NOx emissions below the SMAQMD's construction NOx threshold, the remaining NOx emissions in excess of the SMAQMD's threshold would be offset by the JPA through a fee paid to the SMAQMD who will fund cost-effective Projects that reduce NOx, in the Project area, to the extent possible, and otherwise within the Sacramento air basin. The fee will be calculated using the SMAQMD's current rate of NOx per ton at the time of construction in addition to SMAQMD administration fees. Currently, the SMAQMD's off-site mitigation fee is \$30,000 per ton of NOx, in addition to a 5% administration fee. <p>AQ-2: Implement SMAQMD Basic Construction Emission Control Practices to Reduce NOx</p> <p>The implementing agency will require, as a standard or specification of their contract, that the construction contractor(s) implement basic control measures to reduce NOx emissions from diesel-powered construction equipment. Although the following measures are outlined in SMAQMD's CEQA guidelines, they will be required by the SMAQMD for the entirety of the construction area. The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.</p> <ul style="list-style-type: none"> Minimize idling time either by shutting equipment off when not in use or "limiting the time of idling to 3 minutes (5 minutes required by 13 CCR 2449[d] [3], 2485). Provide clear signage that posts this requirement for workers at the entrances to the site. Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated. The Connector JPA will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures. <p>AQ-3: Implement SMAQMD Enhanced Construction Emission Control Practices to Reduce NOx</p> <p>The implementing agency will require, as a standard or specification of their contract, that the construction contractor(s) implement enhanced control measures to reduce NOx emissions from diesel-powered construction equipment. The following measures are outlined in SMAQMD's CEQA guidelines and are required for the entirety of the construction area. The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.</p> <ul style="list-style-type: none"> The project representative shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The project representative shall provide the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. This information shall be submitted at least 3 business days prior to the use of subject heavy-duty off-road equipment. The inventory shall

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Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
			<p>be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.</p> <ul style="list-style-type: none"> • Provide a plan for approval by the SMAQMD demonstrating that the heavy-duty (50-horsepower or more) off-road vehicles to be used in the construction Project, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet-average 20% NOx reduction and 45% PM exhaust reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine-retrofit technology, after-treatment products, or other options as they become available. • Ensure that emissions from all off-road diesel-powered equipment used on the Project site do not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.03) will be repaired immediately. Non-compliant equipment will be documented and a summary provided periodically to the lead agency and air district. A visual survey of all in-operation equipment will be made at least periodically by the proponent agency(s), and a periodic summary of the visual survey results will be submitted throughout the duration of the proposed Project, except that the summary will not be required for any 30-day period in which no construction activity occurs. The summary will include the quantity and type of vehicles surveyed, as well as the dates of each survey. The air districts or other officials may conduct periodic site inspections to determine compliance. Nothing in this measure will supersede other air district or state rules or regulations. <p>The Connector JPA will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.</p> <p>AQ-4: Implement Additional Exposure Reduction Strategies to Further Minimize Potential Health Risks.</p> <p>The implementing agency will implement strategies to reduce the potential for sensitive receptors along the Project corridor to be exposed to diesel particulate matter (DPM). Potential strategies include (but are not limited to) creating a buffer zone of at least 50 feet between the roadway and sensitive land uses (e.g., residences, parks, churches, and medical facilities), as well as planting additional vegetation along the Project corridor (A laboratory study indicates that all forms of vegetation are effective in removing PM10, although the greatest removal rates are achieved with redwood and deodar cedar – [Sacramento Metropolitan Air Quality Management District 2010]). These strategies should be focused in areas where sensitive receptors are directly adjacent to the roadway. Selection of these species should be maximized to help reduce PM10 to the extent feasible.</p> <ul style="list-style-type: none"> • A landscape plan shall include a vegetation barrier consistent with the Sacramento Metropolitan Air Quality Management District’s Landscaping Guidance for Improving Air Quality near Roadways. The landscape plan shall include individual plant locations, species, approved alternate species for substitutions, plant material size and plant material source. Landscape plans shall be approved by the implementing agency prior to site preparation and installation activities. <p>AQ-5: Conduct a Geological Investigation for Naturally Occurring Asbestos and Implement an Asbestos Dust Mitigation Plan if Naturally Occurring Asbestos Is Found in the Project Area.</p> <p>The implementing agency will conduct a site-specific geological investigation for all construction areas with known potential to contain NOA. According to the California Geological Survey (CGS), this includes all portions of the construction area east of Folsom (California Geological Survey 2006). If NOA is identified in the project area, the implementing agency will submit an asbestos dust mitigation plan to the SMAQMD pursuant to the State of California’s Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. This plan shall be prepared prior to ground breaking by the implementing agency.</p>
Noise and Vibration			
Expose sensitive noise receptors to noise levels in excess of noise standards established by FHWA and other applicable agencies	None expected.	Potentially affecting up to 18; R-32-R-50.	NOI-1: Based on the studies completed to date, the Department intends to incorporate noise abatement in the form of a barrier (SW-W3 v2) at: receptors R-32 through R-50 with respective lengths and average heights of 1,467 feet by 10-feet. Calculations based on preliminary design data show that the barrier will reduce noise levels by 7 dBA for 18 residences at a cost of \$960,000. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision on noise abatement will be made upon completion of the Project design.

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A substantial increase in temporary noise levels	None expected.	Potential due to construction activities.	<p>NOI-2: The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the following mitigation measures that will be implemented to reduce the effects of construction noise and vibration. Additional measures may be developed once project design has developed sufficiently to identify site-specific impacts.</p> <ul style="list-style-type: none"> • Comply with all local sound control and noise level rules, regulations, and ordinances of the pertinent City, county, or both. • Limit the hours of noise-generating construction and related activity such as deliveries and staging activities to between 6 a.m. and 8 p.m. on Monday through Friday and between 7 a.m. and 8 p.m. on weekends, or as required by local noise ordinances in effect for site-specific projects. • Require that equipment and trucks used for project construction use noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) as necessary to limit noise to compliance levels. • Locate stationary noise sources such as generators or pumps as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors will be adequately muffled or an acoustic barrier will be installed to reduce their noise levels to comply with applicable local requirements. • Designate a complaint coordinator at the implementing agency to be responsible for responding to noise complaints received during the construction phase. The name and phone number of the complaint coordinator will be conspicuously posted at construction areas and on all advanced notifications. This person will be responsible for taking steps required to resolve complaints, including periodic noise monitoring and changes to construction activities, if necessary to meet the required mitigation. • Mitigate noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence by strategic placement of material stockpiles between the operation and the affected dwelling or by other means such as temporary noise barriers approved by the local jurisdiction. • Require contractors to implement appropriate additional noise mitigation measures including (but not limited to) shutting off equipment (including trucks transporting aggregate or other construction materials) so that idling time does not exceed 3 minutes, and notifying adjacent residents by mail not less than 1 week in advance of construction work. • Prohibit pile-driving or blasting operations within 3,000 feet of an occupied residence on Sundays, legal holidays, and between 9 p.m. and 6 a.m. on other days, or as governed by local noise ordinances at site-specific locations. • Use sonic or vibratory pile drivers instead of impact pile drivers (sonic pile drivers are only effective in some soils). If sonic or vibratory pile drivers are not feasible, install acoustical enclosures as necessary to ensure that pile-driving noise does not exceed applicable local noise standards at the closest sensitive receptor. • Limit pile driving in residential areas to between 8 a.m. and 5 p.m. • Use engine and pneumatic exhaust controls on pile drivers as necessary to ensure that exhaust noise from pile driver engines is minimized to the extent feasible. • Where feasible, pre-drill pile holes to reduce potential noise and vibration impacts.
Biological Resources			
Effects to habitat or sensitive natural communities	None.	Temporary and permanent effects to upland, natural vegetation communities and to wildlife migration and movement corridors are likely to occur during construction and operation.	<p>BIO-1: As part of project-level environmental review, implementing agencies will ensure that projects comply with the most recent general plans, policies, ordinances, and conservation plans (including any HCPs, NCCPs, and other local, regional, and state plans). Review of these documents and compliance with their requirements will be demonstrated in project-level environmental documentation. Implementing agencies will ensure that projects comply with all policies, ordinances, and plans that exist at the time of project-level review, regardless of whether they existed during the program-level analysis.</p> <p>BIO-2: Before any work occurs in the Project area, the project biologist will conduct a mandatory environmental awareness training program for all construction personnel working on the Project. The training program will notify construction personnel of the sensitive biological resources occurring within the Project area, their legal status, and penalties for not complying with the conditions of any permits issued for the Project. The education program will emphasize the need to protect water quality, wetlands, and habitat for special-status species. As necessary, a biological monitor approved by the resource agencies will ensure that construction personnel adhere to the guidelines and restrictions of all approved environmental documents, permits, and other agreements.</p> <p>BIO-3: The implementing agency will install orange construction barrier fencing to identify environmentally sensitive areas around sensitive natural communities, and where determined feasible, protected trees.</p> <p>Before construction, a qualified biologist will work with the project engineer to identify the locations for the barrier fencing, and will place stakes around the sensitive resource sites to indicate these locations. The fencing will be installed before</p>

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Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
			<p>construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications:</p> <p>The Contractor’s attention is directed to the areas designated as “environmentally sensitive areas.” These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the implementing agency. The Contractor will take measures to ensure that Contractor’s forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.</p> <p>Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing will be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing will be tightly strung on posts with a maximum 10-foot spacing.</p> <p>BIO-4: If impacts to protected trees cannot be avoided, then the implementing agency will compensate for impacts on protected trees. For portions of the Project in the City of Elk Grove, the following policies from the City Tree Ordinance will be implemented.</p> <p>Mitigation may take the form of on-site or off-site planting or payment of in-lieu fees. Mitigation planting should be of an equivalent size and species of those being removed. Trees that are of a 1- or 15-gallon container or seedling-sized trees account for 1-inch DBH removed and trees planted that are of 24-, 36-, 60- or 72-inch containers account for 2-inches DBH removed.</p> <p>If tree replacement or transplantation is chosen as the project mitigation strategy, a five-year mitigation and monitoring plan should be prepared. The plan should include maintenance, watering, and monitoring schedules, success criteria, and reporting requirements. Mitigation trees must be monitored by an ISA-Certified Arborist for five years after planting.</p> <p>In-lieu of planting, fees may be paid into the Tree Preservation Fund at a rate established under a Resolution by the City Council. As per a conversation with the City of Elk Grove Planning Department, the current mitigation fee is \$200 per inch of DBH removed.</p> <p>The exact amount of mitigation required will depend on the final design of the project.</p> <p>BIO-5: If impacts on protected trees cannot be avoided, then the implementing agency will compensate for impacts on protected trees. For portions of the project in Sacramento County, the following policies from the Sacramento County General Plan (2011) regarding landmark and heritage tree protections will be implemented:</p> <ul style="list-style-type: none"> • CO-138 – <i>Protect and preserve non-oak native trees along riparian areas if used by Swainson’s hawk, as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.</i> • CO-139 – <i>Native trees other than oak, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.</i> • CO-140 – <i>For projects involving native oak woodlands, oak savannah or mixed riparian areas, ensure mitigation through either of the following methods:</i> <ul style="list-style-type: none"> ○ <i>An adopted habitat conservation plan.</i> ○ <i>Ensure not net loss of canopy area through a combination of the following: (1) preserving the main, central portions of consolidated and isolated groves constituting the existing canopy and (2) provide an area on-site to mitigate any canopy lost. Native oak mitigation area must be a contiguous area on-site which is equal to the size of canopy area lost and shall be adjacent to existing oak canopy to ensure opportunities for regeneration.</i> ○ <i>Removal of native oaks shall be compensated with native oak species with a minimum of a one to one dbh replacement.</i>

Table ES-1. Summary of Environmental Effects and Avoidance, Minimization, and/or Mitigation Measures by Alternative

Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
			<ul style="list-style-type: none"> ○ A provision for a comparable on-site area for the propagation of oak trees may substitute for replacement tree planting requirements at the discretion of the County Tree Coordinator when removal of a mature oak tree is necessary. ○ If the project site is not capable of supporting all the required replacement trees, a sum equivalent to the replacement cost of the number of trees that cannot be accommodated may be paid to the County's Tree Preservation Fund or another appropriate tree preservation fund. ○ If on-site mitigation is not possible given site limitation, off-site mitigation may be considered. Such a mitigation area must meet all of the following criteria to preserve, enhance, and maintain a natural woodland habitat in perpetuity, preferably by transfer of title to an appropriate public entity. Protected woodland habitat could be use as a suitable site for replacement tree plantings required by ordinances or other mitigation. <ul style="list-style-type: none"> ▪ Equal or greater in area to the total area that is included within a radius of 30 feet of the dripline of all trees to be removed; ▪ Adjacent to protected stream corridor or other preserved natural area; ▪ Supports a significant number of native broadleaf trees; and ▪ Offers good potential for continued regeneration of an integrated woodland community. <ul style="list-style-type: none"> ● CO-141 – In 15 years the native oak canopy within on-site mitigation area shall be 50 percent canopy coverage for valley oak and 30 percent canopy coverage for blue oak and other native oaks. <p>BIO-6: All exposed/ disturbed areas and access points left barren of vegetation as a result of construction activities will be restored using locally native grass seeds, locally native grass plugs, and/ or a mix of quick-growing sterile non-native grass with locally native grass seeds. Seeded areas will be covered with broadcast straw and/ or jute netting (monofilament erosion blankets are not permitted).</p> <p>BIO-7: The implementing agency will provide compensatory mitigation as required by the SSHCP mitigation ratios for non-aquatic natural communities including, but not limited to, valley grassland, irrigated pasture-grassland, and cropland.</p>
Conflict with local preservation policies/ plans	No Conflict.	Elk Grove and Sacramento Tree Preservation ordinance Chapter 19.12. City of Elk Grove "Swainson's Hawk" ordinance Chapter 16.130.	BIO-4 and BIO-5 (see above) BIO-31 (see special-status animals below)
Effects to wetlands and other waters	None.	Potential permanent and temporary effects (4.28 acres) to wetlands and other waters of the U.S. and state.	<p>HYD-1 through HYD-7 (see above) BIO-1 through BIO-3 (see above)</p> <p>BIO-8: Implementing agencies will avoid and minimize impacts on wetlands and other waters by implementing the following measures:</p> <ul style="list-style-type: none"> ● Redesign or modify the project to avoid direct and indirect impacts on wetland habitats, including water quality run-off, if feasible. ● Protect wetland habitats that occur near the project site by installing ESA fencing at least 20 feet from the edge of the wetland where feasible. Depending on site-specific conditions and permit requirements, this buffer may be wider than 20 feet (e.g., 250 feet for seasonal wetlands and vernal pools that are considered special-status shrimp habitat). The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced ESA. ● Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, will be used. ● Where determined necessary by resource specialists, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation. ● Stabilize exposed slopes and streambanks immediately on completion of installation activities. Other waters of the United States and waters of the state will be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system.

Table ES-1. Summary of Environmental Effects and Avoidance, Minimization, and/or Mitigation Measures by Alternative

Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
			<ul style="list-style-type: none"> In highly erodible stream systems, stabilize banks using a nonvegetative material that will bind the soil initially and break down within a few years. If the project engineers determine that more aggressive erosion control treatments are needed, use geotextile mats, excelsior blankets, or other soil stabilization products. During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank. <p>These measures will be incorporated into contract specifications and implemented by the construction contractor. In addition, the implementing agency will ensure that the contractor incorporates all state and federal permit conditions into construction specifications.</p> <p>BIO-9: Work will coincide to the driest time. If water is present at the time of construction, water will be diverted around the work area and work will resume after the site is dry. Flows will be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water will at all times be allowed to pass downstream. Any temporary dam or other artificial obstruction constructed will only be built from clean materials, such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation.</p> <p>BIO-10: The implementing agency will provide compensatory mitigation as required by the SSHCP mitigation ratios for the loss of wetland and waters to ensure there is no net loss of habitat functions and values. The implementing agency will prepare a comprehensive mitigation plan containing the following components: specifications for the conservation/preservation lands; the locations of the compensation lands, provisions for the management and maintenance of those lands in perpetuity by either the implementing agency or other entity, and the instruments by which long-term management and maintenance will be assured. As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan.</p> <p>Impacts to waters will be mitigated at an on or off site, agency approved location or a combination of both. Exact mitigation ratios and locations will be determined during the environmental permitting processes.</p> <p>BIO-11: The implementing agency will provide compensatory mitigation for listed aquatic features including wetlands, vernal pools, and other compliance with the Final SSHCP mitigation ratios for wetlands and other waters.</p> <p>BIO-12: All temporarily disturbed water features will be re-contoured to natural contours and revegetation efforts would promote native herbaceous vegetation/grasses.</p>
Effects to sensitive or special-status plant species	None.	Potential permanent and temporary effects to special-status plant species.	<p>BIO-13:The implementing agency will avoid and minimize impacts to special status plant populations to the greatest extent practicable by implementing the following measures:</p> <ul style="list-style-type: none"> Redesign or modify the project to avoid or minimize direct and indirect impacts on special-status plants. Avoid or minimize construction impacts on special-status plants near the project site by installing environmentally sensitive area fencing (orange construction barrier fencing) around special-status plant populations at least 20 feet from the edge of the population. Wider buffer zone widths set by site-specific conditions and permit requirements, such as those for seasonal wetlands and vernal pools that are considered special-status shrimp habitat, will take precedence over this requirement. The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area. <p>BIO-14: Prior to construction, the project biologist will conduct pre-construction blooming clearance surveys in areas of direct impacts for the following sensitive plant species in their respective wetland habitats:</p> <ul style="list-style-type: none"> Boggs Lake hedge-hyssop: Surveys must be conducted between the months of April and August. Bristly sedge: Surveys must be conducted between the months of July and September. Dwarf downingia: Surveys must be conducted between the months of March and May.

Table ES-1. Summary of Environmental Effects and Avoidance, Minimization, and/or Mitigation Measures by Alternative

Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
			<ul style="list-style-type: none"> • Heckard's pepper-grass: Surveys must be conducted between the months of March and May. • Legenere: Surveys must be conducted between the months of May and June. • Saline clover: Surveys must be conducted between the months of April and June. • Sanford's arrowhead: Surveys must be conducted between the months of May and October. <p>BIO-15: If Boggs Lake hedge hyssop, Bristly sedge, dwarf downingia, Heckard's pepper-grass, legenere, saline clover, and Sanford's arrowhead cannot be avoided, the implementing agency will compensate for the loss of plants and their habitat by contributing to the conservation and recovery of the affected species. For each special-status plant occurrence impacted, one occurrence of the same species of a similar or greater size will be preserved (to compensate for temporal habitat loss). For impacts on special-status plants, a mitigation and monitoring plan will be prepared that describes how the loss of special-status plant species will be compensated for. The mitigation and monitoring plan will be reviewed and approved by CDFW and USFWS. The plan shall contain, but is not limited to, the following performance standards:</p> <ul style="list-style-type: none"> • Habitat restoration or establishment, where appropriate and feasible, will be used in conjunction with translocating the affected population. • As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan or areas specifically identified in the SSHCP, when adopted. • Habitat will be restored or newly established (on or off site) at a minimum ratio of 1:1 (1 acre restored for each acre impacted). Within the Mather Core Recovery Area, habitat will be preserved at a minimum ratio of 2:1 from lands within the Core Recovery Area. • The mitigation site will be monitored the first year after the mitigation is implemented and every 5 years thereafter, until the mitigation is considered to be successful. Mitigation will be considered successful if the translocated population is determined to be stable and contains at least 60% of the number of plants present in the original occurrence. If the population falls below 60% of the original number of plants, then remediation measures will be initiated. <p>Because special-status species in the project area are state or federally listed or occur in wetlands, the Project will have to comply with state and federal laws and regulations governing these resources, and obtain the applicable take or fill permits. These permits may include specific requirements, including compensation measures and ratios, which will take precedence over the measures and ratios specified in the previous paragraph.</p> <p>BIO-16:The project will implement the following measures into the project plans and specifications:</p> <ul style="list-style-type: none"> • Use certified, weed-free, imported erosion-control materials (or rice straw in upland areas). • Coordinate with the applicable County Agricultural Commissioner and land management agencies to ensure that the appropriate best management practices (BMPs) are implemented. • Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds. <p>BIO-17: Prior to arrival at the project site and prior to leaving the project site, the construction contractor must clean all construction equipment that may contain invasive plants and/or seeds to reduce the spreading of noxious weeds.</p> <p>BIO-18: The implementing agency will provide compensatory mitigation as required by the approved SSHCP mitigation ratios for special status plant species modeled habitat.</p>
Effects to sensitive or special-status animal species	None.	Potential permanent and temporary effects may occur to habitats of nesting birds, burrowing owl, Swainson's hawk, western pond turtle, and bat species.	<p>BIO-19: The implementing agencies will implement a combination of the following mitigation measures to avoid and minimize significant impacts on special-status wildlife and their habitats:</p> <ul style="list-style-type: none"> • Redesign or modify the project to avoid direct and indirect impacts on special-status wildlife or their habitats, including interruption of migration corridors, if feasible. • Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as vernal pools, seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking will be installed at a minimum distance from the edge of the resource as determined through coordination with state and federal agency biologists (USFWS and CDFW). The location of the fencing will be marked

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Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
			<p>in the field with stakes and flagging and shown in construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.</p> <ul style="list-style-type: none"> • When feasible restrict construction-related activities near sensitive resources to the nonbreeding season or other periods of activity for special-status wildlife species that could occur in the project area. Typical timing restrictions include, but are not limited to: <ul style="list-style-type: none"> o Valley elderberry long horn beetle – February 15 to November 1 (time period where shrub transplanting can't occur). o Giant garter snake inactive period – October 1 to May 1 o Swainson's hawk nesting season – generally February 1 to August 31 o Burrowing owl nesting – generally February 1 to August 31 • As necessary, conduct biological construction monitoring of project areas where work occurs in proximity to sensitive wildlife or their habitat. The implementing agency will hire a qualified wildlife biologist approved by USFWS and CDFW to monitor construction activities to ensure that no wildlife is harmed during construction and no wildlife habitat outside of the project area is unintentionally affected by project construction. <p>BIO-20: If all or portions of Mitigation Measure BIO-19 are not feasible and site-specific construction activities would result in significant impacts on special-status wildlife species, compensation for the loss of habitat will be implemented to reduce the impact to a less-than-significant level. Impacted habitat will be mitigated off site at an agency approved mitigation bank. The minimum replacement ratios for wildlife habitat would be determined through consultation with local, state, and federal agencies. As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan.</p> <p>BIO-21: The implementing agency will provide compensatory mitigation for impacted special status wildlife species and/or their habitats with the corresponding SSHCP mitigation ratios, as described in the approved SSHCP.</p> <p>BIO-22: The contractor must not apply rodenticides or herbicides in the Project area during construction activities.</p> <p>BIO-23: The contractor must dispose of all food-related trash in closed containers, and shall remove it from the Project area each day during the construction period. Construction personnel must not feed or otherwise attract wildlife to the Project area.</p> <p>BIO-24: If any wildlife is encountered during the course of construction, said wildlife will be allowed to leave the construction area unharmed. In the unlikely event a worker inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped, the worker will immediately report the incident to the Project biologist.</p> <p>BIO-25: Vegetation removal and earthwork should be timed outside of the nesting season (February 1st – August 31st). If vegetation removal is required during the nesting season, a pre-construction nesting bird survey must be conducted no more than 7 days prior to vegetation removal. Within 2 weeks of the nesting bird survey, all vegetation cleared by the biologist would be removed by the contractor.</p> <p>BIO-26: If an active nest (excluding western burrowing owl) is located during preconstruction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is deemed inactive by a qualified biologist. Restrictions shall include establishment of exclusion zones (no ingress of personnel or equipment) at a minimum radius of 500 feet around an active Swainson's hawk nest, 100 feet around an active raptor nest, and 50 feet around an active migratory bird nest. Activities permitted within exclusion zones and the size of the exclusion zone may be adjusted through consultation with the CDFW.</p> <p>BIO-27: Trees containing active migratory bird and/or raptor (excluding Swainson's hawk) nests that must be removed as a result of Project implementation shall be removed during the nonbreeding season (September 1st – February 1st). Swainson's hawks are a state listed threatened species; therefore, impacts to active Swainson's hawk nest trees require regulatory authorization from the CDFW prior to removal.</p>

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Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
			<p>BIO-28: If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected, the implementing agency shall implement the avoidance, minimization, and mitigation methodologies outlined in CDFW's (2012) Staff Report on Burrowing Owl Mitigation prior to initiating Project-related activities that may impact burrowing owls.</p> <p>BIO-29: Should work occur within the Swainson's hawk nesting season (February 1st – August 31st), the Project biologist must conduct a pre-construction nesting survey consistent with survey methods recommended by the Swainson's Hawk Technical Advisory Committee within ¼ mile of the Project and two weeks prior to construction clearing and grubbing activities. Should a nesting Swainson's hawk pair be found within ¼ mile of the Project, the Project biologist will coordinate with the wildlife agencies for appropriate buffers. The contractor will not work within the ¼ mile nesting area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by the Project biologist and in coordination with wildlife agencies) in the buffer area until the Project biologist determines the young have fledged.</p> <p>BIO-30: If an active nest (excluding western burrowing owl) is located during preconstruction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is deemed inactive by a qualified biologist. Restrictions shall include establishment of exclusion zones (no ingress of personnel or equipment) at a minimum radius of 500 feet around an active Swainson's hawk nest, 100 feet around an active raptor nest, and 50 feet around an active migratory bird nest. Activities permitted within exclusion zones and the size may be adjusted through consultation with the California Department of Fish and Wildlife and/or the City of Elk Grove.</p> <p>BIO-31: Valley grasslands in the Project area are considered Swainson's hawk foraging habitat and are protected under Chapter 16.130 of the City Municipal Code, Swainson's Hawk Impact Mitigation Fees. The implementing agency will provide compensatory mitigation as required by the approved SSHCP mitigation ratios for Swainson's Hawk foraging habitat.</p> <p>BIO-32: A preconstruction survey for western pond turtle shall be conducted within 24 hours of the onset of construction activities in or adjacent to suitable upland and/or aquatic habitat. The survey area shall include a 100-foot buffer of the area to be affected. If juvenile or adult turtles are found within the survey area, the individuals should be moved at least 500 feet downstream to suitable habitat by the approved biologist. If a turtle nest is found within the survey area, construction activities should not take place within 100 feet of the nest until the turtles have hatched, or the eggs have been moved by an approved biologist to an appropriate location in coordination with CDFW.</p> <p>BIO-33: Prior to the removal of any oak trees or buildings, a bat survey shall be performed by a qualified biologist between March 1 and July 31. If bat roosts are identified, the implementing agency shall require that the bats be safely flushed from the sites where roosting habitat is planned to be removed prior to roosting season (typically May to September) and prior to the onset of construction activities. If maternity roosts are identified during the maternity roosting season (typically May to September) they must remain undisturbed until a qualified biologist has determined the young bats are no longer roosting. If roosting is found to occur onsite, replacement roost habitat (e.g., bat boxes) shall be provided to offset roosting sites that are permanently removed. If no bat roosts are detected, then no further action is required if the trees and buildings are removed prior to the next breeding season. If removal is delayed, then an additional survey shall be conducted 30 days prior to removal to ensure that a new colony has not established itself.</p> <p>BIO-34: If a female or maternity colony of bats are found on the Project site, and the Project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in a large oak tree not planned for removal), a qualified biologist shall determine what buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 200 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (after August 30 and before March 1).</p> <p>BIO-35: If an active nursery roost is documented onsite and the Project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after August 30 and before March 1 to prevent the formation of maternity colonies. Nonbreeding bats shall be safely evicted, under the direction of a bat specialist.</p>

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Environmental Topic	Environmental Effects		Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
Effects to threatened and endangered species	None.	Potential permanent and temporary effects may occur to habitats of giant garter snake, vernal pool fairy shrimp, vernal pool tadpole shrimp, and valley elderberry longhorn beetle.	<p>BIO-36:The implementing agency will provide compensatory mitigation for impacted threatened and endangered wildlife species and/or their habitats with the corresponding SSHCP mitigation ratios, as determined by the approved Final SSHCP.</p> <p>BIO-37:Protective silt fencing will be installed between the adjacent vernal pool habitats and the construction area limits to prevent accidental disturbance during construction and to protect water quality in the aquatic habitats during construction.</p> <p>BIO-38:For every acre of vernal pool habitat directly or indirectly affected, two tadpole shrimp and fairy shrimp habitat preservation credits will be dedicated within a Service-approved conservation bank with a service area covering the proposed Project.</p> <p>BIO-39:For every acre of vernal pool habitat directly affected, one vernal pool habitat creation credit will be dedicated within a Service-approved conservation bank with a service area covering the proposed Project.</p> <p>BIO-40:Construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas and all operations will be confined to the minimal area necessary.</p> <p>BIO-41:Standard staging area practices for sediment-tracking reduction will be implemented where necessary and may include vehicle washing and street sweeping.</p> <p>BIO-42:A Worker Environmental Awareness Program (WEAP) will be implemented to educate construction workers about the presence of sensitive habitat near the Project area and to instruct them on proper avoidance measures.</p> <p>BIO-43:Twenty-four hours prior to the commencement of construction activities, the Project area shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide the US Fish and Wildlife Service with a written report that adequately documents these monitoring efforts within 24 hours of commencement of construction activities. The Project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.</p> <p>BIO-44:Project-related vehicles will observe a 20 mile per hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.</p> <p>BIO-45: Replace the loss of 35 elderberry plant stems between 1 and 3 inches in diameter at a 1:1 ratio through the dedication of beetle conservation credits within a Service-approved conservation bank with a service area covering the proposed Project. The seven beetle conservation credits will result in the planting of 35 elderberry seedlings and 35 associated native plantings ([35 elderberry seedlings+ 35 associated natives] / 10 = 7 credits).</p>
Invasive species effects	None.	None with Compliance with the Executive Order on Invasive Species (EO 13112).	BIO-16 and BIO-17 (see above)

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1.0 PROPOSED PROJECT

1.1 Introduction

The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Environmental Assessment (EA), which examines the potential environmental impacts of the alternatives being considered for the Capital SouthEast Connector – A1/A2 Kammerer Road Project (Project). The Department is the lead agency under the National Environmental Policy Act (NEPA). The Capital SouthEast Connector Joint Powers Authority (Connector JPA) is the California Environmental Quality Act (CEQA) lead agency. The City of Elk Grove (City) and Sacramento County (County) are CEQA Responsible Agencies. Throughout this document, the Connector JPA, City of Elk Grove, and Sacramento County will be referred to as the Project's implementing public agencies. The Project meets the goals of the Project analyzed in the Connector JPA Program Environmental Impact Report (PEIR), which was certified in 2012.

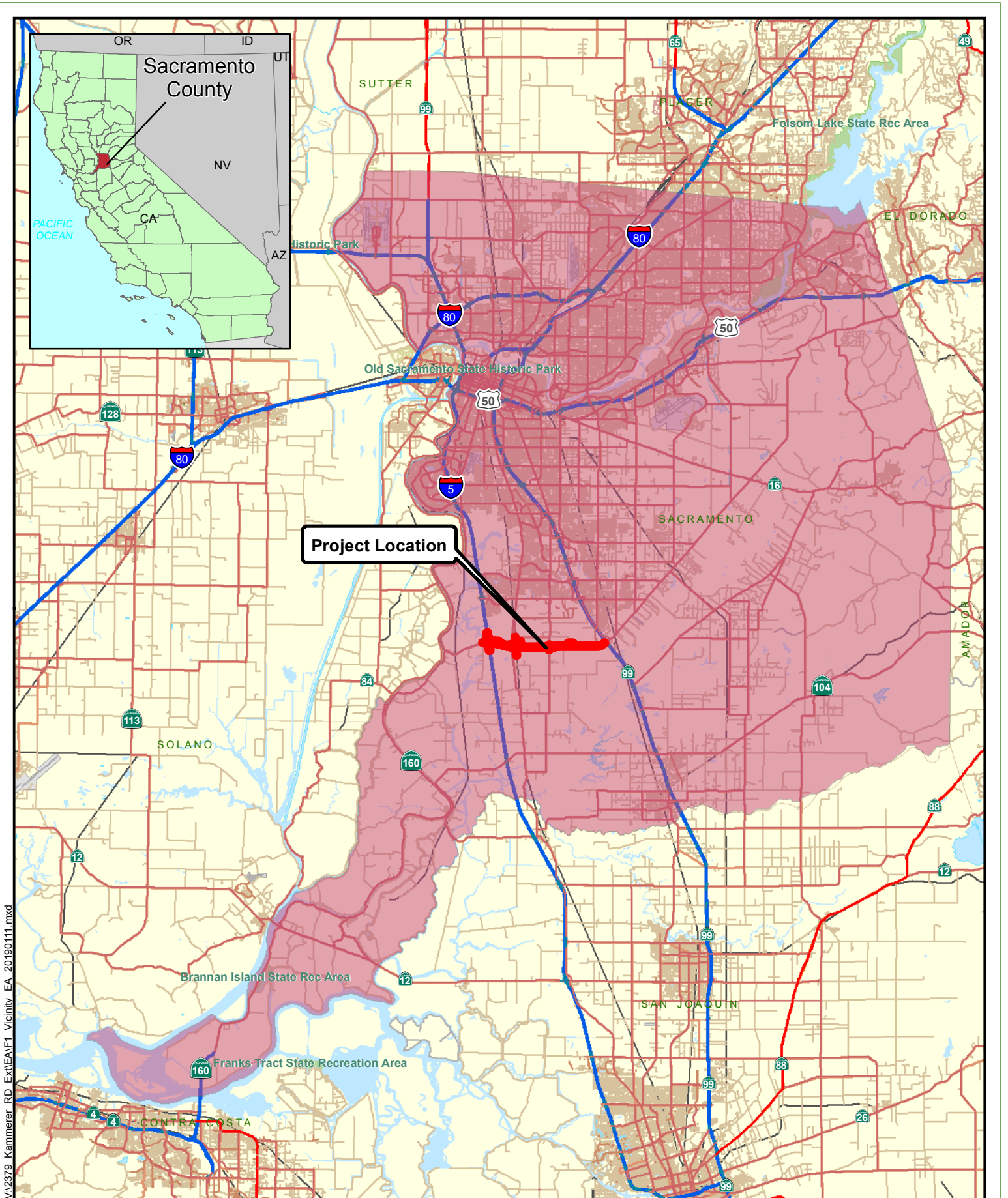
The Project is located in the unincorporated County and a portion of the City. The Project proposes to connect State Route (SR) 99 to Interstate 5 (I-5) in an east-west alignment. The Project will replace an existing portion of Kammerer Road with a four-lane thoroughfare, construct a new four-lane expressway section to I-5, and implement railroad grade separation and interchange improvements as discussed below.

The total length of the Project is approximately 5.75 miles. Kammerer Road is currently a two-lane undivided roadway which begins at the SR-99/Grant Line Road/Kammerer Road Interchange and extends west from SR-99 and terminates at Bruceville Road. There is an existing interchange at I-5/Hood Franklin Road from which the eastern leg of Hood Franklin Road currently terminates at Franklin Boulevard. No road currently exists between Franklin Boulevard and Bruceville Road. The Project would connect SR-99 with I-5 through construction of a four-lane facility, two travel lanes in each direction, with a multi-use path adjacent the west-bound travel lane, and a Class II Bicycle Lane along both travel directions between SR-99 and Bruceville Road. The Project will require utility relocations, potential new utilities, right-of-way acquisitions, drainage improvements, temporary construction easements, and staging areas. **Figure 1** shows the regional Project vicinity, **Figure 2** shows the Project location with surrounding streets, and **Figure 3** shows the Project features.

Dependent upon funding, the implementing public agency may construct all or part of this Project. Should construction phasing of this Project be necessary, initial construction may consist of a two-lane facility; however, other construction phasing may be considered. While the two-lane facility will operate at an acceptable Level of Service (LOS) in the immediate future, anticipated future conditions would approach an unacceptable LOS. As funding and traffic conditions warrant, the four-lane facility will be constructed.

The Project is included in the Sacramento Area Council of Government's (SACOG) 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (2020 MTP/SCS) as project numbers SAC24114 (Kammerer Road Widening (Connector Segment)), SAC24094 (Kammerer Rd Extension (Connector Segment A)), and SAC25262 (Kammerer Rd. Reconstruction (Connector Segment A)) and SAC 25135. The Project is also included in SACOG's 2021/2024 Metropolitan Transportation Improvement Program (MTIP) as project number SAC24094 (Kammerer Rd Extension (Connector Segment A)).

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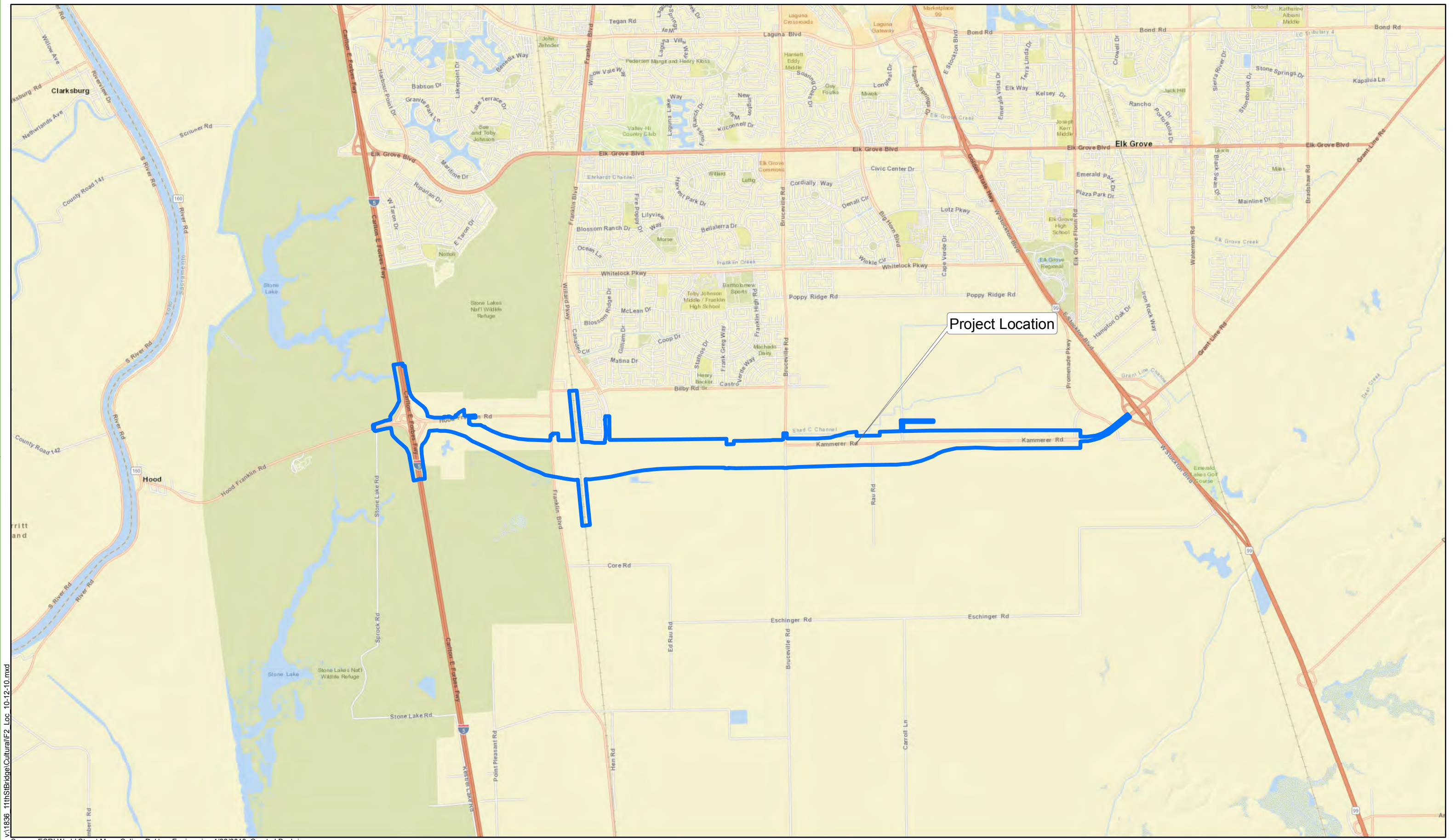


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FIGURE 1
Project Vicinity

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California

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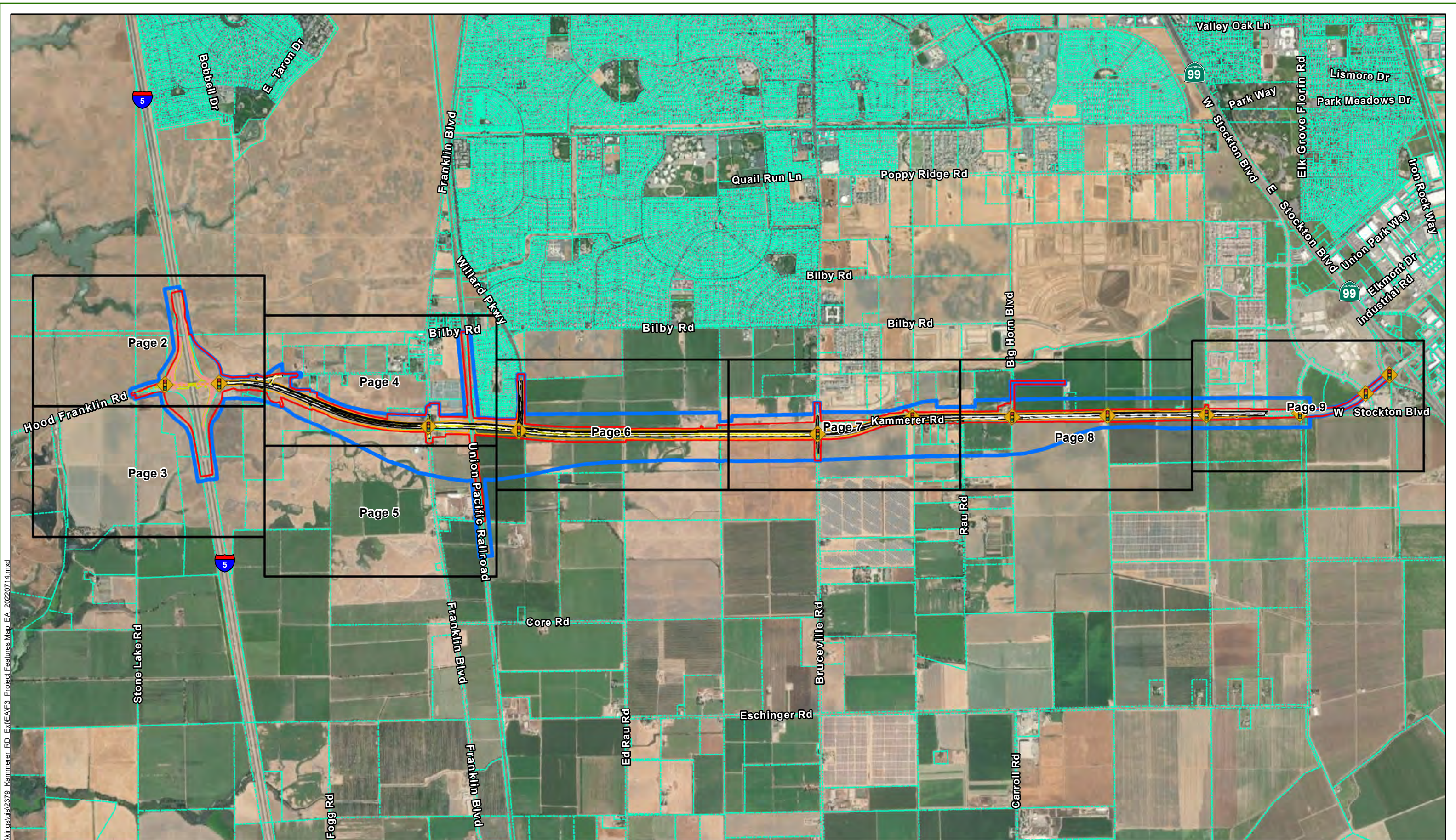
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







FIGURE 2
Project Location

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California



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 1 inch = 2,400 feet
 0 1,200 2,400 3,600 4,800 6,000 Feet

 Potential Impact Area	 Signalized Intersection	 Edge of Pavement	 Cut/Fill Line
 Project Study Area	 Roundabout Intersection Control	 Multi-Use Path	 Pavement Marking
 Parcels	 Future Interchange Concept		

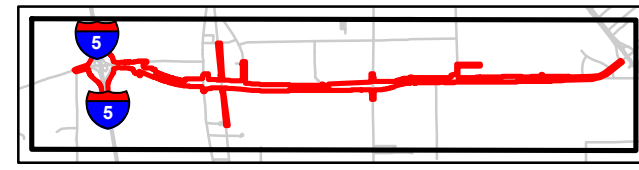
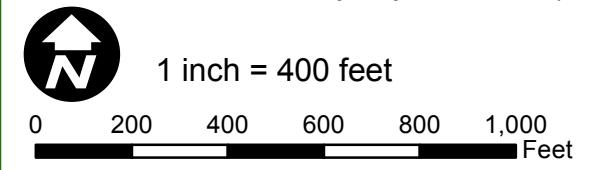


FIGURE 3
Project Features
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

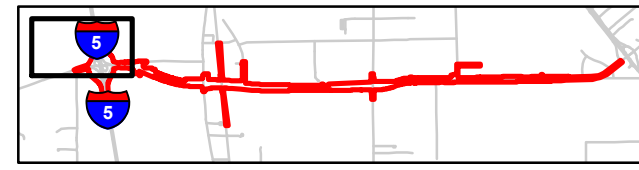


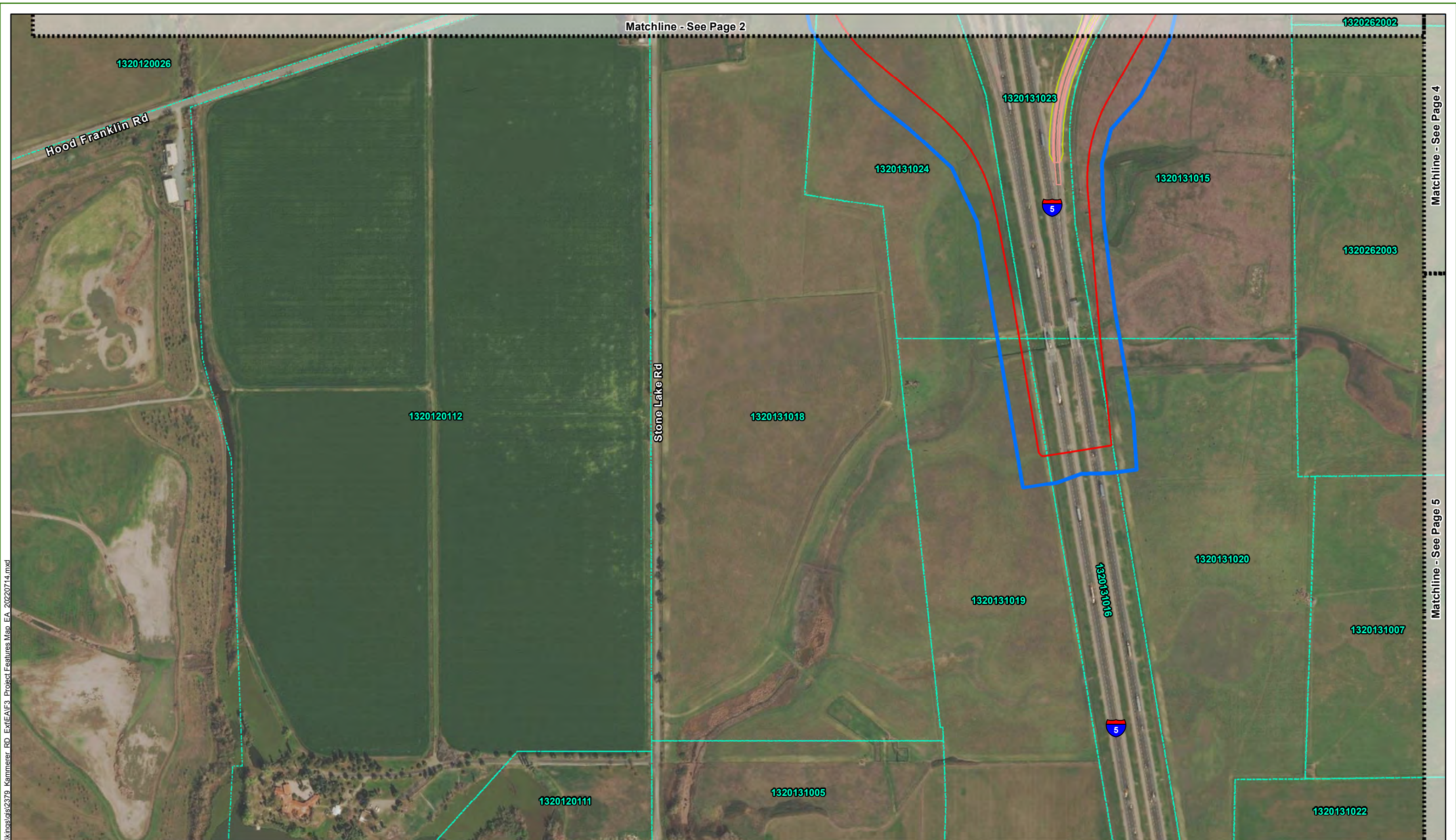
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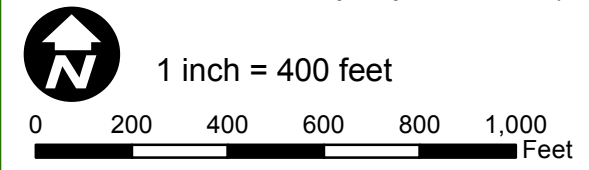
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	Project Study Area		Roundabout Intersection Control		Multi-Use Path		Pavement Marking
	Parcels		Future Interchange Concept				

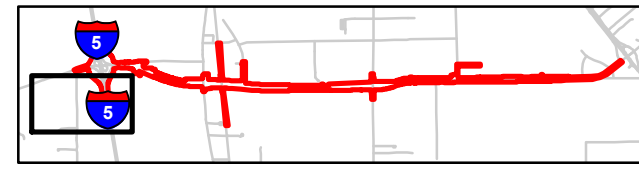
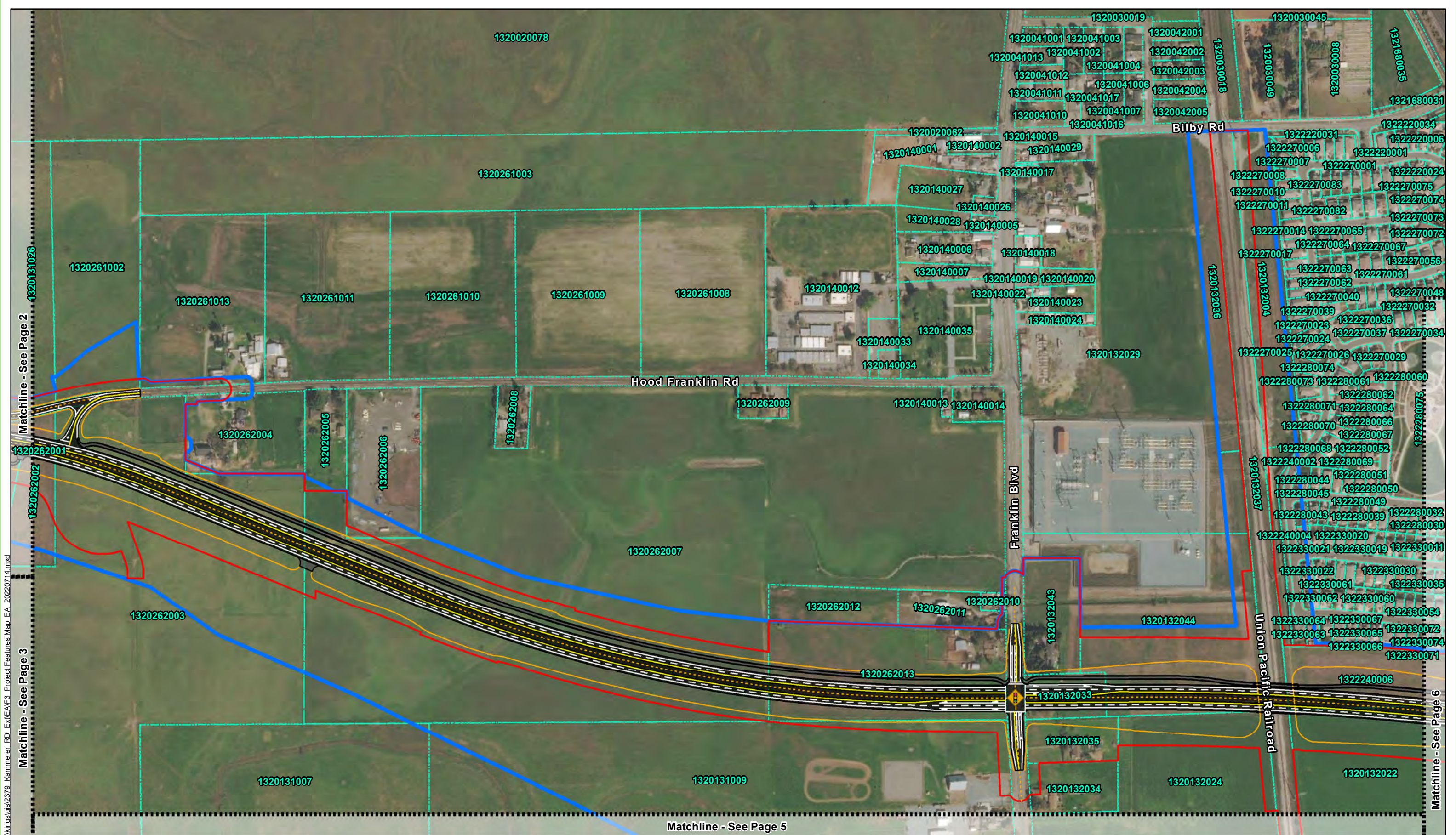
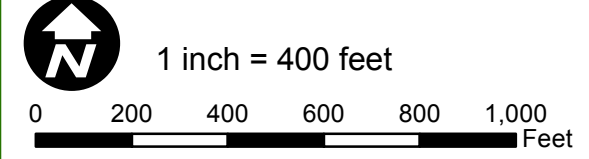


FIGURE 3
Project Features
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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Potential Impact Area	Signalized Intersection	Edge of Pavement	Cut/Fill Line
Project Study Area	Roundabout Intersection Control	Multi-Use Path	Pavement Marking
Parcels	Future Interchange Concept		

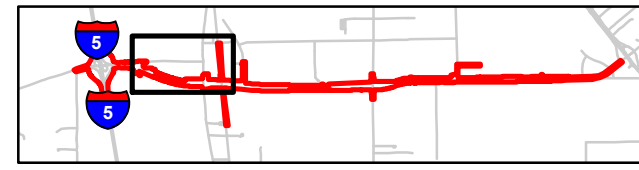
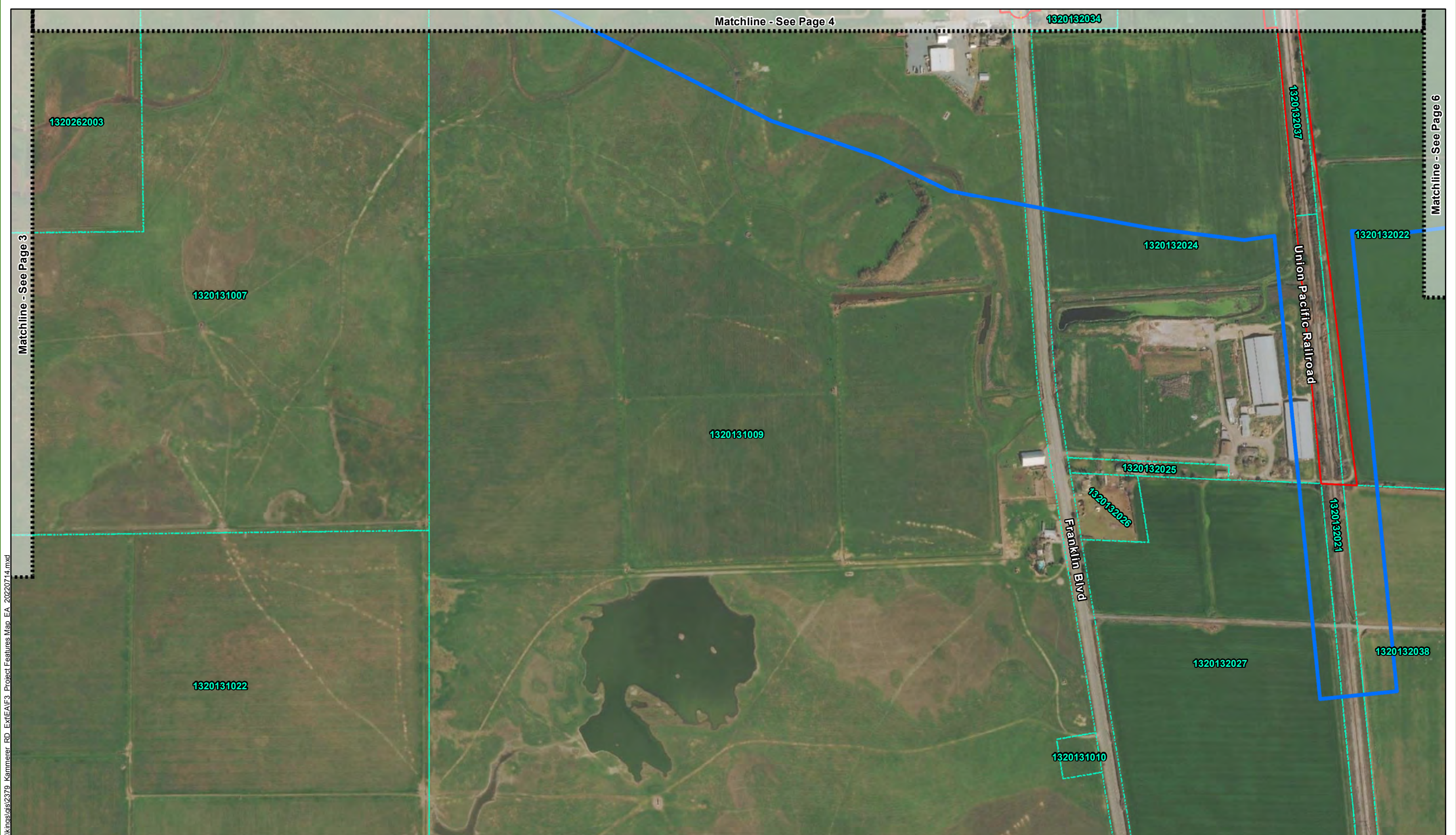
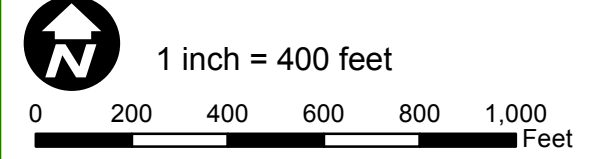


FIGURE 3
Project Features
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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	Parcels		Future Interchange Concept				

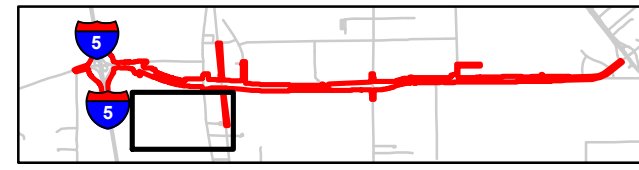
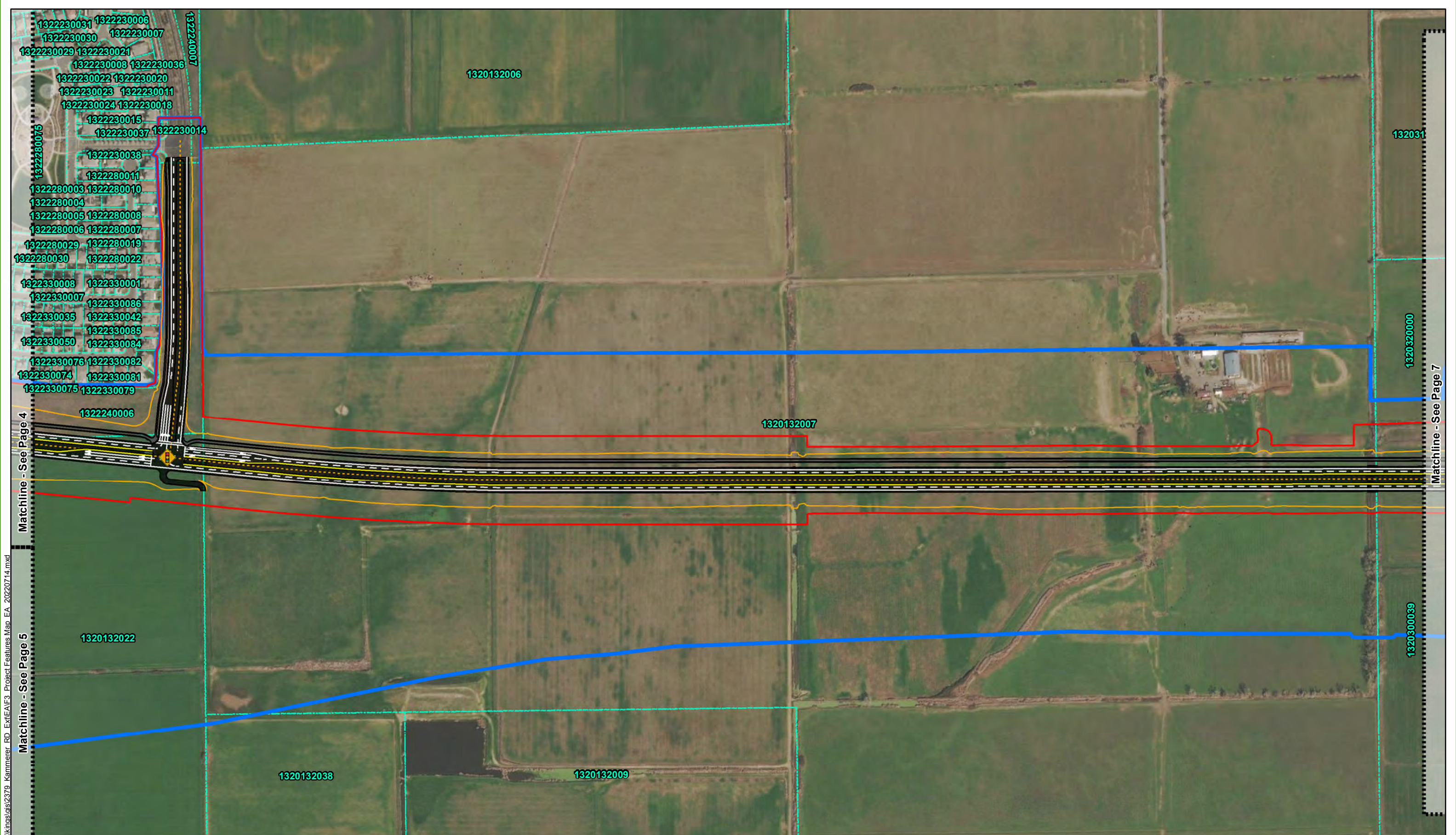
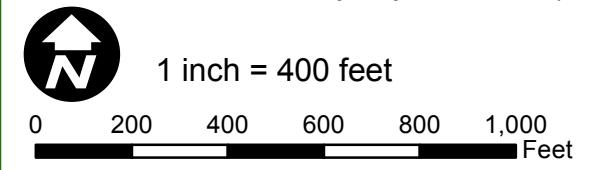


FIGURE 3
Project Features
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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	Parcels		Future Interchange Concept				

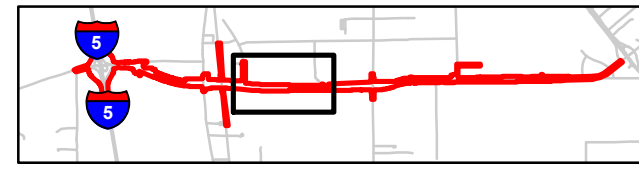
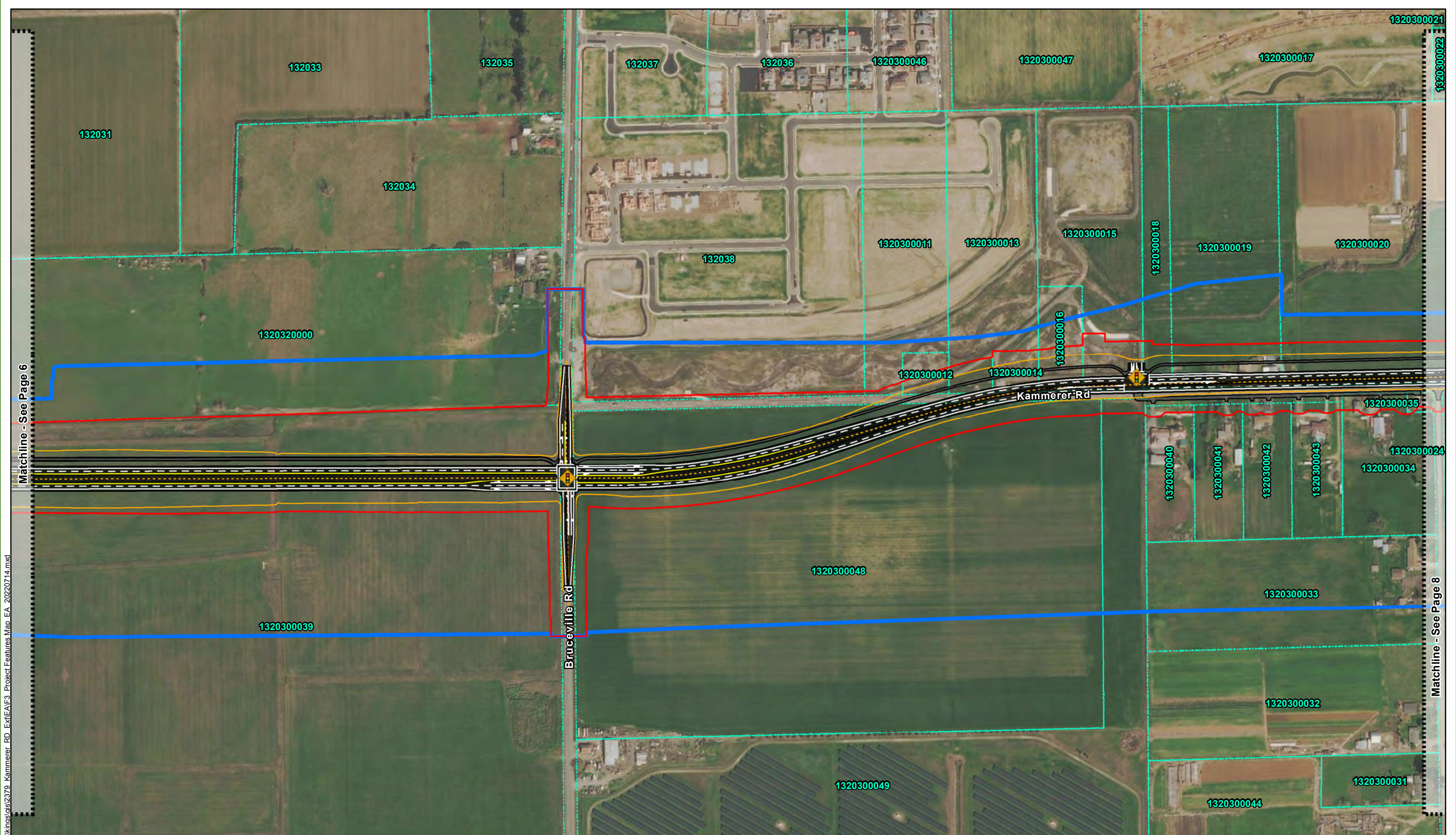
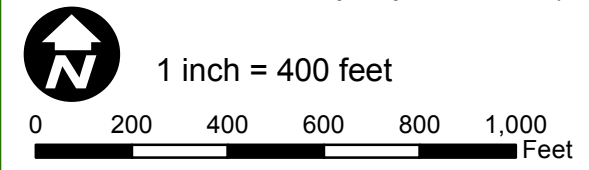


FIGURE 3
Project Features
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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Project Study Area	Roundabout Intersection Control	Multi-Use Path	Pavement Marking
Parcels	Future Interchange Concept		

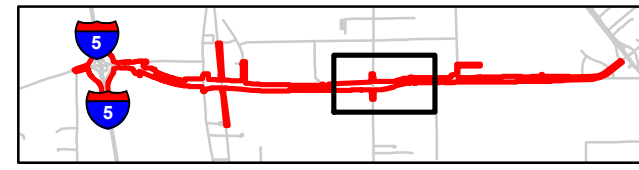
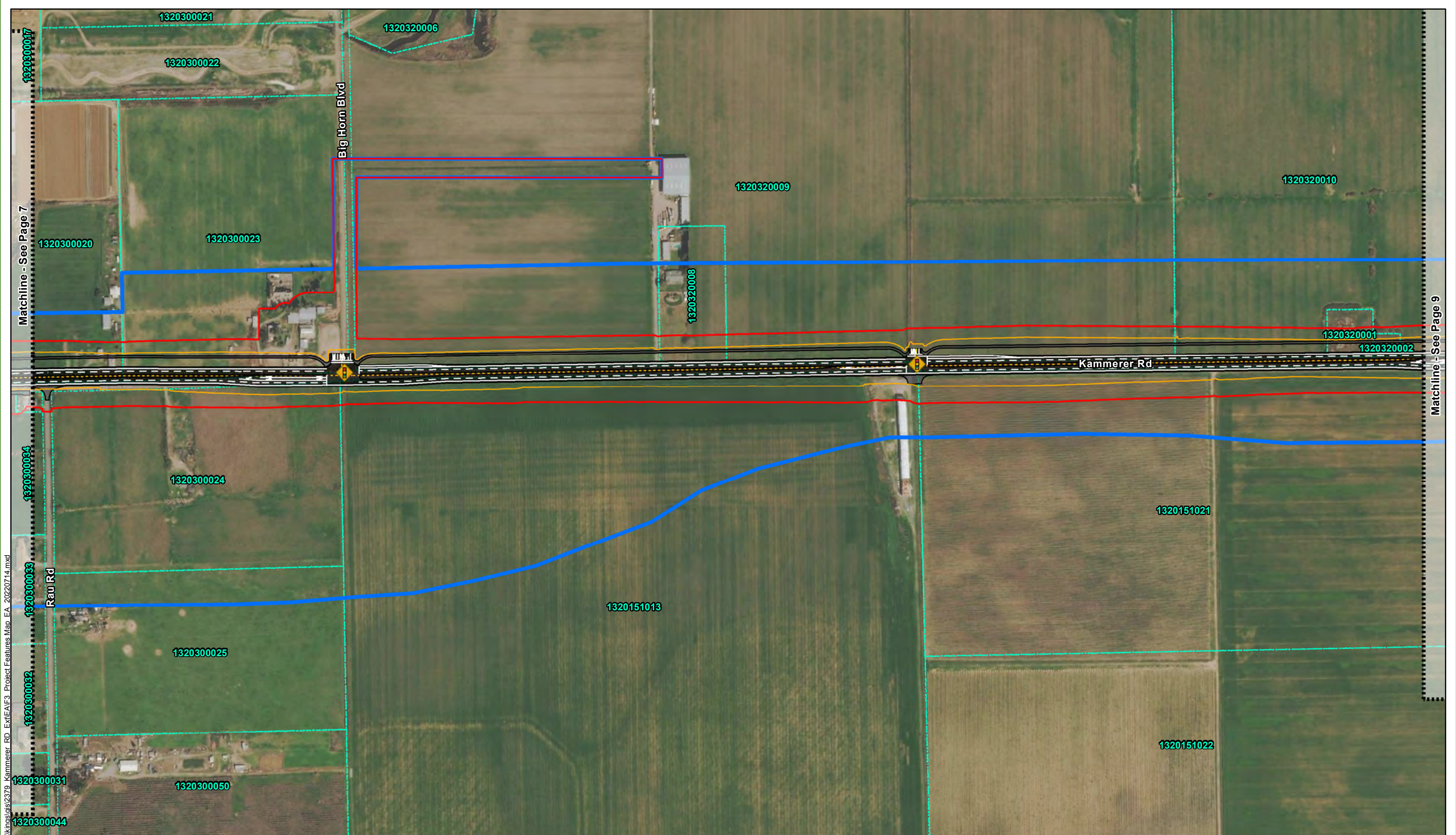
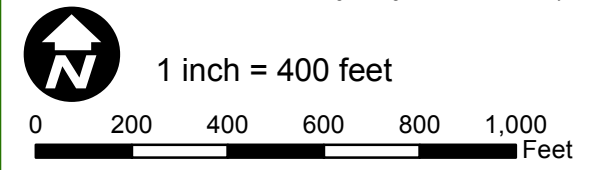


FIGURE 3
Project Features
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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	Parcels		Future Interchange Concept		Pavement Marking		

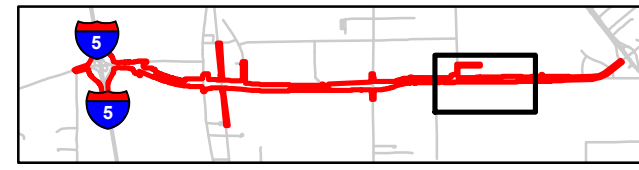
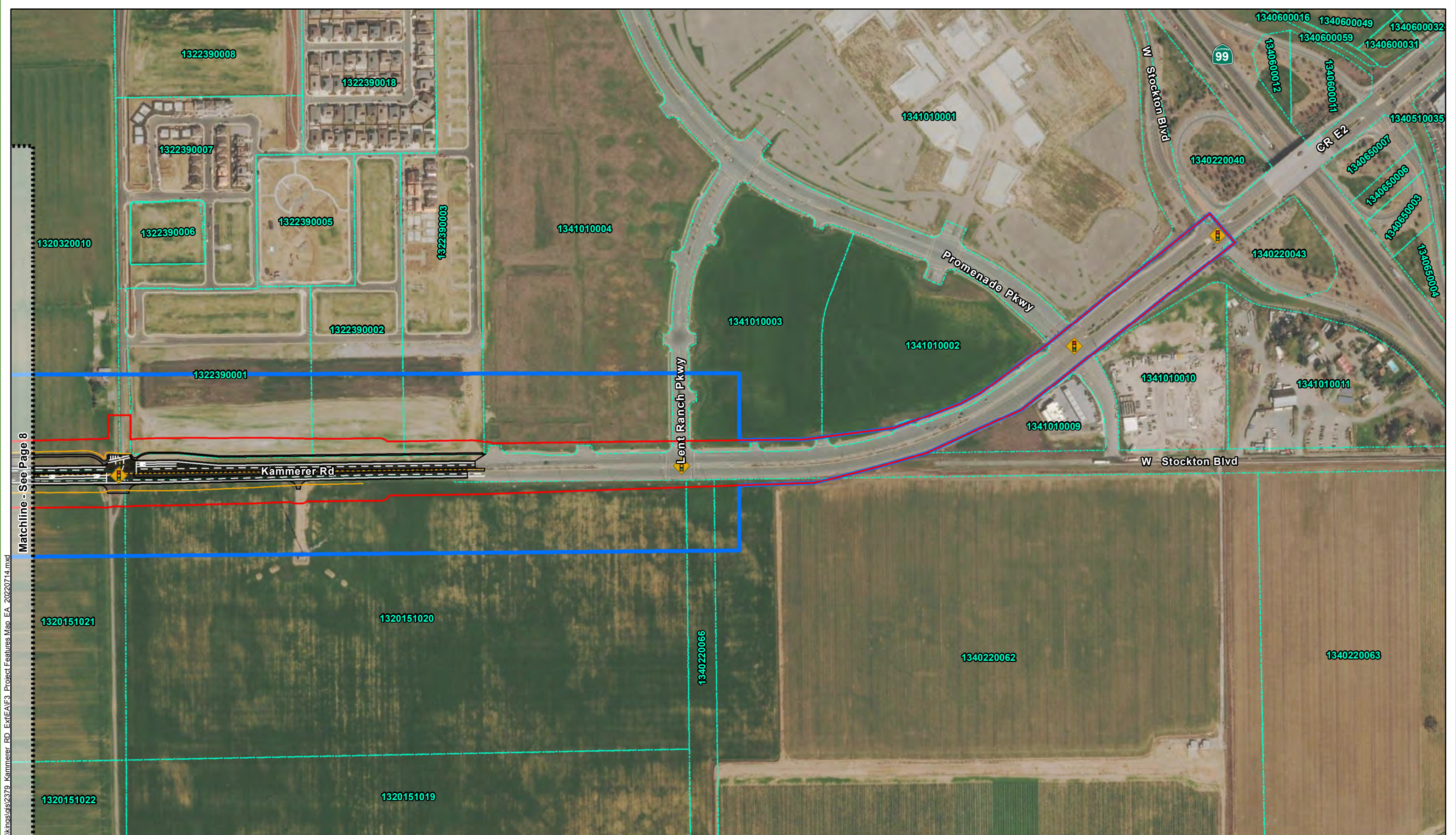
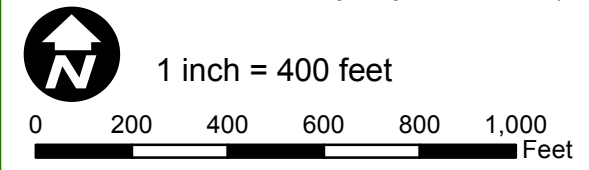


FIGURE 3
Project Features
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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	Parcels		Future Interchange Concept				

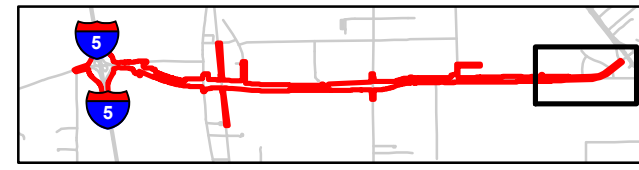


FIGURE 3
Project Features
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

1.2 Purpose and Need

The purpose of the Project is to improve regional traffic operations, reduce existing and projected congestion, and provide a vital component of the east-west gap closure.

The Project's purpose includes:

- Aiding economic vitality by improving the link to I-5 for residential areas and employment centers in the Project vicinity;
- Improving traffic operations by improving east-west circulation in the City and in the south County and improving route continuity;
- Relieving congestion and high travel time and delays in the Project vicinity and adjacent transportation corridors by addressing existing and projected traffic congestion in the Project vicinity and adjacent transportation corridors, including constrained traffic operations at the I-5 Interchange;
- Supporting planned growth by implementing transportation plans that support sustainable planned growth and development patterns and principles from SACOG's MTP/SCS;
- Improving the circulation of traffic and reducing the number of motorists who must "double back" to get to their destinations (out of direction travel);
- Providing an east-west evacuation route that is higher than the 100-year flood elevation;
- Providing a limited-access facility; and
- Enhancing mobility options within the Project Corridor, including opportunities for improved vehicular, transit, bicycle, and pedestrian movements, as well as emergency vehicle access.

The Project is needed because:

- Existing roadways in the Project vicinity and adjacent transportation corridors between the SR-99 and I-5/Hood Franklin Road Interchange are insufficient to meet existing and forecasted traffic demand;
- Planned growth in the Project area is expected to increase, which will lead to deteriorating LOS and traffic conditions;
- Existing Kammerer Road is insufficient for pedestrian and bicycle traffic; and
- The Project area needs an east-west evacuation route that is higher than the 100-year flood elevation to enable normal mobility and emergency vehicle access.

1.2.1 Existing Operational Deficiencies

Level of service (LOS) is a qualitative description of roadways and intersection traffic operating conditions that range from LOS A (i.e., free-flow conditions with little or no delay) to LOS F (i.e., forced-flow conditions with extreme delays and congestion). The City has identified LOS D as the minimum acceptable LOS for roadways and intersections within the City limits; whereas, County has a LOS E policy within the Urban Service Boundary (USB) and has a LOS D policy outside the USB. The Project area is inside the USB east of the Union Pacific Railroad (UPRR) tracks located between Franklin Boulevard and Willard Parkway, and outside the USB west of the UPRR tracks.

Analysis of existing facility operations occurred as part of the Project's Transportation Impact Analysis (TIA) (DKS 2019). In the TIA, intersection-based capacity analyses are conducted utilizing AM (before midday) peak commuter hour and PM (after midday) peak commuter hour traffic volumes. These analyses evaluate the ability of intersections to accommodate traffic volumes during peak travel periods.

Currently, all existing intersections along Kammerer Road are within the City and County LOS standards with the exception of one intersection, Franklin Boulevard and Bilby Road (**Table 1**); however, construction of planned development projects in the City will create an even greater need to provide an improved transportation facility. As a two-lane facility, Kammerer Road was never intended to serve as major commuter routes, and this is also true of many of the surrounding arterials. The 2019 TIA showed that without any improvements to Kammerer Road in the Project area, intersection and roadway traffic conditions would significantly deteriorate by 2044 (DKS 2019). This degradation would occur along the Project from the intersection of East Stockton Boulevard/Survey Road and Grant Line Road, to the intersection of Kammerer Road and Bruceville Road.

Traffic Analysis Methodology

Pursuant to the passing of Senate Bill 743, the City adopted Vehicle Miles Traveled (VMT) as its traffic analysis standard to be compliant with State law; in this case there is a VMT increase but as the CEQA document was approved prior to the adoption of VMT standards, it was not considered during evaluation of environmental impacts. In addition, VMT is not evaluated within this NEPA EA as evaluation of VMT is a requirement under CEQA, not NEPA. Regardless, the City's General Plan establishes performance targets for the operation of roadway segments and intersections to balance the effectiveness of design requirements with the character of the surrounding areas, as well as the cost to complete the improvements and ongoing maintenance obligations. Generally, the City's Transportation Network Diagram and Roadway Sizing Diagram, located within the General Plan, identify the planned improvements based upon planned land uses. The LOS standard is used as the method of analysis in this EA to remain consistent with Caltrans NEPA transportation planning guidelines and to identify where future roadway deficiencies may necessitate improvements. The relevant provisions of the State CEQA Guidelines limiting the use of LOS thresholds do not apply in this NEPA EA.

The City and County have established a similar LOS D policy for the rural area of the Project; however, the JPA's standards require LOS C or better for its facilities. Because this analysis focuses on the Project alignment in its role as part of the entire Capital SouthEast Connector, LOS C is used as the operational limit in this evaluation. LOS C analysis is not used in considerations for I-5 ramp intersections, as Caltrans freeway facilities will be subject to Caltrans LOS practices and standards.

As shown in **Table 2**, under the design year 2044 No-Build condition, a total of five intersections along Kammerer Road would operate at a LOS below JPA standards. This means that vehicles would be subject to substantial delays in travel associated with severe congestion. The existing daily capacity of Kammerer Road in the Project study area is estimated at approximately 7,500 vehicles. Projected volumes in 2036/2044 exceed 29,000 daily vehicles, requiring capacity improvements to meet LOS standards.

Most intersections in the Project area, including both existing and planned intersections are projected to operate at an unacceptable LOS during both peak hours under the future no-build scenario. **Table 2** shows the Project area intersections in bold (both planned and existing

intersections), under the No-Build condition would operate at LOS E or worse during one or both peak hours.

Roadway Deficiencies

To meet the traffic volumes anticipated on Kammerer Road, there are a number of design parameters that would need to be upgraded. The current two-lane Kammerer Road has narrow to non-existent shoulders and deep drainage ditches that parallel both sides of the roadway.

Additionally, the roadway is not built to carry the heavy-vehicle truck trips that are anticipated for the expressway and thoroughfare components of the future Project which, over time, will degrade the roadway further.

Table 1. Existing Peak Hour Intersection LOS

Intersection		Jurisdiction	Existing Conditions		
			Control	Int LOS	Delay
A.M. Peak Hour					
1	SB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	12.5
			-	-	-
2	NB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	13.9
			-	-	-
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	C	19.1
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	B	15.0
5	SB SR-99 Ramp & Kammerer Rd	Department	Signal	A	6.8
6	NB SR-99 Ramp & Grant Line Rd	Department	Signal	A	8.6
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	C	26.9
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	E	35.3
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	A	9.8
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	B	12.2
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only		
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only		
17	Hood Franklin Rd & Kammerer Rd	County Rural	Project Intersection Only		
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	3.7
Note: Bold intersections do not meet LOS policy SSSC = Side Street Stop Control, AWSC = All Way Stop Control					

Table 1. Existing Peak Hour Intersection LOS

Intersection		Jurisdiction	Existing Conditions		
			Control	Int LOS	Delay
P.M. Peak Hour					
1	SB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	12.2
			-	-	-
2	NB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	11.8
			-	-	-
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	C	16.5
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	B	13.3
5	SB SR-99 Ramp & Kammerer Rd	Department	Signal	A	6.4
6	NB SR-99 Ramp & Grant Line Rd	Department	Signal	A	9.2
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	C	30.4
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	B	12.1
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	A	8.4
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	C	24.1
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only		
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only		
17	Hood Franklin Rd & Kammerer Rd	County Rural	Project Intersection Only		
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	4.2
Note: Bold intersections do not meet LOS policy SSSC = Side Street Stop Control, AWSC = All Way Stop Control					

Table 2. Design Year No Project Peak Hour Intersection LOS

Intersection		Jurisdiction	Cumulative Conditions		
			Control	Int LOS	Delay
A.M. Peak Hour					
1	SB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	11.8
			Roundabout	B	15.7
2	NB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	14.5
			Roundabout	A	8.4
3	Bruceville Rd & Kammerer Rd	Elk Grove	Signal	C	24.5
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	C	25.1
5	SB SR-99 Ramp & Kammerer Rd	Department	Signal	B	12.9
6	NB SR-99 Ramp & Grant Line Rd	Department	Signal	B	17.6
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	D	42.5
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	F	52.5
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	B	17.9
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	Existing Intersection Only		
11	Lotz Parkway & Kammerer Rd	Elk Grove	Signal	A	8.0
12	Collector 1 & Kammerer Rd	Elk Grove	Signal	A	6.4
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Signal	A	8.2
14	Collector 2 & Kammerer Rd	Elk Grove	Signal	A	5.5
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only		
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only		
17	Hood Franklin Rd & Kammerer Rd	County Rural	Project Intersection Only		
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	3.8
Note: Bold intersections do not meet Connector JPA LOS policy. SSSC = Side Street Stop Control, AWSC = All Way Stop Control					

Table 2. Design Year No Project Peak Hour Intersection LOS

Intersection		Jurisdiction	Cumulative Conditions		
			Control	Int LOS	Delay
P.M. Peak Hour					
1	SB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	13.1
			Roundabout	C	15.7
2	NB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	13.4
			Roundabout	B	10.1
3	Bruceville Rd & Kammerer Rd	Elk Grove	Signal	D	46.5
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	D	39.1
5	SB SR-99 Ramp & Kammerer Rd	Department	Signal	C	23.5
6	NB SR-99 Ramp & Grant Line Rd	Department	Signal	C	32.1
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	F	162.0
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	D	28.8
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	B	19.7
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	Existing Intersection Only		
11	Lotz Parkway & Kammerer Rd	Elk Grove	Signal	A	9.6
12	Collector 1 & Kammerer Rd	Elk Grove	Signal	A	7.4
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Signal	A	8.0
14	Collector 2 & Kammerer Rd	Elk Grove	Signal	A	6.4
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only		
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only		
17	Hood Franklin Rd & Kammerer Rd	County Rural	Project Intersection Only		
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	4.6
Note: Bold intersections do not meet Connector JPA LOS policy. SSSC = Side Street Stop Control, AWSC = All Way Stop Control					

The current narrow right-of-way is not sufficient to carry a high proportion of truck traffic and personal vehicles with conflicting operational needs, because trucks and personal automobiles differ in acceleration and braking performance. Combining both vehicle operations in a single lane increases driver frustrations and potentially induces high-risk driving maneuvers.

While Kammerer Road has historically carried less volume than other major roadways in and around the City, as growth pressure increases, there will be pressure for more access onto Kammerer Road. If this is not managed, it will result in an inefficient transportation facility.

Safety

According to the California Office of Traffic Safety, automobile accidents, including those affecting bicyclists, motorcycle riders, and pedestrians, continue to occur at high rates in the County (OTS, 2021). Increasing vehicle and truck traffic is further degrading the safety of existing facilities. Improvements are needed to ensure the safety of travel by all modes along Kammerer Road.

Although there are no specific safety concerns identified at the moment, the Project is anticipated to implement features to improve safety on the existing thoroughfare and potentially provide increased safety throughout the Project corridor by including a Class I bidirectional, multiuse pathway along the northern extent of the roadway. The thoroughfare will also include Class II bike lanes within the roadway shoulders in both directions. Additionally, the Project would provide an east-west evacuation route that is higher than the 100-year flood elevation to enable normal mobility and emergency vehicle access.

Additionally, research from the Texas Transportation Institute and FHWA (Fitzpatrick et al. 2005) suggests that a number of safety benefits result from improving rural roads (similar to Kammerer Road), as follows:

- Accidents are reduced by 40 to 60 percent when a typical two-lane roadway is converted to a four-lane, divided roadway.
- Accidents are reduced by 12 percent by widening a lane by 1 foot (e.g., from 10 feet to 11 feet); widening lanes by 2, 3, or 4 feet will reduce related accidents by 23 percent, 32 percent, or 40 percent, respectively.
- Addition of a left turn lane can result in crash reductions of 7 to 48 percent.
- Studies consistently show that the more access points per mile, the higher the accident rate; access control can dramatically reduce fatalities, injuries, and property damage.

1.2.2 Forecasted Traffic Demand Exceeds Kammerer Road Capacity

The Project is needed to create managed and efficient transportation access that will accommodate local and regional planned growth. The Project is located along the City's southwestern boundary with the County and is centrally located in the Sacramento region. SACOG's adopted 2016 MTP/SCS identified the City and southern Sacramento as having the highest potential for population, housing, and employment growth in the region. The 2016 MTP/SCS refers to growth areas like this as a "Developing Community." Between I-5 and SR-99, the City is identified as one of these developing communities. The City's current General Plan projects the population of the City to be 183,070 people in the year 2035, while SACOG projects the population of the City to be 192,889 people by 2036, based on 2008 projections. According to SACOG population estimates, the City had 11,147 jobs in 2000. Between 2000 and 2005, the number of jobs in the City more than doubled. Although future employment growth is projected to

occur at a smaller rate, the number of jobs in the City is still expected to roughly double by 2035. The County is under similar pressure in unincorporated areas.

The City is centrally located to many regional employment centers, such as Cosumnes River College, Sutter Health, Kaiser Permanente, and nearby job centers in Sacramento. Based on projections in the Final PEIR for the 2020 MTP/SCS (SACOG 2020a), between 2016 and 2040, employment in the Sacramento region is expected to increase by approximately a quarter a million jobs, which is a 25 percent increase. The PEIR states that, over the next 30 years, several areas will experience significant job growth, including the City.

SACOG projects that the area's growth in households and employment will outpace roadway and transit improvements, which means congestion will worsen as newly constructed dwellings become occupied and new jobs are filled both along the Project corridor and the greater Sacramento region (SACOG 2020a). This projected growth will create a need to relieve future traffic congestion and improve circulation.

Planned development in the vicinity of the Project site includes the South East Policy Area (SEPA), Bruceville Meadows, Sterling Meadows, and the Lent Ranch Marketplace Special Planning Area (SPA) north of existing Kammerer Road in the City. **Figure 4** displays and **Table 3** describes the planned development in the Project vicinity.

Meeting transportation demand is a key component of maintaining the economic health of the region. The Project is needed to facilitate diversified employment opportunities for residents of the region and provide a larger reservoir of skilled workers to businesses in the Project vicinity by creating a more direct connection between residential areas and employment centers. As noted in **Table 3**, increased housing and employment centers are planned within the Project vicinity and the influx of population from these planned development areas is anticipated to create more congestion.

1.2.3 Lack of Facilities for Alternative Travel Modes


















Pedestrian and Bicycle Connections

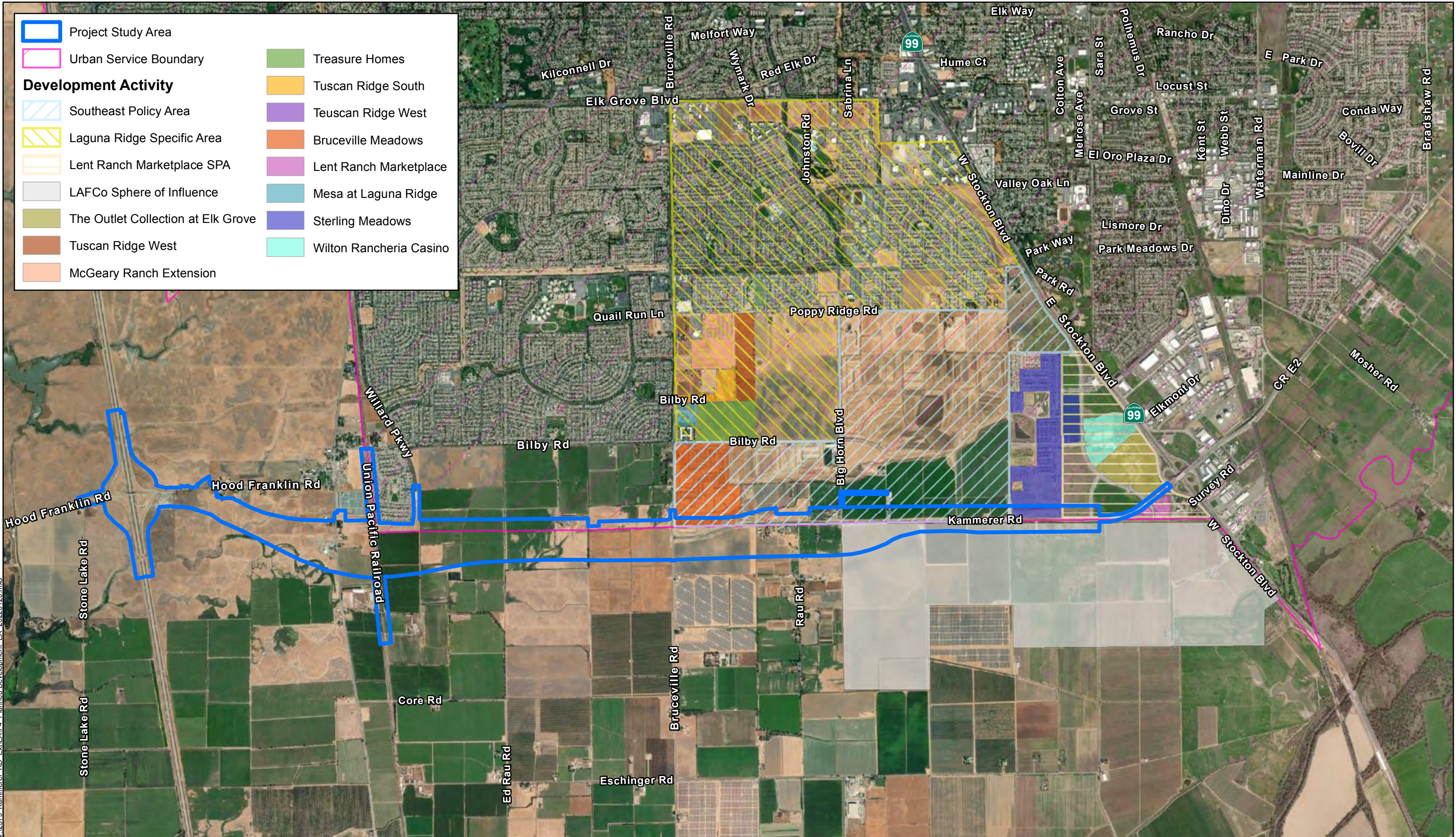
Currently, pedestrian and bicycle facilities in the Project study area are limited and include sidewalks and bike lanes along Kammerer Road from SR-99 to approximately 400 feet east of Promenade Parkway. A sidewalk is present along the north side of Kammerer Road for approximately 3,500 feet, beginning at the SR-99/Grant Line Road/Kammerer Road southbound off ramp, and continuing to approximately 720 feet west of Lent Ranch Parkway within the Project area. However, the need exists to support key bikeway and pedestrian connections to fulfill the local and regional goals of both the City and County. As stated in the Circulation Element of the County General Plan, "providing greater mobility through a balanced transportation system provides benefits beyond the efficient movement of people and goods. A number of beneficial external impacts may also be realized, including cleaner and more energy-efficient travel options, reduced vehicle miles traveled and associated improvements to air quality, and increased physical activity of residents through more appealing and plentiful walking and biking opportunities." (Sacramento County 2011b).

Table 3. Planned Development in the Project Vicinity

Name	Jurisdiction	Proposed Uses	Status
SEPA	City of Elk Grove	431 acres of mixed-residential densities, 41 acres of village center mixed use, 294 acres of office and commercial uses, 108 acres of light industrial/flex space, 28 acres for schools, 61 acres for parks/open space, 32 acres for trails, 93 acres for drainage facilities, and 112 acres for major right-of-way (City of Elk Grove 2014a).	Approved, Parically In Construction
Bruceville Meadows	City Elk Grove	Tentative subdivision map to divide 113.9± acres into ~320 single family residential lots, one multifamily lot, a detention basin, drainage channel, two pocket parks, and various landscape lots.	Approved, In Construction
Lent Ranch Marketplace SPA	City of Elk Grove	The Lent Ranch Marketplace SPA includes an anticipated casino, in addition to the planned commercial development.	Approved (casino in construction)
Sterling Meadows	City of Elk Grove	200-acre site including 984 single-family residential units, 200 multi-family residential units, and 18.5 acres of parks.	Approved, In Construction
Laguna Ridge Specific Plan	City of Elk Grove	The Laguna Ridge Specific Plan proposes 5,887 single family homes and 1,800 multi-family or medium density units, and approximately 265 acres of commercial, office and civic uses. Development projects within the Specifc Plan area, currently approved include the Treasure Homes Extension, McGeary Ranch, Tuscan Ridge West and South, and Arbor Ranch.	Approved, In Construction
Souza Dairy	City of Elk Grove	Souza Dairy Project includes a Large Lot Subdivision to create a total of 45 large area lots, along with a small lot subdivision which will create 1,162 lots, consisting of 1,094 residential lots at varying densities.	Approved, In Construction
Wilton Rancheria	City of Elk Grove	The Project consists 36 acres at the northwest portion of the intersection of Grant Line Road and SR-99, for a proposed 608,756 square foot hospitality and entertainment facility, including a 12-story 302 room hotel, pool, spa, 47,634 square foot convention center, six restaurants and bars, and a 110,260 square foot gaming floor.	City Approved MOU, Ratified for gaming compact by AB 1606.

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	Project Study Area		Treasure Homes
	Urban Service Boundary		Tuscan Ridge South
Development Activity			Teuscan Ridge West
	Southeast Policy Area		Bruceville Meadows
	Laguna Ridge Specific Area		Lent Ranch Marketplace
	Lent Ranch Marketplace SPA		Mesa at Laguna Ridge
	LAFCo Sphere of Influence		Sterling Meadows
	The Outlet Collection at Elk Grove		Wilton Rancheria Casino
	Tuscan Ridge West		
	McGeary Ranch Extension		



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Source: ESRI Maps Online; Dokken Engineering 1/20/2022; Created By: rramirez

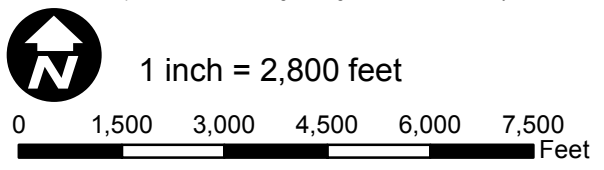


FIGURE 4
Planned Development in the Project Vicinity

Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

As noted in the 2021 *City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan* (BPTMP) (City of Elk Grove 2021b), bicycling is becoming an increasingly significant mode of transportation as communities seek to clean their air and develop healthy living habits. A comprehensive and safe bicycle network can encourage people to get on a bike and ride to work, to school, to run errands, or simply exercise. In newly developing areas of the City, the City has an ultimate goal to have exemplary bicycle, pedestrian, and trail facilities that provide connectivity throughout the City and the wider Sacramento region in order to offer recreational opportunities and an alternative method for transportation for City residents. The BPTMP identifies existing facilities, opportunities, constraints, and destination points for bicycle users, pedestrians, and trail users in the City. The City's General Plan Circulation and Open Space Element goals and policies serve as the basis for developing BPTMP goals and supporting policies for planning and implementation of bikeway, pedestrian, and off-street, multi-use trail facilities within the public right-of-way. Within the BPTMP, Figure 5-1, displays the proposed Class I and Class II bike lanes along the Project alignment.

Public Transit Connections

There are no existing public transit facilities along Kammerer Road within the Project area; however, transit is available in the Project vicinity. Transit service is provided in the City by e-Tran. Routes are coordinated with Sacramento Regional Transit District buses and light rail and South County Transit/Link to areas outside the City. Main transfer points are at the Cosumnes River College, Meadowview Light Rail Station, and Laguna Town Hall. Services are funded with Transportation Development Act and Federal Transit Administration funds. E-Tran operates a system of bus routes, including three bus routes north of the Project area along Whitelock Parkway.

1.2.4 Transportation System Consistency with 2020 MTP/SCS & Local Plans

The following outlines regional planning efforts to coordinate projected growth and transportation needs in an efficient manner. Consistency with these plans is needed to adhere to sustainability and smart growth practices and to minimize air emissions associated with projected growth in the Project vicinity and the anticipated transportation needs associated with that growth.

Smart Growth Principles

Projected employment and residential growth rates for the County and the City demand efficient transportation solutions. To that end, local and regional plans have identified transportation strategies to proactively accommodate planned growth.

The sustainability principles from the 2020 MTP/SCS (SACOG 2020a) and the Sacramento Preferred Blueprint Scenario (Blueprint) (SACOG 2004) include the following:

- Provide limited-access roadway facilities to maintain maximum capacity and reduce the likelihood that unplanned growth will result.
- Improve access and provide connectivity among these communities and throughout the region.
- Complement other new or improved roadways identified in the 2020 MTP/SCS to serve focused residential and employment growth.

The intent of these measures is to direct growth in accordance with the regionally planned Blueprint, to preserve open space, and to preserve agricultural and valuable habitat resources.

In an effort to provide policy and technical approaches to address or avoid impacts to rural resources in the Sacramento region, SACOG launched the Rural-Urban Connections Strategy in 2008 as part of the Environmental Sustainability principle specified in the 2020 MTP/SCS. The region's approach to urban growth, as laid out in the 2020 MTP/SCS, minimizes the amount of open land that will be needed to accommodate growth through the planning horizon. This result is important for balancing the need for future growth with conserving open space resources that provide economic and environmental benefit for rural areas, and for the entire region (SACOG 2020a). Through strategic investments in the current transportation system, sustainable planned growth and development patterns can be supported, which in turn can help preserve the region's natural resources and open space. There continues to be a need to relieve direct growth pressure on adjacent properties not designated for growth. Through strategic barriers of access and advanced planning, areas can be permanently set aside and maintained for sustainable balance of mobility, livability, and ecosystem preservation. Without a commitment to developing an access-controlled transportation system, there are no mechanisms to restrict access and development entitlements.

Legislation

The Project is part of a County-wide program of projects that are funded through the Measure A Tax initiative. The Sacramento Transportation Authority (STA) is the governing board, and together with the taxpayer oversight committee, they manage the allocation of the one-half cent sales tax for roadway and transit improvements. According to STA's Amended Fiscal Year 2020/2021 Budget, the City was allocated \$5,436,611 and the County was allocated \$20,046,943.

The 2020 MTP/SCS includes transportation improvements and investments that will serve the Sacramento region's projected land use pattern and population growth. All transportation projects that are regionally significant for potential air quality impacts must also be included in the 2020 MTP/SCS. SACOG worked collaboratively with local government planning and public works departments, transit service providers, air quality management districts, state and federal transportation departments, stakeholder interests, and residents across the region to develop the 2020 MTP/SCS. The Project is also included in SACOG's 2021/2024 MTIP as project number SAC24094 (Kammerer Road Extension) and in the 2020 MTP/SCS as project numbers SAC24114 (Kammerer Road Widening (Connector Segment)), SAC24094 (Kammerer Rd Extension (Connector Segment A)), SAC25135 (Kammerer Rd. Reconstruction (Connector Segment A)), and SAC25097 (Kammerer Rd. Extension (Connector Segment)).

Local Plans

The Project has been identified by the City, County, and SACOG as a critical link in the regional and local transportation system; it is also part of the regional thoroughfare that connects the City of Elk Grove, the City of Folsom, and El Dorado County. The Project is identified in the City's Circulation Element, in Sacramento County's Circulation Element, and in SACOG's 2020 MTP/SCS. Without transportation improvements, the objectives of the SACOG Blueprint related to having projected land use and the transportation network planned to minimize vehicle miles traveled (VMT) and air quality emissions in SACOG's six-county, 22-city region would not be realized (SACOG 2004).

Filling gaps in the transportation network for the southern County and the City are necessary to link residential areas and employment centers in the Project corridor, supporting both local and regional travel needs and reducing excessive traffic volumes that currently overburden surrounding two-lane roadways, which were never intended to serve as major commuter routes. Specifically, the Project area is located between two important roadways: SR-99 and I-5. To the north of the Project, Whitelock Parkway has already been widened to four lanes from Big Horn Boulevard to Franklin Road, as well as, Willard Parkway, which has been widened to four lanes from Whitelock Parkway to Epoch Drive. Further, to the east of the Project, Grant Line Road has been widened to four lanes from SR-99 to Waterman Road and is currently being widened from Waterman Road to Bradshaw Road. These roads help to provide access to I-5 and SR-99, and the Project would provide a critical link between I-5 and SR-99.

Air Quality Improvements

In 2008, California passed Senate Bill 375, the Sustainable Communities and Climate Protection Act. This law requires metropolitan planning organizations like SACOG to develop an SCS as part of their MTP, which identifies policies and strategies to reduce greenhouse gas emissions from passenger vehicles to targets set by the California Air Resources Board (CARB) (CARB 2016a). The 2020 MTP/SCS for the Sacramento region proactively links land use, air quality, and transportation needs and identifies projects to balance these needs. This compendium of projects, including the Kammerer Road Project, are envisioned to reduce delay and congestion and support smart growth principles. Solutions such as this Project are necessary to minimize congestion and reduce daily traffic delay and vehicle idling, which in turn would reduce vehicle emissions and improve air quality.

1.2.5 Independent Utility, Logical Termini, and System Linkages

A problem of “segmentation” may arise if a transportation need extends throughout an entire corridor, but environmental issues and transportation needs are discussed for only a segment of the corridor for each project. Therefore, each project must demonstrate independent utility to avoid mischaracterization of corridor need and associated impacts. FHWA regulations (Title 23 of the *Code of Federal Regulations* [CFR] in Section 771.111 [f]) require that the Project takes the following actions:

- Connect logical termini and be of sufficient length to address environmental matters on a broad scope
- Have independent utility or independent significance (be usable and require a reasonable expenditure even if no additional transportation improvements in the area are made)
- Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The Project has logical termini by connecting between SR-99/Grant Line Road/Kammerer Road Interchange to the east and terminating at I-5/Hood Franklin Road Interchange to the West. The Project limits for the Kammerer Road Project were determined from traffic analyses conducted for Capital SouthEast Connector Project’s Volume 2 of the *Final Program Environmental Impact Report – Revisions to the Draft Program Environmental Impact Report* (Connector JPA 2012) and are based on the need to support regional as well as local transportation; this includes the need to support the City’s current and planned transportation circulation. The Project would provide for a widening of the existing two-lane Kammerer Road from the SR-99/Grant Line Road/Kammerer Road Interchange to the Kammerer Road/Bruceville Road intersection, and extension of Kammerer Road from the Kammerer Road/Bruceville Road intersection to the I-5/Hood Franklin

Road Interchange. In December 2018, the Connector JPA approved and adopted the *Tiered Initial Study with Mitigated Negative Declaration for the Capital SouthEast Connector Kammerer Road Project* which environmentally cleared the Project under CEQA for widening to four lanes along the Kammerer Road segment between SR-99/Grant Line Road/Kammerer Road Interchange and I-5/Hood Franklin Road Interchange. The City, County, and the Department approved the *Tiered Initial Study with Mitigated Negative Declaration for the Capital SouthEast Connector B2 Project* in August 2017 (Connector JPA 2017) for the widening of Grant Line Road from two to four lanes between Mosher Road and Bradshaw Road. The logical termini define the Project limits to address environmental matters, in that this portion of Kammerer Road would service the highest-growth area of Elk Grove and improve connections with existing major arterials that link with other major regional destinations. The Project would improve or would not worsen acceptable LOS at these connections. Therefore, the Project does not depend on further transportation improvements to, or adjacent to, Kammerer Road to have usefulness and to achieve local and regional benefits. The Project's eastern terminus is needed and logical because it would connect into the existing four-lane Grant Line Road at SR-99 (the SouthEast Connector B2 Segment); the Project would accommodate the additional traffic of Grant Line Road and close a significant gap in the transportation corridor.

The western terminus is the I-5/Hood Franklin Road Interchange. Hood Franklin Road is a two-lane, east-west roadway in the unincorporated County serving rural areas between Franklin Boulevard to the east and River Road to the west. Side streets have stop-controlled intersections at Franklin Boulevard and the northbound and southbound I-5 off-ramps. Traffic projections on Hood Franklin Road reveal that it meets projected capacity needs into 2036. Hood Franklin Road east of the I-5/Hood Franklin Road Interchange is projected to carry 10,770 vehicles, in 2036 under the No-Build Alternative. With a capacity of 18,000, this results in a LOS A, which is an acceptable LOS according to the circulation element of the County *General Plan* (Sacramento County 2011a). The forecasted I-5/Hood Franklin Road Interchange volumes are anticipated to increase in 2036 for directions flowing west to east from the I-5/Hood Franklin Road Interchange toward Franklin Road. This would be explained by the multiple planned residential and commercial developments east of Bruceville Road along Kammerer Road, but it also reinforces that logical terminus of Kammerer Road for traffic flow to and from the Project area.

These termini define the Project limits and service for the highest growth area of Elk Grove, which is also one of the fastest growing areas in the County region. The widening and extension of Kammerer Road would provide a major link for traffic traveling east-west, making the SR-99/Grant Line Road/Kammerer Road Interchange and the I-5/Hood Franklin Road Interchange logical termini for the Project. As shown in **Table 3** above, major residential and commercial developments are anticipated to be constructed in the immediate Project area. Improvements along the Project limits would serve those planned developments. The Project has both a local and a regional transportation need.

Another requirement of the FHWA regulations is that the Project have independent utility—meaning that it does not need any other transportation improvements to be made for it to function. Given that widening of Whitelock Parkway and Willard Parkway have already occurred to the north of the Project, and Grant Line Road is currently being widened east of the Project, the Project does not depend on any other transportation projects to function. The study limits were identified to have independent utility because they address the future projected circulation needs for planned growth within Elk Grove, and within this segment of the larger Capital SouthEast Connector, without requiring improvements beyond this segment. The Project would not result in needed improvements east, west, south, or north of Kammerer Road that would not already exist without the Project. Therefore, the Project does not depend on further transportation

improvements to, or adjacent to, Kammerer Road to have usefulness and to achieve local and regional benefits.

1.3 Project Description

This section describes the Project and the Project alternatives developed by an interdisciplinary team to achieve the Project purpose and need, while avoiding or minimizing environmental impacts. These alternatives are the “Build Alternative” and the “No-Build Alternative.”

The Project is located in the unincorporated County and the City. Within the limits of the Project, Kammerer Road is currently a two-lane undivided roadway which begins at the SR-99/Grant Line Road/Kammerer Road Interchange and extends west from SR-99 and terminates at Bruceville Road. There is an existing interchange at I-5/Hood Franklin Road from which the eastern leg of Hood Franklin Road currently terminates at Franklin Boulevard. The Project would connect the segments through construction of a four-lane facility, two lanes in each direction, with a multi-use path, and will require utility relocations, right-of-way acquisitions, drainage improvements, temporary construction easements, and staging areas. The purpose of the Project is to improve regional traffic operations, reduce existing and projected congestion, and provide a vital component of the east-west gap closure.

1.4 Alternatives

This Project contains a number of standardized project measures which are employed on most, if not all, Department projects and were not developed in response to any specific environmental impact resulting from the Project. These measures are addressed in more detail in the Environmental Consequences sections found in Chapter 2.

Range of Alternatives

An environmental analysis study area was developed to encompass the construction footprint required for all Project components detailed below, including the I-5/Hood Franklin Road Interchange design options. This single impact analysis is appropriate as it allows for all possible construction impacts and calculates the entire Project’s overall environmental impact.

Two alternatives are being considered for this Project - the “Build Alternative” and the “No-Build Alternative.”

1.4.1 Project Alternatives

Build Alternative

From the SR-99/Grant Line Road/Kammerer Road Interchange to Bruceville Road, the Project would replace the existing Kammerer Road for approximately 2.5 miles to create a limited-access four-lane thoroughfare, a main surface arterial road with limited access. The eastern extent would conform to the existing six-lane section that intersects with the interchange at SR-99. The proposed right-of-way would accommodate two lanes in each direction with shoulders, a median, utilities, a multiuse pathway on the north side of the roadway, and drainage improvements (see Figure 3).

Project design features for the Project from SR-99 to Bruceville Road include the following:

- Four through lanes (two lanes in each direction) with turn lanes at intersections;
- Shoulders;
- Median of varying width;
- Signage;
- Multiuse path (adjacent west-bound travel lane);
- Class II Bicycle Lane (in each direction)
- Drainage facilities;
- New and relocated public utility facilities;
- New signalized connection with Collector 2 (future SEPA project roadway);
- Connection with Rau Road;
- Signalized connection at McMillan Road (future Big Horn Boulevard);
- New signalized connection at Collector 1 (future SEPA project roadway); and,
- New signalized connection at Lotz Parkway (future project).

From Bruceville Road to the I-5/Hood Franklin Road Interchange, the Project would construct approximately 3.25 miles of new roadway. The new road would be constructed as a limited-access four-lane expressway, an access controlled roadway and a railroad grade separation. The proposed right-of-way would accommodate two lanes in each direction with shoulders, a median, utilities, a multiuse pathway on the north side of the roadway, and drainage improvements (see Figure 3).

At the western end, the Project will tie into the I-5/Hood Franklin Road Interchange. Connection of the roadway and interchange will include intersection control improvements consisting of either a signalized intersection or a roundabout intersection.

Project design features for the Project from Bruceville Road to the I-5 interchange include the following:

- Four through lanes (two lanes in each direction) with turn lanes at intersections;
- Shoulders;
- Median of varying width;
- Signage;
- Multiuse path (adjacent west-bound travel lane);
- Drainage facilities;
- New and relocated public utility facilities;
- New connection at Hood Franklin Road;
- New signalized connection at Franklin Boulevard;
- New signalized connection at Willard Parkway;
- New signalized connection at Bruceville Road; and,
- Grade separated crossing at Union Pacific Railroad.

The Build Alternative is estimated to cost approximately \$90 million. The opening year of the first phase of construction could begin as early as 2020.

Unique Features of Build Alternative

Residential and Sensitive Resources Avoidance

The Build Alternative has been designed to minimize impacting residential and farming properties to the greatest extent practicable. After continued outreach with local land owners and

modifications of the Build Alternative, only 4 total relocations (3 residential and 1 commercial) would be required by the Build Alternative. Easements would be obtained for areas where cut-and-fill slopes extend beyond the planned right-of-way. The existing Kammerer Road right-of-way is generally 40 feet wide with small areas of variation, ranging from 125 feet at the recently widened Lent Ranch Parkway/Kammerer Road intersection, to 40 feet at Bruceville Road/Kammerer Road intersection. The planned Project cross section ranges from approximately 184 feet within the four-lane thoroughfare to approximately 200 feet within the four-lane expressway per adopted design guidelines (Connector JPA 2015). Other sideroad connections would be built to City and County design standards. There are approximately 77 properties that adjoin the Project corridor, most of which are small farms or single-family rural parcels. Several large parcels are in varying stages of approval for master planned residential and commercial development. In addition, there are several parcels at the western terminus of the Project, which are listed as the Stone Lakes National Wildlife Refuge (Stone Lakes NWR). The Project has been designed to minimize impacts to sensitive natural communities, wetlands, and waters of the U.S. and to avoid the adopted Stone Lakes NWR boundaries.

In-Corridor Pedestrian/Bicycle Facilities

The Build Alternative would include a separated, Class I non-motorized paved multi-use path within proposed right-of-way on the north side of the Project. The multi-use path would be continuous throughout the thoroughfare and expressway segments of the Project and would join at the intersection curb corners to cross at the intersection crosswalks. A Class I Bikeway, as defined by the California Streets and Highways Code, provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with direct cross-flow of vehicular traffic minimized (California Streets and Highways Code Section 890.4). The path would have connections to existing and planned bikeways as listed in the City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan (City of Elk Grove 2021b).

The thoroughfare will also include Class II bike lanes within the roadway shoulders in both directions from SR-99 to Bruceville Road. The Project does not propose Class II bike lanes within the expressway segment from Bruceville Road to the I-5/Hood Franklin Road Interchange pursuant the Connector JPA Design Guidelines for safety on this type of roadway segment.

Utilities

The Project railroad overhead crossing would construct Kammerer Road over the UPRR. The Sacramento Municipal Utilities District (SMUD) operates two 230kV transmission lines and associated fiber optic facilities along the UPRR which cross through the Project area. Construction of the overhead crossing would require installation of a minimum of two new structures in order to raise the transmission lines to be in appropriate phase-to-ground clearance levels.

New utility infrastructure could be constructed within designated utility corridors in and adjacent to the Project right-of-way. Several utilities are planned to be installed by others in the Project limits to serve planned development in both the County and the City. These utilities include sewer, water, gas, electrical sub-transmission, and possibly fiber optic cabling. These new utilities would be constructed as part of the adjacent development projects and would not directly be part of the Kammerer Road Project. The Project team has coordinated with the utility companies and is collaborating to identify a utility corridor where conflicts with the transportation use would be avoided. At intersections, conduits would be installed to facilitate the incorporation of future utilities without requiring reconstruction of the intersections. Utility easements required for

adjacent development projects that are outside the Project right-of-way would not be covered by this EA; therefore, separate environmental clearance may be required.

Stormwater Drainage

To provide stormwater drainage for the Build Alternative, a roadside drainage system would be constructed within the Project limits to convey collected stormwater runoff. In an effort to maintain historical east–west drainage patterns through the roadway, the Project would construct several pipe and box culverts under the roadway that would allow sheet flow stormwater originating from the east to be conveyed under the roadway and then continue to flow westward. Runoff from the roadway would be collected from the pavement surface into shallow roadside ditches and/or basins, where it would receive water quality treatment through bioswales or other appropriate operational best management practices (BMPs) before being released on the side of the roadway to join sheet flows that move through the area. The combined sideroad connection at Rau Road would be designed in accordance with the most current Stormwater Quality Design Manual for the Sacramento Region and the County Drainage Manual.

Construction Considerations

Construction activities would include clearing, grading (cut and fill), installing road base materials, paving, constructing bridge supports over drainages, striping, connecting into street intersections, installing signals, installing lighting, installing utilities, and installing a storm drainage system.

Prior to commencing construction, the implementing public agencies would require and have approval authority of a construction management plan (CMP) that would include, at a minimum, a traffic management plan, a lighting plan, a sensitive species and ground restoration plan, a dust and air quality management plan, a hazardous materials handling plan, an emergency service communication and access plan, a utility relocation plan, a litter and maintenance plan, a noise management plan, a public and agency information plan, and a permits management plan. Each portion of the CMP would include requirements that would need to be met, anticipated schedule expectations, points of contact for implementation, and specific responsibilities. The CMP would also become the implementation plan for how avoidance, minimization, and mitigation measures are to be met and achieved before and during the construction phase.

The majority of construction-related activities would occur within the Project right-of-way, including remnant parcels acquired for the right-of-way. Construction staging areas outside of the right-of-way and cut-and-fill slopes, sensitive habitats, including wetlands, would be avoided with the installation of environmental sensitive area fencing and/or endangered species fencing. Construction access would be provided from existing roadways, including Kammerer Road, Lent Ranch Parkway, Willard Parkway, Franklin Road and Hood Franklin Road.

Transportation System Management and Transportation Demand Management Strategies

Transportation System Management (TSM) strategies increase the efficiency of existing facilities; they are actions that increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Transportation Demand Management (TDM) measures focus on regional means of reducing the number of vehicle trips and vehicle miles traveled, as well as increasing vehicle occupancy. TSM and TDM alternatives have been eliminated as stand-alone alternatives for the Project because they are not considered feasible and would fail to meet the purpose and need of the Project. Additionally, since the population requirement of 200,000 is not surpassed, TSM and TDM analysis is not required.

Although the population is below the required threshold, some analysis is still included. For instance, the proposed Build Alternative as a whole is intended to increase the efficiency of existing facilities, thereby reducing emissions and congestion, as well as reduce the number of vehicle miles traveled. Although TSM/TDM measures alone could not satisfy the purpose and need of the Project, the following TSM/TDM element has been incorporated into the Build Alternative:

- Inclusion of a multi-use path adjacent to the west-bound travel lane, and a Class II Bicycle Lane along both travel directions between SR-99 and Bruceville Road

However, the Project would include intelligent transportation systems (ITS) technology considerations. ITS technologies may consist of coordinated signal timing, traffic monitoring stations, closed circuit television cameras, changeable message signs, lane use signs, and transit signal priority to enhance traffic management and provide drivers with useful real-time traffic information to make informed decisions. In addition, the Project includes Class I and Class II bicycle and pedestrian facilities that may increase the use of these alternative modes and thereby decrease the number of overall trips and vehicle miles travelled.

The current design of the Project would also not preclude the addition of bus service transit stations and/or park and ride facilities when projected growth warrants.

No-Build Alternative

The No-Build Alternative was evaluated for the full range of environmental resource topics covered in Chapter 2. The purpose of describing and analyzing a No-Build Alternative is to allow decision-makers to compare the impacts of approving the Project with the impacts of not approving the Project.

The No-Build alternative represents the existing conditions, as well as what would reasonably be expected to occur in the foreseeable future if the Project were not approved. Kammerer Road is currently a two-lane undivided roadway which begins at the SR-99/Grant Line Road/Kammerer Road Interchange and extends west from SR-99 and terminates at Bruceville Road. There is an existing interchange at I-5 and Hood Franklin Road from which the eastern leg of Hood Franklin Road currently terminates at Franklin Boulevard.

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. As a result, the purpose and need of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aid in the economic viability for the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not meet the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

The primary difference between the No-Build Alternative and the Build Alternative is the conversion of Kammerer Road, between SR-99 and Bruceville Road, from a two-lane arterial to a four-lane thoroughfare, and the extension of Kammerer Road from Bruceville Road to the I-

5/Hood Franklin Road Interchange as an access-controlled expressway under the Build Alternative. The No-Build Alternative is inconsistent with local, regional, and system planning and would result in not addressing the needs as described in Section 1.2 of this chapter.

1.4.2 Comparison of Alternatives

Criteria used for evaluating the alternatives consisted of environmental impacts, use of existing infrastructure, ease of potential phasing, and property acquisition needs. While a Build Alternative and No-Build Alternative were proposed, the criteria listed above were assessed, and the Build Alternative was chosen based on consistency with approved local plans and policies, use of the existing Kammerer Road infrastructure, and minimization of environmental impacts and property acquisitions necessary for the Project alignment in comparison of alternatives considered but eliminated from further discussion, as described below.

Table 4 shows the Build Alternative and No-Build Alternative potential impacts to resources, and a short summary of avoidance, minimization, and/or mitigation measures proposed.

Table 4. Summary of Potential Impacts

Resource	Potential Impacts		Summary of Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
Land Use; Parks and Recreational Facilities	No impact	Consistent with all local, regional, state, and federal plans and policies; No impacts to Parks and Recreational Facilities	None necessary or proposed.
Farmlands/Timberlands	No Impact	Direct and Indirect Conversion of farmland	Prime farmland land conversion and avoidance. Impacts to farmland will be mitigated for at a 1:1 ratio.
Growth	No Impact	No substantial influence the overall amount or type of regional growth	No necessary or proposed.
Community Impacts	No Impacts	Relocations required: 3 single family and 1 commercial property	Project will comply with the Uniform Relocation Assistance Real Property Acquisition Policies Act of 1970 for potential residential relocations.
Utilities and Emergency Services	No impact	Utility relocations and potential traffic delays during construction	Employ low-intensity development techniques and features to maintain current drainages, design of Project will include landscaping and irrigation plan, and demolition debris will be recycled. Traffic Management Plan developed and implemented.
Transportation/Traffic	Kammerer Road would not be	Potential traffic delays during construction	Construction phasing, signage, and Traffic Management Plan.

Table 4. Summary of Potential Impacts

Resource	Potential Impacts		Summary of Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
	widened to four lanes		
Visual/Aesthetics	No impact	Roadway Improvements, Lighting and Glare, UPRR overhead grade separation, and Temporary Construction	Construction staging and storage, construction lighting plan, and operational lighting incorporated.
Cultural Resources	No impact	Potential to uncover unknown cultural resources during construction activities	Compliance with stipulations of Programmatic Agreement and regulations relating to discovered human and/or Native American remains.
Hydrology	No impact	Fill and structures within 100-year floodplain and new drainage facilities	Standard BMPs and Storm Water Management Plan.
Water Quality	No impact	Increase in Impervious Surface, Stormwater Runoff and potential water quality impacts from construction activities	Standard BMPs and Storm Water Management Plan.
Geology/Soils/ Seismic/Topography	No impact	Potential construction related impacts.	Design Project to California seismic standards, and geotechnical evaluation for proposed structures.
Paleontology	No impact	Potential construction related impacts	Paleontological Mitigation Plan (PMP) and paleontological resource sensitivity training
Hazards and Hazardous Materials	No impact	Potential construction related impacts from unknown hazardous wastes, spills, aerially deposited lead (ADL)	Soil sampling and proper handling, ADL investigation, chemically treated wood disposal, leaking transformers protocol, striping plan, Phase II soil testing for potential pesticides and asbestos presence.
Air Quality	No impact	Construction related exhaust and dust emissions.	Exhaust emissions controls, dust mitigation plan, and SMAQMD emissions control practices, where feasible and applicable.
Noise	No impact	Temporary construction noise, and operational noise impacts to local residents.	Sound barriers subject to final design, and local sound/noise compliance.
Biological Resources	No impact	Impacts to natural communities, wetlands/waters,	Environmentally Sensitive Area Fencing; Environmental Awareness Training, National

Table 4. Summary of Potential Impacts

Resource	Potential Impacts		Summary of Avoidance, Minimization, and/or Mitigation Measures
	No-Build Alternative	Build Alternative	
		habitats of special-status plants and animals and threatened and endangered species. Potential construction impacts to natural communities, wetlands and waters, special-status plants, special-status animal species, and threatened and endangered species.	Pollutant Discharge Elimination System (NPDES) 402 permit, Section 401 Certification, 1602 Streambed Alteration Agreement, Section 404 permit compliance, native tree replacement; pre-construction surveys; Swainson's hawk foraging habitat mitigation, mitigation for special-status plants, pre-construction burrowing owl surveys, giant garter snake foraging and nesting habitat mitigation, and invasive species prevention.

After comparing and weighing the benefits and impacts of all feasible alternatives, the Project Development Team has identified the Build Alternative as the preferred alternative, subject to public review. Final identification of a preferred alternative will occur after the public review and comment period.

After the public circulation period, all comments will be considered, and the Department, in cooperation with the City of Elk Grove and the Connector JPA, will select a preferred alternative and make the final determination of the Project's effect on the environment. Under CEQA, because no un-mitigatable significant adverse impacts were identified, the Connector JPA Board of Directors adopted (Resolution 2018-24) the Capital SouthEast Connector – A1/A2 Kammerer Road Project Initial Study with Mitigated Negative Declaration (IS/MND).

If the Department, as assigned by the FHWA, determines that the NEPA action does not significantly impact the environment, the Department will issue a Finding of No Significant Impact (FONSI). If it is determined that the Project is likely to have a significant effect on the environment, an Environmental Impact Statement (EIS) will be prepared.

1.4.3 Alternatives Considered but Eliminated From Further Discussion

The 2020 MTP/SCS, SACOG's 2021/2024 MTIP, the County's General Plan, City's General Plan, and environmental analyses prepared for approved development projects in the area have all identified that widening and extension of Kammerer Road from two lanes to four lanes from SR-99 to I-5 is a necessary improvement.

In preparation for the PEIR on the SouthEast Connector, which is a 34-mile program of projects, the Connector JPA conducted an alternatives screening which enveloped the Project. The screening is recorded in Appendix H of the Connector JPA PEIR (Connector JPA 2012). The CEQA review process included public and stakeholder, as well as state agency input, through the required involvement and notification process.

The initial range of reasonable alternatives followed CEQA Guidelines Section 15126.6 (f)(1), namely that the alternatives are limited to those that avoid or substantially lessen significant effects; those that are suitable, promote economic viability, and consider availability of infrastructure; those that are consistent with general plan and/or other regulatory limitations; and those alternatives that the proponent can reasonably have access to, acquire, or control.

Screening was measured against the SouthEast Connector's project objectives, which are consistent with the purpose and need of this Project. The SouthEast Connector's objectives are:

- Objective 1: Enhance mobility options within the Project corridor (and the greater Sacramento region) to serve and support sustainable planned growth and development patterns and principles from the approved General Plans and MTP, while minimizing impacts to the livability of residences and communities along the Project corridor.
- Objective 2: Aid economic vitality by improving accessibility to existing and planned job centers and commercial areas, facilitating goods movement, and enhancing the attractiveness of existing and planned employment and commercial areas.
- Objective 3: Provide a multi-modal facility that limits access to the extent possible to afford efficient transportation options within the corridor that balance transportation needs between local access and shorter trips and regional needs for longer trips; enable flexibility

among automobile, transit service, bicycle, and pedestrian uses, while incorporating ITS elements where possible.

- Objective 4: Preserve open space, wildlife habitat, and productive agricultural uses in the corridor and minimize growth inducement via sound transportation facility improvements and implementation.

In addition to the Build and No-Build Alternatives studied in this document, a southern alignment and an underpass option at the UPRR crossing were preliminarily evaluated. Based on PEIR findings, and for the reasons described below, the following alternatives were not carried forward into this Environmental Assessment:

Southern Alignment Build Alternative

The southern alignment build alternative originated at the I-5/Hood Franklin Road Interchange and provided a continuous roadway connection to SR-99. This portion of the Project would angle southeast, away from Hood Franklin Road, and a new intersection with Hood Franklin Road would be created. The new roadway would continue south before turning east on an alignment parallel to and approximately 1,000 feet south of, the existing Kammerer Road alignment. Kammerer Road would continue along this course for approximately one-half mile. The alignment would then shift north by approximately 380 feet and continue east, bisecting agricultural land, and intersecting Bruceville Road at approximately 620 feet south of the existing Kammerer Road intersection. The proposed southern alignment would continue east along this alignment for approximately 1 mile to the intersection of Big Horn Road where it would shift north to conform to the existing Kammerer Road. After conducting feasibility studies and property owner interviews, the southern alignment build alternative was eliminated from consideration due to potentially significant environmental impacts, impacts to Stone Lakes NWR, and to minimize alignment impacts to businesses regarding bisecting farmland and creating remnant lands.

Underpass at UPRR

An underpass at the UPRR crossing was a consideration presented to the implementing public agencies and the Department. After conducting general feasibility studies to compare environmental impacts, property acquisition, and cost, the undercrossing alternative was eliminated. It was found that the undercrossing at the UPRR would have caused potentially significant environmental impacts to waters of the U.S. and state, would not function during flood events (a key purpose/need of the Project), and required excessive costs of approximately \$8-9 million more than the chosen Build Alternative, according to the Final Value Analysis Study Report (Procura360 Group 2017).

Viaduct Option

This alternative was proposed by the Friends of Stone Lakes as a means to reduce impacts to Stone Lakes Refuge Master Plan. The Causeway option was eliminated due to its noise propagating effects, visual effects, and cost would make the Project infeasible to construct.

Bilby Road

Widen Bilby Road and extend east to SR 99 and west to I-5: To the west, this alternative would result in significant residential impacts and relocations in Franklin Crossing as well as some commercial impacts in the town of Franklin where the Bilby Road alignment would join Hood

Franklin Road. To the east, the Bilby Alignment would cut through planned development in the Southeast Policy Area as the alignment moves to the south to intersect SR 99 at the Kammerer Road/Grant Line Road Interchange. The Bilby alignment was considered for further studies to the severe impacts existing and planned development.

Class III Bike Lanes Option

Class III bike lanes were considered for the entire Kammerer Road alignment as requested by the public and the American Farm Bureau. This would allow oversized farm equipment to legally use the shoulder. Class III bike lanes will be constructed along the Kammerer Road alignment west of Bruceville Road. Class II bike lanes will be built east of Bruceville Road to accommodate circulation in the SEPA Specific Plan and to accommodate public safety considerations.

1.5 Permits and Approvals Needed

Table 5 lists permits, licenses, agreements, and certifications (PLACs) that would be required for Project construction.

Table 5. Permits/Approvals Required

Agency	PLAC	Status
Central Valley Regional Water Quality Control Board	Section 401 Certification	Prior to Construction
California Department of Fish and Wildlife	1602 Streambed Alteration Agreement (SAA)	Prior to Construction
U.S. Army Corps of Engineers	Section 404 Permit	Prior to Construction
Regional Water Quality Control Board	National Pollutant Discharge Elimination System 402 General Permit for Storm Water Discharges Associated with Construction Activity	Prior to Construction
U.S. Fish and Wildlife Service	Biological Opinion	Obtained
South Sacramento Habitat Conservation Plan (SSHCP)	SSHCP Consistency	Prior to Construction
Union Pacific Railroad	Grade Separated Overhead Application Approval	Prior to Construction
California Public Utilities Commission	Grade Separated Overhead Application Approval	Prior to Construction
California Department of Transportation	Encroachment Permit	Prior to Construction
Sacramento County	Encroachment Permit	Prior to Construction
City of Elk Grove	Encroachment Permit	Prior to Construction
City of Elk Grove	Swainson's Hawk Mitigation Fees	Prior to Construction
City of Elk Grove	Tree Permit	Prior to Construction
State Historic Preservation Office	Memorandum of Agreement (MOA)	Prior to Final ED
Sacramento Municipal Utility District	Utilities Coordination	Prior to Construction
Pacific Gas and Electric Company	Utilities Coordination	Prior to Construction
MCI (Verizon)	Utilities Coordination	Prior to Construction
Sacramento Area Sewer District	Utilities Coordination	Prior to Construction
Sacramento Regional – County Sanitation District	Utilities Coordination	Prior to Construction

2.0 **AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES**

This chapter explains the impacts that the Project would have on the human, physical, and biological environments in the Project area. It describes the existing environment that could be affected by the Project, potential impacts from the alternatives, and proposed avoidance, minimization, and/or mitigation measures. Any indirect impacts are included in the general impacts analysis and discussions that follow.

TOPICS CONSIDERED BUT DETERMINED NOT TO BE RELEVANT

As part of the scoping and environmental analysis conducted for the Project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document.

- *Scenic Vista* - A scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. In addition, some scenic vistas are officially designated by public agencies, or informally designated by tourist guides. A substantial adverse effect to such a scenic vista is one that degrades the view from such a designated view spot. The area surrounding the existing Kammerer Road is flat with rural residences scattered along the roadway. There are no long-distance scenic views as well as no officially designated scenic vistas in the Project area. In addition, no scenic view spots have been identified in the Project area.
- *Scenic Highway* – Within the Project area, no segments of I-5 or SR-99 are designated as a scenic highway or are eligible for designation as a scenic highway.
- *Wastewater and Drinking Water Systems* – The Project would not include features that would require the use of a septic system or other wastewater system; thus there is no discussion regarding the demand or expansion of these facilities, or the soil's capacity of supporting septic system structures.
- *Airports* – The Project is not located within an airport planning area. The Flying B Ranch is a private airport located approximately 2 miles south of the Project and does not accommodate commercial air traffic. Operations at the Flying B Ranch do not pose potential issues to the Project area due to its distance from the Project and minimal private operations. In addition, the Project would not result in any airport-related impacts such as changing air traffic patterns, safety risks, or airport noise.
- *Mineral Resources* – There are no mineral resource recovery sites in the Project area delineated on any local general plan, specific plans, or land use plan. The Project would not result in the use or extraction of any mineral resources and would not restrict access to known mineral resource areas.
- *Wild and Scenic Rivers* – No rivers subject to the National Wild and Scenic Rivers Act (16 United States Code [USC] 1271) and the California Wild and Scenic Rivers Act (California

Public Resources Code [PRC] Section 5093.50 et seq.) were identified within the Project area or vicinity.

- *Coastal Zone* – The Project is not located within the coastal zone.
- *Timberlands* – There are no forestlands, timberlands, or timber production zones near the Project area.
- *Ground-Borne Vibration* – The Project would not create any long-term sources of ground-borne vibration which will be perceptible beyond the Project right-of-way.

2.1 Human Environment

2.1.1. EXISTING AND FUTURE LAND USE

AFFECTED ENVIRONMENT

Information about land uses, including applicable plans and geographic information system (GIS) data, was collected from the City and the County. Land use data were generalized into major categories to allow information shared between the City and County to be presented consistently. In addition to collecting data, existing land use conditions were reviewed via a site visit and the use of aerial photography.

The Project is located along Kammerer Road along the City's southwestern boundary with the County. The study area for this Project is defined as a 5.75 mile road widening and extension project with the purpose to improve regional traffic operations and safety, reduce existing and projected congestion, accommodate travel demand through design year 2044, and provide a vital component of the east-west gap closure from I-5 to SR-99.

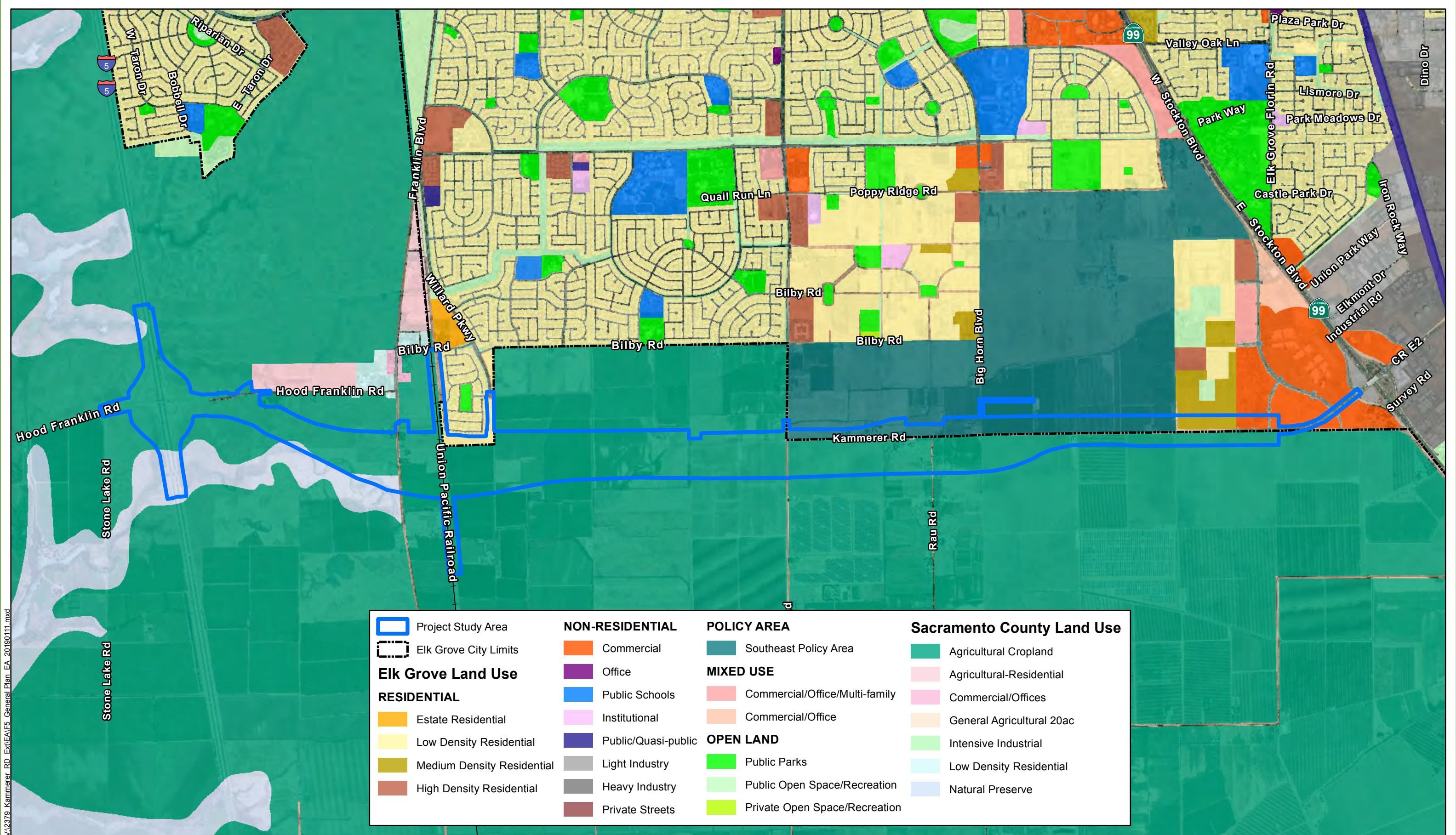
In September 2016, a Community Impact Assessment (CIA) was prepared and approved for the Kammerer Road Project. At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2016 CIA approval, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than previously analyzed, and the No-Build Alternative. A CIA revalidation addressing the changes in Project description and examining any additional potential community impacts identified as a result of the revised Build Alternative was prepared in December 2018 (Dokken Engineering 2018a). The following discussion briefly summarizes the findings of the CIA and the CIA revalidation.

Existing Land Use

Figure 5 shows the existing County and City General Plan land use designations in the Project vicinity. The Project study area includes Kammerer Road between SR-99 and its existing terminus at Bruceville Road and the proposed extension of Kammerer Road to the I-5/Hood Franklin Road Interchange. Existing land uses in the Project vicinity include agricultural, residential, natural reserve, commercial, industrial, and mixed-use. Land use designations within the City within ½ mile include low- and medium-density residential, commercial, public parks, and the Southeast Policy Area (SEPA). Land outside of the City limits within the unincorporated portions of the County are designated as agricultural cropland, aside from small portions of land near the I-5/Hood Franklin Road Interchange, which are designated as agricultural-residential, low-density residential, and commercial/offices. Outside of one-half mile of the Project area are residential developments and various community facilities, including churches, schools, and parks.

Figure 6 and **Figure 7** show the existing zoning for the City and County within the Project vicinity. The City's zoning diagram designates areas north and east of the Project area as residential, parks and open space, and Special Plan Area (SPA) (City of Elk Grove 2010). The County has zoned land in the Project vicinity outside of City limits as agricultural, agricultural-residential, interim residential, limited commercial, and recreation reserve uses (Sacramento County 2017a).

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Project Study Area	NON-RESIDENTIAL	POLICY AREA	Sacramento County Land Use
Elk Grove City Limits	Commercial	Southeast Policy Area	Agricultural Cropland
Elk Grove Land Use	Office	MIXED USE	Agricultural-Residential
RESIDENTIAL	Public Schools	Commercial/Office/Multi-family	Commercial/Offices
Estate Residential	Institutional	Commercial/Office	General Agricultural 20ac
Low Density Residential	Public/Quasi-public	OPEN LAND	Intensive Industrial
Medium Density Residential	Light Industry	Public Parks	Low Density Residential
High Density Residential	Heavy Industry	Public Open Space/Recreation	Natural Preserve
	Private Streets	Private Open Space/Recreation	

V:\2379_Kammerer_RD_Ext\EA\F5_General_Plan_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

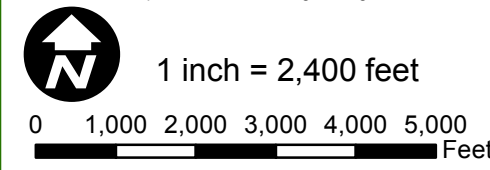
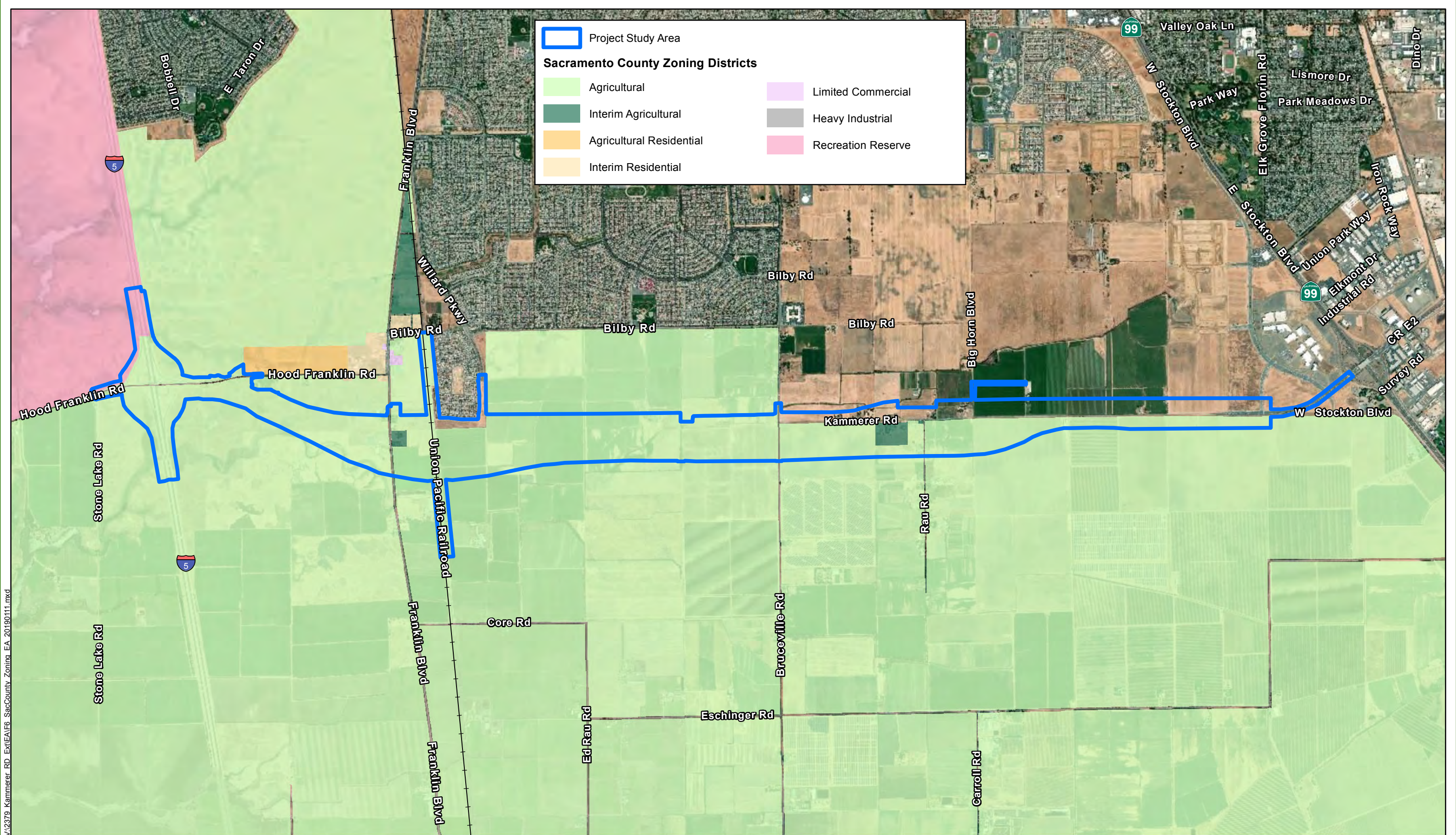


FIGURE 5
Sacramento County and City of Elk Grove General Plan Land Use

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

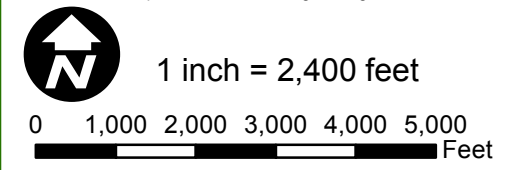
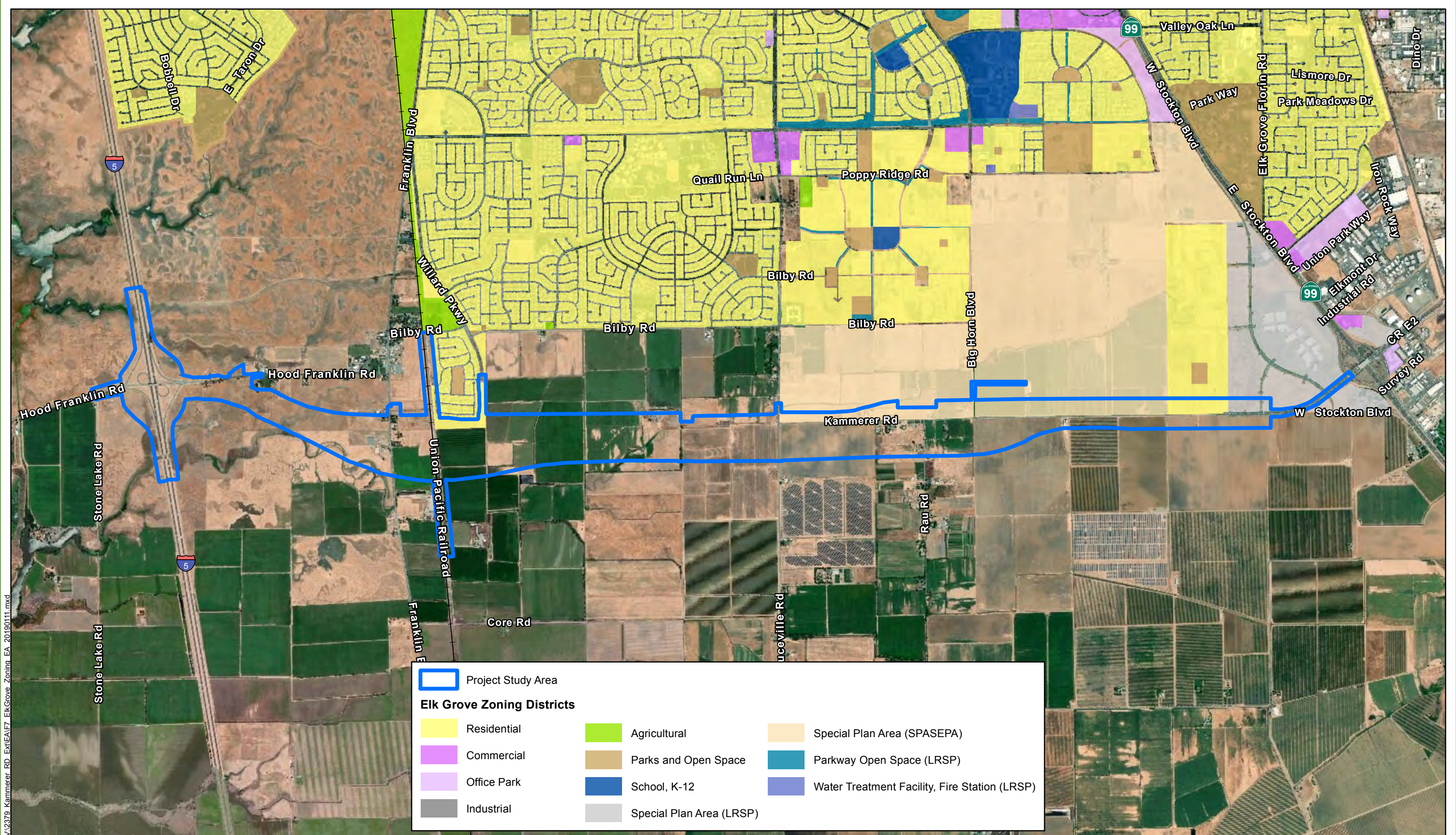














FIGURE 6
Existing Zoning in Sacramento County


Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California



	Project Study Area
Elk Grove Zoning Districts	
	Residential
	Commercial
	Office Park
	Industrial
	Agricultural
	Parks and Open Space
	School, K-12
	Special Plan Area (LRSP)
	Special Plan Area (SPASEPA)
	Parkway Open Space (LRSP)
	Water Treatment Facility, Fire Station (LRSP)

V:\2379_Kammerer_RD_Ext\EA17_ElkGrove_Zoning_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

 1 inch = 2,400 feet

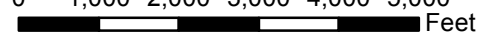
0 1,000 2,000 3,000 4,000 5,000
 Feet

FIGURE 7
Existing Zoning in the City of Elk Grove

Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Stone Lakes National Wildlife Refuge (Stone Lakes NWR) is located west of the I-5/Hood Franklin Road Interchange. Stone Lakes NWR is owned and managed by the U.S. Fish and Wildlife Service (USFWS), County, and several other State agencies.

Future Land Use

Table 3 and **Figure 4** above displays the planned development in the Project vicinity. A portion of the Project area is located within the unincorporated County. However, the County Urban Service Boundary (USB) indicates the boundary of the urban area within unincorporated portions of the County. The USB is the intended boundary of permanent urban growth. The County Urban Policy Area (UPA) defines the area within the USB which is expected to receive urban levels of public infrastructure and services within the planning period. The current planning period for the County UPA is projected to 2035. The County USB currently extends up to the Project area from SR-99 along existing Kammerer Road and ends just east of Franklin Boulevard. The County Urban Policy Area includes portions of the USB and near the Project area portions of the UPA occur up to the existing Kammerer Road alignment and in a portion just east of Bruceville Road. The County shall not provide urban services beyond this area. Therefore, any land development anticipated in the unincorporated County near the Project area would be limited by the extent of the UPA and the USB. The majority of future developments and land use changes would occur near the Project area within the City limits.

Urban development within the City limits is anticipated north of existing Kammerer Road in the SEPA, the Sterling Meadows Project, and the Lent Ranch Marketplace SPA, as designated in the City's General Plan. The SEPA plan was approved by Elk Grove City Council in July 2014. SEPA covers an area of approximately 1,200 acres in the City and will include office, commercial, light industrial/flex, village center, mixed-use residential, mixed-use village core, residential/neighborhood, estate residential, low-density residential, medium-density residential, high-density residential, public/semi-public, school, and parks/open space land uses (City of Elk Grove 2014a). The Sterling Meadows project is located along the north side of Kammerer Road just east of SEPA. Approximately 984 single-family residential units, 200 multi-family residential units, and 18.5 acres of parks uses are planned for development in the approved project (City of Elk Grove 2008).

In addition to the above mentioned planned development, the Kammerer Road/Hwy 99 Sphere of Influence Amendment (SOIA) application has been approved by the Sacramento Local Agency Formation Commission; however, there are no land use designations with the SOIA. Land use designations for the SOIA would be determined through future planning processes, as well as any environmental impacts. The SOIA is coterminous with the existing City limits. (See **Figure 4**).

2.1.2 CONSISTENCY WITH STATE, REGIONAL, AND LOCAL PLANS AND PROGRAMS

The following discussion describes the state, regional and local plans and programs applicable to the Project.

Sacramento Area Council of Governments Preferred Blueprint Scenario

SACOG adopted its Preferred Blueprint Scenario (Blueprint) in December 2004. The Blueprint process is a regional vision to accommodate the projected growth and long-term needs of the region through the year 2050. By 2050, the region's population is projected to grow from its current population of approximately 2.0 million to over 3.8 million and the number of jobs is projected to double to nearly 1.9 million. The Blueprint proposes a concentrated, compact development

pattern in the region with a balance of employment, residential, shopping, and recreational uses linked to transportation system improvements.

The Blueprint itself is advisory and does not establish actual land use restrictions for the County and the City. However, although only advisory, the Blueprint is the most authoritative policy guidance in the Sacramento region for long-term regional land use and transportation planning. A number of jurisdictions are either adopting the Blueprint concepts or are considering and encouraging projects consistent with the Blueprint. The current County and City General Plans are consistent with the Blueprint. The Blueprint is the top-tier planning document that helps drive more detailed transportation planning documents, such as the following.

2020 SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy

The 2020 MTP/SCS for 2020 through 2040 was adopted on November 18, 2019, based on the Preferred Blueprint Scenario. The 2020 MTP/SCS is a 20-year plan for transportation improvements in the six-county greater Sacramento region, based on projections for growth in population, housing, and jobs. SACOG is the metropolitan planning organization responsible for developing the 2020 MTP/SCS every four years, as State- and federally required, in coordination with the 22 cities and six counties in the greater Sacramento region. Under memoranda of understanding, the long-range transportation plans in El Dorado and Placer Counties are also incorporated into the 2020 MTP/SCS. Regardless of city- or county-designated transportation projects, local improvements must be included in the regional 2020 MTP/SCS to receive State and federal funding. The current 2 MTP/SCS proposes using \$35 billion in transportation funds to operate, maintain, and expand the region's transportation system. Expenditures include: \$21 billion going toward maintaining the existing system of roads and highways, and operating transit services. Of this, \$12.6 billion is going to road, and highway maintenance and \$8.1 billion to transit operations and vehicle purchases. \$9 billion of the \$35 billion budget is anticipated to go to expanding the transportation system. \$9 billion is anticipated to go to expanding the transportation system, including \$6.8 billion to road and highway expansion projects, including operational, safety, and multi-modal elements as part of large capital projects, and \$2 billion will go to large transit capital expansion projects. Additionally, \$5.6 billion goes to dedicated bicycle and pedestrian infrastructure, safety programs and improvements, and operational improvements.

The Project is identified in the 2020 MTP/SCS as a connector road investment, specifically as part of the Capitol SouthEast Connector. The Project would provide a link for residential areas and employment centers along the corridor between SR-99 and I-5, improve east-west circulation in the City and the County, and improve traffic operations and safety within the Project area. Funding is anticipated for the Project in the current 2020 MTP/SCS.

SACOG Metropolitan Transportation Improvement Program

As the designated metropolitan planning organization for the region, SACOG prepares and maintains a federal MTIP. The program includes a listing of all transportation-related projects requiring federal funding or other approval by the federal transportation agencies. The MTIP also lists nonfederal, regionally significant projects for information and air quality modeling purposes. Proposed projects included in the MTIP are consistent with SACOG's MTP/SCS and are part of the area's overall strategy for providing mobility, congestion relief, and reduction of transportation-related air pollution in support of efforts to attain federal air quality standards for the region. The MTIP is intended to implement the goals and objectives of the MTP/SCS.

SACOG adopted the Final 2021/2024 MTIP and Air Quality Conformity Analysis on February 18, 2021. The documents received federal approval on April 16, 2021. Now the 2021/2024 MTIP is the current programming document, replacing the old 2017-20 MTIP and amendments (SACOG 2020b).

Sacramento County General Plan

The current County General Plan was adopted on November 9, 2011, and reflects amendments through September 2021. The County General Plan is a policy document designed to give long-range guidance to those making decisions that affect growth and development within the unincorporated county. Section 65300 of the California Planning and Zoning Law requires each county and City jurisdiction to adopt a comprehensive, long-term general plan for its development containing seven principal elements: land use, circulation, housing, conservation, open space, noise, and safety. The County General Plan Transportation Plan diagram was amended on May 28, 2017 to reflect Kammerer Road as a Capital Southeast Connector roadway Expressway Segment between the I-5/Hood Franklin interchange and Bruceville Road and as a Thoroughfare Segment from Bruceville Road and US 99/Grant Line Road/Kammerer Road Interchange. The Land Use Element of the County General Plan sets out goals, policies, and implementation measures to ensure that the County's land resources are utilized in the most efficient, equitable, and productive manner possible to provide a high quality of life for both current and future residents.

City of Elk Grove General Plan

The City General Plan was adopted in 2021. The City's General Plan is a policy document designed to give long-range guidance to those making decisions affecting the character of Elk Grove. The City's General Plan establishes several "Land Use Policy Areas", which have been designated to reflect existing and pending major project approvals, or to reflect the need for more detailed land use planning at a future date. Additionally, the City's General Plan includes the City's support of the Connector JPA's planned roadway improvements in Mobility Policy MOB-7-6:

"Support efforts to develop the Capital SouthEast Connector, providing a regional roadway connection from Interstate 5 and State Route 99 to US 50. The City will work with the Capital SouthEast Connector Joint Powers Authority in implementing the planned roadway improvements." (MOB-7-6.)

Stone Lakes National Wildlife Refuge Comprehensive Conservation Plan

The Stone Lakes NWR plan was prepared by USFWS (2007a) to guide management of fish, wildlife, plants, other natural resources, and visitor use on the refuge through the year 2022. The Comprehensive Conservation Plan (CCP) is planned to be updated every 15 years.

South Sacramento Habitat Conservation Plan

The Final SSHCP was adopted by the County in September 2018 and is available at www.southsachcp.com. The Final SSHCP area encompasses 345,000 acres in the southern unincorporated County. The Connector JPA is a participant of the SSHCP and a portion of the Project occurs along the boundaries of the UDA and Preserve Planning Unit 6. The intent of the SSHCP is to provide a regional approach to balancing development against conservation and protection of habitat, open space, and agricultural lands in the plan area.

The SSHCP is approved and permits have be implemented through an agreement between State/federal resource agencies (USFWS, CDFW, the USACE, and the State Water Board) and the plan participants (currently identified as Sacramento County, City of Rancho Cordova, and the Connector JPA). The SSHCP protects 30 species of plants and wildlife, including 10 that are listed as threatened or endangered under the ESA or CESA. The SSHCP also protects vernal pool, wetland, and stream habitats that are subject to the federal CWA and California's Porter-Cologne Water Quality Control Act. The SSHCP also obtained a programmatic SAA under Fish and Game Code Sections 1600, et seq.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Applicable plans, goals, and policies were reviewed for consistency with the Build Alternative and are described in more detail below.

Consistency with the SACOG Preferred Blueprint Scenario

SACOG's Preferred Blueprint Scenario provides a generalized priority list of transportation improvement projects that would support the land uses and smart growth planning concepts outlined in the preferred scenario. The Project is not included in this list. However, the list is intended to be informational and does not reflect a policy recommendation or decision by the board. The SACOG 2020 MTP/SCS, described below, is SACOG's approved transportation improvement project list for the region. Regardless, the Project would be consistent with the overall objectives of the Preferred Blueprint Scenario by improving east-west circulation and safety in south County.

Consistency with the SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy

The Project is identified in the 2020 MTP/SCS as a road investment; Kammerer Road is identified as ultimately planned as a four-lane road from I-5 to Bruceville Road and a six-lane road from Bruceville Road to SR-99. The Project would be consistent with the 2020 MTP/SCS by providing a link for residential areas and employment centers along the corridor between I-5 and SR-99, improve east-west circulation in the City and south County, and improve traffic operations and safety in the Project area.

Consistency with the SACOG Metropolitan Transportation Improvement Program

The Project is identified in the 2021/2024 MTIP with a project description for the roadway extension portion of the Project (SAC24094), a project description for the widening of the roadway portion of the Project (SAC24114), and the segment A2 2-lane road reconstruction (SAC25087), respectively.

- **SAC24094:** In Elk Grove, Kammerer Rd. from Bruceville Rd. to Interstate 5/Hood Franklin Interchange: Extend road. Modify the I-5/Hood Franklin interchange (signalization and turn lanes at the ramps), construct a grade separation at the UPRR tracks, Class 2 bike lanes, and signalized intersections at major road crossings. Environmental phase (CEQA and NEPA) covers full project scope, to be built in phases: Kammerer Road: In Elk Grove, from Lent Ranch Parkway to I-5/Hood Franklin Interchange: Widen and extend from 2 to 4 lanes (see MTP/SCS project SAC24114).

- SAC24114: In Elk Grove, Kammerer Rd, from Lent Ranch Parkway to I/5/Hood Franklin Interchange: Widen from 2 to 4 lanes. This Project is included in the Environmental Studies (NEPA and CEQA) for SAC24094..
- SAC25087: In Elk Grove, from the Big Horn Blvd. intersection to the Lotz Pkwy. intersection: Reconstruct Kammerer Rd. as two lane divided facility with shoulders. Include enhancements to three intersections. (Part of CSE Connector A2).

Consistency with the Sacramento County General Plan

The Project would be consistent with the County General Plan Policies CI-1, CI-7, CI-9, and CI-34, as it includes extending, widening, and improving Kammerer Road to provide a more complete street and provide safe and efficient bicycle and pedestrian access to the surrounding area; it is identified on the County's General Plan Transportation Plan map; and it would maintain an acceptable LOS on all intersections, roadway segments, freeway ramps, and freeway mainline segments under existing and cumulative conditions, with mitigation implemented at the intersection of Kammerer Road and Bruceville Road.

Consistency with the City of Elk Grove General Plan

The Project is consistent with City General Plan Policies MOB-1, MOB-3, MOB-4, and MO-7, as the City is a implementing agency for the Project, coordinating with the County and the Department; the alternative includes bicycle- and pedestrian-friendly designs as an incentive to encourage alternative modes of transportation; and the alternative would maintain a LOS D or better on all roadway and intersections at the Project area, with the exception of Kammerer Road from SR-99 to Promenade Parkway and the intersection of Kammerer Road and Bruceville Road, at cumulative 2044 conditions.

Consistency with the Stone Lakes National Wildlife Refuge Comprehensive Conservation Plan

The Project is located east of the Stone Lakes NWR, and a relatively small portion of the proposed Kammerer Road extension is located within the Stone Lakes NWR approved boundary as identified in the CCP. The Project would require approximately 0.06-0.26 acres of land under cooperative agreements. This land is not part of the Stone Lakes NWR Core Area or under fee title ownership.

Consistency with the South Sacramento Habitat Conservation Plan

All Project impacts to plant and wildlife species and their associated habitats will be covered under the SSHCP and would have to be mitigated. The Project has been designed to be consistent with the SSHCP's vision and goals. The Project will comply with the appropriate compensatory mitigation. Compensatory mitigation for permanent and indirect impacts and mitigation measures discussed throughout Section 2.3 "Biological Environment" are consistent with the Connector JPA PEIR and the SSHCP. **Figure 8** displays the Project area along the boundaries of the UDA and Preserve Planning Unit 6.

Table 6 provides a summary of the Project's Build Alternative and No-Build Alternative consistency with State, regional, and local programs as discussed above.

Table 6. Plan Consistency Summary by Alternative

Plan or Program	Build Alternative	No-Build Alternative
	Consistent?	Consistent?
SACOG Blueprint	Yes	No
SACOG MTP/SCS	Yes	No
SACOG MTIP	Yes	No
Sacramento County General Plan	Yes	No
City of Elk Grove General Plan	Yes	No
Stone Lakes NWR CCR	Yes	No
SSHCP	Yes	No

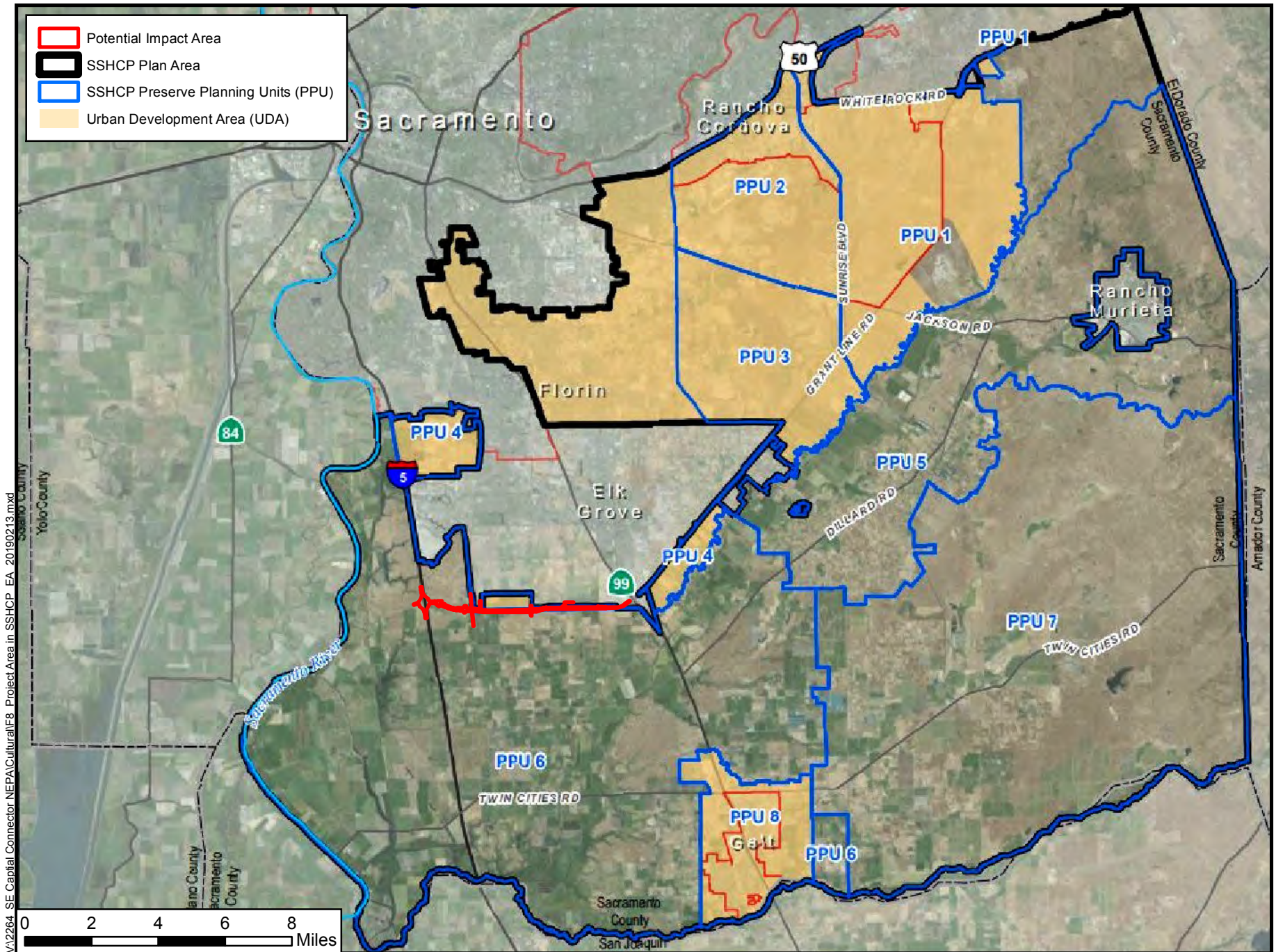
No-Build Alternative

Under the No-Build Alternative, Kammerer Road would remain in its current configuration with the same number of lanes and traffic capacity and will continue to terminate at Bruceville Road while the adjacent lands would continue to be developed according to the City's General Plan. No right-of-way would be acquired. Kammerer Road remaining in its current configuration would directly cause significant permanent and cumulative adverse impacts to traffic operations, emergency services, and air quality.

If the Project is not built, Kammerer Road would not be consistent with the SACOG 2020 MTP/SCS, SACOG 2021/2024 MTIP, the City General Plan (as amended), or the County General Plan (2011a). Under the No-Build Alternative, Kammerer Road would not be extended, widened, or improved and acceptable LOS standards would not be maintained at multiple intersections and roadway segments (refer to Section 2.1.10, "Traffic and Transportation/Pedestrian and Bicycle Facilities"). The No-Build Alternative does not accomplish the goals and policies included in the SACOG 2020 MTP/SCS or the City's or County's General Plans.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The Project is anticipated to be consistent with all applicable plans within the Project vicinity. No avoidance, minimization, and/or mitigation measures are proposed at this time.



V:\2264_SE Capital Connector NEPA\Cultural\F8 - Project Area in SSHCP - EA 20190213.mxd

Source: SSHCP Area Map; Dokken Engineering 2/13/2019; Created By: briann



1 inch = 4 miles

FIGURE 8
Project Study Area within SSHCP
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

2.1.3 PARKS AND RECREATIONAL FACILITIES

REGULATORY SETTING

The Public Park Preservation Act of 1971 (PRC 5400 to 5409) states that no city, county, public district, public utility, or agency of the state (including any division, department, or agency of the state government) shall acquire property in use as a public park to use for another purpose, unless the acquiring party provides sufficient compensation or land, or both, to allow replacement of the park land and associated facilities. The acquiring entity must provide one of the following:

- The cost of acquiring substitute park land of comparable characteristics and of substantially equal size located in an area which would allow for use of the substitute park land and facilities by generally the same persons who used the existing park land and facilities, and the cost of acquiring substitute facilities of the same type and number, plus the cost of development of such substitute park land, including the placing of such substitute facilities thereon.
- Substitute park land of comparable characteristics and of substantially equal size located in an area which would allow for use of the substitute park land by generally the same persons who used the existing park land, and the cost of acquiring substitute facilities of the same type and number, plus the cost of development of such substitute park land, including the placing of such substitute facilities thereon.
- Any combination of substitute park land and compensation in an amount sufficient to provide substitute park land of comparable characteristics and of substantially equal size located in an area which would allow for use of the substitute park land and facilities by generally the same persons who used the existing park land and facilities, and to provide substitute facilities of the same type and number, plus the cost of development of such substitute park land, including the placing of such substitute facilities thereon.
- In addition, the operating entity of the purchased park land must acquire substitute park land and facilities.

There are some exceptions to the provisions of the act. The provisions do not apply to acquisition of public park land for the construction or maintenance of underground utility services. If it is not feasible to place utility services or facilities underground, the provisions do not apply to public utilities providing services to the public park. If a public utility acquires the property as a waterway, and it is determined by majority vote of the legislative body of the park that the waterway would preserve or enhance the recreational or aesthetic values of the park, the provisions of the act do not apply. In addition, if less than 10% of the park land, but no more than 1 acre, is acquired, the operating entity may use funds to improve the remaining portion of park land and facilities with the approval of the legislative body by majority vote.

AFFECTED ENVIRONMENT

The Cosumnes Community Services District boundary includes the entire Project area. The City Map for Parks and Trails does not designate any parks, trails, or any other recreational facilities in the Project area. Various parks and recreational facilities exist in the area within a one-half mile radius of the Project area, including Buscher Park (Matina Drive and Willard Parkway), Kunsting Park (10069 Wild Orchard Way), Stephenson Park (5511 Dorsey Drive), Bartholomew Sports Park (10150 Franklin High Drive), Backer Sr. Park (10400 Stathos Drive), Schauer Park (10181 Frank Gregg Way), Machado Dairy Park (10394 Franklin High Road), and Emerald Lakes Golf Course (10651 East Stockton Boulevard). However, these parks and recreational facilities in the surrounding area are outside of the Project area.

The City's BPTMP (City of Elk Grove 2021b) identifies existing and planned facilities for bicycle, pedestrian, and equestrian facilities in the City. Currently, the closest facilities to the Project area include sidewalks and bike lanes along Kammerer Road from SR-99 to approximately 400 feet east of Promenade Parkway. The City BPTMP identifies these facilities as well as a Class II bike lane which runs along Bilby Road from Bruceville Road to the UPRR which is approximately one-half north of the Project area. The multiuse path included as part of the Project is identified in the City BPTMP. In addition to multiuse trails and other Class II bike lanes are proposed in the City BPTMP within and adjacent to SEPA.

The *Sacramento County Bicycle Master Plan* (SCBMP) (Sacramento County 2011b) identifies existing facilities and recommends bicycle network improvements within the County. The SCBMP identifies several planned bike lanes around the Project area including the facilities included as part of the Project. In addition, the SCBMP identifies facilities along Franklin Boulevard, Bilby Road between Franklin Boulevard and Bruceville Road, and along Bruceville Road south of Bilby Road.

Stone Lakes NWR is located north and west of the Project and covers approximately 18,000 acres, of which the USFWS is authorized to acquire, protect, and manage 17,641 acres. However, this depends on the willingness of landowners in areas where lands are under private ownership or fee titles. Stone Lakes NWR offers recreational opportunities for residents and visitors, including wildlife observation guided walks, wildlife observation paddle tours, environmental education, hiking on the blue heron trails, and waterfowl hunting. The most popular recreational activity related to wildlife in the refuge is wildlife viewing, followed by freshwater fishing, saltwater fishing, and hunting. The largest number of visitors in one year was 8,500 persons in 2001, as reported by the USFWS.

In addition to Stone Lakes NWR, the Great California Delta Trail is within the Project vicinity to the west of the I-5/Hood Franklin Interchange. The Great Delta Trail System was authorized in 2006 legislation in response to the growing demand for public access to the Delta's natural resources, recognition of the importance of natural and rural places, and to acknowledge the value of outdoor recreation to healthy lives and communities.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

The Project would not traverse any recreational areas within the City, County, or the Consumes Community Services District.

The Project would help to accommodate planned growth in the region. However, the Project itself would not directly result in an increase in population that would substantially increase the use of parks or recreation facilities or lead to their degradation. Any planned development projects would be required to undergo environmental review and mitigate any potential impacts, if and when, they are constructed. Therefore, no impacts from the Project to existing parks and recreation facilities are anticipated, and no mitigation is required.

Of the 18,000-acre approved Stone Lakes NWR, approximately 17,641 acres are designated within the *Refuge Project Area*, a 4(f) resource, while the remaining 359 acres are situated within the *Refuge Project Boundary*. The Refuge Project Boundary is only a designated area where the USFWS may consider opportunities to work with willing private and public landowners on

establishing easements, leases, transfers or acquisitions. The Refuge Project Boundary is essentially just an area of opportunity. Only those lands that are owned or leased by the USFWS are part of the Refuge Project Area are 4(f) resources, and subject to any of the management actions or protections. The Project is anticipated to consult with USFWS regarding potential easement, lease, or acquisition of a portion of privately owned land within the Refuge Project Boundary in the vicinity of the I-5/Hood Franklin Road Interchange where the ramp realignment may be necessary to accommodate the new roundabout configurations at the westernmost intersection, the extent of the impacts will be determined at the time of final design. No protected lands within the Refuge Project Area would be impacted by the Project; therefore, no impacts to 4(f) resources within the Stone Lakes NWR would occur (Appendix A).

The Project would include a bidirectional multiuse pathway north of the west-bound travel lane from SR-99 to approximately 500 feet east of the I-5/Hood Franklin Road Interchange, where the proposed Kammerer Road extension intersects with Hood Franklin Road. In the widened portion of existing Kammerer Road from Bruceville Road to Lent Ranch Parkway, Class II bike lanes would be constructed along Kammerer Road at the shoulders. The Class II bike lanes are identified in the BPTMP and SCBMP as proposed facilities. In addition, the surrounding facilities identified in the BPTMP and SCBMP along Bruceville Road, Franklin Boulevard, and along proposed roads within SEPA would not be affected by the Project.

Both the thoroughfare and the expressway will include a Class I bidirectional, multiuse pathway along the northern extent of the roadway that connects to the sidewalk within the State's right of way on the western end at the I-5/Hood Franklin Road interchange. The Project would include a multi-use path adjacent along the west-bound travel lane, and a Class II Bicycle Lane along both travel directions between SR-99 and Bruceville Road. The Project will be consistent with the City's BPTMP.

Increased demand of the Great California Delta Trail system could occur as the City develops, and the Project may provide access connections from the City to west of the I-5/Hood Franklin Interchange. However, no direct impacts to the Great California Delta Trail are anticipated as the trail system is outside of the Project area. Small traffic decreases to the Twin Cities area would occur (approximately 200 ADT decrease) due to the parallel capacity of Kammerer Road. Additionally, a small traffic increase (less than 250 ADT increase) is anticipated to Hood Franklin Road and SR-160 along the delta, west of the I-5/Hood Franklin Interchange. Due to the low volume of these facilities, the changes due to the Project would not result in a significant increase in travelers using the delta area roadways or the Great California Delta Trail.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would remain in its current configuration with the same number of lanes, traffic capacity, and no recreational multiuse path. The facility would continue to terminate at Bruceville Road while the adjacent lands would continue to be developed according to the City's General Plan. Kammerer Road remaining in its current configuration would directly cause significant permanent and cumulative adverse impacts to traffic operations, emergency services, and air quality.

If the Project is not built, the bike lanes and multiuse path would not be constructed and Kammerer Road would not be consistent with the BPTMP and SCBMP. The No-Build Alternative would not accomplish the goals and policies included in the SACOG 2020 MTP/SCS or the City and County General Plans.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The implementation of the Project would not result in direct impacts on local parks, and thus no mitigation is necessary for the Project in relation to recreation facilities

2.1.4 FARMLANDS/TIMBERLANDS

REGULATORY SETTING

The National Environmental Policy Act (NEPA) and the Farmland Protection Policy Act (FPPA, 7 United States Code [USC] 4201-4209; and its regulations, 7 Code of Federal Regulations [CFR] Part 658) require federal agencies, such as the Federal Highway Administration (FHWA), to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance..

If work is being done on federal land (e.g., Bureau of Land Management or U.S. Forest Service lands), those agencies' regulations and policies regarding protection of timberlands are followed.

Sacramento County General Plan

The County General Plan (amended November 2011) guides future development in the County, including a portion of the Project area. The following General Plan policies in the Agricultural Element guide development while maintaining the agricultural productivity of the land in the County.

Policy AG-1: The County shall protect prime, statewide importance, unique and local importance farmlands located outside of the Urban Services Boundary (USB) from urban encroachment.

Policy AG-2: The County shall not accept applications for General Plan amendments outside the USB redesignating prime, statewide importance, unique and local importance farmlands or lands with intensive agricultural investments to agricultural/residential or urban use (i.e., residential, commercial, industrial) unless the applicant demonstrates that the request is consistent with the General Plan Agriculture-Residential expansion policies (please refer to Land Use Element Policies regarding Agriculture-Residential uses).

Policy AG-3: The County shall permit agricultural uses on buffers, provided such uses are conducted in a manner compatible with urban uses. Buffers shall be used to separate farming practices incompatible with adjacent urban uses. Any homeowners' association or similar entity within the development shall assist in determining compatible use. Buffers shall not adversely conflict with agricultural uses on adjoining property.

Policy AG-5: Projects resulting in the conversion of more than fifty (50) acres of farmland shall be mitigated within Sacramento County, except as specified in the paragraph below, based on a 1:1 ratio, for the loss of the following farmland categories

through the specific planning process or individual project entitlement requests to provide in-kind or similar resource value protection (such as easements for agricultural purposes):

- prime, statewide importance, unique, local importance, and grazing farmlands located outside the USB;
- prime, statewide importance, unique, and local importance farmlands located inside the USB.

The Board of Supervisors retains the authority to override impacts to Unique, Local, and Grazing farmlands, but not with respect to Prime and Statewide farmlands.

However, if that land is also required to provide mitigation pursuant to a Sacramento County endorsed or approved Habitat Conservation Plan (HCP), then the Board of Supervisors may consider the mitigation land provided in accordance with the HCP as meeting the requirements of this section including land outside of Sacramento County.

Note: This policy is not tied to any maps contained in the Agricultural Element. Instead, the most current Important Farmland map from the Department of Conservation should be used to calculate mitigation.

Policy AG-29: The County shall minimize flood risks to agricultural lands resulting from new urban developments by:

- Requiring that such developments incorporate adequate runoff control structures and/or
- Assisting implementing comprehensive drainage management plans to mitigate increased risks of farmland flooding resulting from such developments.

City of Elk Grove General Plan

The City General Plan guides future development in the City, including the Project area. The following General Plan policies contained in the Land Use Element guide the development in agricultural areas and conversions in the City Planning Area.

Policy AG-1-3: Recognize the right of existing agricultural uses to continue as long as individual farmers desire. As appropriate for the neighborhood, allow for buffers or feathering of lot sizes where appropriate between farmland and urban uses. Additionally, continue implementing the City's Right to Farm regulations and property title disclosures to notify prospective buyers of agricultural activities in the area.

Policy AG-1-5: Protect agricultural lands from future risk of conversion by requiring mitigation of the loss of qualified agricultural lands at a 1:1 ratio.

Policy AG-1-6: Limit the siting of projects with land uses that might result in conflicts near existing agriculture due to noise, air quality, or odors.

Policy LU-1-7: Encourage disclosure of potential land use compatibility issues including but not limited to noise, dust, and odors, in order to provide potential purchasers with complete information to make informed decisions about purchasing property.

AFFECTED ENVIRONMENT

In March 2016, a Farmland Conversion Impact Rating Form AD -1006 and Assessment Report was prepared and approved in October 2016, for the Kammerer Road Extension Project. At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2016 approval, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than previously analyzed, and the No-Build Alternative. A Farmland Conversion Impact Addendum and an updated NRCS-CPA-106 Form, for corridor type project were prepared and approved in October 2018 (Dokken Engineering 2018b), to address the changes in Project description and to examine any changes in potential farmland impacts identified as a result of the revised Build Alternative. The following discussion summarizes the findings of the Farmland Conversion Impact Addendum.

Farmlands within and surrounding the Project area include irrigated hayfields, irrigated row crops, and irrigated field crops. Hayfields are typified by dense monocultures of alfalfa (*Medicago sativa*) or annual grass. Irrigated row and field crops within the region include broccoli (*Brassica oleracea*), cabbage (*Brassica oleraceae*), radish (*Raphanus sativus*), onion (*Allium cepa*), tomato (*Lycopersicon esculentum*), butternut squash (*Cucurbita moschata*), soybean (*Glycine max*), kohlrabi (*Brassica oleracea*), okra (*Abelmoschus esculentus*), snow peas (*Pisum sativum var. macrocarpon*), and Swiss chard (*Beta vulgaris flavescens*).

The Farmland Mapping and Monitoring Program (FMMP) was established in 1982 to continue the Important Farmland mapping efforts which began in 1975 by the US Department of Agriculture (USDA), Soil Conservation Service, which is now known as the NRCS. The intent was to produce agricultural resource maps based on soil quality and land use across the United States. The State has assisted the NRCS with completing its mapping of agricultural resources in the State since 1980. The FMMP was created in the California Department of Conservation (CDOC) to continue the mapping activity with greater level of detail, which was achieved by modifying the mapping criteria for use in the State.

The Important Farmland Maps identify five agricultural-related categories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. Urban and Built-Up Land and Other Land are also identified on Important Farmland maps, but are not classifications of agricultural resources. As stated above, a review of the County Important Farmland Map (CDOC 2014), showed that the Project area is located on and adjacent to land classified by the FMMP as Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Grazing Land

In 2012, California irrigated farmland decreased by more than 58,587 acres with 81 percent of the decrease occurring in Prime Farmland. Land idling, which includes fallowing and reversions to dry farming, was prominent within the County. Nearly 5,677 acres were left idled and much of it was focused near the City and in specific islands in the Sacramento-San Joaquin Delta (CDOC 2015b).

According to the FMMP (2014-2016 Land Use Conversion Report), the CDOC inventoried approximately 360,657 acres of Important Farmland and Grazing Land within the County in 2016. Between 2014 and 2016, a total of 1,167 acres of Important Farmland was converted to nonagricultural use and approximately 280 acres of Grazing Land was converted to nonagricultural use, as a total of 1,447 acres of converted agricultural lands (CDOC 2016).

According to the FMMP (2016-2018 Land Use Conversion Report), the CDOC inventoried approximately 351,583 acres of Important Farmland and Grazing Land within the County in 2018. Between 2016 and 2018, a total of 5,586 acres of Important Farmland was converted to nonagricultural use and approximately 3,187 acres of Grazing Land was converted to nonagricultural use, as a total of 8,773 acres of converted agricultural lands (CDOC 2016).

To assist in the determination of whether the Project's conversion of farmland and agricultural land met or exceeded the recommended allowable level, a Farmland Conversion Impact Rating Form NRCS-CPA-106 for corridor type projects was completed for the Project. This form is administered by the NRCS and calculates impacts to important farmlands and resources in the area, including acreage conversion. The recommended allowable level is based on a points system and is set at a value of 160.

To identify Prime and Unique Farmland within the Project area, a USDA Farmland Conversion Impact Rating NRCS-CPA-106 was completed and submitted to the NRCS local Field Office for review. The NRCS concurred and approved the NRCS-CPA-106 on August 16, 2018.

Evaluation of Project impacts was conducted in Parts I and III of the form, which documents the potential impacts as a result of the Project to the soils mapped as suitable farmland, within and adjacent to the Project area. The Project encompasses approximately 385 acres of land, where approximately 328.31 acres of suitable farmland soils were determined to be within the Project's Potential Impact Area.

Of the 328.31 acres approximately 3.06 acres were determined to be Prime Farmland, 101.82 acres were determined to be Farmland of Statewide Importance, 174.22 acres were determined to be Farmland of Local Importance, 48.73 acres were determined to be Grazing Land, and 0.48 acres were determined to be Unique Farmland.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Project impacts to important farmland resources would not occur within previously designated right-of-way, including UPRR and the Department right-of-way. These areas have already been approved as non-agricultural lands. Additionally, all farmland resources within previously approved development areas were not assessed for impacts due to these areas having previous requirements for farmland impacts during their respective environmental processes. The previously planned developments were approved by the City of Elk Grove Planning Department and have submitted tentative maps to the City; therefore, these developments are considered to likely be implemented prior to construction of the Kammerer Road Extension Project. These development projects are all required to provide farmland mitigation, where applicable, and therefore are not considered within the impacts of this Project. Projects that have not been

approved and submitted tentative maps to the City have not been included as impacted farmlands.

Project implementation would result in the direct conversion of approximately 1.41 acres of Prime Farmland, 36.12 acres of Farmland of Statewide Importance, 83.81 acres of Farmland of Local Importance, and 3.47 acres of Grazing Land, for a total of 124.81 acres of direct conversion. Additionally, Project implementation would result in the indirect conversion of approximately 0.09 acres of Prime Farmland, 0.05 acres of Farmland of Statewide Importance, 12.24 acres of Farmland of Local Importance, and 0.28 acres of Grazing Land, for a total of 12.66 acres of indirect conversion. These indirect impacts take into account any parcels that may be bisected, leaving unfarmable remainders through removal of accessibility. Any parcels that have been bisected, but still remain accessible, are not considered indirect impacts and they are not taken into account in the acreage amounts stated above. The results of the farmlands assessment indicate that the farmland in the Project is not of significant value for consideration of protection.

Table 7 below describes the acres of mapped soils in the Project area to be converted either directly or indirectly as a result of the Project (**Figure 9**).

Table 7. Proposed Farmland Impacts

Impact Type	Prime Farmland (acres)	Farmland of Statewide Importance (acres)	Farmland of Local Importance (acres)	Grazing Land (acres)	Total (acres)
Direct	1.41	36.12	83.81	3.47	124.81
Indirect	0.09	0.05	12.24	0.28	12.66
Total	1.5	36.17	96.05	3.75	137.47

The corridor assessment portion of the form (Part VI) reflects the general suitability of farmland in the Project corridor for protection/preservation. The total site assessment score for the Project was low (121 points out of 160), but this does indicate that the impacts to farmland located within Project corridor needed to be evaluated. This is due to the active farmlands adjacent to and within the Project area and the relative size of the farms in comparison to the rest of the farms within the County.













The points of both the NRCS Land Evaluation (Part V) and the corridor assessment (Part VI of Form AD-106), totaled to 121, as found in Part VII of Form AD-106. This is a combination of the relative value of the farmland and total corridor assessment. The recommended allowable limit for consideration of avoidance alternatives for impacts for farmlands is a score of 160 or higher. As the score is 121, no further evaluation of impacts to farmlands or avoidance alternatives is required.

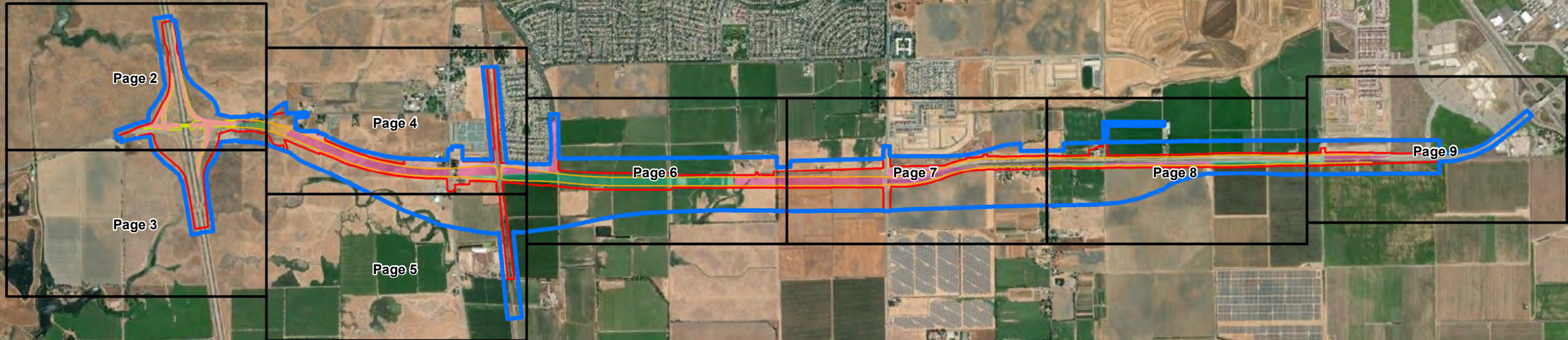
There are no Williamson Act Contract Lands within the Project area, and no impacts to Williamson Contract Lands is anticipated. Farmland which is bisected and/or leaves unfarmable remainders will be appropriately compensated or mitigated to ensure continued access to previous resources or may be purchased.

The Project is consistent with state and local farmland protection programs and policies. During final design of the Project, impacts to protected farmland resources will be refined. With the

implementation of avoidance, minimization and/or mitigation measures **AG-1** and **AG-2** in compliance with the Connector JPA PEIR, the Project would not have a substantial impact to farmland or timberland resources.

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 Potential Impact Area	Farmland Impacts	
 Project Study Area	Direct	Indirect
 Roundabout Intersection Control	 Grazing Land (3.47 acres)	 Grazing Land (0.28 acres)
 Future Interchange Concept	 Farmland of Local Importance (83.81 acres)	 Farmland of Local Importance (12.24 acres)
	 Farmland of Statewide Importance (36.12 acres)	 Farmland of Statewide Importance (0.05 acres)
	 Prime Farmland (1.41 acres)	 Prime Farmland (0.09 acres)



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Source: ESRI Maps Online; Dokken Engineering 7/26/2022; Created By: rramirez

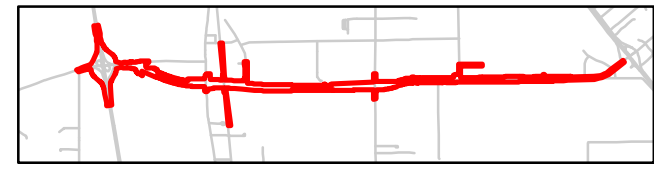
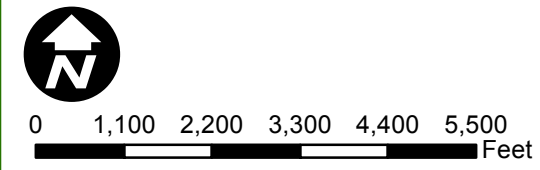












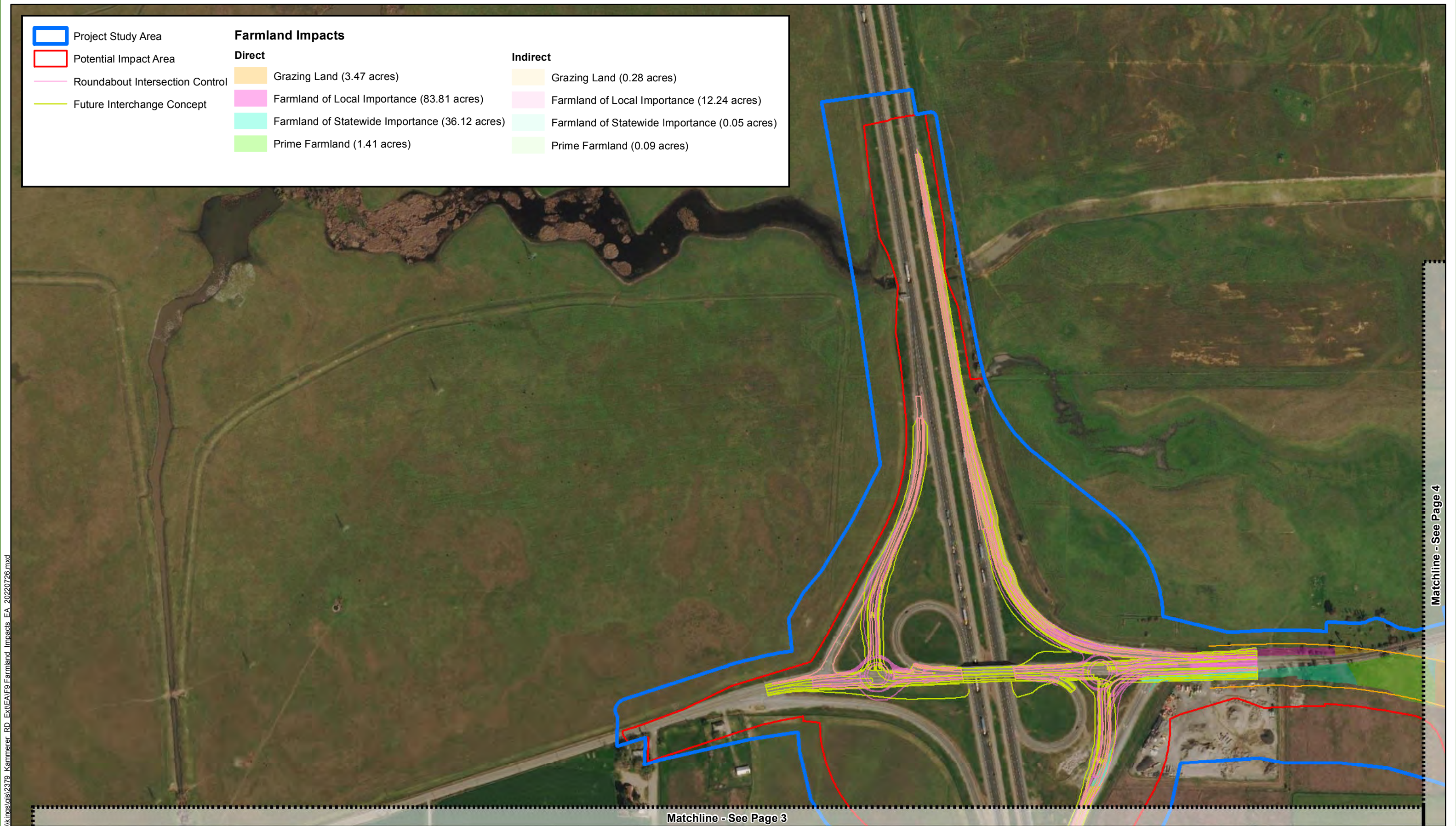


FIGURE 9
Farmland Impacts
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

 Project Study Area	Farmland Impacts	
 Potential Impact Area	Direct	Indirect
 Roundabout Intersection Control	 Grazing Land (3.47 acres)	 Grazing Land (0.28 acres)
 Future Interchange Concept	 Farmland of Local Importance (83.81 acres)	 Farmland of Local Importance (12.24 acres)
	 Farmland of Statewide Importance (36.12 acres)	 Farmland of Statewide Importance (0.05 acres)
	 Prime Farmland (1.41 acres)	 Prime Farmland (0.09 acres)



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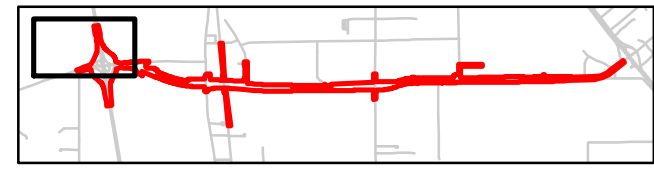
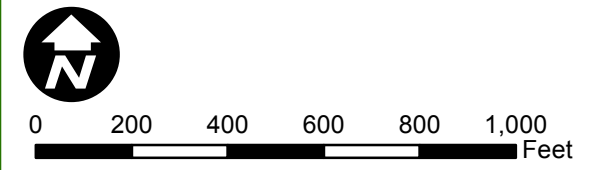






FIGURE 9
Farmland Impacts
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 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California





-  Project Study Area
-  Potential Impact Area
-  Roundabout Intersection Control
-  Future Interchange Concept

Farmland Impacts

Direct

-  Grazing Land (3.47 acres)
-  Farmland of Local Importance (83.81 acres)
-  Farmland of Statewide Importance (36.12 acres)
-  Prime Farmland (1.41 acres)

Indirect

-  Grazing Land (0.28 acres)
-  Farmland of Local Importance (12.24 acres)
-  Farmland of Statewide Importance (0.05 acres)
-  Prime Farmland (0.09 acres)



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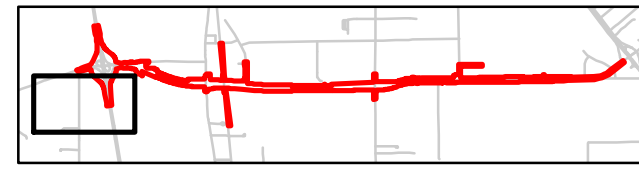
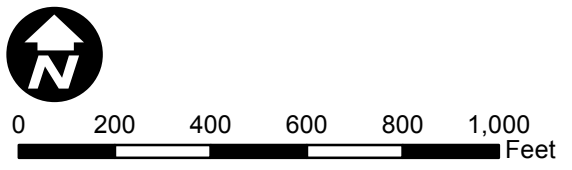





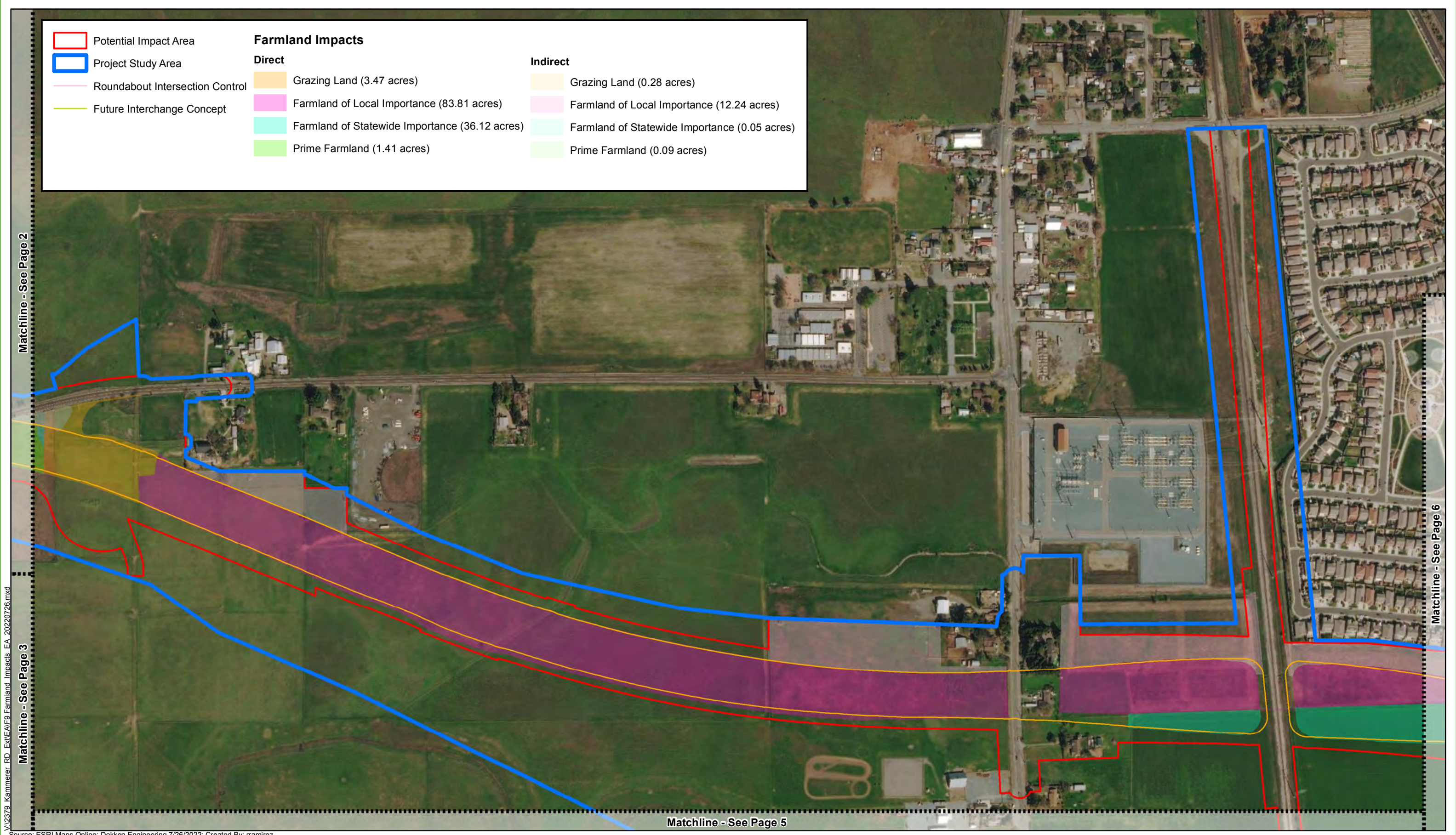


FIGURE 9
Farmland Impacts
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 Potential Impact Area	Farmland Impacts	
 Project Study Area	Direct	Indirect
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	 Prime Farmland (1.41 acres)	 Prime Farmland (0.09 acres)



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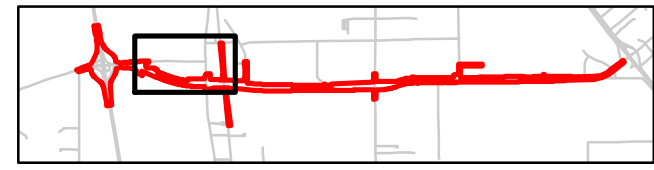
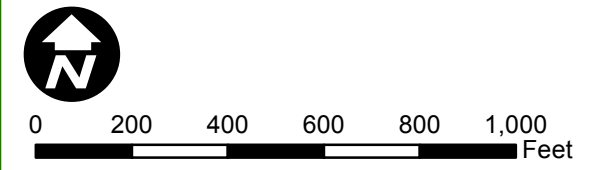














FIGURE 9
Farmland Impacts
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 A1/A2 Kammerer Road Project
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	Project Study Area	Direct	Indirect
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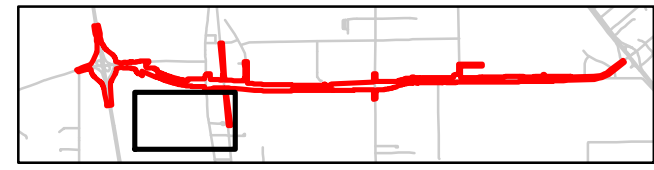
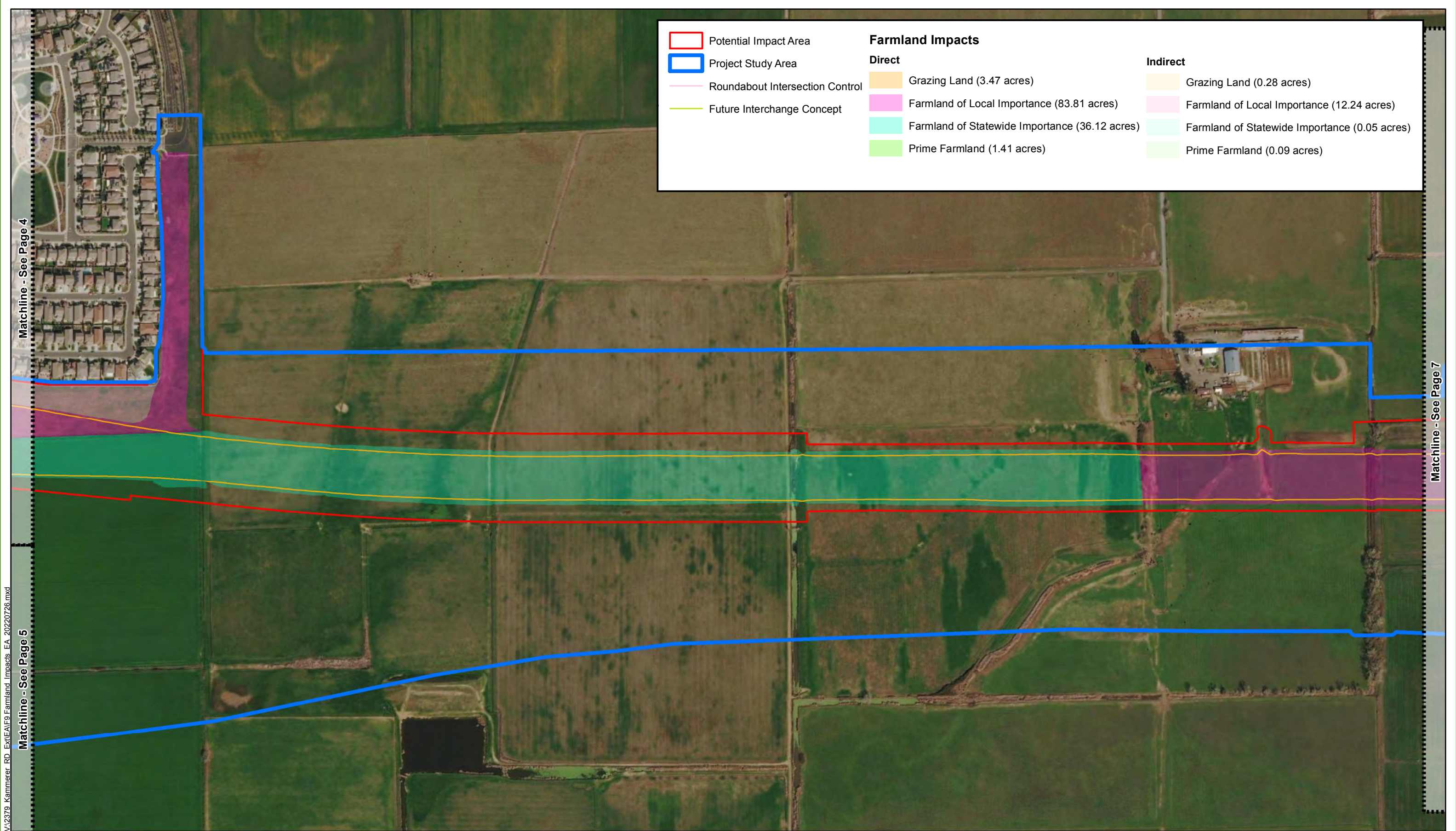


FIGURE 9
Farmland Impacts
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Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



Potential Impact Area	Farmland Impacts	
Project Study Area	Direct	Indirect
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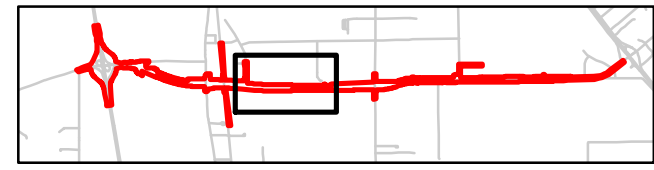
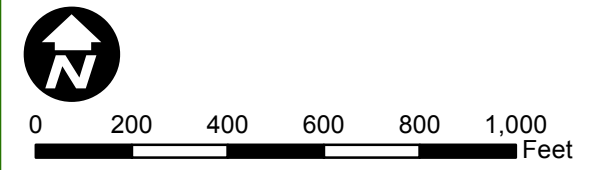














FIGURE 9
Farmland Impacts
Page 6 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

	Potential Impact Area	Farmland Impacts			
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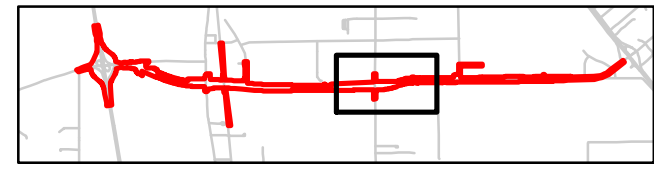
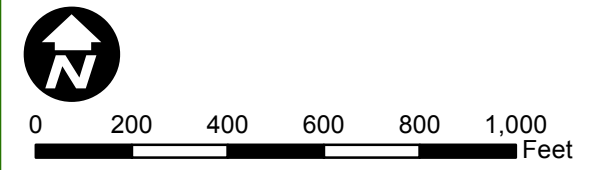
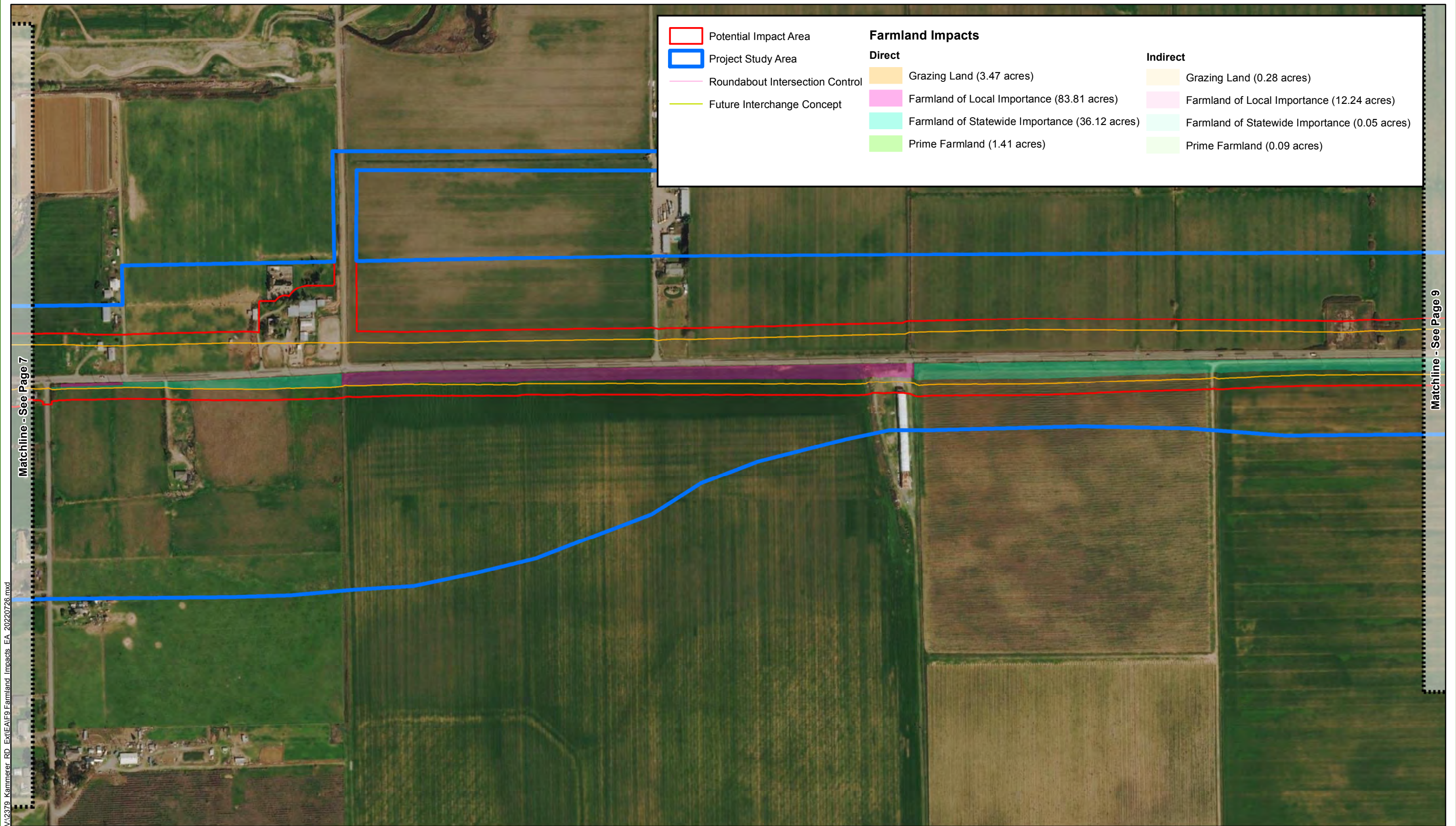


FIGURE 9
Farmland Impacts
Page 7 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



		Farmland Impacts			
		Direct	Indirect		
	Potential Impact Area		Grazing Land (3.47 acres)		Grazing Land (0.28 acres)
	Project Study Area		Farmland of Local Importance (83.81 acres)		Farmland of Local Importance (12.24 acres)
	Roundabout Intersection Control		Farmland of Statewide Importance (36.12 acres)		Farmland of Statewide Importance (0.05 acres)
	Future Interchange Concept		Prime Farmland (1.41 acres)		Prime Farmland (0.09 acres)

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Source: ESRI Maps Online; Dokken Engineering 7/26/2022; Created By: rramirez

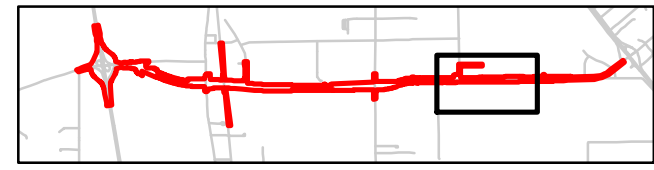
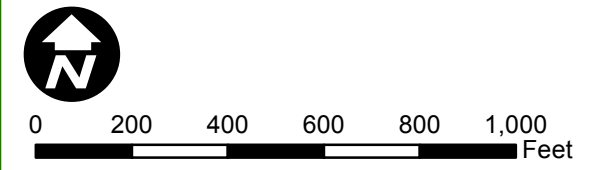












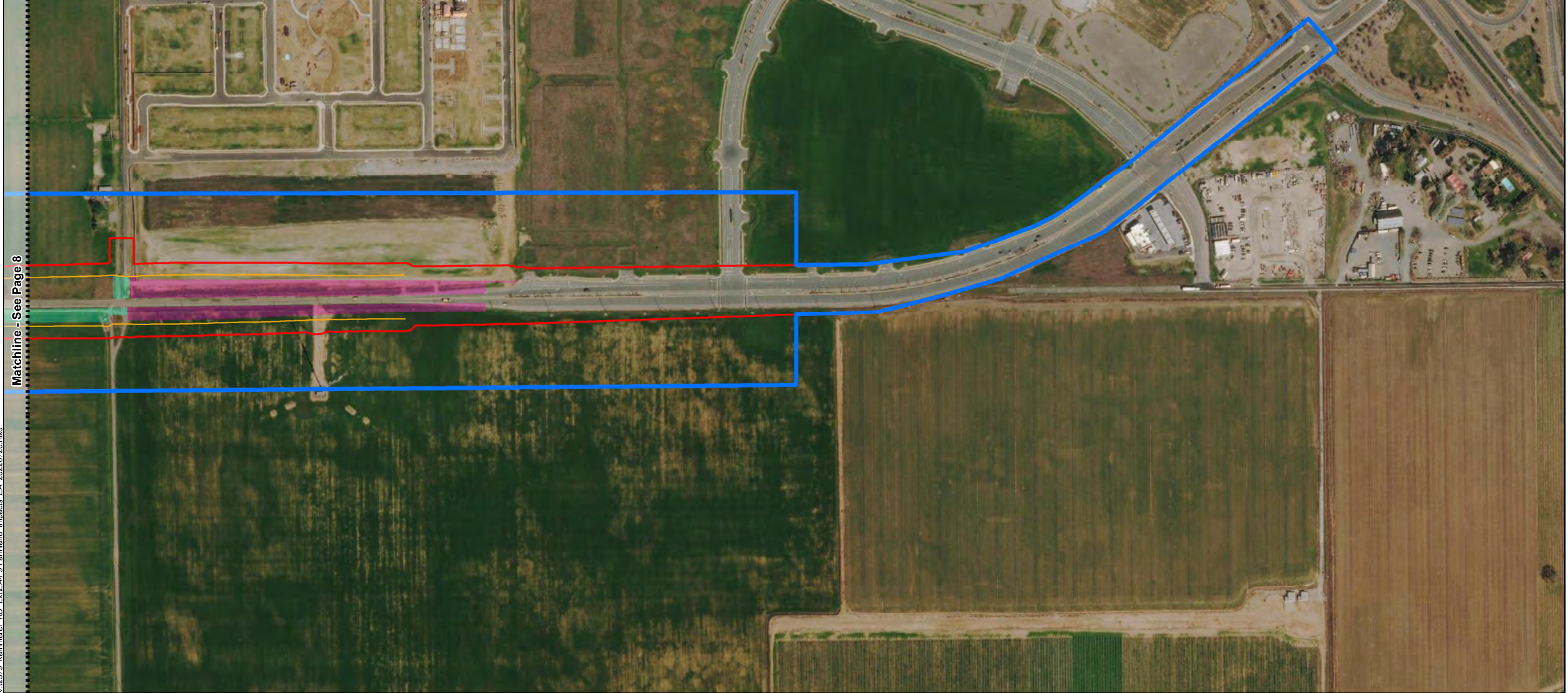


FIGURE 9
Farmland Impacts
Page 8 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

	Potential Impact Area	Farmland Impacts			
	Project Study Area	Direct	Indirect		
	Roundabout Intersection Control		Grazing Land (3.47 acres)		Grazing Land (0.28 acres)
	Future Interchange Concept		Farmland of Local Importance (83.81 acres)		Farmland of Local Importance (12.24 acres)
			Farmland of Statewide Importance (36.12 acres)		Farmland of Statewide Importance (0.05 acres)
			Prime Farmland (1.41 acres)		Prime Farmland (0.09 acres)



Matchline - See Page 8

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Source: ESRI Maps Online; Dokken Engineering 7/26/2022; Created By: rramirez

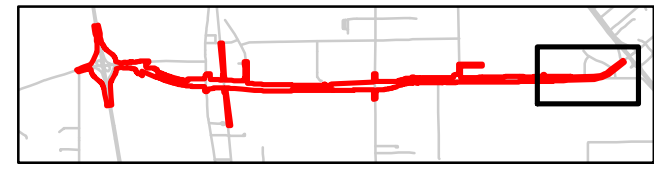
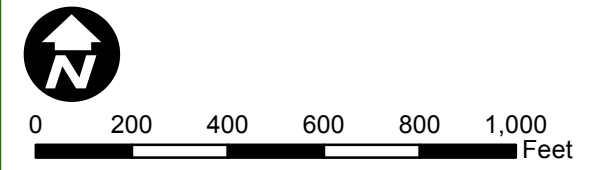


FIGURE 9
Farmland Impacts
Page 9 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

No-Build Alternative

Under the No-Build Alternative, the Kammerer Road extension would not be constructed, and no direct or indirect impacts would occur to important farmland resources.

However, under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. As a result, the purpose and need of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aide in the economic viability for the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area. **Table 8** shows a comparison of farmland conversion of the Build Alternative to the No-Build Alternative.

Table 8. Farmland Conversion Comparison for Local and State

Farmland Conversion by Alternative					
Alternative	Impact Area (acres)	Prime, Local, Statewide, and Grazing Farmland Conversion (acres)	Percent of Farmland in County	Percent of Farmland in State	Farmland Conversion Impact Rating
Build Alternative	328.31	137.47	<0.01%	<0.01%	93
No-Build Alternative	0	0	0	0	--

Source: Form NRCS-CPA-106 (Farmland Conversion Impact Rating for Corridor-Type Projects).

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Temporary construction easements and property acquisition would comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as amended, and with the Department Relocation Assistance Program, in addition to the measures outlined below.

AG-1: Design the Project to avoid or minimize the direct conversion of important farmland to nonagricultural uses and indirect conversion of farmland through severance or fragmentation. During future design phases, the implementing agency will locate the Project to avoid or minimize loss of agricultural lands and the potential for fragmenting agricultural lands or production in a manner that would make them uneconomical to farm, to the extent that doing so would not compromise safety or standard design criteria for a road of this type.

AG-2: For important farmland (prime, statewide, unique, and local) converted by the Project, either directly or indirectly as described above, important farmland of the same category will be permanently protected from development at a minimum ratio of 1:1. Productive offsite agricultural land subject to conversion will be protected through the purchase or transfer of its development rights and establishment of a farmland conservation easement

over the agricultural land pursuant to California Civil Code Section 815, et seq. or other statute providing for its conservation in perpetuity for agricultural use. The implementing agency will provide funds to an agricultural land trust or similar nongovernmental entity for the purchase of agricultural land or development rights on agricultural and establishment of a farmland conservation easement. The implementing agency shall fund only a land trust or nongovernmental entity with an established record of responsible agricultural land stewardship.

2.1.5 GROWTH

REGULATORY SETTING

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect effects, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth. The CEQ regulations were officially issued in 1978, with some revisions being conducted more recently in 2020. Since the NEPA review for the Project began prior to September 14, 2020, the original 1978 CEQ regulations are the ones used for the purposes of this document.

CEQA also requires the analysis of a project's potential to induce growth. The CEQA Guidelines (Section 15126.2[d]), require that environmental documents "discuss the ways in which the Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. This document also discusses the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

City of Elk Grove General Plan

The City General Plan is a policy document designed to give long-range guidance to those making decisions affecting the character of Elk Grove. The City General Plan Land Use Element contains goals, policies, and actions focused on future land use and how the City believes it should develop in the future – where housing, shopping, open spaces, and other uses should occur.

Sacramento County General Plan

The current County General Plan was adopted on November 9, 2011. The General Plan is a policy document designed to give long-range guidance to those making decisions that affect growth and development within the unincorporated county. Section 65300 of the California Planning and Zoning Law requires each county and city jurisdiction to adopt a comprehensive, long-term general plan for its development containing seven principal elements: land use, circulation, housing, conservation, open space, noise, and safety. The County General Plan Land Use Element sets out goals, policies, and implementation measures for the unincorporated county for the next 25 years relating to future land use and development. The following County General Plan Land Use Element policies (or excerpts thereof) are applicable to the Project for growth in the Project area:

Policy LU-1: The County shall not provide urban services beyond the Urban Policy Area, except when the County determines the need for health and safety purposes and the extension provisions as provided in Policy LU-1.1

Policy LU-2: The County shall maintain the Urban Services Boundary that defines the long-range plans (beyond twenty five years) for urbanization and extension of public infrastructure and services, and defines important areas for protecting as open space and agriculture.

Policy LU-12: The County will prohibit land use projects which are not contiguous to the existing UPA, city boundaries, or existing planned communities or master plan areas (i.e. leapfrog development).

AFFECTED ENVIRONMENT

Current Urban Development Patterns in the Project Area

The Project area is located in a rural setting that consists of agricultural, residential, and special planning area land with some vacant and undeveloped parcels. Available records of monthly building permit reports indicate that 501 building permits for single-family, multi-family and commercial buildings were issued from January 2018 to October 2018 (City of Elk Grove 2018a). The City's Planning Department identifies the SEPA East Business Park, the SEPA South Business Park, the Lent Ranch Marketplace and casino, The Mesa at Laguna Ridge, Bruceville Meadows, and the Tuscan Ridge South project as active projects within approximately 1 mile of the Project area.

SEPA is an area in the City planned for the development of mixed residential densities and commercial and office land use, located north of existing Kammerer Road. The SEPA was approved by the Elk Grove City Council in July 2014. The SEPA Plan covers 1,200 acres north of the Project area and will include approximately 4,790 dwelling units for a population of approximately 17,010. Approximately 23,410 employees will work in the employment centers planned for SEPA (City of Elk Grove 2014a).

The Laguna Ridge Specific Plan (LRSP) is located adjacent to SEPA and is east of Bruceville Road and north of Bilby Road. Proposed land uses within the LRSP include estate include low-, medium-, and high-density residential uses as well as commercial, office, and recreational uses. Development within LRSP is expected to add 7,767 dwelling units and 265 acres of commercial, office, and civic uses.

The Sterling Meadows Project was approved by the City on May 28, 2008, and includes single-family, multi-family, office, and recreational park uses (City of Elk Grove 2008). The Sterling Meadows Project consists of a 200-acre site including 984 single-family residential units, 200 multi-family residential units, and 18.5 acres of parks.

Future Growth Potential in the Project Area

According to the California Department of Finance (CDOF) Demographic Research Unit, as of January 1, 2017, the population in the City was 171,059 and 1,514,770 in the County (CDOF 2017). Census data recorded for the year 2000 does not accurately represent a direct comparison for population statistics, as the 2000 census boundaries are not based on the current boundaries of the City. The City General Plan indicates that the City's 2015 population represents a numeric

increase of 26,581 persons since 2007, or 19.5 percent growth, over this time period. The County as a whole has experienced 6.7 percent population growth with the numeric increase of 92,644 persons from 2007 to 2015.

The City's General Plan projects the City population to be 183,070 in the year 2035, while the SACOG projects the City's population to be 192,889 by 2035, based on 2008 projections. The County General Plan projects the population of unincorporated County to reach 795,545 and the entire county to reach 1,695,498 by the year 2025. The California Department of Finance projects that the population of the County will reach 1,854,128 by the year 2035 (CDOF 2017). According to the City General Plan, the majority of housing development needed to meet the housing needs of the growing population is the construction of detached single-family residences. As of 2009, approximately 155 acres of land in the City were available for development of medium-density single-family residences and approximately 341 acres of land in the City was available for the development of multi-family housing units.

SEPA encompasses approximately 1,200 acres specified in the City General Plan as a planned community that will include residential, office, and commercial uses. Development plans include approximately 431 acres for mixed residential densities, 294 acres for office and commercial uses, and 108 acres for light industrial use. Approximately 89 acres will be used for schools and parks. This planned community has the estimated potential of approximately 17,010 residents, 23,410 employees, and the development of approximately 4,790 dwellings (City of Elk Grove 2014a). This would satisfy the City's growth projections but not those by SACOG. The LRSP covers approximately 1,900 acres, and a series of development projects within the area are planned which would provide residential and commercial units north of the Project. As discussed above, other planned projects around the Project area would provide additional residential developments.

The County USB indicates the ultimate boundary of the urban area within unincorporated portions of the County and the County UPA defines the area within the USB which is expected to receive urban levels of public infrastructure and services within the planning period. The current planning period for the County UPA is projected to 2035. The County USB currently extends up to the Project area from SR-99 along existing Kammerer Road and ends just east of Franklin Boulevard. The County UPA includes portions of the USB and near the Project area portions of the UPA occur up to the existing Kammerer Road alignment and in a portion just east of Bruceville Road. As stated in Policy LU-1, the County shall not provide urban services beyond this area.

Therefore, urbanization and extension of public infrastructure services south of the proposed alignment and west of Bruceville Road are not provided for by the County. Urban services would not be provided in the unincorporated areas surrounding the Project area which are outside of the UPA. The USB does not extend south of the existing Kammerer Road alignment and stops just east of Franklin Road. In addition, a majority of land in the USB is located within the City limits. Although the County's USB and UPA occur near the Project area, the majority of this land is in the City boundary. Potential growth in these areas would be developed by the City and are identified in the City General Plan. Only a small portion of the County USB occurs near the Project area outside of the City limits. Therefore, limited growth is anticipated within the unincorporated portion of the County in this area. The City's General Plan, SACOG's 2020 MTP/SCS, and other local and regional planning documents indicate that the Project area is planned for further urban growth through the year 2040.

See **Figure 5** for existing general plan land uses as identified in the County and City General Plans. The most common general plan land use within and adjacent to the Project study area is low-density residential areas.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

In accordance with the Department *Standard Environmental Reference and the Guidance for Growth-Related Indirect Impact Analyses* (Department 2006), a first-cut screening regarding the Project's potential for growth-related impacts was conducted. The screening examined the Project's potential to change accessibility within the Project footprint and how, if at all, the Project type, Project location, and growth-pressure may potentially influence growth.

Growth-related effects of a transportation project include effects that encourage or facilitate land use or development that changes the location, rate, type, or amount of growth. When assessing a project's growth-related effects, it is important to consider the reasonably foreseeable growth and land use change with and without the Project; the extent to which the Project will influence the overall amount, type, location, or timing of that growth; and whether project-related growth will put pressure on or cause impacts to environmental resources of concern.

The Project is intended to correct existing operational deficiencies on area roadways and to accommodate increased traffic demand generated by approved and planned development being undertaken as part of the County and City General Plans and regional plans. As part of the analysis, the Department's 2006 *Guidance for Preparers of Growth-Related, Indirect Impact Analyses* was used to determine the Project's influence on growth.

Extent of Urban Development Anticipated Receiving Benefit from the Project

The following information on urban development in the Project area was used to determine the amount of growth expected to receive benefits (provision of improved accessibility to existing and planned residential areas and employment centers along the corridor between I-5 and SR-99 and improved east-west circulation in the City and south County) from the Project consistent with Chapter 6 of the Department *Guidance for Preparers of Growth-Related Indirect Impact Analyses* (Step 2: Identify the potential for growth for each alternative). The County USB and UPA show that the only planned growth within the unincorporated portion of the County would occur just north of the current Kammerer Road alignment until just east of Franklin Boulevard. Only certain portions of this area are within the UPA and would receive urban services compatible with planned growth.

In addition, growth from planned development within the City north of Kammerer Road, including SEPA, Sterling Meadows, and LRSP would benefit from improved traffic conditions and access to employment centers throughout the Project vicinity, including the Lent Ranch Marketplace SPA, Elk Grove Promenade Project, and Wilton Rancheria.

The Project is necessary to support the growth and increased traffic volumes due to growth trends in the City, specifically all of the approved planned development areas. Thus, the total extent of growth and development that would benefit from the Project would consist of the areas of approved planned development within the City limits as well as existing residential areas and employment centers along the corridor between I-5 and SR-99.

Changes to Accessibility

The Project would improve accessibility to existing, approved, and future planned development in all directions from the Project area. Office, commercial, and light industrial/flex space uses planned in SEPA, Lent Ranch Marketplace SPA, LRSP, Elk Grove Promenade Project and Wilton Rancheria will be located along Kammerer Road; therefore, widening Kammerer Road from two lanes to four lanes from SR-99 to Bruceville Road will improve access to these planned employment centers. If Kammerer Road were not widened to four lanes, efficiency in traffic circulation and operations would be reduced.

The extension of Kammerer Road from Bruceville Road to the I-5/Hood Franklin Road Interchange would create a new roadway through the corridor between I-5 and SR-99 that currently does not exist. These areas are within the City's current Sphere of Influence, and the gap between I-5 and Bruceville Road has been identified by the City as a critical missing link in the infrastructure network that serves the City and County. Because Kammerer Road terminates to its east at the SR-99/Grant Line Road/Kammerer Road Interchange, it is a major thoroughfare for east-west travel for the City and County. This gap in the grid system results in inadequate mobility for longer-distance trips and the need for circuitous travel routes.

Growth Pressures

Both projected population growth, and planned residential and employment expansion in the City, concurrently raise the need for adjusted traffic capacity to maintain circulation throughout the City and surrounding region. The Project would increase accessibility from residential areas to employment centers and would better support the area's projected growth. Local land use plans in the City General Plan anticipated supporting infrastructure in the surrounding area such as water and sewer facilities. In addition, demands for a range of housing options from high-density residential to rural residential are also likely to influence the overall amount, timing, and distribution of growth in the Project area. The reasonable foreseeable growth that is planned would still occur even with construction of the proposed Project, and the land use designation would remain the same as what is mentioned in the City's General Plan and County's General Plan. The Project was designed to accommodate and support future growth in areas defined in approved general plans and specific plans in the City and County. The proposed Project would not directly result in unplanned growth. The Project would not create additional public services on which homes and businesses rely, such as water services from private wells and septic systems. In addition, the Project would not create access to previously inaccessible areas

The growth from planned development within the City north of Kammerer Road, including SEPA, Sterling Meadows, and LRSP would be minimally influenced by the Project. The schedule of these new developments would be unaffected by the Project, and they would remain the same as what was stated in the City's General Plan and County's General Plan.

Due to this planned development and the growth associated with it, impacts to resources of concern would likely occur. Both quantitative and qualitative data sources were gathered to analyze growth-related Project impacts. Quantitative data included U.S. census data on the City's existing populations, growth forecast from the California Department of Finance, and technical studies on the resources of concern for the proposed Project. Qualitative information included the Project area's County and City general plan goals, specific plan development goals, and future land use plans.

The Project itself is not anticipated to substantially influence the overall amount or type of regional growth, as it was already present under existing conditions and future forecasts to provide a missing link in the infrastructure that serves the City and County. Circulation within the Project

area would be enhanced by the road widening, and other improvements called for in the City and County general plans, which would provide access to planned development. All growth, development, and associated services near the Project area has been previously forecasted, as shown in the City's General Plan and County's General Plan. Access to the Project area is already provided along most of the Project alignment by existing roadways. The proposed Project would not create new access to areas that are not currently accessible to cars and other vehicles. In addition, the overall design concept for the proposed Project is to limit access to the facility that would otherwise be allowed under the City and County general plans. The more limited the access, the more capacity is improved along the segment, and the more unplanned growth is limited. Access limitation refers to the level of control of access to the roadway from adjacent land uses. Access limitation reduces the level of "friction" from side street and driveway traffic on Kammerer Road, which increases the capacity of its lanes. A greater level of access control generally improves roadway operations and would allow Kammerer Road to serve travel demand in the corridor with fewer travel lanes. Also, access limitation on Kammerer Road is one way to reduce the growth-inducing effects of expanding roadway capacity.

These access limitations only occur in the area south of Kammerer Road, and would reduce the growth-inducing effects of expanding the roadway capacity by ensuring that no access will be provided as a result of the Project into areas where the proposed roadway improvements will extend into now-inaccessible areas.

Additionally, design of the Build Alternative has avoided and minimized direct conversion of farmlands to the greatest extent practicable through utilization of retaining walls, cut and fill slope ratios, and coordination with property owners to ensure the Project continues to provide access to adjacent farmlands. This, in addition with the design concept of limiting access to new areas as stated earlier, would result in minimal encroachment on farmlands.

The Project would assist in relieving future traffic congestion in this portion of the City and provide a new link through the corridor between I-5 and SR-99. The Project would not serve as the sole solution to future traffic congestion expected to result from growth but is conducive to achieving the City's goal of maintaining a balanced and efficient transportation system, which could be compromised by increased traffic volumes.

No-Build Alternative

Under the No-Build Alternative, the Kammerer Road extension would not be constructed, and no growth inducing impacts from the Project would occur. The reasonable foreseeable growth that is planned would continue without the Project, and the land use designation would remain the same as what is mentioned in the City's General Plan and County's General Plan.

However, under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. As a result, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aid in the economic viability for the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The Project itself is not anticipated to substantially influence the overall amount or type of regional growth, as it was already present under existing City and County General Plans and future forecasts to provide a missing link in the infrastructure that serves the City and County. No avoidance, minimization, and/or mitigation measures are necessary.

2.1.6 COMMUNITY CHARACTER AND COHESION

REGULATORY SETTING

The National Environmental Policy Act (NEPA) of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). The Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services..

AFFECTED ENVIRONMENT

In September 2016, a Community Impact Assessment (CIA) was prepared and approved for the Kammerer Road Project. At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2016 CIA approval, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than previously analyzed, and the No-Build Alternative. A CIA revalidation addressing the changes in Project description and examining any additional potential community impacts identified as a result of the revised Build Alternative was prepared December 2018 (Dokken Engineering 2018a). The following discussion briefly summarizes the findings of the CIA and the CIA revalidation.

Community Characteristics

Existing land uses in the Project area include agricultural, agricultural-residential, and low- and medium-density residential areas. Within one-half mile of the Project area, the surrounding area is rural and composed of agricultural, residential, and undeveloped/vacant parcels of land. Outside of this radius are residential developments and various community facilities, including churches, schools, and parks. The UPRR crosses the Project area east of Franklin Road and the I-5/Hood Franklin Road Interchange defines the western boundary of the Project area.

Urban development in the Project vicinity includes the SEPA, Sterling Meadows Project, LRSP, Lent Ranch Marketplace SPA, Elk Grove Promenade, and Wilton Rancheria as designated by the City. Planned urban development in SEPA includes office, commercial, light industrial/flex, mixed-use residential, residential, public/semipublic, school, and parks/open space land uses. The Sterling Meadows Project is planned to include single-family, multi-family, office, and recreational park land uses. Plans for development in the Lent Ranch Marketplace SPA include community commercial, office and entertainment, visitor commercial, and multi-family residential land uses,

The surrounding community in the area within a half-mile radius of the Project was examined for population and racial statistics. This includes census tracts, census blocks and block groups: 93.09, 93.10, 93.36; 96.32, 96.35-2-002, -003, -004, -005, -017, -018, -019, 96.37; 96.46, 96.47, 96.48, 96.49; 96.50, 96.51, 96.52-1-000, -015, -016, -017, -026, -027, -028, 96.53-1-009, 96.53-2-000, -002, -004, -005, -007, -009, 96.53-3-000, -001, -002, -003, -004; 99-4-035, -036, -041, -042, -043 as identified in the U.S. Census for the year 2020. The population in the area within a one-half mile radius of the Project area is approximately 1,545 persons (U.S. Census Bureau

2021). **Figure 10** provides a visual representation of the census blocks within and surrounding the Project study area.

There are no low-income areas within a one-half mile radius of the Project area and the proportion of minority residents in the Project area are comparable to those in the City and the County (U.S. Census Bureau 2021). The Project area is surrounded by agricultural and agricultural-residential land uses. Ethnic homogeneity, large representation of elderly populations, the presence of community facilities, and high percentages of homeownership and single-family homes within communities serve as indicators of increased community cohesion. The Town of Franklin is an unincorporated community within the western portion of the Project area along Franklin Boulevard. Franklin contains residences, businesses, and the Franklin Cemetery, and Franklin Elementary School, which are less than one-half mile away from the Project area. These are the only community facilities in the vicinity of the Project area. These facilities may increase community cohesion in the communities in which they exist. However, even though the Project area is located near these facilities, it is not close enough to disrupt any of the existing community cohesion as a whole, as it will not physically divide established neighborhoods or communities.

According to 2019 census statistics for median household income at the census tract level, the surrounding community is relatively affluent compared to the County. The largest minority group in the Project area is Asian, accounting for approximately 30 percent of the population. Approximately 14 percent of the population is listed as Hispanic and roughly 25 percent are listed as White/Caucasian. According to 2019 census statistics, the average age in the Project area is approximately 35. According to census data from 2010, residents aged 19 years and younger account for up to approximately 29 percent of the population in the Project area, while the percentage of owner-occupied housing in the Project area was approximately 50 percent. The owner-occupied housing percentage was about 20 percent lower than that of the County. There was no recent information on households or length of tenure in the Project area. Additional census tract and demographic data can be found in the Project's CIA.

ENVIRONMENTAL CONSEQUENCES

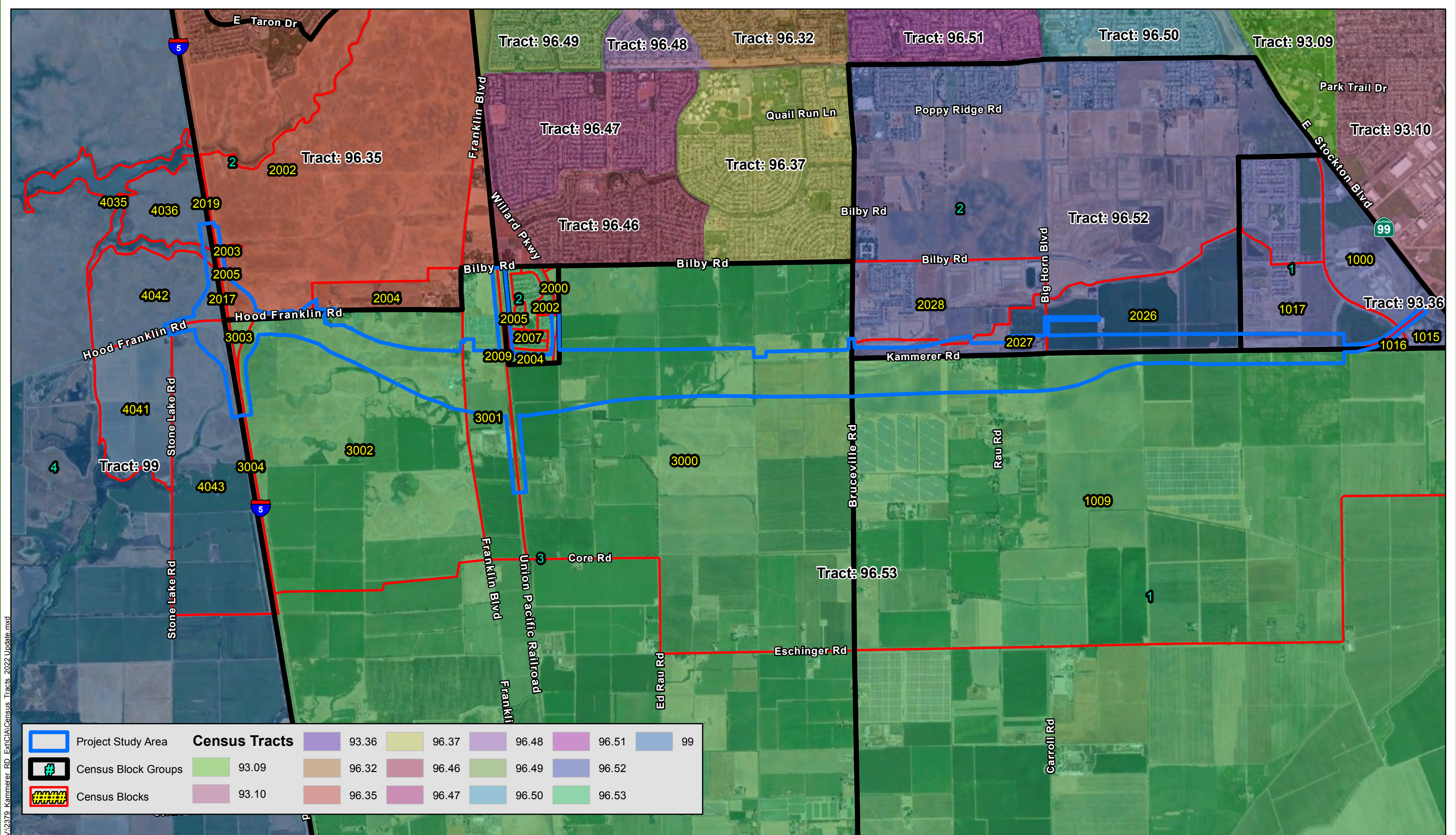
Build Alternative

Community Cohesion

The Project would not divide or negatively impact community characteristics or cohesion. The improvement and extension of Kammerer Road would not impact the Town of Franklin, which contains the only community facilities in the Project area, because the Project would not be located close enough to disrupt any of the existing community cohesion as a whole. Five residences with direct access to Kammerer Road, located approximately 0.5 mile east of Bruceville Road south of Kammerer Road would require a new combined access driveway. Implementation of the combined access driveway would maintain the level of cohesion that these residences currently possess.

The Project is anticipated to require the relocation of 3 residential structures and 1 utility structure property; however, none of the properties are expected to displace any elderly, disabled, or minority persons. For more detailed information on relocations refer to Section 2.1.5, "Relocations and Real Property Acquisition." No disproportionate impacts on low-income or minority residents were identified for the Project.

The Notice of Intent (NOI) for public review of the Tiered CEQA IS/MND was mailed to local residents within ¼ mile of the Project and published in the Elk Grove Citizen and Sacramento Bee on February 28, 2018, which included information regarding a Public Information Meeting for the Project held on March 6, 2018. The Public Information Meeting was held at LifePointe Christian Church in Elk Grove and open to members of the public to provide comment. Residents and property owners within the Town of Franklin were supportive of the Project in the comments received during circulation of the CEQA environmental document. No opposition to the Project was received by residents of the Town of Franklin, and no community impacts to the Town are anticipated.



V:\2379_Kammerer_RD_Ext\CA\A\Census_Tracts_2022_Update.mxd

Source: ESRI Aerials 6/21/2016; Dokken Engineering 1/28/2022; Created By: ramirez

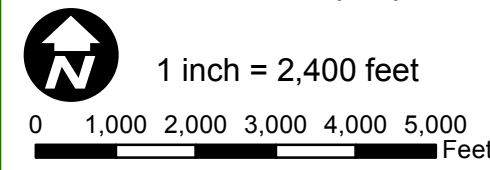


FIGURE 10
Relevant Census Tracts, Block Groups, and Blocks

The Project includes a new multi-use pathway that would encourage and facilitate alternative modes of transportation, which would be beneficial to both existing and future residents. The Project would accommodate planned growth in the area consistent with regional and local sustainability goals. Planned growth in the area includes the introduction of public facilities and institutions, which are likely to create a sense of belonging and community cohesion where it is absent today. Therefore, the Project would indirectly support creation of community and would not adversely impact community cohesion.

Community Facilities

There are no community facilities in the study area, but the operation of the Project would improve access through the area for service providers and the nonmotorized multi-use trail also would improve access through the study area for pedestrians and cyclists.

Construction Impacts

The impacted properties along Kammerer Road would be acquired during final design and right-of-way acquisitions prior to construction, and the limited impacts to the cohesion of the community discussed above would be the same during construction of the Project.

There are no community facilities in close proximity that would be affected by construction. Emergency service access would be maintained. A Traffic Management Plan (TMP) would be developed in cooperation with area service providers and be provided in advance notice of any access restrictions or lane closures.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. As a result, the goals of Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link from I-5 to SR-99, the No-Build Alternative would fail to aide in the economic viability for the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Furthermore, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area. Under the No-Build Alternative, the Project would not be constructed and there would be no adverse or beneficial impacts on community cohesion.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

There are no avoidance, minimization, or mitigation measures proposed for community character and cohesion. Measures to address visual and noise impacts are outlined in Section 2.1.7, "Visual/Aesthetics" and Section 2.2.7, "Noise."

2.1.7 RELOCATIONS AND REAL PROPERTY ACQUISITION

REGULATORY SETTING

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix C for a summary of the RAP..

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. Please see Appendix B for a copy of the Department's Title VI Policy Statement.

Section 8 of the Housing Act of 1937 is the federal government's major program for assisting very low-income families, the elderly, and the disabled to afford decent, safe, and sanitary housing in the private market. Housing choice vouchers are administered locally by public housing agencies. The public housing agencies receive federal funds from the U.S. Department of Housing and Urban Development (HUD) to administer the voucher program.

AFFECTED ENVIRONMENT

In September 2016, a Community Impact Assessment (CIA) was prepared and approved for the Kammerer Road Project. At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2016 CIA approval, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than previously analyzed, and the No-Build Alternative. A CIA revalidation addressing the changes in Project description and examining any additional potential community impacts identified as a result of the revised Build Alternative was prepared and approved in December 2018. Additionally, a Draft Relocation Impact Report (DRIR) was prepared for the proposed Build Alternative and approved in October 2018. The following discussion briefly summarizes the findings of the CIA, CIA revalidation, and DRIR.

The Project area occurs in both the City limits and in an unincorporated area of the County. The area around the Project is largely rural and includes mostly agricultural land. There are also undeveloped lands, agricultural facilities, and several residences within the area. According to the Elk Grove Community Profile, the City has a labor force of 79,533, employs 44,806 people, and has 8,710 businesses. The City has a population of 171,059 people and a median household income of \$84,827 (City of Elk Grove 2018b).

The area immediately north of the existing Kammerer Road is within the City's SEPA. SEPA encompasses approximately 1,200 acres, and the development plan includes commercial, light industrial, and residential land uses. The Lent Ranch Marketplace SPA is a planned development that includes an anticipated casino in addition to the planned commercial development.

The area south of Kammerer Road is in the unincorporated area of the County, and includes agricultural land uses and the Town of Franklin, which is an unincorporated community in the County (in the western portion of the Project study area). Franklin contains residences, businesses, Franklin Elementary School, and a cemetery. The UPRR runs through the Project

area from north-south just east of Franklin Boulevard. Community facilities in the Project vicinity include the Stone Lakes NWR. The Stone Lakes NWR is partially located in the Project area and is managed by the USFWS and the County. There are several residential structures in the Project area along Kammerer Road, Bruceville Road, Franklin Boulevard, and side streets. Residential structures within proposed right-of-way acquisition areas include single-family residences, and one business structure. The business structure within the proposed right-of-way contains a small cellular tower and cellular tower equipment.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

The Project would result in the permanent acquisition and temporary construction easements of parcels in the study area. Any permanent acquisitions or temporary easements would comply with the requirements of the Uniform Real Property and Relocation Assistance Act of 1970, as amended.

Relocations

A DRIR was prepared for the Project dated March 3, 2016 and revised in 2018. The report indicates there would be no adverse effects to owners, tenants, businesses, or persons in possession of real property to be acquired for the Project. Those residences where relocation is necessary would likely qualify for relocation assistance benefits or entitlements under the Uniform Relocation Assistance and Real Property Act of 1970 (as amended) and will be compensated for either full and/or partial property/parcel acquisitions.

The Project is anticipated to require the relocation of 3 residential single-family properties. There are sufficient resources and locations to accommodate relocation of all affected individuals. Based on the census data, the Project does not anticipate to disproportionately affect any elderly, disabled, or minority persons among the displaced residents. The Project does not anticipate any agricultural-related displacements. Project design has identified some access concerns when the Project bisects agricultural lands and may provide at-grade crossings for farm equipment. If access cannot feasibly be provided, the remainder may be considered an uneconomic remnant. These remaining portions would be purchased by the Project's implementing agency.

The Project would also require the partial acquisition of 1 non-residential utility parcel and require the relocation of an active AT&T cellular tower within the remainder of the parcel (APN# 132-0320-002). No employees will be impacted by the relocation of the cell tower or building.

The following areas are intended to be used as replacement areas for the required relocations for the Project.

City of Elk Grove – The impacted properties are located at the southern end of Elk Grove. Most employment and shopping centers are located in the urbanized areas of the City, approximately two miles to the northwest, north and northeast. Every effort will be made so displaced residents can be relocated to available replacements within the same City limits.

City of Galt – Galt is a neighboring city located approximately twenty miles south of Sacramento along Highway 99, with approximately 25,000 residents. Galt, similar to Elk Grove, offers affordable housing with a small-town atmosphere. Its close proximity to the Project alternatives would allow displacees to relocate, yet still have similar access to comparable amenities, public utilities, services and transportation.

Table 9 lists the properties and the locations of the properties anticipated to be removed for implementation of the Project.

Table 9. Estimated Displacements by Alternative

	Build Alternative	No-Build Alternative
RESIDENTIAL		
Owner Occupants of Single Family Residences	2	0
Tenant Occupants of Single Family Residences	1	0
TOTAL RESIDENTIAL UNITS	3	0
TOTAL PERSONS	10*	0
NON-RESIDENTIAL		
Commercial Businesses	1	0
TOTAL NON-RESIDENTIAL UNITS	1	0
TOTAL RESIDENTIAL AND NON-RESIDENTIAL UNITS		
	4	0

***Total Persons** (Calculated by multiplying the number of units impacted and occupied (3) by the average household size identified in the US. Census Bureau for the City of Elk Grove (3.24) and rounding to the highest number.

Considering the abundant residential housing stock developed since 2000, a sufficient number of “comparable replacement dwellings” meeting decent, safe and sanitary (“DS&S”) standards exist within the impacted or neighboring communities. The replacement neighborhoods of Elk Grove and Galt both have areas homogenous to the rural impacted area. Additionally, both cities have ample residential areas that may be considered for replacement. Thus, due to the number of available replacement properties and the average vacancy rates in the replacement areas, it is anticipated that finding replacement housing for owner or tenant-occupied residences will not present any unusual problems. It is anticipated that replacement housing payments may exceed the entitlement limits for owners and tenants as the single-family residences displaced are older structures and may be in fair to poor condition. Necessary funds will be allocated, as needed, for Last Resort Housing payments. At this time, the Build Alternative is not anticipated to construct housing for any displaced persons.

During the DRIR none of the residential units identified elderly, low-income, minority, or handicapped occupants; however, the Department understands that relocation problems could occur with any of the above categories of occupants. No properties have been identified as Section 8; however, the Department will work closely with HUD to accommodate low income or Section 8 tenant relocations, if necessary. Any special relocation challenges will be further identified once relocation surveys are completed.

The Project is not expected to have a negative influence on the local housing stock as few residences are impacted. Additionally, it is anticipated the business structure will be relocated on the remainder parcel due to the type of business and the size of parcel the business is currently located on.

Relocation Assistance Advisory Services

The Project’s implementing agency would provide relocation advisory assistance to any person, business, farm, or nonprofit organization displaced as a result of the City’s acquisition of real

property for public use in accordance to state and federal guidelines as outlined in the Department Relocation Assistance Program. The implementing agency would assist residential displacees in obtaining comparable decent, safe, and sanitary replacement housing by providing current and continuing information on sales prices and rental rates of available housing. Nonresidential displacees would receive information on comparable properties for lease or purchase.

Residential replacement dwellings would be located in areas with similar neighborhood characteristics to the original properties, at financially attainable prices for the individuals and families displaced, all while maintaining reasonable access to their places of employment. Before any displacement occurs, displacees would be offered comparable replacement dwellings that are open to all persons regardless of race, color, religion, sex, or national origin, and are consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance would also include supplying information concerning federal- and state-assisted housing programs, and any other known services being offered by public and private agencies in the area.

No relocation payment received would be considered as income for the purpose of the Internal Revenue Code of 1954 or for the purposes of determining eligibility or the extent of eligibility of any person for assistance under the Social Security Act or any other federal law (except for any federal law providing low-income housing assistance).

Persons who are eligible for relocation payments and who are legally occupying the property required for the Project would not be asked to move without being given at least 90 days' advance notice, in writing. Occupants of any type of dwelling eligible for relocation payments would not be required to move unless at least one comparable "decent, safe, and sanitary" replacement residence, open to all persons regardless of race, color, religion, sex, or national origin, is available or has been made available to them by the state.

Any person, business, farm, or nonprofit organization, which has been refused a relocation payment by the implementing agency, or believes that the payments are inadequate, may appeal. No legal assistance is required; however, the displacee may choose to obtain legal counsel at his/her expense. Information about the appeal procedure would be made available, if necessary.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. As a result, the goals of Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link from I-5 to SR-99, the No-Build Alternative would fail to aide in the economic viability for the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Furthermore, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area. Under the No-Build Alternative, the Project would not be constructed and there would be no impacted residential or commercial residences and no relocations would be necessary.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following measure would reduce the potential for adverse effects from property acquisition:

COM-1: Before proceeding with final design, the implementing agency will develop and implement a relocation plan consistent with Federal regulations and California Code of Regulations, Title 25, Section 6038 to ensure that eligible residential, commercial, and industrial uses are compensated for moving and residential/business replacement costs. Eligibility of specific residences or businesses for compensation will be determined after evaluation of the impact on the specific use(s) to be relocated but would include both full and partial property/parcel acquisitions.

The implementing agency will use applicable relocation assistance programs (including those administered by local, state and federal governments) to compensate owners and tenants for the relocation costs of residential, commercial, and industrial uses displaced by the Project components.

2.1.8 ENVIRONMENTAL JUSTICE

REGULATORY SETTING

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2018, this was \$25,100 for a family of four..

All considerations under Title VI of the Civil Rights Act of 1964, and related statutes, have also been included in this Project. The Department's commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix B of this document.

AFFECTED ENVIRONMENT

Much of the Project area is dominated by rural agricultural land uses; whereas, residences and community facilities are sparse within the surrounding area. Most of the parcels in the Project area are undeveloped, vacant, or agricultural with very low-density housing. The Town of Franklin is an unincorporated community in the County and contains the only community facilities within a half-mile of the Project area, namely, the Franklin Cemetery, and Franklin Elementary School. The Project area will come with ¼ mile of Franklin, but no impacts to the cemetery, or elementary school are anticipated.

The surrounding community in the area within a half-mile radius of the Project was examined for population and racial statistics. This includes census tracts, census blocks and block groups: 93.09, 93.10, 93.36; 96.32, 96.35-2-002, -003, -004, -005, -017, -018, -019, 96.37; 96.46, 96.47, 96.48, 96.49; 96.50, 96.51, 96.52-1-000, -015, -016, -017, -026, -027, -028, 96.53-1-009, 96.53-2-000, -002, -004, -005, -007, -009, 96.53-3-000, -001, -002, -003, -004; 99-4-035, -036, -041, -042, -043 as identified in the U.S. Census for the year 2020. However, because the area covered by these census tracts in their entirety is quite expansive, examination and discussion of the surrounding community is focused on the populated areas within the Project area. **Figure 10** above shows the location of these census designated areas in relation to the Project. Data from U.S. Census (2020) shows the total population in the Project area to be approximately 1,545 persons. According to the CIA prepared for the Project, the City population is approximately 176,124 and the County's population is approximately 1,585,055 as of July 2021 (U.S. Census 2021).

Table 10 compares population divided by racial composition for the Project area, the City, and the County. The percentages of racial compositions in the Project area are comparable to that of the City and the County. The 2020 Census shows that the majority of the population in the Project area, as well as the largest minority group is Asian (30%). The next second largest group is white (25%). The 2020 Census statistics show slightly lower Hispanic populations in the Project area (14%) than in Elk Grove (19%) and the County (24%). Approximately 30 percent of the population in the Project area is listed as Asian/Pacific Islander, compared to 33 percent for the City and 18 percent in the County. Since some data could not be found for 2020, data from 2010 was used. According to the 2010 Census data, there are no disproportionate numbers or percentages of

these social groups in the Project area compared to the City or the County. The proportion of the population in the Project area considered senior citizens (65 and older) is approximately 12 percent, as compared to the City (8%) and the County (11%).

Table 10. Racial Composition Year 2020 – Elk Grove and Sacramento County

Race	Project Area Number/Percent	City of Elk Grove Number/Percent	Sacramento County Number/Percent
White/Caucasian	385/24.92%	57,371/32.57%	715,722/45.15%
Black or African American	150/9.71%	17,854/10.14%	152,795/9.64%
Asian/Pacific Islander	459/29.71%	58,982/33.49%	281,733/17.77%
Native American	13/8.41%	1,404/<1%	18,637/1.18%
One Race, Other	300/19.42	13,579/7.71%	185,585/11.71%
Two or More Races	148/9.58%	24,374/13.84%	211,669/13.35%
Totals	1,545/100%	173,564/100%	1,566,141/100%
Hispanic ¹	218/14.11%	33,392/18.96%	374,434/23.62%

Source: US Census Bureau 2020

¹ Persons of Hispanic Heritage can be of any race. The number listed is an aggregate number.

Income Level and Low-Income Level in the Project Area

Low income is defined as a household income at or below the HHS poverty guidelines. **Table 11** shows the 2018 poverty guidelines for median household income for the contiguous states and Washington, D.C. Since some data could not be found for 2020 data from 2010 was used. **Table 12** shows the median household income for the year 2010 and 2019 for the Project area, the City, and the County.

Table 11. 2018 US Department of Health and Human Services Poverty Guidelines (\$)

Size of Family Unit	2017
1	12,140
2	16,460
3	20,780
4	25,100
5	29,420
6	33,740
7	38,060
8	42,380

Source: US Department of Health and Human Services Poverty Guidelines for median household income for the contiguous states and Washington, D.C.

Since some data could not be found for 2020, data from 2010 was used. Based on 2010 data, household and family incomes in the Project area exceed the HHS poverty guidelines and are slightly higher for the City and the County. The U.S. Bureau of Statistics does not provide poverty-level statistics for the census block groups in the Project area. However, the block groups located approximately three-quarters of a mile near the Project area would not be affected by construction or operation of the Project.

Table 12. Year 2019 Median Household Income in the Project Area

Economic Indicator	Project Area	City of Elk Grove	Sacramento County
Median Household Income (\$)	\$75,851	\$93,780	\$67,151
Median Family Income (\$)	\$81,284	\$103,330	\$78,790
Per Capita Income (\$)	\$26,052	\$38,012	\$34,603
Families Below Poverty Level (%)	N/A	8.10%	12.50%
Population Below Poverty Level (%)	N/A	7.60%	12.15%

Source: US Census Bureau 2000, 2019

Based on 2015-2019 data

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Operational Impacts

Operation of the Project would not result in any disproportionately high and adverse effects to minority or low-income populations. Given the current lack of development in the area, there are also no resources unique to minority and low-income populations within the study area. Considering the demographics of the Project area, any adverse effects, such as long-term noise impacts, are not expected to disproportionately affect minority or low-income populations. The Project also would result in a number of benefits that would apply to all populations, including new non-motorized access through the construction of the multiuse trail, improved access and regional connections, and improvements in stormwater and air quality. The Project would also support the planned growth for the area, which would be beneficial by supporting the regional economy and encouraging continued growth in the economy.

Construction Impacts

Most of the study area contains a limited rural population that would be affected by construction activities, and there are no community facilities in the study area. Given the demographics of the area, if any effects were to occur, such as temporary increases in noise and dust, visual impacts, and traffic congestion, they would affect all populations to the same degree.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. As a result, the goals of Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link from I-5 to SR-99, the No-Build Alternative would fail to aid in the economic viability for the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Furthermore, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Based on the above discussion and analysis, the Project will not cause disproportionately high and adverse effects on any minority or low-income populations, in accordance with the provisions of EO 12898. No further environmental justice analysis is required. There is no avoidance, minimization, and/or mitigation measures for environmental justice.

2.1.9 UTILITIES/EMERGENCY SERVICES

AFFECTED ENVIRONMENT

The utilities and emergency services study area is a 1-mile area surrounding the Project limits, and the emergency services that provide service to this area. The study area currently includes the presence of electricity utilities, gas utilities, communication cables, and potable water. Emergency services are primarily fire, police/sheriff, and paramedic services. Other public services include the U.S. Postal Service and solid waste collection and disposal services. The study area includes both existing and planned utilities that would be affected by the Project.

Existing Utilities and Emergency Services

Utilities

Utilities in the Project area are provided by several entities including the SMUD, PG&E, AT&T, Consolidated Communications (SureWest), MCI (Verizon), Sprint, Sacramento Area Sewer District, Sacramento County Water Agency (SCWA), and Sacramento County Public Works Agency Waste Management and Recycling Department. Within and outside of City limits for the Project area, SMUD provides electrical and gas services; PG&E provides natural gas; AT&T, SureWest, Verizon, and Sprint provide telecommunications services; water services, public wastewater conveyance, treatment, and disposal is provided through the Sacramento Area Sewer District; the SCWA provides drinking water within each agency's district; and the Sacramento County Public Works Agency Waste Management and Recycling Department provides waste management collection services.

SMUD operates and maintains one electrical substation south of Bruceville Road, near the Project area, and two new distribution substation sites are planned to provide reliable electrical service for planned development in the area: one located to the east side of Franklin Boulevard north of the Project area, and the other located within the SEPA planned development area. SMUD also has a large electrical transmission line that running along the east side of the UPRR tracks.

Solid Waste

For purposes of this analysis, solid waste from Project-related construction activities is assumed to be disposed of locally. The County has nine active solid waste facilities, including three transfer stations and two landfills.

Water Supply

The County Water Agency provides water supply services for properties within the Project area. Within the urbanized areas of the Project area, stormwater is collected in municipal systems and conveyed to the rivers, in accordance with state water quality regulations. Within the Project area, the Sacramento Stormwater Quality Partnership covers the County, including the City.

Emergency Services

Fire Protection

Sacramento County

The Sacramento Metropolitan Fire District provides fire protection services and medical services the portions of the southern unincorporated County. The district has 42 fire stations with approximately 673 paid personnel on staff. Station 51 is the nearest Sacramento Metropolitan Fire District station to the Project area. Station 51 is location at 8210 Meadowhaven Drive, Sacramento, California 95828.

Elk Grove

The Consumes Fire Department serves the City and the City of Galt. The Consumes Fire Department headquarters and the William Perry Schulze Fire Training Center are located in Elk Grove, and the department also has 8 other station houses within the City and City of Galt. The Fire Department responds to nearly 16,000 requests for emergency service annually, and provides services for fire, technical rescue, and advanced life support emergency medical services, including ambulance transportation for an area covering more than 157 square miles and a population in excess of 185,000. Two Consumes Fire Department stations are in close proximity to the Project.

- Headquarters - 10573 E. Stockton Boulevard, Elk Grove, California 95624
- Fire Station 72 - 10035 Atkins Drive, Elk Grove, California 95757

Police Protection

The County within the study area is serviced by the County sheriff's department, which is responsible for providing police protection within the unincorporated areas of the County.

The City Police Department services a portion of the Project area, since this portion falls under City jurisdiction. The City Police Department is located at 8400 Laguna Palms Way located approximately 6 miles from the Project area.

The Safety Elements of the County and City General Plans include goals, policies, and implementation measures/actions to identify potential hazards and address disaster planning and public protection. Other emergency planning documents applicable to the Project area include the County Evacuation Plan and the County Emergency Operations Plan.

Several hospitals in the City provide emergency services, including surgery and urgent care. The nearest hospital is the Dignity Health Methodist Hospital of Sacramento, roughly 2 miles north of the Project area. Less than 3 miles north of the Project area several more full-service hospitals, including the Sutter Elk Grove Surgery Center and MDSTAT Urgent Care facility.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Underground and overhead public utilities that conflict with the proposed roadway improvements would be relocated either before or during Project construction. The Project is anticipated to

include public utilities along the Project corridor. Avoidance and Minimization Measure **UTIL-1** would be implemented to avoid and minimize impacts to utility customers and/or companies.

The Project railroad overhead crossing would construct Kammerer Road over the UPRR. SMUD operates two 230kV transmission lines and associated fiber optic facilities along the UPRR which cross through the Project area. Construction of the overhead would require installation of at least two new structures in order to raise the transmission lines to be in appropriate phase-to-ground clearance levels.

The Project would require relatively small amounts of electricity to power streetlights and traffic signals. There is no anticipated compromise to SMUD's existing and future customers because the Project is not expected to substantially drain power supplies. The Project would require additional electrical conduits along the roadway alignments to power traffic signals and lights in the Project area. These facilities may be able to tie into existing meters and infrastructure and will not require a new substation or upsized energy facilities.

As a roadway project, the Project would not generate any wastewater requiring conveyance, treatment, or disposal. Therefore, the Project would have no potential to exceed applicable wastewater treatment requirements, exceed the capacity of existing treatment facilities, or require new or expanded treatment facilities. The Project would result in the relocation of some underground utilities, including sewer lines. Potential impacts associated with the relocation of utilities are assumed as part of the Project and are addressed in this document. Potential impacts include disturbance of biological and/or cultural resources, temporary air emissions, soil erosion and water quality degradation, handling of hazardous materials, temporary construction noise, and temporary construction traffic.

The Project area is located adjacent to the Hood service area which lies within SCWA Zone 41 service area. It is anticipated that the SCWA will be the water provider for the Project. The Hood service area is supplied by groundwater wells and consists of one pressure zone. According to the SCWA's 2010 Zone 41 Urban Water Management Plan (SCWA 2011), Zone 41 is projected to have adequate surplus water supply through year 2035 to serve the Project under normal, single-dry, and multiple-dry year conditions. Therefore, there would be sufficient water supplies available to serve the Project and no new or expanded entitlements would be required. Furthermore, due to the relatively low water demand of the Project, no new or expanded water treatment facilities would be required. To further avoid and minimize impacts related to water supply necessary for any landscaping associated with the Project, Avoidance and Minimization Measure **UTIL-3** would be implemented.

The Project would include construction of new and expanded stormwater drainage facilities for collection and conveyance of stormwater runoff from the roadway surface. Since the Project would tie into the existing section of Kammerer Road, the current roadside stormwater system can be extended to the new roadway. The Project will comply with the current NPDES MS4 Permit issued in 2008 to the SSQP. Stormwater runoff in the County is governed by the the County's NPDES - CAS082597 (as ammended November 2016) and allows for the discharge of stormwater runoff through the Municipal Separate Storm Sewer Systems. The Project would also fall under the Elk Grove SDMP. Additional stormwater runoff discharges from this Project are not expected to compromise current drainage facilities or system capacity. The Project's potential effects to water quality are discussed in more detail in Section 2.2.1, "Hydrology and Floodplain" and Section 2.2.2, "Water Quality and Stormwater Runoff."

Construction of the Project would generate a substantial volume of solid waste requiring disposal at regional landfills. In accordance with the California Green Building Code and local regulations, the Project would be required to divert a minimum of 50 percent of construction and demolition debris for recycling. Compliance with this requirement would substantially reduce waste volumes requiring disposal at regional landfills. Once operational, the Project would not generate any solid waste. To further avoid and minimize impacts related to solid waste, Avoidance and Minimization Measure **UTIL-4** would be implemented.

The implementing agency would coordinate with all utility providers in the Project area. The implementing agency and its contractors will coordinate with utility companies to conduct potential utility relocations.

Emergency Services

During construction, temporary lane closures and detours may be necessary. Under future build conditions, the Project would result in improved traffic operations and access for emergency service vehicles to and through the Project area. The Project would provide a critical infrastructure improvement in the area, which would expedite emergency services access through the area and between I-5 and SR-99. Any temporary impacts to traffic flow as a result of construction activities would be minimized through construction phasing, signage, and a traffic control plan.

No-Build Alternative

Under the No-Build Alternative, utilities would not need to be relocated, nor would utilities need to be added along the Project alignment. No additional demands for power, storm drainage systems, or irrigation would occur because the Project would not be implemented. Planned development identified in the City General Plan would still be constructed and Kammerer Road would still be used for utilities to supply these nearby planned developments; however, these utilities could potentially become insufficient to serve the growing number of service members.

Under the No-Build Alternative, there would be no construction-related impacts to emergency services such as delays or detours. The City General Plan anticipates commercial, residential, and infrastructure growth around the Project area. Increased traffic without the additional connectivity of the Project may affect emergency service vehicles and services. More details on the Project's current and projected traffic levels and impacts can be found in Section 2.1.10, "Traffic and Transportation/Pedestrian and Bicycle Facilities."

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

During construction, the Project would temporarily disrupt utility services during relocation of utilities. Construction activities could affect emergency service access. These impacts would be minimized by implementing **TRF-1** (Section 2.1.10) and the following avoidance and minimization measures.

UTL-1: To minimize interruptions of service to utility customers, a series of coordination letters shall be sent to all impacted utility companies to identify utilities within the Project. Letters will indicate where utility relocations are to be performed and the required time to relocate them. Design plans will be sent to involved utility owners during the Project development phase.

- UTL-2:** The implementing agency will ensure that the Project design will employ LID techniques and features to maintain the site's predevelopment runoff rates and volumes to the extent feasible. The objective of the LID design is to mimic the site's predevelopment hydrology by including project features and techniques that infiltrate, filter, store, evaporate, and detain stormwater runoff close to the source. LID design features and techniques can incorporate (but are not limited to) minimizing impermeable surfaces where practical; inclusion of bioretention facilities or *rain gardens*; preserving natural drainages, vegetation, and buffer zones; inclusion of grass swales and channels to direct storm drainage; construction of cisterns to collect water for later use in irrigation; inclusion of vegetated filter strips; and use of permeable pavements.
- UTL-3:** The implementing agency will ensure that the design of the Project will include a landscaping and irrigation plan that is based on the use of drought-resistant landscaping materials. This includes the use of suitable drought-resistant native plants, where feasible, and nonnative plants that are suitable to the site, such as grasses. Suitable plants are those matched to the climate, soils, and the Sacramento region. No invasive, nonnative plants (as inventoried by the California Invasive Plant Council) or noxious weeds (as listed by the California Department of Food and Agriculture) will be used in the landscaping plan. The irrigation system design will rely on recycled water or non-potable water (including water from LID cisterns) whenever available, consistent with quality and health standards. The irrigation system design will include the use of *smart* irrigation controllers to minimize the amount of supplemental water required to maintain the landscaping.
- UTL-4:** The implementing agency will require that the contractor will employ one of the following options for recycling construction and demolition debris:
1. If there is room at the construction site for multiple sorting bins, construction and demolition debris will be sorted and dropped off at recycling facilities. Currently, the following facilities accept sorted construction and demolition waste:
 - Kiefer Landfill
 - Crete Crush, LLC, which accepts brick, gravel, sand, asphalt, concrete, and soil
 - Elder Creek Recovery & Transfer Station BFI
 - EBI Aggregates, which accepts concrete and asphalt
 - Vulcan Materials, which accepts concrete and asphalt
 - Sims Metal Management
 - Granite Construction Company, which accepts only clean, separated concrete and asphalt
 - Bell Marine Company, Inc., which accepts concrete and asphalt
 - L and D Landfill Company
 - Sacramento Recycling & Transfer Station
 - Sacramento Habitat for Humanity, which accepts tax deductible donations of clean wood and various building materials
 - Second Cycle, Inc.
 2. If the construction site is crowded, or mixed recycling is preferable for another reason, the Sacramento Regional Solid Waste Authority provides a list of certified construction and demolition debris sorting facilities.

- Allied Waste/Elder Creek Transfer and Recovery
- L and D Landfill Company
- Waste Management/K&M Recycle America
- Florin-Perkins Public Disposal

If a waste type produced by project construction is a type not accepted by regional landfills, the Project engineer(s) will ensure that the waste is disposed of in accordance with all federal, state, and local statutes and regulations related to solid waste.

2.1.10 TRAFFIC AND TRANSPORTATION AND BICYCLE FACILITIES

REGULATORY SETTING

The Department, as assigned by the Federal Highway Administration (FHWA), directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of Federal-aid highway projects (see 23 Code of Federal Regulations [CFR] 652). It further directs that the special needs of the elderly and the disabled must be considered in all Federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility..

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). The FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to Federal-aid projects, including Transportation Enhancement Activities.

California Department of Transportation

The Department's policies are applicable to the proposed Kammerer Road improvements under consideration and are summarized in the Department's *Guide for the Preparation of Traffic Impact Studies* (Department 2002). These guidelines identify circumstances under which the Department believes that a traffic impact study would be required, information that the Department believes should be included in the study, analysis scenarios, and guidance on acceptable analysis methodologies.

In addition to these policies, the Department prepares a Transportation Concept Report (TCR) for each of its facilities in the area. A TCR is a long-term planning document that each Department district prepares for every state highway or portion thereof in its jurisdiction. This document usually represents the first step in the Department's long-range corridor planning process. The purpose of a TCR is to determine how a highway will be developed and managed so that it delivers the targeted LOS and quality of operations that are feasible to attain over a 20-year period. These are indicated in the "route concept." In addition to the 20-year route concept level, the TCR includes an "ultimate concept," which is the goal for the route beyond the 20-year planning horizon. Ultimate concepts must be used cautiously; however, because unforeseen changes in land use and other variables make forecasting beyond 20 years difficult.

According to the July 2017 TCR, I-5 has a minimum concept LOS E north of the I-5/Hood Franklin Road Interchange and a minimum concept LOS D south of the I-5/Hood Franklin Road Interchange. SR-99 has a minimum concept LOS E in the study area. Consistent with typical practice in Department District 3, the ramp terminal intersections were analyzed with LOS D as the minimum limit for acceptable operations.

2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS)

The 2016 MTP/SCS (SACOG 2016a) which was used for the purposes of preparing the Transportation Impact Analysis report is a long-range planning document for identifying and

programming roadway improvements throughout the Sacramento region. SACOG is required by federal law to update the MTP at least every four years. California SB 375 requires a SCS to be added to regional transportation plans across the state. Since the 2016 MTP/SCS time, SACOG has updated the MTP/SCS in 2020 (SACOG 2020a), which continues to include the Kammerer Road Project within its roadway improvement programming.

Significance criteria for impacts under CEQA on the transportation system are based upon the applicable standards of each jurisdiction.

Sacramento County General Plan

The County has a LOS “E” policy within the Urban Service Boundary and has a LOS “D” policy outside the Urban Service Boundary. Kammerer Road is inside the Urban Service Boundary east of the railroad tracks located between Franklin Boulevard and Willard Parkway and outside the Urban Service Boundary west of the railroad tracks.

A project is considered to have a significant effect if it would:

- Result in a roadway operating at an acceptable LOS (LOS “D” for rural areas and LOS “E” for urban areas) to deteriorate to an unacceptable LOS; or
- Increase the volume to capacity (V/C) ratio by more than 0.05 on a roadway that is operating at an unacceptable LOS without the Project.
- (1) Result in higher VMT than project definition included in the General Plan or a community plan or (2) if the Project is not included in the General Plan or a community plan.

City of Elk Grove General Plan

The City General Plan has applicable goals and policies relating to traffic and transportation.

A project is considered to have a significant effect if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
- Result in an exceedance of the VMT limit of the Project’s General Plan land use designation (i.e., High Density Residential) of 20.6 daily VMT per service population, which incorporates the 15-percent reduction from 2015 conditions

- Result in an exceedance of the established Citywide cumulative limit of 6,367,833 total daily VMT.

City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan (BPTMP)

In May 2021, the City Council adopted the *City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan*. The City's BPTMP is intended to guide and influence pedestrian, bicycle, and trail policies, programs, and development standards to make biking and walking in the City more safe, comfortable, convenient, and enjoyable for all community members. The ultimate goal of the BPTMP is to increase the number of persons who walk and bicycle for transportation to work, school, and errands, and for recreation.

Sacramento County Bicycle Master Plan (SCBMP)

The SCBMP (Sacramento County 2011b) identifies existing facilities and recommends bicycle network improvements within the County. The SCBMP identifies several planned bike lanes around the Project area including the facilities included as part of the Project. In addition, the SCBMP identifies facilities along Franklin Boulevard, Bilby Road between Franklin Boulevard and Bruceville Road, and along Bruceville Road south of Bilby Road.

AFFECTED ENVIRONMENT

In November 2013, a Transportation Impact Analysis (TIA) was prepared and approved for the Kammerer Road Project (DKS 2013). At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2013 TIA approval, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than previously analyzed, and the No-Build Alternative. An updated TIA (DKS 2019) addressing the changes in Project description and examining new transportation results for intersection and segments was prepared. The following section summarizes the updated TIA. The traffic analysis study area covers jurisdictions within the County and City.

To be consistent with the methodology used for other projects along the Connector, the travel demand forecasting was based on the version of SACOG's Sacramento Activity-Based Travel Simulation Model (SACSIM) that was used for the 2016 MTP/SCS. The model was refined in the vicinity of the Project.

For the Project analysis, the development assumptions for 2044 started with the SACOG's 2036 development forecasts from the 2016 MTP/SCS. However, the location of residential development within the City was refined to reflect detailed development information, including approved specific plans, tentative maps and zoning. SACOG's 2036 employment forecasts in the City was modified to include a modest increase in employment growth through 2036, focused on several subareas of the City with recent development proposals, including those in Lent Ranch, the SEPA, and Laguna Ridge. Full buildout of residential development was assumed. Employment growth between the existing model and 2036 was straight-line extrapolated to a 20-year horizon of 2044, resulting in a total of 61,097 jobs. This is approximately 8,000 jobs more than SACOG's Year 2036 projections, but approximately 40,000 jobs less than buildout.

The Capital SouthEast Connector is a 34-mile limited-access roadway planned to connect I-5 south of Elk Grove with US-50 in El Dorado County. The Project is the portion of the Connector between I-5 and SR-99 along Hood Franklin Road and Kammerer Road in the City and the

southern unincorporated County. The Project runs west to east along its proposed route and closes the major corridor gap of I-5 to SR-99.

This traffic analysis builds on analyses included in several related studies in the general Project area. The following is a list of the studies that are specifically referenced throughout this documentation:

- Capital SouthEast Connector Project Program Environmental Impact Report (PEIR)
- Capital SouthEast Connector Project Design Guidelines, Version 4.0
- 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (2016 MTP/SCS)

Evaluation Methods

Pursuant to the passing of Senate Bill 743, the City adopted Vehicle Miles Traveled (VMT) as its standard to be compliant with State law; in this case there is a VMT increase but as the CEQA document was approved prior to the adoption of VMT standards, CEQA document did not evaluate VMT. NEPA assessment of transportation impacts continues to share a variety of traffic data, including where appropriate VMT and LOS, to characterize the setting and consequences of the action. Unlike CEQA, NEPA does not make significance determinations on individual resources (transportation), but rather the significance of the action as a whole. Although the CEQA document did not have to make a VMT significance determination because of the timing of when the CEQA regulation for VMT analysis was promulgated, this Environmental Assessment does not identify VMT as an adverse impact under NEPA. However, for purposes of disclosure, the 2017 VMT Baseline for the Project is estimated to be 51,675,482, the Design Year 2044 No Project VMT is estimated to be 69,242,200, and the Design Year 2044 Project VMT is estimated to be 69,296,963. The Project and associated VMT are accounted for in the Sacramento County General Plan and City of Elk Grove General Plan and is consistent with the SACOG MTP/SCS regional VMT forecasts; therefore, the Project would not exceed the applicable thresholds and is in compliance with the respective General Plan policies relating to VMT.

The City's General Plan establishes performance targets for the operation of roadway segments and intersections. The intent of this policy is to balance the effectiveness of design requirements to achieve the targets with the character of the surrounding areas, as well as the cost to complete the improvements and ongoing maintenance obligations. Generally, the City's Transportation Network Diagram and Roadway Sizing Diagram, located within the General Plan, identifies the planned improvements based upon planned land uses. The LOS standard is used as the method of analysis to remain consistent with Caltrans NEPA transportation planning guidelines and to identify where roadway deficiencies may exist in the future which necessitate improvements. The relevant provisions of State CEQA Guidelines limiting the use of LOS thresholds do not apply in this NEPA EA.

The LOS of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. LOS for this study were determined using methods defined in the Highway Capacity Manual (HCM 2016).

The HCM includes procedures for analyzing side-street stop controlled, all-way stop controlled, and signalized intersections. The signalized intersection procedures define LOS as a function of average control delay for the intersection as a whole. **Table 13** presents intersection LOS criteria and **Table 14** provides freeway ramp LOS criteria as defined in the HCM.

Table 13. Intersection Level of Service Criteria

Level of Service (LOS)	Total Delay Per Vehicle (seconds)	
	Signalized	Unsignalized
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Table 14. Freeway Ramp Level of Service Criteria

Level of Service (LOS)	Passenger cars/mile/lane	
	Merge/Diverge Density	Density
A	≤ 10	≤ 11
B	> 10 – 20	> 11 – 18
C	> 20 – 28	> 18 – 26
D	> 28 – 35	> 26 – 35
E	> 35	> 35 – 45
F	≤ 10	≤ 11

Freeway Analysis

Freeway mainline operations analysis was conducted for weekday AM and PM peak hours for segments on I-5 north and south of the I-5/Hood Franklin Road Interchange, and for segments on SR-99 north and south of the SR-99/Grant Line Road/Kammerer Road Interchange.

The Department's Performance Measurement System (PeMS) data was downloaded for the I-5 and SR-99 mainlines for October 2016. This was chosen as a recent "representative" month, because school was in session, there were no holidays, the weather was dry, and the detectors were operating correctly (i.e. 100% observed). Volume and speed data was averaged for all Tuesdays, Wednesdays, and Thursdays in the study month for vehicle detector stations (VDS):

- 317187: I-5 NB just north of Hood Franklin Road
- 317191: I-5 SB just north of Hood Franklin Road
- 317862: SR-99 NB just north of Grant Line Road
- 317861: SR-99 SB just north of Grant Line Road

Ramp volume data was obtained from intersection counts at the ramp terminals. The heavy vehicle percentage was obtained from the Department' 2015 Annual Average Daily Truck Traffic on the California State Highway System. The analysis uses 24 percent heavy vehicles on I-5 and 15 percent on SR-99.



In accordance with the 2010 Highway Capacity Manual, the determination of freeway operating conditions is based on density (passenger cars per mile per lane). Hourly traffic volumes are converted to peak 15-minute passenger car equivalents using the PHF and percentage of heavy vehicles. This volume is then converted to a theoretical density utilizing the lowest 15-minute average speed. This conversion assumes that the observed highest flow rate is the demand rate during the 15-minute period of lowest speed. Freeway LOS criteria are shown in **Table 14**.

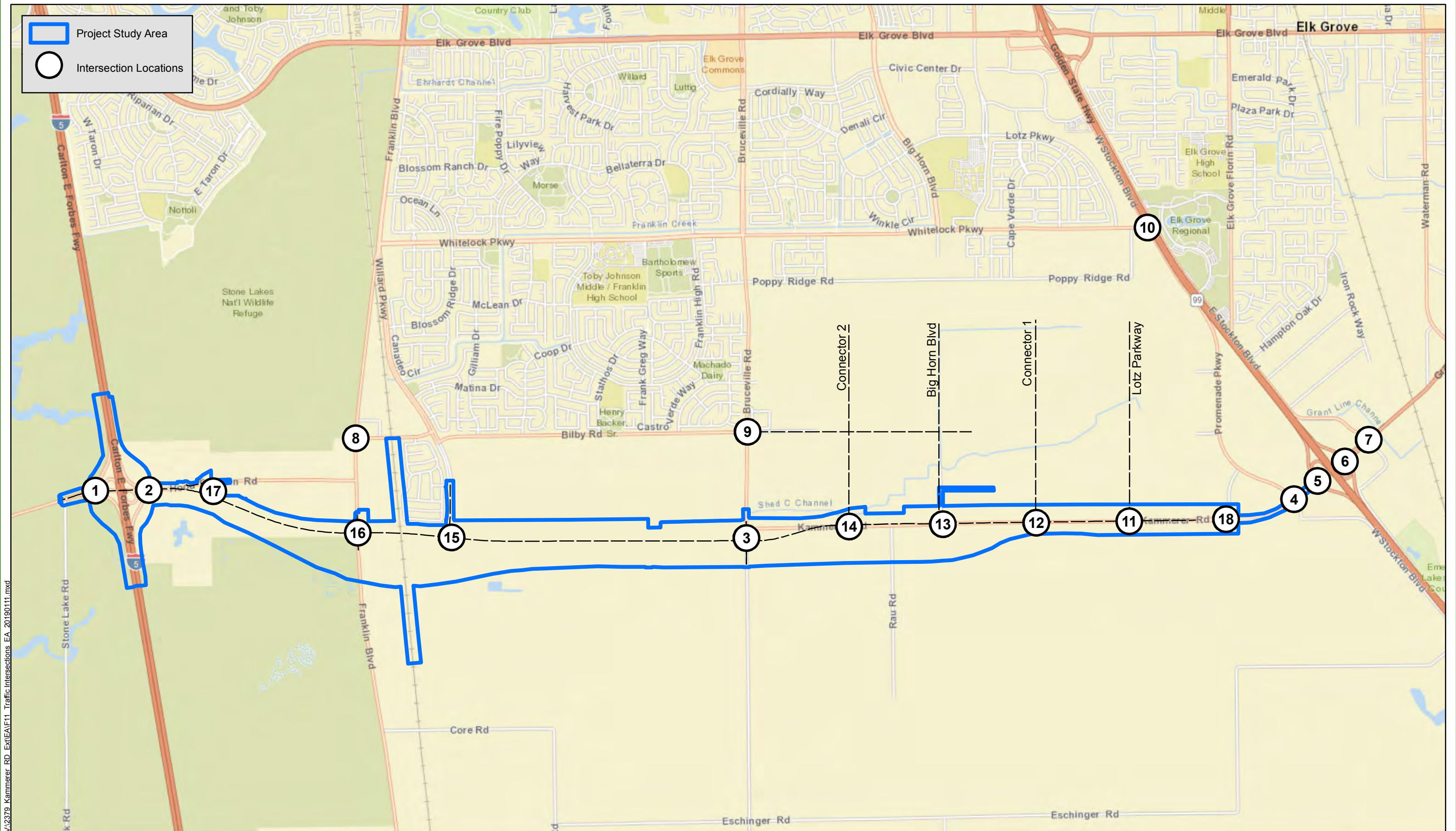
Project Area Locations

Figure 11 shows the traffic analysis intersections respectively, analyzed in the Project's Traffic Impact Analysis. The traffic study examined and includes the following locations in the Project area.

Study Area Intersections

- | | |
|---|--|
| 1. Hood Franklin Road/Southbound I-5 Ramp | 2. Hood Franklin Road/Northbound I-5 Ramp |
| 3. Kammerer Road/Bruceville Road | 4. Kammerer Road/Promenade Parkway |
| 5. Kammerer Road/Southbound SR 99 Ramp | 6. Grant Line Road/Northbound SR 99 Ramp |
| 7. Grant Line Road/East Stockton Blvd – Survey Road | 8. Whitelock Parkway/West Stockton Boulevard |
| 9. Bilby Road/Bruceville Road | 10. Bilby Road/Franklin Boulevard |
| 11. Kammerer Road/Future Lotz Parkway | 12. Kammerer Road/Future Collector 1 |
| 13. Kammerer Road/Future Big Horn Boulevard | 14. Kammerer Road/Future Collector 2 |
| 15. Kammerer Road/Willard Parkway | 16. Kammerer Road/Franklin Boulevard |
| 17. Kammerer Road/Hood Franklin Road | 18. Kammerer Road/Lent Ranch Parkway |

 Project Study Area
 Intersection Locations



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann


 1 inch = 2,400 feet
 0 1,000 2,000 3,000 4,000 5,000 Feet

FIGURE 11
Traffic Analysis - Intersections
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Study Area Freeway Ramps

I-5 – Northbound

- Hood Franklin Road Exit
- Eastbound Hood Franklin Road Loop Entrance
- Westbound Hood Franklin Road Slip Entrance

SR 99 – Northbound

- Kammerer Road/Grant Line Road Exit
- Eastbound Kammerer Road Loop Entrance
- Westbound Grant Line Road Slip Entrance

I-5 – Southbound

- Hood Franklin Road Exit
- Westbound Hood Franklin Road Loop Entrance
- Eastbound Hood Franklin Road Slip Entrance

SR 99 – Southbound

- Kammerer Road/Grant Line Road Exit
- Westbound Grant Line Road Loop Entrance
- Eastbound Kammerer Road Slip Entrance

Existing Transportation System

The existing roadways and highways within and near the Project area include Kammerer Road (and intersecting roadways), Promenade Parkway, Bruceville Road, Willard Parkway, Big Horn Boulevard, Franklin Boulevard, Hood Franklin Road, I-5, and SR 99. The majority of the Project area does not provide pedestrian or bicycle facilities, and no bus stops exist within the Project area. The closest pedestrian facilities to the Project area include sidewalks and bike lanes along Kammerer Road from SR 99 to approximately 400 feet east of Promenade Parkway. A sidewalk is present along the north side of Kammerer Road for an additional 2,000 feet, ending just west of Lent Ranch Parkway at the eastern border of the Project area.

Roadways

Kammerer Road: Kammerer Road is an east-west facility that transverses the southern portion of the City. The roadway extends along the border of the City with the County to the south. To the west, it terminates at a T-intersection at Bruceville Road with stop control on the westbound approach. To the east, the roadway becomes Grant Line Road at the freeway interchange with SR 99. The segment of Kammerer Road proposed for widening currently has one travel lane in each direction.

Hood Franklin Road: Hood Franklin Road is an east-west roadway in the County serving rural areas between Franklin Boulevard to the east and River Road to the west. Hood Franklin Road is two lanes wide and has stop-controlled intersections at Franklin Boulevard and at the northbound and southbound I-5 off-ramps.

Franklin Boulevard: Franklin Boulevard is a local north-south roadway in the western part of the Project area. To the south, it extends to West Walnut Grove Road. To the north, it extends through the City and the City of Sacramento as a four- to six-lane major arterial.

Willard Parkway: Willard Parkway is a north-south facility in the western part of the Project area. Willard Parkway is four lanes wide from Whitelock Parkway to its current terminus south of Bilby Road. From its current terminus, Willard Parkway would extend south approximately a quarter mile to a 90-degree intersection with the proposed extension of Kammerer Road.

Bruceville Road: Bruceville Road is a north-south facility the middle of the Project area. To the north, Bruceville Road extends to Valley High Drive in the City of Sacramento. To the south, it extends to Desmond Road. North of Whitelock Parkway, Bruceville Road is a four- to six-lane major arterial. To the south of Whitelock Parkway, Bruceville Road is two lanes wide.

Big Horn Boulevard: Big Horn Boulevard terminates at Whitelock Parkway. The roadway is planned for extension between Whitelock Parkway and Kammerer Road as a four-lane arterial.

Promenade Parkway: Promenade Parkway terminates at Kammerer Road. To the north, the roadway continues approximately 1 mile, becoming West Stockton Boulevard and running along the west side of SR 99.

Transit

Transit service is provided in the City by e-Tran. Routes are coordinated with Sacramento Regional Transit District buses and light rail and South County Transit/Link to areas outside the City. Main transfer points are at the Cosumnes River College, Meadowview Light Rail Station, and Laguna Town Hall. Services are funded with Transportation Development Act and Federal Transit Administration funds. E-Tran operates a system of bus routes, including three bus routes north of the Project area along Whitelock Parkway.

Pedestrian and Bicycle Facilities

Currently, pedestrian and bicycle facilities in the Project study area are limited, and include sidewalks and bike lanes along Kammerer Road from SR-99 to approximately 400 feet east of Promenade Parkway. A sidewalk is present along the north side of Kammerer Road for an additional 2,000 feet, ending just west of Lent Ranch Parkway at the eastern border of the Project area. For the Project, both the thoroughfare and the expressway will include a Class I bidirectional, multiuse pathway along the northern extent of the roadway. The thoroughfare will also include Class II bike lanes within the roadway shoulders in both directions from SR-99 to Bruceville Road. The Project does not propose Class II bike lanes within the expressway segment from Bruceville Road to the I-5/Hood Franklin Road Interchange pursuant the Connector JPA Design Guidelines for safety on this type of roadway segment. Consequently, the Project will be inconsistent with the *City of Elk Grove Bicycle, Pedestrian, and Trails Master Plan (2021b)*, which identifies Class II bike lanes from Bruceville to I-5/Hood Franklin Interchange.

Existing Transportation System Operations

Existing conditions and Existing Plus Project Build Alternative conditions of traffic operations in the Project area were recorded, modeled, and analyzed. Intersection and freeway ramp operations analyses were conducted in accordance with the 2010 HCM procedures. This methodology is applied to signalized, two-way stop control, and all-way stop control intersections. Because of the limitations in the HCM 2010 methodology, HCM 2000 methodology was utilized at two intersections in the Project area. For analysis of freeway mainline operations, California PeMS data was utilized. PeMS data is collected continuously on I-5 and SR 99 on mainline lanes. Level of service analyses were conducted for the County and the City roadway segments in the Project area based upon daily traffic volumes, number of traffic lanes between intersections, and roadway characteristics. These analyses utilized the methodology employed in the analysis of the County General Plan. In this methodology, the major roadway network of the County was divided into seven “capacity class” categories for level of service determination, as shown in **Table 15**.

Table 15. Roadway Capacity Classes – Sacramento County

Capacity Class	General Criteria			
	Stops per Mile	Driveways	Speed Range	Lanes
Freeway – Full Access Control	0	None	55 – 65	4 +
Urban Roadways				
Expressway – High Access Control	1 – 2	None	45 – 55	4 +
Arterial – Moderate Access Control	2 – 4	Limited	35 – 45	2 +
Arterial – Low Access Control	4 +	Frequent	25 – 35	2 +
Rural Roadways				
Two-lane Highway	< 0.5	Limited	45 – 55	2
Two-lane road, paved shoulders	0.5 – 2	Limited	45 – 55	2
Two-lane road, no shoulders	0.5 – 2	Limited	45 – 55	2

Source: DKS 2017

Note: Urban roadways lie within the Urban Services Boundary (USB) while roadways lie outside.

Existing Intersection Operations

Table 16 summarizes AM and PM peak hour operating conditions at the study area intersections. During both AM and PM peak hours, all intersections meet the LOS C standard with the exception of the intersection of Bilby Road and Franklin Boulevard, which is all-way stop-controlled and operates at LOS E during the AM peak hour. Existing AM and PM peak hour traffic volumes and lane geometry at the study area intersections are illustrated in **Figure 12**.

Existing Operating Conditions – Department Freeway

Level of service analyses were conducted for freeway basic, merge, and diverge segments. Existing freeway segment LOS is shown in **Table 17** and **Table 18**. All of the freeway segments meet the applicable LOS standard. Existing AM and PM freeway and ramp volumes are illustrated in **Figure 13**.

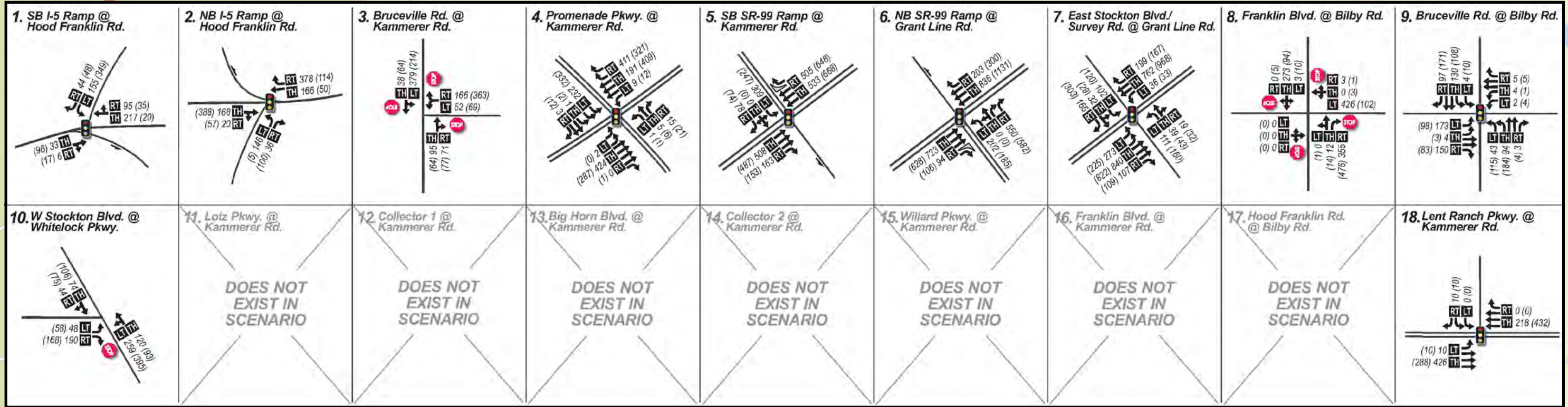
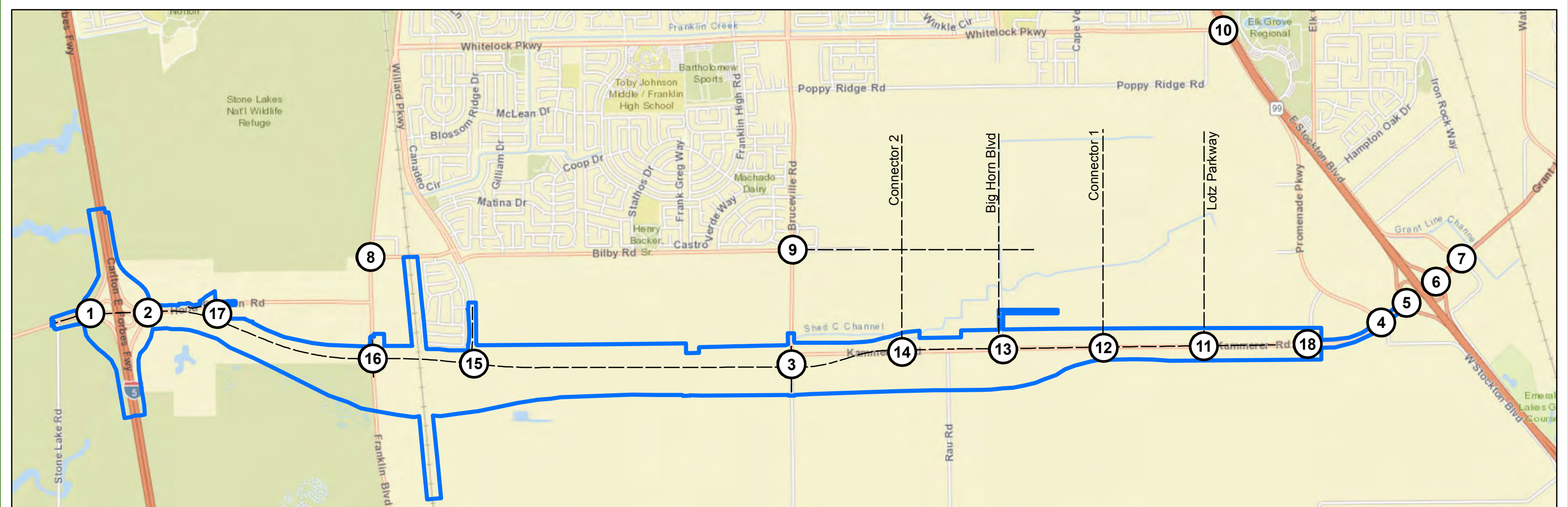
Table 16. Existing Peak Hour Intersection LOS

Intersection		Jurisdiction	Existing Conditions		
			Control	Int LOS	Delay
A.M. Peak Hour					
1	SB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	12.5
			-	-	-
2	NB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	13.9
			-	-	-
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	C	19.1
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	B	15.0
5	SB SR-99 Ramp & Kammerer Rd	Department	Signal	A	6.8
6	NB SR-99 Ramp & Grant Line Rd	Department	Signal	A	8.6
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	C	26.9
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	E	35.3
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	A	9.8
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	B	12.2
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only		
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only		
17	Hood Franklin Rd & Kammerer Rd	County Rural	Project Intersection Only		
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	3.7
Note: Bold intersections do not meet LOS policy SSSC = Side Street Stop Control, AWSC = All Way Stop Control					

Table 16. Existing Peak Hour Intersection LOS

Intersection		Jurisdiction	Existing Conditions		
			Control	Int LOS	Delay
P.M. Peak Hour					
1	SB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	12.2
			-	-	-
2	NB I-5 Ramp & Hood Franklin Rd	Department	SSSC	B	11.8
			-	-	-
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	C	16.5
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	B	13.3
5	SB SR-99 Ramp & Kammerer Rd	Department	Signal	A	6.4
6	NB SR-99 Ramp & Grant Line Rd	Department	Signal	A	9.2
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	C	30.4
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	B	12.1
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	A	8.4
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	C	24.1
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only		
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only		
17	Hood Franklin Rd & Kammerer Rd	County Rural	Project Intersection Only		
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	4.2
Note: Bold intersections do not meet LOS policy SSSC = Side Street Stop Control, AWSC = All Way Stop Control					

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V:\2379_Kammerer_RD_EX\EA\F12_Existing_No_Project_PeakTrafficIntersections_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: brianm

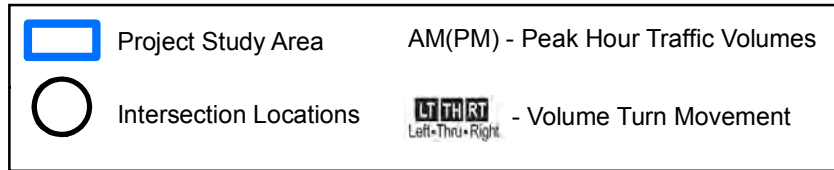
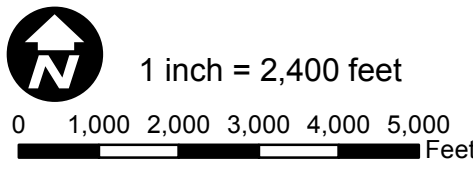


FIGURE 12
Existing No Project
Peak Hour Intersection Volumes
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

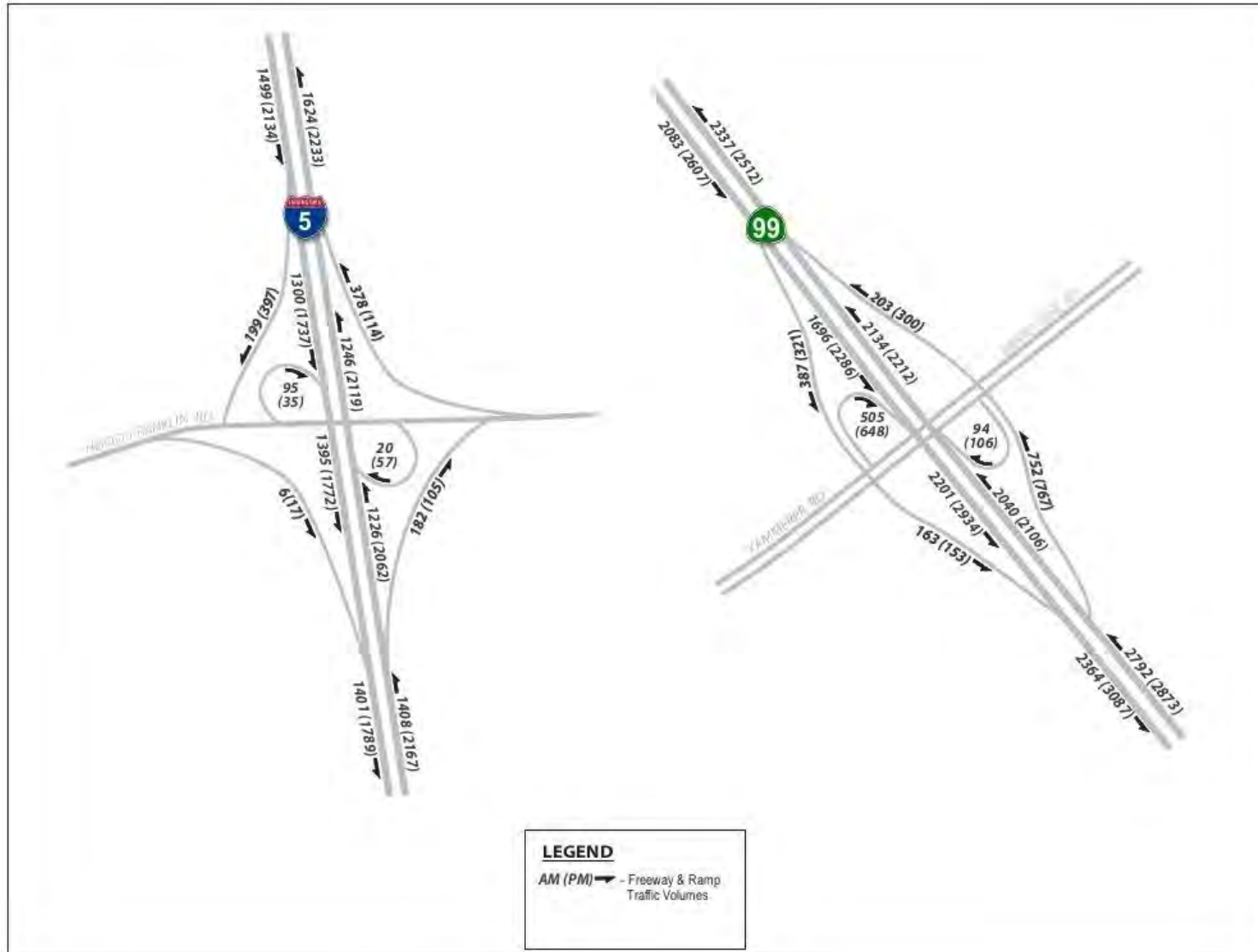
Table 17. Existing No-Build I-5 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	1408	11.4	B	2167	17.0	B
OFF - To Hood Franklin Rd	Diverge	182	17.6	B	105	24.6	C
ON - Loop from EB Hood Franklin Rd	Merge	20	14.8	B	57	22.4	C
ON- Slip from WB Hood Franklin Rd	Merge	378	18.3	B	114	22.7	C
ML - N/O Hood Franklin Rd	Basic	1624	13.2	B	2233	17.6	B
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1499	14.4	B	2134	16.6	B
OFF - To Hood Franklin Rd	Diverge	199	21.4	C	397	20.2	C
ON - Loop from WB Hood Franklin Rd	Merge	95	18.0	B	35	18.3	B
ON- Slip from EB Hood Franklin Rd	Merge	6	18.7	B	17	19.2	B
ML - S/O Hood Franklin Rd	Basic	1401	13.4	B	1789	13.8	B

Table 18. Existing No-Build SR-99 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	2792	22.5	C	2873	23.1	C
OFF - To Grant Line Rd	Diverge	752	17.4	B	767	17.9	B
ML - Loop from Kammerer Rd (Add Lane)	Basic	2134	11.3	B	2212	11.6	B
ON- Slip from WB Grant Line Rd	Merge	203	14.5	B	300	15.6	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	2337	18.5	C	2512	19.8	C
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2083	16.5	B	2607	20.4	C
OFF - To Kammerer Rd	Diverge	387	10.6	B	648	15.1	B
ML - Loop from Grant Line Rd (Add Lane)	Basic	2201	11.6	B	2934	15.2	B
ON- Slip from EB Kammerer Rd	Merge	505	14.3	B	153	18	B
ML - Kammerer Rd to Dillard Rd	Basic	2364	18.8	C	3087	24.9	C

Figure 13. Existing No Project Freeway Volumes



ENVIRONMENTAL CONSEQUENCES

Build Alternative

Bicycle and Trail Facilities

The Project would include a bidirectional multiuse pathway north of the west-bound travel lane from SR-99 to the I-5/Hood Franklin Road Interchange, in addition to necessary reconstruction of sidewalk and curb ramps where necessary. Construction of the multiuse path, sidewalks and curb ramps would be consistent with regulations of the 1990 Americans with Disabilities Act (ADA), in order to build a transportation facility that provide equal access for all persons.

The widened portion of existing Kammerer Road from Bruceville Road to Lent Ranch Parkway, Class II bike lanes would be constructed along Kammerer Road at the shoulders. The Class II bike lanes are identified in the BPTMP and SCBMP as proposed facilities. In addition, the surrounding facilities identified in the BPTMP and SCBMP along Bruceville Road, Franklin Boulevard, and along proposed roads within SEPA would not be affected by the Project.

Increased demand of the Great California Delta Trail system could occur as the City develops, and the Project may provide access connections from the City to west of the I-5/Hood Franklin Interchange. However, no direct impacts to the Great California Delta Trail are anticipated as the trail system is outside of the Project area. Small traffic decreases to the Twin Cities area would occur (approximately 200 ADT decrease) due to the parallel capacity of Kammerer Road. Additionally, a small traffic increase (less than 250 ADT increase) is anticipated to Hood Franklin Road and SR-160 along the delta, west of the I-5/Hood Franklin Interchange. Due to the low volume of these facilities, the changes due to the Project would not result in a significant increase in travelers using the delta area roadways or the Great California Delta Trail.

The Project would help to accommodate planned growth in the region. However, the Project itself would not directly result in an increase in population that would substantially increase the use of bicycle and trail facilities or lead to their degradation. Therefore, impacts to existing bicycle and trail facilities resulting from the Project are not considered to be adverse.

Traffic Analysis Scenarios

Potential transportation and traffic impacts associated with the implementation of the Project, where analyzed for the following scenarios:

- Existing Plus Full Build (4-Lane) Analysis
- Existing Plus Interim (2-Lane) Analysis
- Cumulative No Project Analysis
- Cumulative Plus Full Build Analysis
- Opening Year Plus Ten Years (2034) Plus Interim Project

Department Freeway Facilities

Improvements to the I-5/Hood Franklin Road Interchange will be determined through a separate study process following Department procedures. This document provides traffic analysis for both the signal control option and roundabout control options. For either control option, the proposed interchange would maintain the Type L-9 configuration.

The signal control option would make the following modifications:

- The existing southbound and northbound off-ramps would be realigned to intersect with the local collector at right angles. The off-ramps would be widened at the intersection with Kammerer Road and signalized. The two signalized intersections between the southbound and northbound off-ramps are anticipated to be approximately 1,015 feet apart.
- The existing southbound on-ramp and both existing loop ramps would remain unchanged.
- The northbound on-ramp would be realigned to accommodate future widening.
- Ramp improvements include the addition of ramp metering and a CHP enforcement area.
- The southbound/eastbound turn movement through the signal would be configured as a single left-turn.
- The structure over I-5 will require widening for an additional lane and will upgrade the existing railing to meet the present-day bridge rail height standard of 42 inches.

The roundabout control option would make the following modifications:

- Construct single lane roundabouts at both southbound and northbound ramp intersections on Kammerer Road. The two roundabouts are anticipated to be approximately 1,015 feet apart.
- The existing diamond off-ramps from both northbound and southbound I-5 would be realigned to intersect the Kammerer Road roundabouts at right angles.
- One of the two lanes on the I-5 northbound off-ramp approaching Kammerer Road will flow directly eastbound, uncontrolled, while the other lane would proceed through the roundabout to cross over I-5.
- The existing southbound on-ramp and both existing loop ramps would remain unchanged.
- The northbound on-ramp would be realigned to accommodate future widening.
- Ramp improvements include the addition of ramp metering and a CHP enforcement area.
- Upgrade the existing railing to meet the present-day bridge rail height standard of 42 inches.

Existing Plus Full Build (4-Lane) Analysis

Analysis of the Existing Plus Full Build Project is based upon model forecasted traffic volumes and the proposed improvements associated with the proposed reconstruction and extension of Kammerer Road as a four-lane facility. The model used was the SACOG travel demand model with enhanced detail in the City.

The construction of the Full Build Project would not cause any significant impacts under existing conditions. The Full Build Project would decrease traffic volumes on Whitelock Parkway, Elk Grove Boulevard and Laguna Boulevard. Therefore, it is concluded that the Kammerer Road improvements would benefit overall traffic operations in the study area.

Existing Plus Full Build Operating Conditions – Intersections

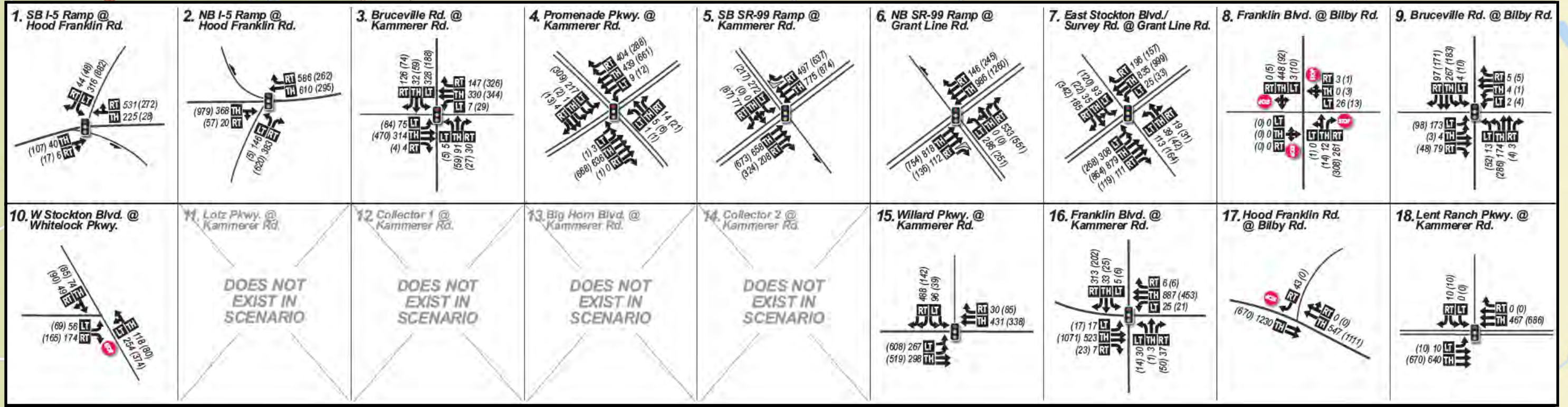
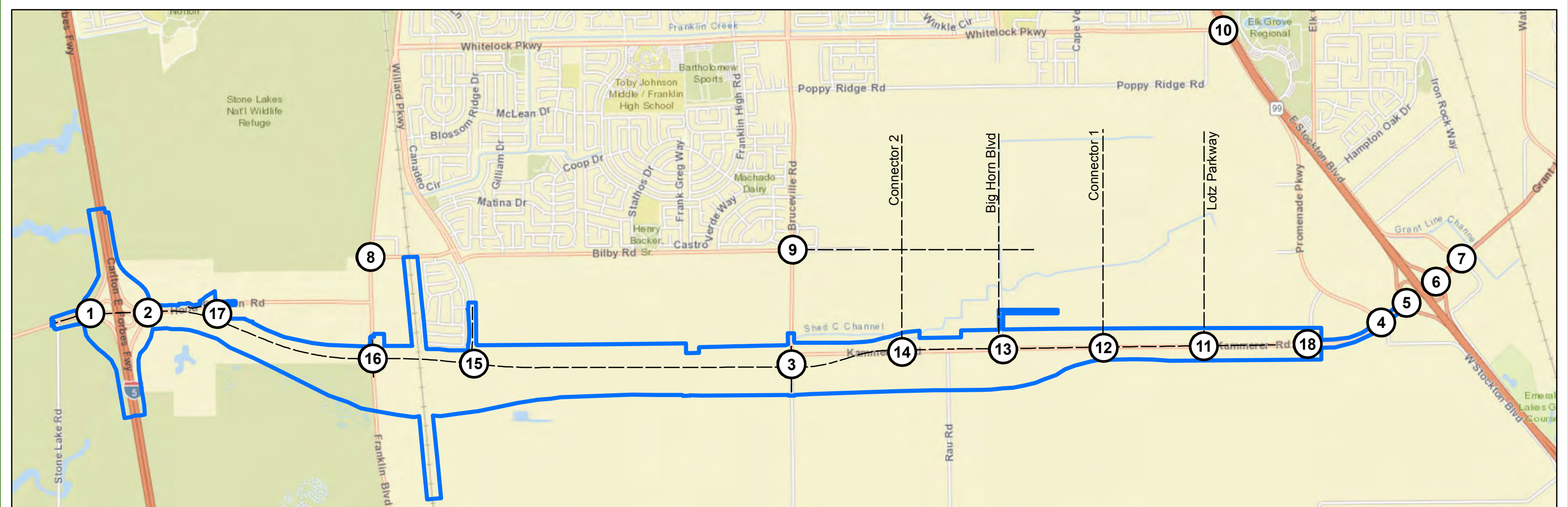
Table 19 summarizes AM and PM peak hour operating conditions at the study area intersections with the Full Build Project. During both the AM and PM peak hours, all intersections meet the LOS C Connector JPA standard. Existing Plus Full Build Alternative AM and PM peak hour traffic volumes and lane geometry at study area intersections are illustrated in **Figure 14**.

Table 19. Existing and Existing Plus Full Build Peak Hour Intersections LOS

Intersection		Jurisdiction	Existing Conditions			Existing Plus Full Build Conditions		
			Control	Int LOS	Delay	Control	Int LOS	Delay
A.M. Peak Hour								
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	12.5	Signal	A	9.6
			-	-	-	Roundabout	A	5.3
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	13.9	Signal	A	8.7
			-	-	-	Roundabout	A	4.4
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	C	19.1	Signal	B	16.2
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	B	15.0	Signal	B	14.5
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	A	6.8	Signal	A	7
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	A	8.6	Signal	A	9.3
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	C	26.9	Signal	C	28.1
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	E	35.3	AWSC	B	13.7
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	A	9.8	Signal	A	9.8
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	B	12.2	AWSC	B	11.9
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	11.4
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	15.8
17	Hood Franklin Rd & Kammerer Rd	County Rur.	Project Intersection Only			Uncontrolled	-	-
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	3.7	Signal	A	3.3
Note: Bold intersections do not meet LOS policy, Shaded intersections show project impacts SSSC = Side Street Stop Control, AWSC = All Way Stop Control								

Table 19. Existing and Existing Plus Full Build Peak Hour Intersections LOS

Intersection		Jurisdiction	Existing Conditions			Existing Plus Full Build Conditions		
			Control	Int LOS	Delay	Control	Int LOS	Delay
P.M. Peak Hour								
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	12.2	Signal	B	13.7
			-	-	-	Roundabout	B	11.9
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	11.8	Signal	A	6.7
			-	-	-	Roundabout	B	10.3
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	C	16.5	Signal	B	14.6
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	B	13.3	Signal	B	15
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	A	6.4	Signal	A	6.7
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	A	9.2	Signal	B	10
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	C	30.4	Signal	C	32.3
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	B	12.1	AWSC	A	8.6
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	A	8.4	Signal	A	7.7
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	C	24.1	AWSC	C	19.8
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	A	9.1
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	13.1
17	Hood Franklin Rd & Kammerer Rd	County Rur.	Project Intersection Only			Uncontrolled	-	-
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	4.2	Signal	A	3.3
Note: Bold intersections do not meet LOS policy, Shaded intersections show project impacts SSSC = Side Street Stop Control, AWSC = All Way Stop Control								



V:\2379_Kammerer_RD_EX\EA\F14_Existing_Full_Build_Peak_Traffic_Intersections_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: brianm

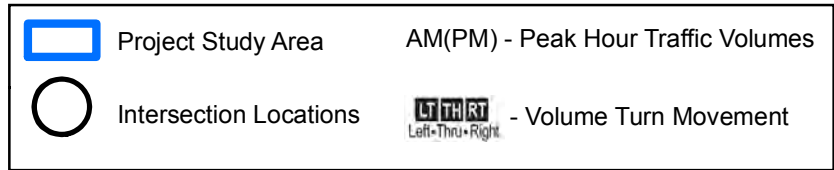
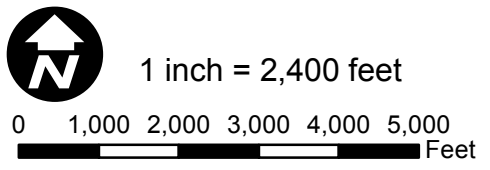


FIGURE 14
Existing Plus Full Build
Peak Hour Intersection Volumes
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Intersection-related improvements are included with the proposed extension and widening of Kammerer Road. Under existing conditions, new traffic signals with turn lanes would be installed at three intersections with the Full Build Alternative:

- Kammerer Road with Franklin Blvd
- Kammerer Road with Willard Parkway
- Kammerer Road with Bruceville Road

New traffic signals or roundabouts would be installed at two intersections with the Full Build Alternative:

- Hood Franklin Road with the I-5 Southbound Off-Ramp
- Hood Franklin Road with the I-5 Northbound Off-Ramp

New traffic signals would be warranted for all five intersections under the Existing Plus Full Build Project.

Existing Plus Full Build Operating Conditions – Department Freeway Facilities

Table 20 and **Table 21** summarize AM and PM peak hour operating conditions at the study area freeway mainline segments. All of the freeway segments meet the applicable LOS standard. Existing Plus Full Build Alternative AM and PM peak hour freeway segment volumes are illustrated in **Figure 15**.

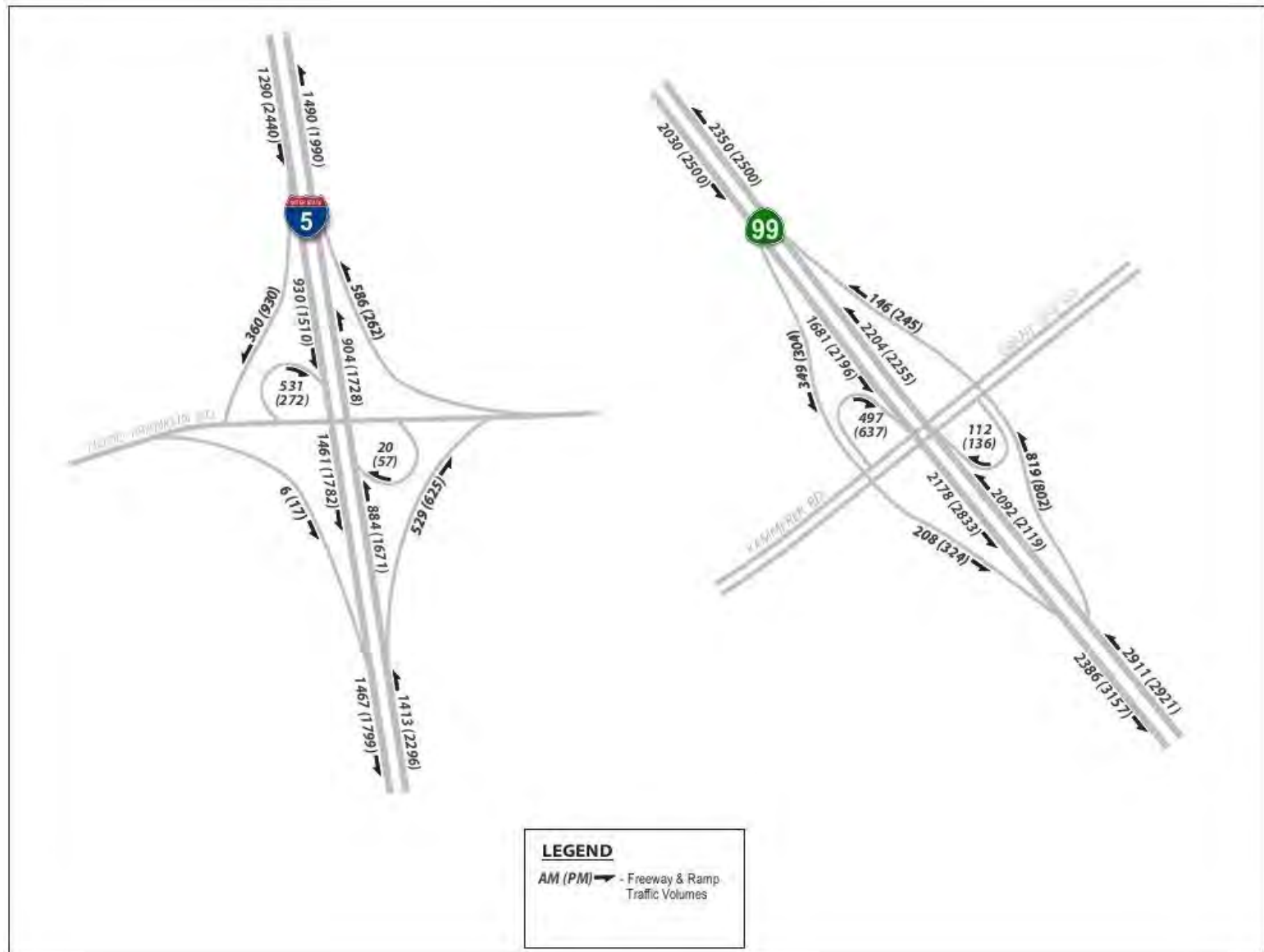
Table 20. Existing Plus Full Build I-5 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Existing - No-Build							
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	1408	11.4	B	2167	17.0	B
OFF - To Hood Franklin Rd	Diverge	182	17.6	B	105	24.6	C
ON - Loop from EB Hood Franklin Rd	Merge	20	14.8	B	57	22.4	C
ON - Slip from WB Hood Franklin Rd	Merge	378	18.3	B	114	22.7	C
ML - N/O Hood Franklin Rd	Basic	1624	13.2	B	2233	17.6	B
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1499	14.4	B	2134	16.6	B
OFF - To Hood Franklin Rd	Diverge	199	21.4	C	397	20.2	C
ON - Loop from WB Hood Franklin Rd	Merge	95	18.0	B	35	18.3	B
ON- Slip from EB Hood Franklin Rd	Merge	6	18.7	B	17	19.2	B
ML - S/O Hood Franklin Rd	Basic	1401	13.4	B	1789	13.8	B
Existing - Full Build							
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	1413	11.5	B	2296	18.2	C
OFF - To Hood Franklin Rd	Diverge	529	17.7	B	625	25.9	C
ON - Loop from EB Hood Franklin Rd	Merge	20	11.5	B	57	18.6	B
ON- Slip from WB Hood Franklin Rd	Merge	586	15.9	B	262	20.2	C
ML - N/O Hood Franklin Rd	Basic	1490	12.1	B	1990	15.5	B
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1290	12.3	B	2440	19.3	C
OFF - To Hood Franklin Rd	Diverge	360	18.8	B	930	27.1	C
ON - Loop from WB Hood Franklin Rd	Merge	531	17.0	B	272	18.1	B
ON- Slip from EB Hood Franklin Rd	Merge	6	19.4	B	17	19.2	B
ML - S/O Hood Franklin Rd	Basic	1467	14.0	B	1779	13.9	B

Table 21. Existing Plus Full Build SR-99 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Existing - No-Build							
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	2792	22.5	C	2873	23.1	C
OFF - To Grant Line Rd	Diverge	752	17.4	B	767	17.9	B
ML - Loop from Kammerer Rd (Add Lane)	Basic	2134	11.3	B	2212	11.6	B
ON- Slip from WB Grant Line Rd	Merge	203	14.5	B	300	15.6	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	2337	18.5	C	2512	19.8	C
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2083	16.5	B	2607	20.4	C
OFF - To Kammerer Rd	Diverge	387	10.6	B	648	15.1	B
ML - Loop from Grant Line Rd (Add Lane)	Basic	2201	11.6	B	2934	15.2	B
ON- Slip from EB Kammerer Rd	Merge	505	14.3	B	153	18	B
ML - Kammerer Rd to Dillard Rd	Basic	2364	18.8	C	3087	24.9	C
Existing - Full Build							
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	2911	23.7	C	2921	23.5	C
OFF - To Grant Line Rd	Diverge	819	18.5	B	802	18.3	B
ML - Loop from Kammerer Rd (Add Lane)	Basic	2204	11.6	B	2255	11.8	B
ON- Slip from WB Grant Line Rd	Merge	146	14.2	B	245	15.2	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	2350	18.6	C	2500	19.7	C
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2030	16.1	B	2500	19.5	C
OFF - To Kammerer Rd	Diverge	349	10.1	B	304	14.1	C
ML - Loop from Grant Line Rd (Add Lane)	Basic	2178	11.5	B	2833	14.6	B
ON- Slip from EB Kammerer Rd	Merge	208	14.6	B	324	18.6	B
ML - Kammerer Rd to Dillard Rd	Basic	2386	18.9	C	3157	25.6	C

Figure 15. Existing Plus Full Build Freeway Volumes



Existing Plus Interim Project Analysis

Analysis of the Existing Plus Interim Project is based upon model forecasted traffic volumes and the proposed improvements associated with the proposed reconstruction and extension of Kammerer Road. The model used was the SACOG travel demand model with enhanced detail in the City.

The construction of the Interim Project would not cause any significant impacts under existing conditions. The Interim Project would decrease traffic volumes on Whitelock Parkway, Elk Grove Boulevard and Laguna Boulevard. Therefore, it is concluded that the Kammerer Road improvements would benefit overall traffic operations in the study area.

Existing Plus Interim Project Operating Conditions – Intersections

Table 22 summarizes AM and PM peak hour operating conditions at the study area intersections with the Interim Project Alternative. During both the AM and PM peak hours, all intersections meet the LOS C Connector JPA standard.

Intersection-related improvements are included with the proposed extension and widening of Kammerer Road. Under existing conditions, new traffic signals with turn lanes would be installed at three intersections with the Interim Project Alternative:

- Kammerer Road with Franklin Blvd
- Kammerer Road with Willard Parkway
- Kammerer Road with Bruceville Road

New traffic signals or roundabouts would be installed at two intersections with the Interim Project Alternative:

- Hood Franklin Road with the I-5 Southbound Off-Ramp
- Hood Franklin Road with the I-5 Northbound Off-Ramp

New traffic signals would be warranted for all five intersections under the Existing Plus Interim Project Alternative.

Existing Plus Interim Project Alternative AM and PM peak hour traffic volumes and lane geometry at study area intersections are illustrated in **Figure 16**.

Existing Plus Interim Project Operating Conditions – Department Freeway Facilities

Table 23 and **Table 24** summarize AM and PM peak hour operating conditions at the study area freeway ramps and freeway mainline segments. All of the freeway segments meet the applicable LOS standard. Existing Plus Interim Project Alternative AM and PM peak hour freeway segment are illustrated in **Figure 17**.

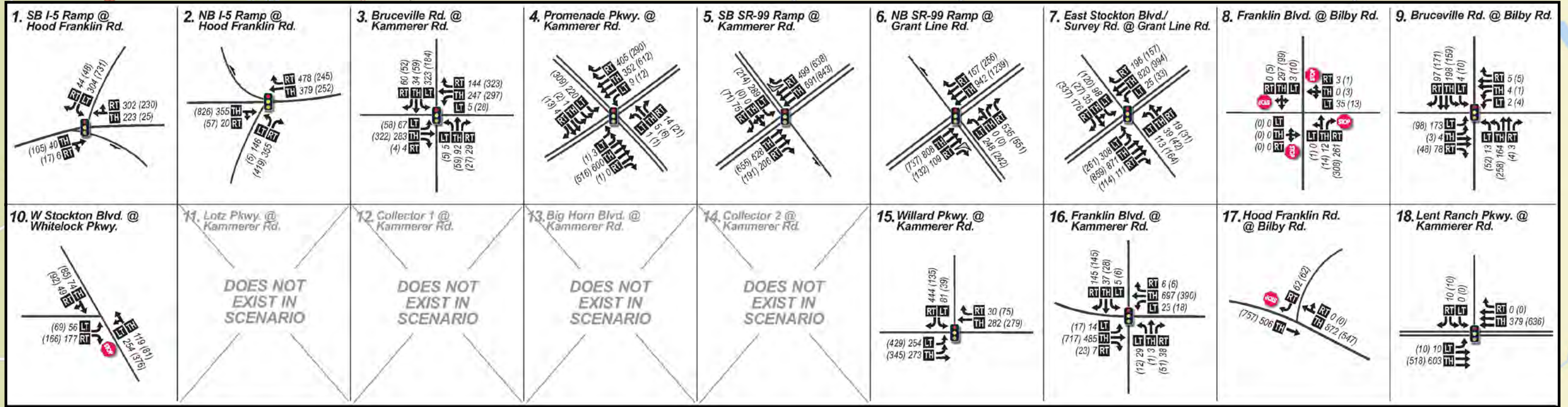
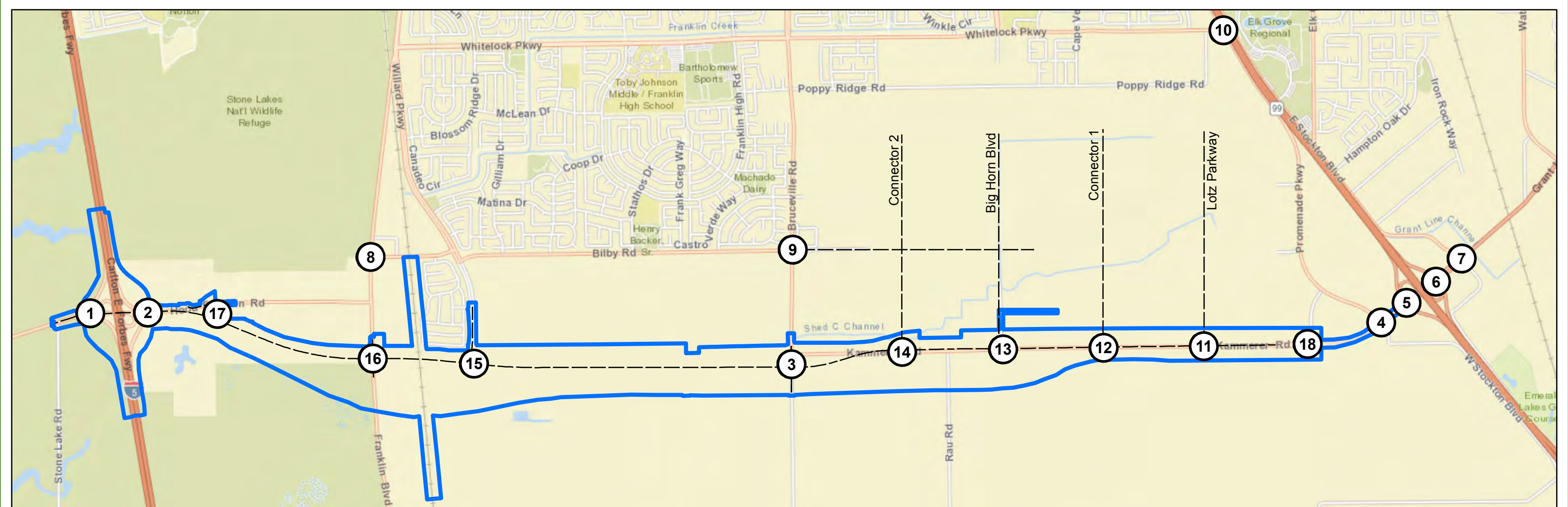
Table 22. Existing and Existing Plus Interim Project Peak Hour Intersection LOS

Intersection		Jurisdiction	Existing Conditions			Existing Plus Interim Project Conditions		
			Control	Int LOS	Delay	Control	Int LOS	Delay
A.M. Peak Hour								
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	12.5	Signal	A	9.6
			-	-	-	Roundabout	A	5.2
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	13.9	Signal	A	8.4
			-	-	-	Roundabout	A	3.2
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	C	19.1	Signal	C	20.2
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	B	15.0	Signal	B	12.6
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	A	6.8	Signal	A	7
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	A	8.6	Signal	A	9.1
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	C	26.9	Signal	C	28.1
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	E	35.3	AWSC	A	9.6
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	A	9.8	Signal	A	9.2
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	B	12.2	AWSC	B	11.7
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	17.8
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	14.1
17	Hood Franklin Rd & Kammerer Rd	County Rur.	Project Intersection Only			Uncontrolled	-	-
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	3.7	Signal	A	3.4
Note: Bold intersections do not meet LOS policy, Shaded intersections show project impacts SSSC = Side Street Stop Control, AWSC = All Way Stop Control								

Table 22. Existing and Existing Plus Interim Project Peak Hour Intersection LOS

Intersection		Jurisdiction	Existing Conditions			Existing Plus Interim Project Conditions		
			Control	Int LOS	Delay	Control	Int LOS	Delay
P.M. Peak Hour								
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	12.2	Signal	A	10.0
			-	-	-	Roundabout	A	8.9
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	11.8	Signal	A	5.9
			-	-	-	Roundabout	A	7.4
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	C	16.5	Signal	B	17.9
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	B	13.3	Signal	B	16.2
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	A	6.4	Signal	A	6.5
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	A	9.2	Signal	A	9.8
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	C	30.4	Signal	C	32.0
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	B	12.1	AWSC	A	8.6
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	A	8.4	Signal	A	7.7
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	C	24.1	AWSC	C	15.1
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	10.1
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	12.9
17	Hood Franklin Rd & Kammerer Rd	County Rur.	Project Intersection Only			Uncontrolled	-	-
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	4.2	Signal	A	3.6
Note: Bold intersections do not meet LOS policy, Shaded intersections show project impacts SSSC = Side Street Stop Control, AWSC = All Way Stop Control								

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V:\2379_Kammerer_RD_EX\EA\F16_Existing_Interim_Build_PeakTrafficIntersections_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: brianm

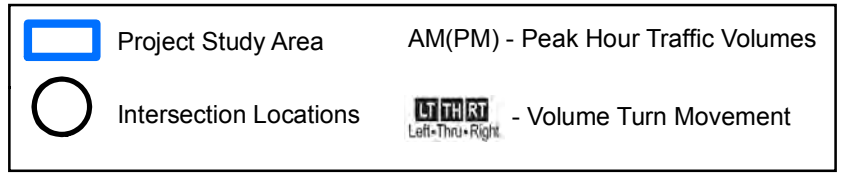
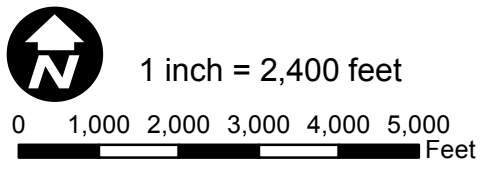


FIGURE 16
Existing Plus Interim Project
Peak Hour Intersection Volumes
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Table 23. Existing Plus Interim Project I-5 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Existing - No-Build							
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	1408	11.4	B	2167	17.0	B
OFF - To Hood Franklin Rd	Diverge	182	17.6	B	105	24.6	C
ON - Loop from EB Hood Franklin Rd	Merge	20	14.8	B	57	22.4	C
ON- Slip from WB Hood Franklin Rd	Merge	378	18.3	B	114	22.7	C
ML - N/O Hood Franklin Rd	Basic	1624	13.2	B	2233	17.6	B
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1499	14.4	B	2134	16.6	B
OFF - To Hood Franklin Rd	Diverge	199	21.4	C	397	20.2	C
ON - Loop from WB Hood Franklin Rd	Merge	95	18.0	B	35	18.3	B
ON- Slip from EB Hood Franklin Rd	Merge	6	18.7	B	17	19.2	B
ML - S/O Hood Franklin Rd	Basic	1401	13.4	B	1789	13.8	B
Existing - Interim Project							
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	1413	11.5	B	2296	18.2	C
OFF - To Hood Franklin Rd	Diverge	529	17.7	B	625	25.9	C
ON - Loop from EB Hood Franklin Rd	Merge	20	11.5	B	57	18.6	B
ON- Slip from WB Hood Franklin Rd	Merge	586	15.9	B	262	20.2	C
ML - N/O Hood Franklin Rd	Basic	1490	12.1	B	1990	15.5	B
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1290	12.3	B	2440	19.3	C
OFF - To Hood Franklin Rd	Diverge	360	18.8	B	930	27.1	C
ON - Loop from WB Hood Franklin Rd	Merge	531	17.0	B	272	18.1	B
ON- Slip from EB Hood Franklin Rd	Merge	6	19.4	B	17	19.2	B
ML - S/O Hood Franklin Rd	Basic	1467	14.0	B	1779	13.9	B

Table 24. Existing Plus Interim Project SR-99 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Existing - No-Build							
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	2792	22.5	C	2873	23.1	C
OFF - To Grant Line Rd	Diverge	752	17.4	B	767	17.9	B
ML - Loop from Kammerer Rd (Add Lane)	Basic	2134	11.3	B	2212	11.6	B
ON- Slip from WB Grant Line Rd	Merge	203	14.5	B	300	15.6	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	2337	18.5	C	2512	19.8	C
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2083	16.5	B	2607	20.4	C
OFF - To Kammerer Rd	Diverge	387	10.6	B	648	15.1	B
ML - Loop from Grant Line Rd (Add Lane)	Basic	2201	11.6	B	2934	15.2	B
ON- Slip from EB Kammerer Rd	Merge	505	14.3	B	153	18	B
ML - Kammerer Rd to Dillard Rd	Basic	2364	18.8	C	3087	24.9	C
Existing - Interim Project							
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	2867	23.3	C	2905	23.4	C
OFF - To Grant Line Rd	Diverge	783	18.1	B	793	18.2	B
ML - Loop from Kammerer Rd (Add Lane)	Basic	2193	11.6	B	2244	11.7	B
ON- Slip from WB Grant Line Rd	Merge	167	14.3	B	256	15.2	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	2360	18.7	C	2500	19.7	C
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2030	16.1	B	2590	20.2	C
OFF - To Kammerer Rd	Diverge	364	10.1	B	285	14.1	B
ML - Loop from Grant Line Rd (Add Lane)	Basic	2165	11.4	B	2943	15.2	B
ON- Slip from EB Kammerer Rd	Merge	206	14.5	B	191	18.1	B
ML - Kammerer Rd to Dillard Rd	Basic	2371	18.8	B	3134	25.4	C

Figure 17. Existing Plus Interim Project Freeway Volumes



Design Year (2044) No Project Analysis

Analysis of cumulative conditions is based upon SACOG's latest 2016 MTP/SCS development forecasts for 2036. In the City, modifications were made to reflect an assumed Year 2044 land use. Full buildout of residential development was assumed. Employment growth between the existing model and 2036 was straight-line extrapolated to a 20-year horizon of 2044, resulting in a total of 61,097 jobs. This is approximately 8,000 jobs more than SACOG's Year 2036 projections, but approximately 40,000 jobs less than buildout.

With growth being projected in the Southeast Policy Area (approximately 4,700 homes and 8,600 jobs), and consistent with the 2016 MTP/SCS, it was assumed that Kammerer Road would be widened to four lanes between Lent Ranch Parkway and Bruceville Road. However, the extension of Kammerer Road to I-5 was not assumed under cumulative conditions without the Project.

Four new roadways in the Southeast Policy Area would intersect with Kammerer Road. These intersections with new roadway connections are:

- Kammerer Rd & Lotz Parkway
- Kammerer Rd & Collector 1
- Kammerer Rd & Big Horn Blvd
- Kammerer Rd & Collector 2

Design Year No Project Operating Conditions - Intersections

Table 25 summarizes AM and PM peak hour operating conditions at the study area intersections. During both the AM and PM peak hours, all intersections meet the LOS D standard with the exception of the following intersections:

- Grant Line Road and East Stockton Boulevard/Survey Road (LOS F, PM peak hour)
- Bilby Road and Franklin Boulevard (LOS F, AM peak hour)

Design Year No Project AM and PM peak hour traffic volumes and lane geometry at the study area intersections are illustrated in **Figure 18**.

Design Year No Project Operating Conditions – Department Freeway Facilities

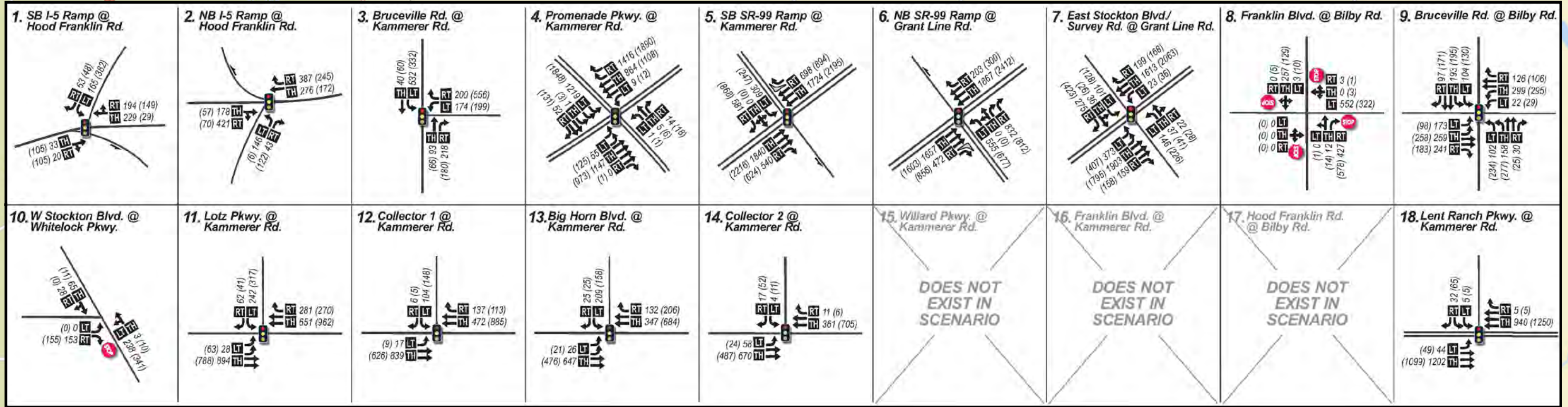
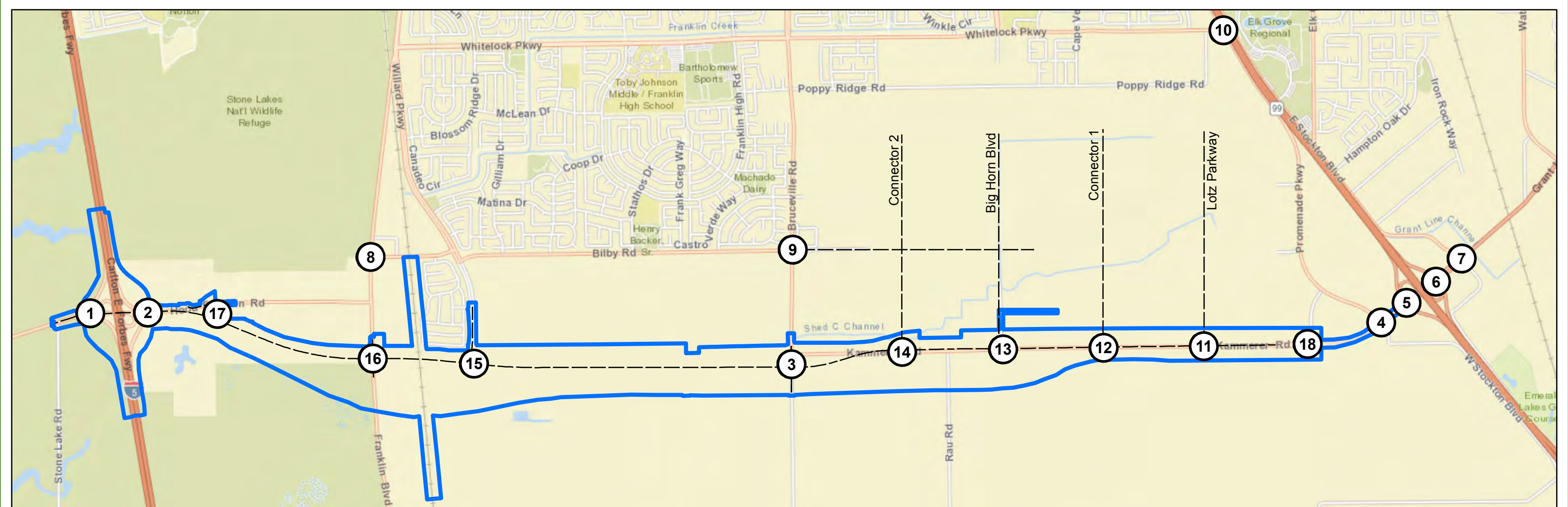
Table 26 and **Table 27** summarize Cumulative No Project AM and PM peak hour operating conditions on the Department's ramps and freeways. All of the freeway segments meet the applicable LOS standard. **Figure 19** illustrates Cumulative No Project freeway peak hour volumes.

Table 25. Design Year No Project Peak Hour Intersection LOS

Intersection		Jurisdiction	Cumulative Conditions		
			Control	Int LOS	Delay
A.M. Peak Hour					
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	11.8
			Roundabout	B	15.7
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	14.5
			Roundabout	A	8.4
3	Bruceville Rd & Kammerer Rd	Elk Grove	Signal	C	24.5
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	C	25.1
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	B	12.9
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	B	17.6
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	D	42.5
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	F	52.5
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	B	17.9
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	Existing Intersection Only		
11	Lotz Parkway & Kammerer Rd	Elk Grove	Signal	A	8.0
12	Collector 1 & Kammerer Rd	Elk Grove	Signal	A	6.4
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Signal	A	8.2
14	Collector 2 & Kammerer Rd	Elk Grove	Signal	A	5.5
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only		
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only		
17	Hood Franklin Rd & Kammerer Rd	County Rural	Project Intersection Only		
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	3.8
Note: Bold intersections do not meet LOS policy. SSSC = Side Street Stop Control, AWSC = All Way Stop Control					

Table 25. Design Year No Project Peak Hour Intersection LOS

Intersection		Jurisdiction	Cumulative Conditions		
			Control	Int LOS	Delay
P.M. Peak Hour					
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	13.1
			Roundabout	C	15.7
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	13.4
			Roundabout	B	10.1
3	Bruceville Rd & Kammerer Rd	Elk Grove	Signal	D	46.5
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	D	39.1
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	C	23.5
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	C	32.1
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	F	162.0
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	D	28.8
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	B	19.7
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	Existing Intersection Only		
11	Lotz Parkway & Kammerer Rd	Elk Grove	Signal	A	9.6
12	Collector 1 & Kammerer Rd	Elk Grove	Signal	A	7.4
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Signal	A	8.0
14	Collector 2 & Kammerer Rd	Elk Grove	Signal	A	6.4
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only		
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only		
17	Hood Franklin Rd & Kammerer Rd	County Rural	Project Intersection Only		
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	4.6
Note: Bold intersections do not meet LOS policy. SSSC = Side Street Stop Control, AWSC = All Way Stop Control					



V:\2379_Kammerer_RD_EX\EA\F18_Design_Year_No_Project_PeakTrafficIntersections_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: brianm

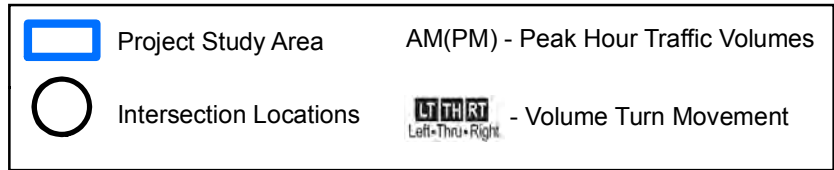
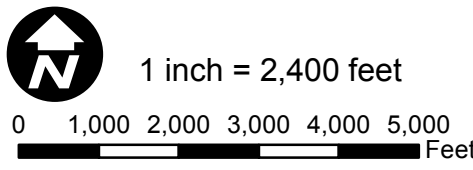


FIGURE 18
Design Year No Project
Peak Hour Intersection Volumes
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

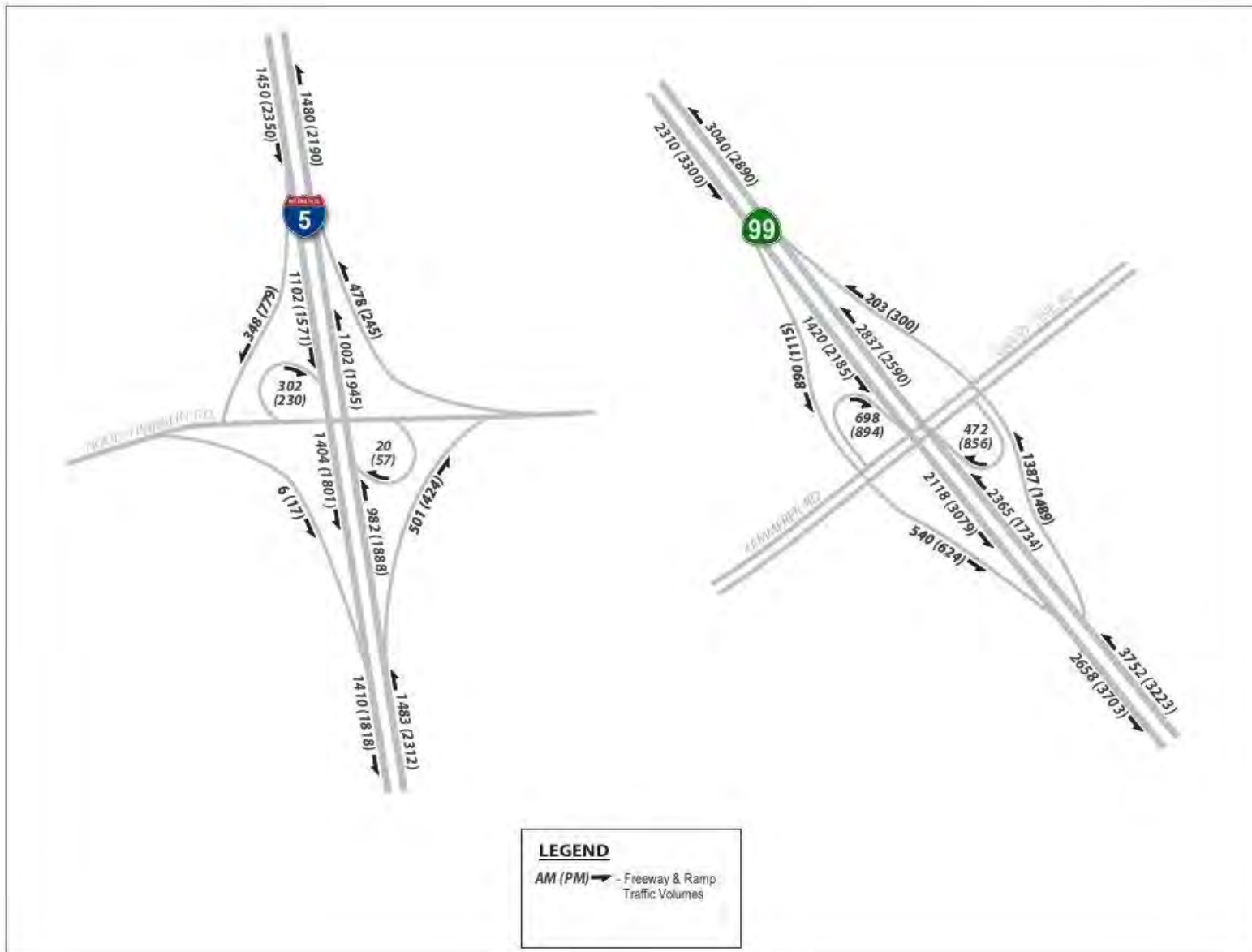
Table 26. Design Year No Project I-5 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Cumulative - No-Build							
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	2545	22.6	C	2463	20.7	C
OFF - To Hood Franklin Rd	Diverge	189	29.5	D	128	27.6	C
ON - Loop from EB Hood Franklin Rd	Merge	57	26	C	70	25.1	C
ON- Slip from WB Hood Franklin Rd	Merge	387	29.4	D	245	26.5	C
ML - N/O Hood Franklin Rd	Basic	2800	25.4	C	2650	22.5	C
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1780	15.5	B	3090	27	D
OFF - To Hood Franklin Rd	Diverge	228	21.5	C	430	33.6	D
ON - Loop from WB Hood Franklin Rd	Merge	194	19.3	B	149	27.7	C
ON- Slip from EB Hood Franklin Rd	Merge	20	19.7	B	30	28.7	D
ML - S/O Hood Franklin Rd	Basic	1766	15.4	B	2839	24.2	C

Table 27. Design Year No Project SR-99 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Cumulative - No-Build							
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	3752	34.1	D	3223	26.7	D
OFF - To Grant Line Rd	Diverge	1387	26.5	C	1489	21.2	C
ML - Loop from Kammerer Rd (Add Lane)	Merge	2837	15	B	2590	12.8	B
ON- Slip from WB Grant Line Rd	Merge	203	17.9	B	300	17.3	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	3040	25	C	2890	23.2	C
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2310	18.3	C	3300	27.2	D
OFF - To Kammerer Rd	Diverge	890	11.6	B	1115	21.6	C
ML - Loop from Grant Line Rd (Add Lane)	Merge	2118	11.2	B	3079	15.9	B
ON- Slip from EB Kammerer Rd	Merge	698	17	B	894	22.3	C
ML - Kammerer Rd to Dillard Rd	Basic	2658	21.3	C	3703	32.2	D

Figure 19. Design Year No Project Freeway Volumes



Design Year (2044) Plus Full Build Analysis

Analysis of Cumulative Plus Full Build Project conditions is based upon model forecasted traffic volumes and the proposed improvements associated with the proposed reconstruction and extension of Kammerer Road.

Project benefits include traffic volume reductions on parallel roadways in the City, as shown in **Table 28**. Traffic operations on high volume arterial roads such as Elk Grove Boulevard and Laguna Boulevard decrease, improving overall circulation and operations under Cumulative Plus Full Build conditions.

Table 28. Daily Volume Decreases on Parallel Roadways (Cumulative Full Build)

Roadway	No Project ADT	Full Build ADT	Change
Laguna Boulevard			
West of SR-99	76,800	76,030	-770
East of Bruceville Road	15,440	14,230	-1,210
East of I-5	32,760	28,350	-4,410
Elk Grove Boulevard			
West of SR-99	60,470	58,900	-1,570
East of Bruceville Road	39,540	37,330	-2,210
East of I-5	28,960	24,080	-4,880
Whitelock Parkway			
West of Bruceville Road	17,270	11,980	-5,290

Design Year Plus Full Build Operating Conditions – Intersections

Table 29 summarizes AM and PM peak hour operating conditions at the study area intersections with the Full Build Alternative. During both the AM and PM peak hours, all intersections meet the LOS C Connector JPA standard, except for Grant Line Road and East Stockton Boulevard/Survey Road (LOS F, AM). However, this intersection is already expected to operate at an unacceptable LOS without the Project, assuming no geometric improvements are made. The projected level of service deficiency is primarily driven by development along East Stockton Boulevard. The City's General Plan assumes this development and provides that Kammerer Road can be widened up to a total of 8 lanes. If an 8-lane facility were provided, the intersection of Grant Line Road and East Stockton Boulevard/Survey Road would operate within the Connector's LOS C policy. Therefore, the impact is mitigated through construction of the City's General Plan.

Design Year Plus Full Build AM and PM peak hour traffic volumes and lane geometry at study area intersections are illustrated in **Figure 20**.

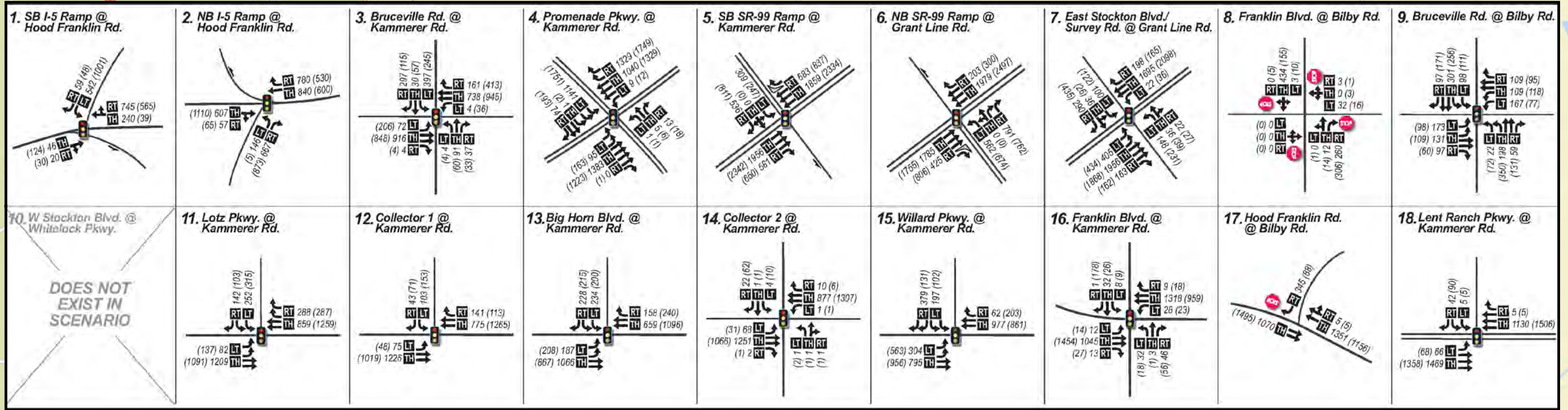
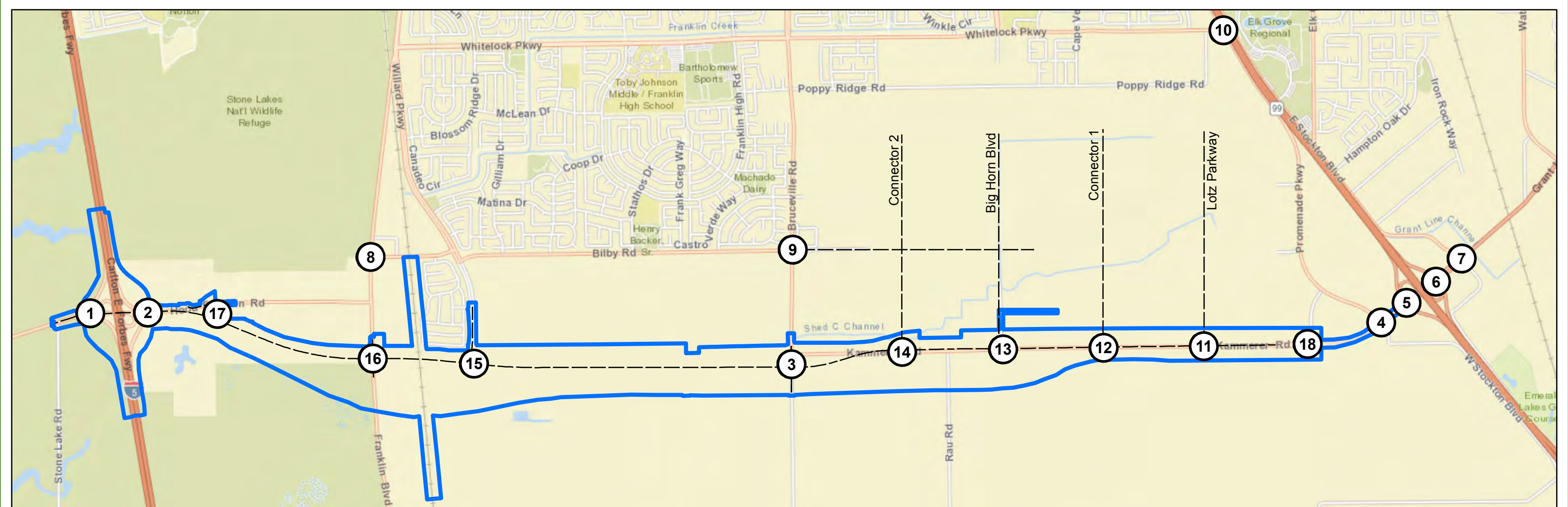
Table 29. Design Year and Design Year Plus Full Build Peak Hour Intersection LOS

Intersection	Jurisdiction	Cumulative Conditions			Cumulative Plus Full Build Conditions			
		Control	Int LOS	Delay	Control	Int LOS	Delay	
A.M. Peak Hour								
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	11.8	Signal	B	11.2
			Roundabout	B	15.7	Roundabout	A	7.8
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	14.5	Signal	A	9.9
			Roundabout	A	8.4	Roundabout	A	7.9
3	Bruceville Rd & Kammerer Rd	Elk Grove	Signal	C	24.5	Signal	C	29.9
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	C	25.1	Signal	C	26.2
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	B	12.9	Signal	B	12.7
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	B	17.6	Signal	B	18.1
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	D	42.5	Signal	D	50.0
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	F	52.5	AWSC	B	11.6
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	B	17.9	Signal	B	17.7
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	Existing Intersection Only			Existing Intersection Only		
11	Lotz Parkway & Kammerer Rd	Elk Grove	Signal	A	8.0	Signal	A	9.4
12	Collector 1 & Kammerer Rd	Elk Grove	Signal	A	6.4	Signal	A	7.5
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Signal	A	8.2	Signal	B	11.3
14	Collector 2 & Kammerer Rd	Elk Grove	Signal	A	5.5	Signal	B	11.0
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	16.1
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	10.7
17	Hood Franklin Rd & Kammerer Rd	County Rur.	Project Intersection Only			Uncontrolled	-	-
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	3.8	Signal	A	4.2
Note: Bold intersections do not meet LOS policy, Shaded intersections show project impacts SSSC = Side Street Stop Control, AWSC = All Way Stop Control								

Table 29. Design Year and Design Year Plus Full Build Peak Hour Intersection LOS

Intersection	Jurisdiction	Cumulative Conditions			Cumulative Plus Full Build Conditions			
		Control	Int LOS	Delay	Control	Int LOS	Delay	
P.M. Peak Hour								
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	13.1	Signal	B	16.7
			Roundabout	C	15.7	Roundabout	C	16.6
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	13.4	Signal	A	6.2
			Roundabout	B	10.1	Roundabout	B	14.6
3	Bruceville Rd & Kammerer Rd	Elk Grove	Signal	D	46.5	Signal	C	28.8
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	D	39.1	Signal	D	42.5
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	C	23.5	Signal	C	24.3
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	C	32.1	Signal	C	22.7
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	F	162.0	Signal	F	173.4
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	D	28.8	AWSC	A	8.8
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	B	19.7	Signal	B	17.4
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	Existing Intersection Only			Existing Intersection Only		
11	Lotz Parkway & Kammerer Rd	Elk Grove	Signal	A	9.6	Signal	B	11.4
12	Collector 1 & Kammerer Rd	Elk Grove	Signal	A	7.4	Signal	A	9.5
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Signal	A	8.0	Signal	B	13.6
14	Collector 2 & Kammerer Rd	Elk Grove	Signal	A	6.4	Signal	B	11.2
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	13.2
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	17.9
17	Hood Franklin Rd & Kammerer Rd	County Rur.	Project Intersection Only			Uncontrolled	-	-
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	4.6	Signal	A	5.5
Note: Bold intersections do not meet LOS policy, Shaded intersections show project impacts SSSC = Side Street Stop Control, AWSC = All Way Stop Control								

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V:\2379_Kammerer_RD_EX\EA\F20_Design_Year_Full_Build_PeakTraffic_Intersections_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: brianm

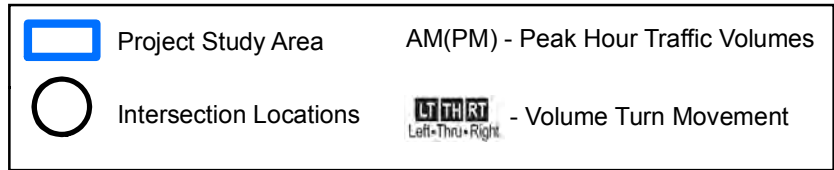
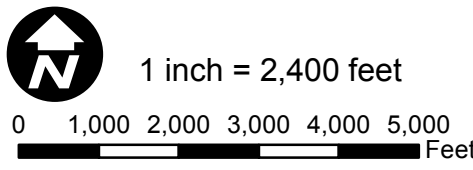


FIGURE 20
Design Year Plus Full Build
Peak Hour Intersection Volumes
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Intersection-related improvements are included with the proposed extension and reconstruction of Kammerer Road. Under Design Year Plus Full Build conditions, new traffic signals with turn lanes would be installed at three intersections:

- Kammerer Road with Franklin Blvd
- Kammerer Road with Willard Parkway

Kammerer Road with Bruceville Road New traffic signals or roundabouts would be installed at two intersections with the Design Year Plus Full Build:

- Hood Franklin Road with the I-5 Southbound Off-Ramp
- Hood Franklin Road with the I-5 Northbound Off-Ramp

New traffic signals would be warranted for all five intersections under Cumulative Plus Full Build conditions.

Design Year Plus Full Build Operating Condition – Department Freeway Facilities

Table 30 and **Table 31** summarize AM and PM peak hour operating conditions at the study area freeway ramps and freeway mainline segments. All of the freeway segments meet the applicable LOS standard. Cumulative Plus Full Build AM and PM peak hour freeway segment volumes are illustrated in **Figure 21**.

Opening Year Plus Ten Years (2034) Analysis

Analysis of Opening Year Plus Ten Years (Year 2034) conditions is provided in this section for both the No Project and Interim Project scenarios. The Interim Project assumes construction of a new two-lane roadway between Interstate 5 and Bruceville Road, and no roadway widening east of Bruceville Road. The purpose of evaluating this scenario is to establish that Phase 1 improvements (i.e. a two-lane roadway) have at least a ten-year design life.

A set of ten year growth forecasts were made for Year 2034, which assumes a Project opening year of 2024. Volumes were estimated through straight-line interpolation between the Existing Plus Project and Cumulative Plus Project scenarios. Forecasts were made for both the interim Project and full build. It should be noted that this forecasting methodology assumes growth is spread across all traffic analysis zones (TAZ's) in the City, in proportion to their growth potential. In reality, growth will likely not be spread so evenly. Still, this is a reasonable method of assessing what roadway operations might look like ten years after opening. This supplemental information may be useful in gauging the likely life of a two-lane facility.

Opening Year Plus Ten Years Analysis Summary

All newly-constructed and modified intersections would operate at LOS C or better in Year 2034. The intersection of Grant Line Road and E. Stockton Boulevard/Survey Road, which is located outside of the Project limits, would operate at LOS E both without and with the Project. Project benefits include traffic volume reductions on parallel roadways in the City, as shown in **Table 32**. Traffic operations on high volume arterial roads such as Elk Grove Boulevard and Laguna Boulevard decrease, improving overall circulation and operations under Opening Year Plus Ten Years conditions.

Table 30. Design Year Plus Full Build I-5 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Cumulative - No-Build							
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	2545	22.6	C	2463	20.7	C
OFF - To Hood Franklin Rd	Diverge	189	29.5	D	128	27.6	C
ON - Loop from EB Hood Franklin Rd	Merge	57	26	C	70	25.1	C
ON- Slip from WB Hood Franklin Rd	Merge	387	29.4	D	245	26.5	C
ML - N/O Hood Franklin Rd	Basic	2800	25.4	C	2650	22.5	C
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1780	15.5	B	3090	27	D
OFF - To Hood Franklin Rd	Diverge	228	21.5	C	430	33.6	D
ON - Loop from WB Hood Franklin Rd	Merge	194	19.3	B	149	27.7	C
ON- Slip from EB Hood Franklin Rd	Merge	20	19.7	B	30	28.7	D
ML - S/O Hood Franklin Rd	Basic	1766	15.4	B	2839	24.2	C
Cumulative - Full Build							
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	2746	24.8	C	2763	23.7	C
OFF - To Hood Franklin Rd	Diverge	813	31.7	D	878	30.6	D
ON - Loop from EB Hood Franklin Rd	Merge	57	21.8	C	65	20.6	C
ON- Slip from WB Hood Franklin Rd	Merge	780	27.8	C	530	24.3	C
ML - N/O Hood Franklin Rd	Basic	2770	25.1	C	2480	20.9	C
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1720	15.0	B	3490	32.3	D
OFF - To Hood Franklin Rd	Diverge	601	20.9	C	1049	37.6	E
ON - Loop from WB Hood Franklin Rd	Merge	745	19.0	B	565	26.9	D
ON- Slip from EB Hood Franklin Rd	Merge	20	20.8	C	30	30.3	D
ML - S/O Hood Franklin Rd	Basic	1884	16.4	B	3036	26.4	D

Table 31. Design Year Plus Full Build SR-99 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Cumulative - No-Build							
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	3752	34.1	D	3223	26.7	D
OFF - To Grant Line Rd	Diverge	1387	26.5	C	1489	21.2	C
ML - Loop from Kammerer Rd (Add Lane)	Merge	2837	15	B	2590	12.8	B
ON- Slip from WB Grant Line Rd	Merge	203	17.9	B	300	17.3	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	3040	25	C	2890	23.2	C
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2310	18.3	C	3300	27.2	D
OFF - To Kammerer Rd	Diverge	890	11.6	B	1115	21.6	C
ML - Loop from Grant Line Rd (Add Lane)	Merge	2118	11.2	B	3079	15.9	B
ON- Slip from EB Kammerer Rd	Merge	698	17	B	894	22.3	C
ML - Kammerer Rd to Dillard Rd	Basic	2658	21.3	C	3703	32.2	D
Cumulative - Full Build							
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	3765	34.3	D	3227	26.7	D
OFF - To Grant Line Rd	Diverge	1353	26.6	C	1436	21.2	C
ML - Loop from Kammerer Rd (Add Lane)	Merge	425	15	B	806	13.5	B
ON- Slip from WB Grant Line Rd	Merge	203	17.9	C	300	17.3	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	3040	25	C	2890	23.2	C
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2260	17.9	B	3280	27	D
OFF - To Kammerer Rd	Diverge	845	12.3	B	1058	21.4	C
ML - Loop from Grant Line Rd (Add Lane)	Merge	683	11.1	B	837	15.8	B
ON- Slip from EB Kammerer Rd	Merge	581	17.2	B	650	22.4	C
ML - Kammerer Rd to Dillard Rd	Basic	2679	21.5	C	3709	32.3	D

Figure 21. Cumulative Plus Full Build Freeway Volumes

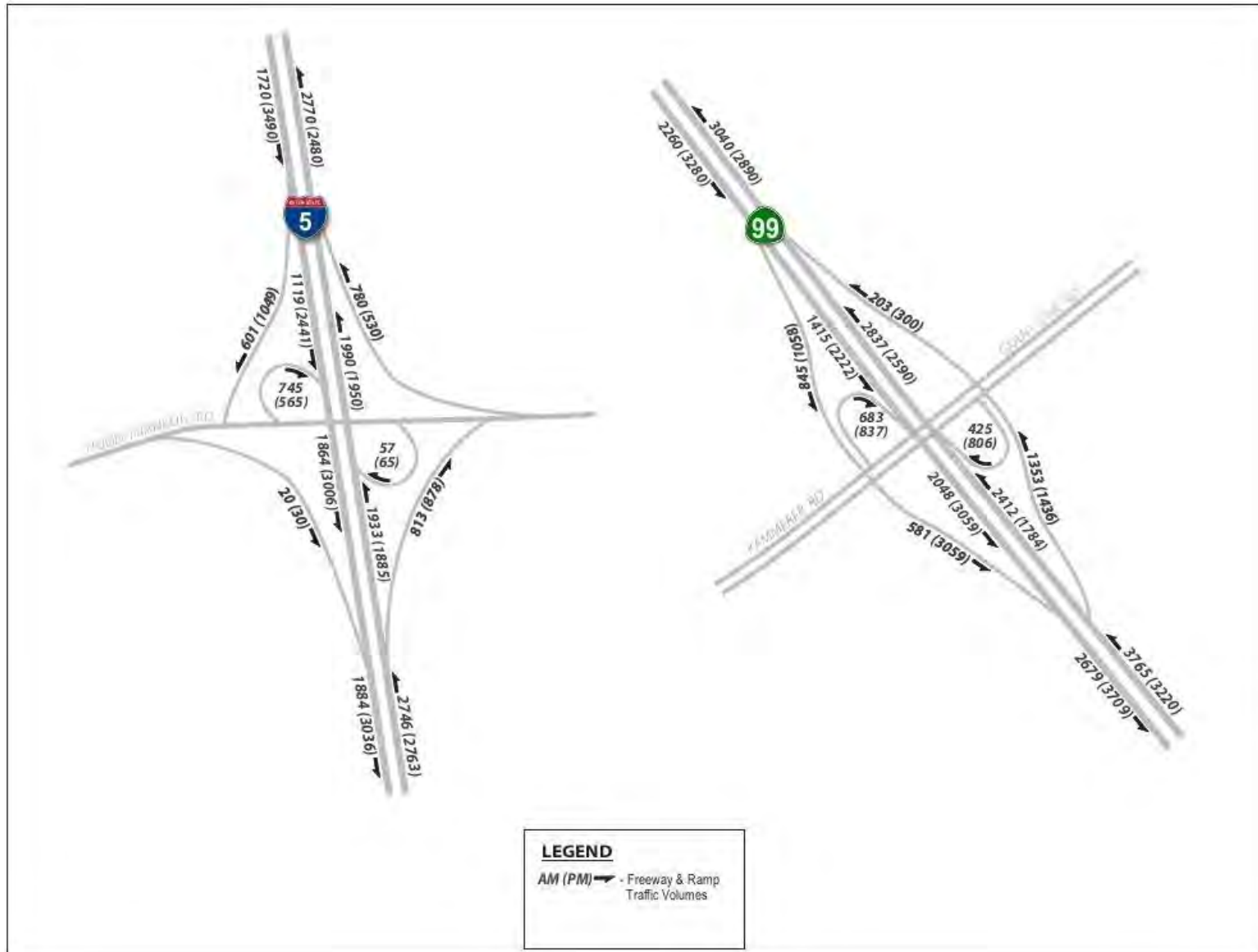


Table 32. Daily Volume Decreases on Parallel Roadways (Interim Project)

Roadway	No Project ADT	Interim Project ADT	Change
Laguna Boulevard			
West of SR-99	65,520	65,160	-360
East of Bruceville Road	9,930	9,430	-500
East of I-5	31,190	28,710	-2,480
Elk Grove Boulevard			
West of SR-99	56,590	55,720	-870
East of Bruceville Road	38,630	37,220	-1,410
East of I-5	27,840	24,530	-3,310
Whitelock Parkway			
West of Bruceville Road	14,860	11,160	-3,700

Opening Year Plus Ten Years No Project and Interim Project Operating Conditions – Intersections

Opening Year Plus Ten Years No Project AM and PM peak hour traffic volumes and lane geometry at study area intersections are illustrated in **Figure 22**. Likewise, AM and PM peak hour traffic volumes and lane geometries for Opening Year Plus Ten Years Plus Interim Project are illustrated in **Figure 23**. It should be noted that in the Interim Project Alternative, Kammerer Road is assumed to remain as a two-lane facility between Lent Ranch Parkway and Bruceville Road. The extension from Bruceville Road to I-5 would also be a two-lane facility.

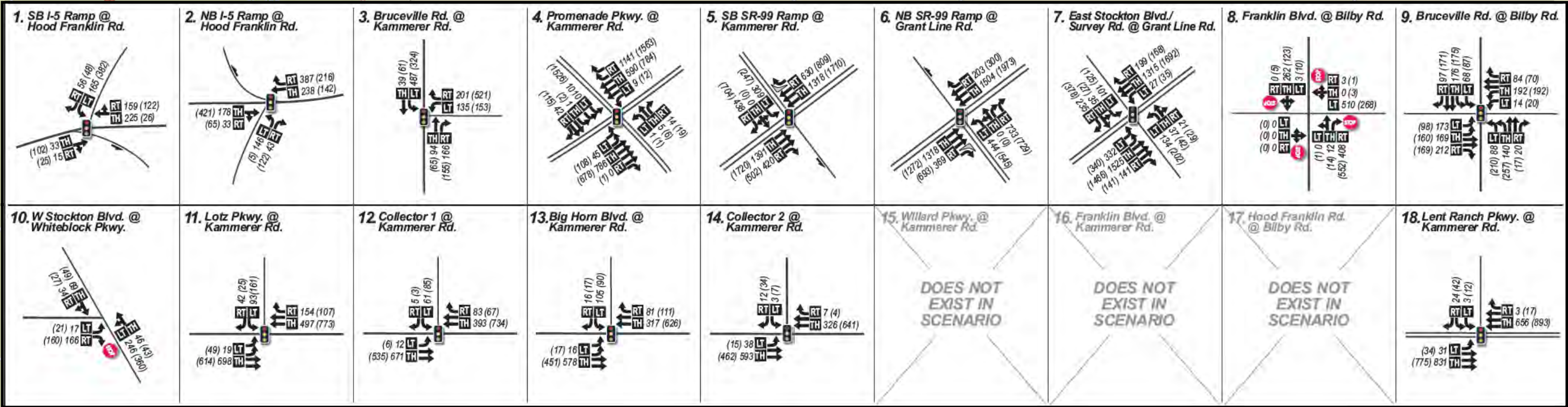
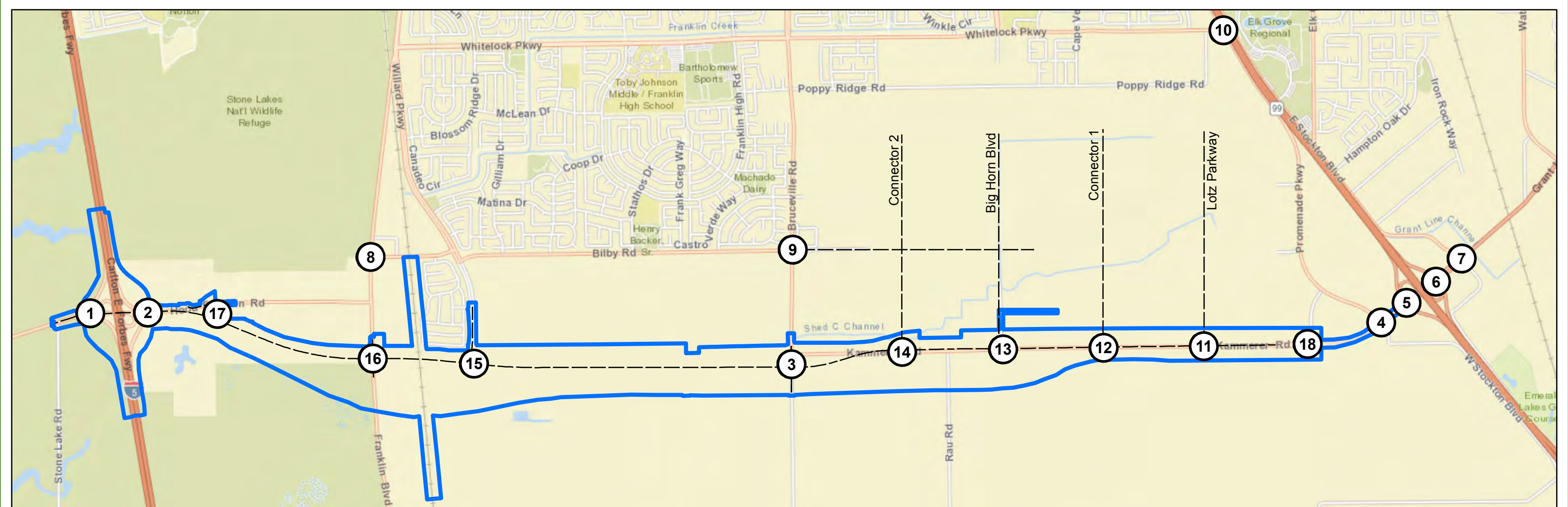
Table 33 summarizes AM and PM peak hour operating conditions at the study area intersections for Opening Year Plus Ten Years No Project and Opening Year Plus Ten Years Interim Project. In the Opening Year Plus Ten Years No Project scenario, three intersections would not operate acceptably:

- Kammerer Road and Bruceville Road (LOS F, AM and PM peak hours)
- Grant Line Road and East Stockton Boulevard/Survey Road (LOS E in the PM peak hour)
- Franklin Road and Bilby Road (LOS E, AM peak hour)

In the Opening Year Plus Ten Years Plus Interim Project scenario, one intersection would not operate acceptably:

- Grant Line Road and East Stockton Boulevard/Survey Road (LOS E in the PM peak hour)

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V:\2379_Kammerer_RD_EX\EA\F22_Year_2034_noBuild_PeakTrafficIntersections_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: brianm

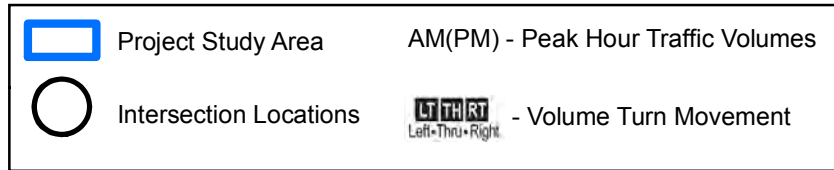
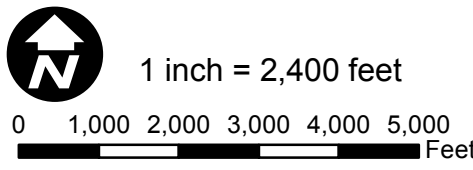
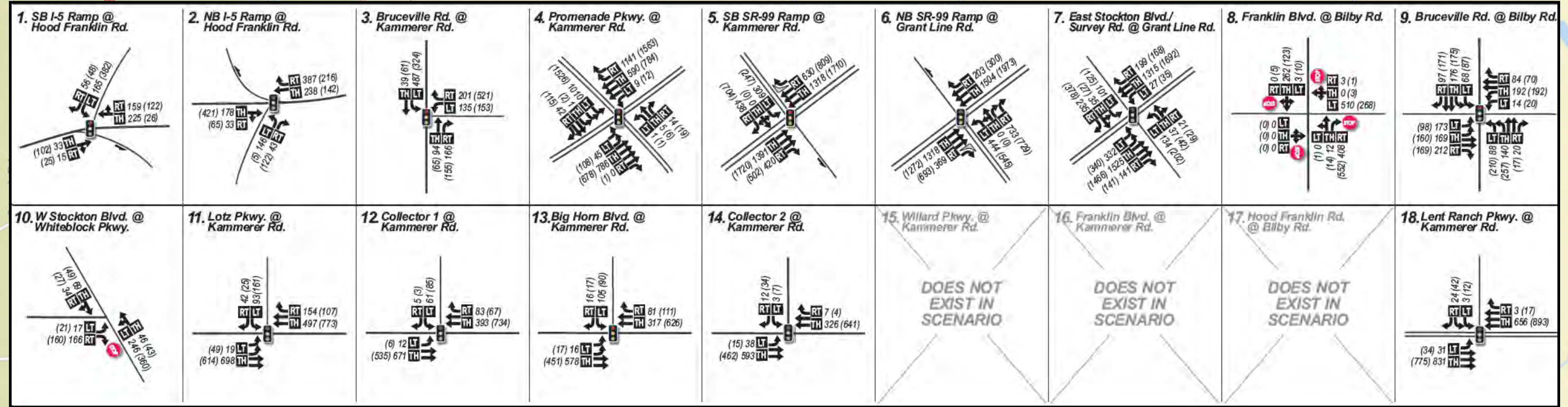
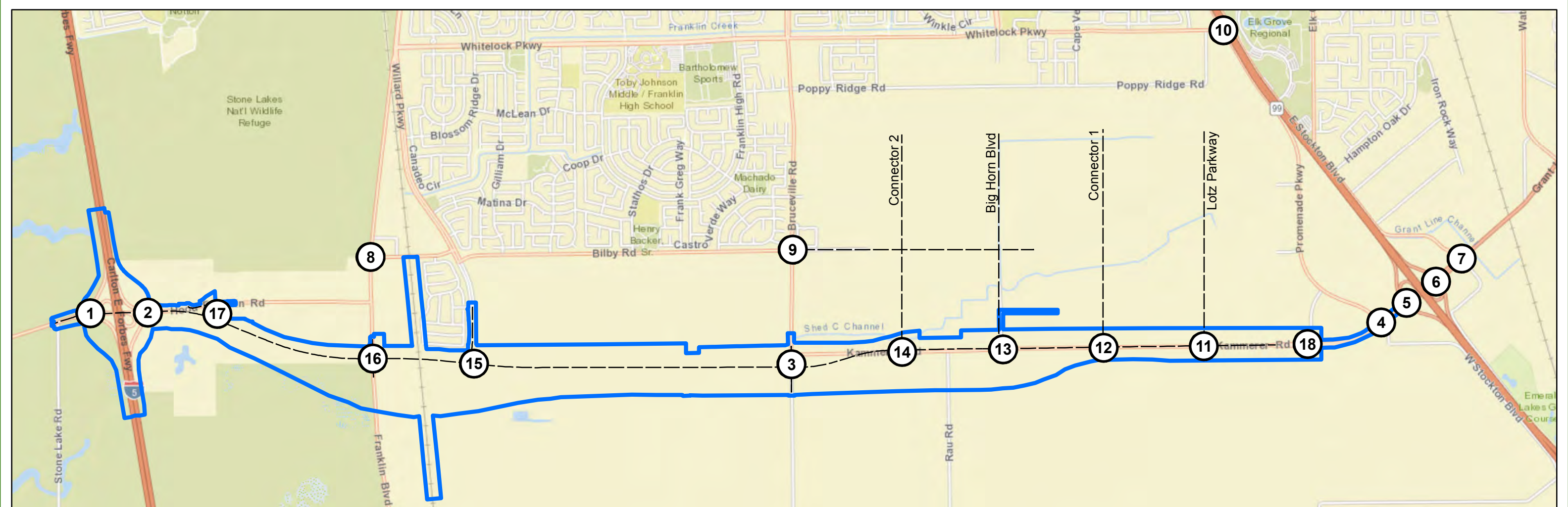


FIGURE 22
Year 2034 No Project
Peak Hour Intersection Volumes
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



V:\2379_Kammerer_RD_EX/EA\F23_Year_2034_Interim_Build_PeakTraffic/Intersections_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: brianm

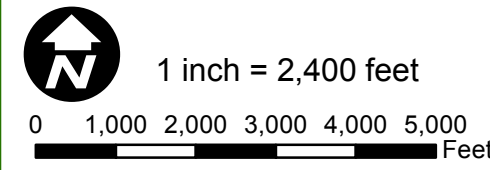


FIGURE 23
Year 2034 Plus Interim Project
Peak Hour Intersection Volumes
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Table 33. Ten Year (2034) Projected Intersection LOS for Interim Project

Intersection		Jurisdiction	2034 No Project Conditions			2034 Plus Interim Project Conditions		
			Control	Int LOS	Delay	Control	Int LOS	Delay
A.M. Peak Hour								
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	11.8	Signal	A	9.9
			-	-	-	Roundabout	A	5.3
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	13.8	Signal	A	8.5
			-	-	-	Roundabout	A	4.4
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	F	308.1	Signal	C	25.1
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	B	15.7	Signal	B	15.2
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	B	10.3	Signal	B	10.1
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	B	14.1	Signal	B	14.3
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	C	34.0	Signal	C	34.9
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	E	40.8	AWSC	A	10.0
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	B	15.1	Signal	B	11.0
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	A	10.0	AWSC	A	10.0
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	15.7
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	12.2
17	Hood Franklin Rd & Kammerer Rd	Elk Grove	Project Intersection Only			Unsignalized	-	-
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	3.6	Signal	A	3.6
Note: Bold intersections do not meet LOS policy. SSSC = Side Street Stop Control, AWSC = All Way Stop Control								

Table 33. Ten Year (2034) Projected Intersection LOS for Interim Project

Intersection		Jurisdiction	2034 No Project Conditions			2034 Plus Interim Project Conditions		
			Control	Int LOS	Delay	Control	Int LOS	Delay
P.M. Peak Hour								
1	SB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	13.0	Signal	B	11.2
			-	-	-	Roundabout	B	11.9
2	NB I-5 Ramp & Hood Franklin Rd	Caltrans	SSSC	B	13.0	Signal	A	5.5
			-	-	-	Roundabout	A	9.1
3	Bruceville Rd & Kammerer Rd	Elk Grove	SSSC	F	177.8	Signal	C	23.9
4	Promenade Pkwy & Kammerer Rd	Elk Grove	Signal	C	20.8	Signal	C	21.5
5	SB SR-99 Ramp & Kammerer Rd	Caltrans	Signal	B	14.5	Signal	B	14.4
6	NB SR-99 Ramp & Grant Line Rd	Caltrans	Signal	B	15.6	Signal	B	16
7	East Stockton Blvd/ Survey Rd & Grant Line Rd	Elk Grove	Signal	E	71.9	Signal	E	79.0
8	Franklin Blvd & Bilby Rd	Elk Grove	AWSC	C	21.3	AWSC	A	9
9	Bruceville Rd & Bilby Rd	Elk Grove	Signal	C	20.7	Signal	B	10.4
10	West Stockton Blvd & Whitelock Pkwy	Elk Grove	AWSC	B	12.1	AWSC	B	11.8
11	Lotz Parkway & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
12	Collector 1 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
13	Big Horn Blvd & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
14	Collector 2 & Kammerer Rd	Elk Grove	Cumulative Intersection Only			Cumulative Intersection Only		
15	Willard Pkwy & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	A	9.9
16	Franklin Blvd & Kammerer Rd	Elk Grove	Project Intersection Only			Signal	B	11.5
17	Hood Franklin Rd & Kammerer Rd	Elk Grove	Project Intersection Only			Unsignalized	-	-
18	Lent Ranch Pkwy & Kammerer Rd	Elk Grove	Signal	A	4.3	Signal	A	4.3
Note: Bold intersections do not meet LOS policy. SSSC = Side Street Stop Control, AWSC = All Way Stop Control								

This intersection would not meet the City's LOS D goal or the Connector JPA's LOS C goal, with or without the Project. The poor operations are primarily driven by growth along E. Stockton Boulevard. The City's General Plan assumes this development and provides that Kammerer Road can be widened up to a total of 8 lanes. If an 8-lane facility were provided, the intersection of Grant Line Road and East Stockton Boulevard/Survey Road would operate within the Connector's LOS C policy. The Project is not required to implement any mitigations under this scenario, as it is not required by CEQA.

Opening Year Plus Ten Years Operating Conditions – Department Freeway Facilities

Table 34 and **Table 35** summarize AM and PM peak hour operating conditions at the study area freeway ramps and freeway mainline segments. All of the freeway segments meet the applicable LOS standard. Opening Year Plus Ten Years Plus Interim Project AM and PM peak hour freeway segment volumes are illustrated in **Figure 24**.

Intelligent Transportation System (ITS) Considerations

The Capital SouthEast Connector is well suited to host a variety of ITS technologies because of its location and importance to regional and local traffic in the Sacramento Region. Proactive inclusion of ITS technologies as an initial phase management tool will enhance the Project's effectiveness in accommodating traffic. This enhanced effectiveness will improve the Region's ability to respond to traffic incidents, and provide a reliable parallel capacity/alternate route to US-50 and SR-99. In particular, traffic monitoring and traveler information technologies may be valuable tools to consider for this Project. Including them during the preliminary development stages provides ample opportunity to analyze and plan for their associated infrastructure.

ITS technologies that could be considered include traffic monitoring stations, Closed Circuit Television cameras, changeable message signs, ramp metering, lane use signs, and transit signal priority to enhance traffic management and provide drivers with useful real-time traffic information to make informed decisions. One or more of these technologies could prolong the life of the initial phases at grade signalized intersection configuration by maximizing the efficiency of the intersections through coordinated and intelligent traffic signal operation.

The integration of the Project into the member jurisdictions' transportation systems should also consider expansion and application of their respective ITS planning and overall implementation strategies. The comprehensive implementation of ITS technologies will produce the most benefit to the corridor, including maximizing the useful life of interim traffic control strategies.

The City developed an ITS master plan in 2004 and has completed the ITS phase IV in June 2018. There are several remaining phases of the City's ITS master plan that have not been constructed; however, the City will use the SACOG regional ITS when it is implemented. At the time of this report, SACOG is planning the release of a comprehensive, region-wide ITS Architecture and Master Plan Update. This Project is understood to be the result of needs expressed by the various SACOG partner agencies, including the City, for an update of aging ITS Master Plans and the regional plan with which they are associated. This regional effort will update and replace many of the regional partners' individual ITS Master Plans, the Regional ITS Master Plan (2005) and the ITS Architecture (2005). Once complete the Regional ITS Architecture and Regional ITS Master Plan will serve as the basis for long term investments and planning for operations and ITS investments.

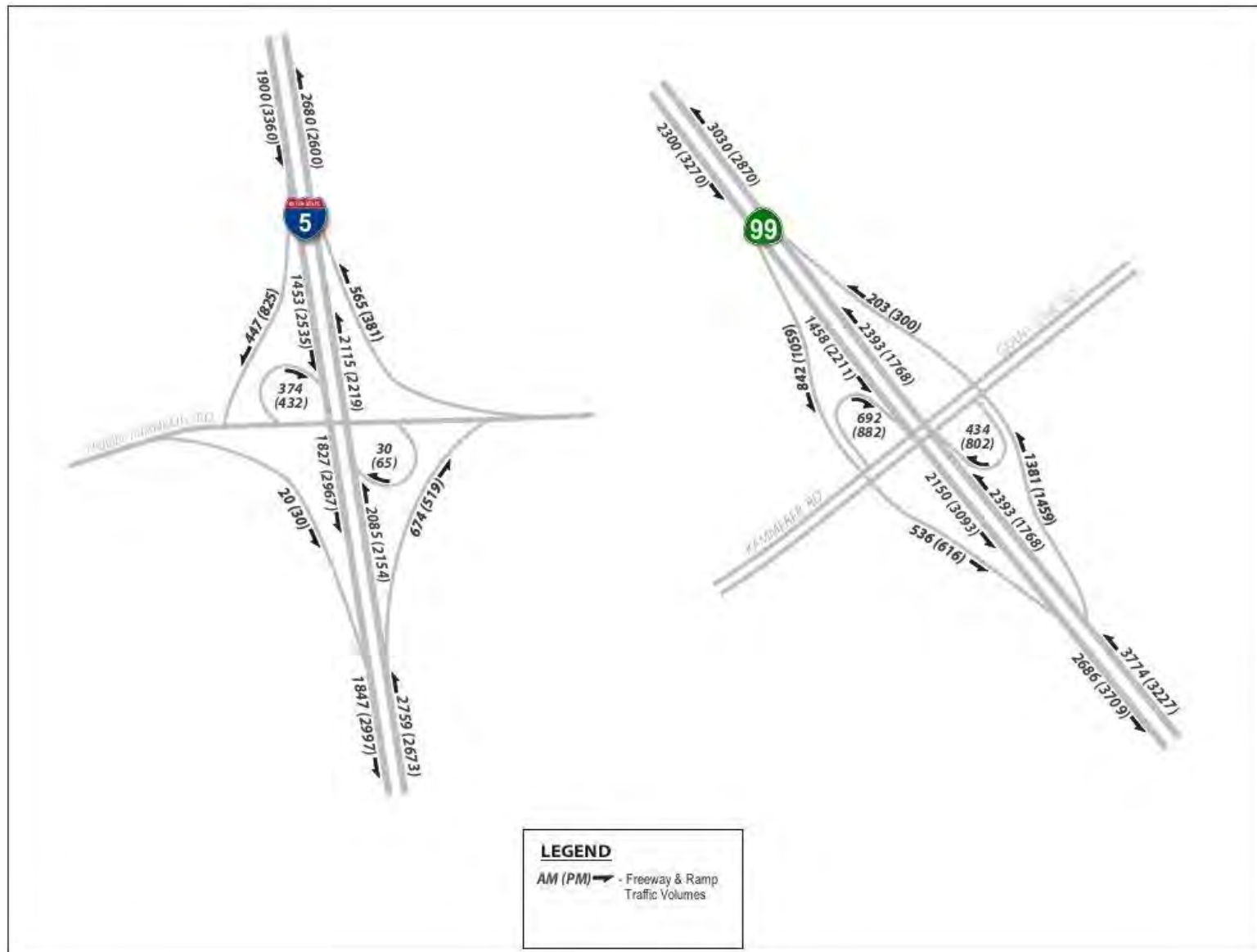
Table 34. Year 2034 Plus Interim Project I-5 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Cumulative - No-Build							
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	2545	22.6	C	2463	20.7	C
OFF - To Hood Franklin Rd	Diverge	189	29.5	D	128	27.6	C
ON - Loop from EB Hood Franklin Rd	Merge	57	26	C	70	25.1	C
ON- Slip from WB Hood Franklin Rd	Merge	387	29.4	D	245	26.5	C
ML - N/O Hood Franklin Rd	Basic	2800	25.4	C	2650	22.5	C
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1780	15.5	B	3090	27	D
OFF - To Hood Franklin Rd	Diverge	228	21.5	C	430	33.6	D
ON - Loop from WB Hood Franklin Rd	Merge	194	19.3	B	149	27.7	C
ON- Slip from EB Hood Franklin Rd	Merge	20	19.7	B	30	28.7	D
ML - S/O Hood Franklin Rd	Basic	1766	15.4	B	2839	24.2	C
Cumulative - Interim Project							
I-5 Northbound							
ML - S/O Hood Franklin Rd	Basic	2746	24.8	C	2763	23.7	C
OFF - To Hood Franklin Rd	Diverge	813	31.7	D	878	30.6	D
ON - Loop from EB Hood Franklin Rd	Merge	57	21.8	C	65	20.6	C
ON- Slip from WB Hood Franklin Rd	Merge	780	27.8	C	530	24.3	C
ML - N/O Hood Franklin Rd	Basic	2770	25.1	C	2480	20.9	C
I-5 Southbound							
ML - N/O Hood Franklin Rd	Basic	1720	15.0	B	3490	32.3	D
OFF - To Hood Franklin Rd	Diverge	601	20.9	C	1049	37.6	E
ON - Loop from WB Hood Franklin Rd	Merge	745	19.0	B	565	26.9	D
ON- Slip from EB Hood Franklin Rd	Merge	20	20.8	C	30	30.3	D
ML - S/O Hood Franklin Rd	Basic	1884	16.4	B	3036	26.4	D

Table 35. Year 2034 Plus Interim Project SR-99 Freeway Mainline Peak Hour LOS

Segment	Type	AM Peak Hour			PM Peak Hour		
		Vol	Density (pcpmpl)	LOS	Vol	Density (pcpmpl)	LOS
Cumulative - No-Build							
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	3752	34.1	D	3223	26.7	D
OFF - To Grant Line Rd	Diverge	1387	26.5	C	1489	21.2	C
ML - Loop from Kammerer Rd (Add Lane)	Merge	2837	15	B	2590	12.8	B
ON- Slip from WB Grant Line Rd	Merge	203	17.9	B	300	17.3	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	3040	25	C	2890	23.2	C
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2310	18.3	C	3300	27.2	D
OFF - To Kammerer Rd	Diverge	890	11.6	B	1115	21.6	C
ML - Loop from Grant Line Rd (Add Lane)	Merge	2118	11.2	B	3079	15.9	B
ON- Slip from EB Kammerer Rd	Merge	698	17	B	894	22.3	C
ML - Kammerer Rd to Dillard Rd	Basic	2658	21.3	C	3703	32.2	D
Cumulative - Interim Project							
SR-99 Northbound							
ML - Dillard Rd to Grant Line Rd	Basic	3774	34.4	D	3227	26.7	D
OFF - To Grant Line Rd	Diverge	1381	26.7	C	1459	21.2	C
ML - Loop from Kammerer Rd (Add Lane)	Merge	434	14.9	B	802	13.4	B
ON- Slip from WB Grant Line Rd	Merge	203	18.1	C	300	17.2	B
ML - Grant Line Rd to Elk Grove Blvd	Basic	3030	24.9	D	2870	23	D
SR-99 Southbound							
ML - Elk Grove Blvd to Kammerer Road	Basic	2300	18.2	D	3270	26.8	D
OFF - To Kammerer Rd	Diverge	842	12.7	D	1059	21.3	C
ML - Loop from Grant Line Rd (Add Lane)	Merge	692	11.3	B	882	16	B
ON- Slip from EB Kammerer Rd	Merge	536	17.1	C	616	22.3	C
ML - Kammerer Rd to Dillard Rd	Basic	2686	21.6	D	3709	30.4	D

Figure 24. Opening Year Plus Ten Years Plus Interim Project Freeway Volumes



This regional plan will assist SACOG in delivering its MTP and selection of projects in future funding cycles. In an effort to support this level of interface with regional and adjacent jurisdictions, and to provide flexibility for long-term Connector-wide infrastructure, it is recommended that the Project include at least one 144-strand, single-mode fiber optic trunk line with dedicated ITS-related infrastructure (conduits, pull boxes, etc.) to support the long-term vision of Connector-wide and local advanced traffic management.

Implementation of the Project provides an opportunity for the Connector Project to realize immediate benefits by integrating and collaborating with the County and the City's traffic monitoring and traveler information systems, as well as Department District 3. These initial investments could include the installation of dynamic message signs at strategic locations outside of the Connector limits to support the identification of alternate routes under specific conditions (e.g., incidents and special events), information sharing between jurisdictions (including Department) as well as simply a communications medium over which a variety of information can be shared. The trunk line will become the pilot for how the rest of the system is developed, so it is a critical element to consider at this stage of the program.

The Project meets the goals of the Connector JPA PEIR. The goals of the PEIR include improving mobility, access, and connections between residential and nonresidential land uses, which have been compromised by increasing congestion, and to assist in preservation of open space and threatened habitats. The Project is intended to link employment centers and residential areas in the corridor and contribute to the remedy for current and future deficiencies in transportation capacity, safety for pedestrians and non-motorized vehicle users, and land use compatibility.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. As a result, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aide in the economic viability for the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following avoidance and minimization measure has been developed for traffic and transportation and bicycle facilities.

TRF-1: The implementing agency, as applicable, will require that the contractor(s) prepare a traffic management plan (TMP) during the final stage of project design to ensure there is no interference with emergency vehicles/services or response/evacuation plans. The plan will list procedures, specific emergency response, and evacuation measures to be followed during emergencies. The contractor will prepare this manual, subject to review and approval by the implementing agency, and distribute the approved plan to contract workers involved in the Project before construction and during operation of the Project. Implementation of the approved plan will be a requirement of the construction contract. The implementing agency will provide project maps to emergency personnel (e.g., fire

protection agencies, police and sheriff departments, California Highway Patrol) that describe construction activities as well as access roads to ensure proper emergency response to all parts of the Project.

Standards found in the Department's TMP guidelines (2009) outline the basic requirements for such plans. The Connector JPA or local agencies will require the following measures to be implemented as part of project construction.

- The contractor will be required to prepare and implement a TMP that identifies the locations of temporary detours and signage to facilitate local traffic/truck patterns and through-traffic requirements.
- The contractor will provide emergency service providers (i.e., law enforcement, fire protection, and ambulance services) adequate notice of any street closures during the construction phases of the Project.
- Construction activities will be coordinated to avoid blocking or limiting auto, truck, bike, and pedestrian access to homes and businesses to the extent possible. Residents will be notified in advance about potential access or parking effects before construction activities begin. Facilities such as traffic lights, turn pockets, or common driveway access will be provided continued access. Alternative methods of providing access could also be provided, such as relocation of existing access driveways and sidewalks, provision of frontage roads, construction of joint parking areas and pedestrian access from parking areas.
- A comprehensive marketing campaign throughout the larger market area will be provided to ensure that customers know that businesses are operating during construction, and how to reach them. This would include signage posted well outside the impacted area, on routes leading into the construction area.
- Any interchange, ramp, or road closures required during construction will, to the extent possible, be limited to nighttime hours to reduce effects on businesses within or adjacent to the Project limits.
- Construction activities will be coordinated to avoid blocking or limiting access to businesses in or adjacent to the Project area during business hours. Businesses will be notified in advance concerning construction activities before construction begins near businesses.
- The TMP will be prepared to address short-term disruptions in existing circulation patterns during construction. For example, the TMP will identify the locations of temporary detours or temporary roads to facilitate local traffic circulation and through-traffic requirements.

2.1.11 VISUAL/AESTHETICS

REGULATORY SETTING

National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA), in its implementation of NEPA (23 USC 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

California Environmental Quality Act

CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of aesthetic, natural, scenic and historic environmental qualities (CA Public Resources Code Section 21001[b]).”

CEQA, as amended, requires public agencies to regulate activities that may affect the quality of the environment so that major consideration is given to preventing damage to the environment. CEQA includes requirements for the consideration of project impacts to scenic resources, and requires that appropriate mitigation measures are included in a project with potential to adversely affect scenic resources, such as a scenic highway.

State Scenic Highway Program

California’s State Scenic Highway Program was created by the legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq., and these highways are identified in Section 263. No segments of Interstate 5 (I-5) or State Route (SR) 99 are designated as a scenic highway or are eligible for designation in the County.

Sacramento County General Plan

The County General Plan (amended November 2011) guides future development in the County, including a portion of the Project area. The following General Plan policies in the Circulation Element and Land Use Element guide the development of the visual character of the County.

Policy CI-53: Roadway improvements along established scenic corridors shall be designed and constructed so as to minimize impacts to the scenic qualities of the corridor.

Policy CI-60: Encourage maintenance of natural roadside vegetation and landscaping with native plants which usually provide the best habitats for native wildlife.

Policy LU-17: Support implementation of the design review program on a project-by-project basis to ensure that all development applications positively contribute to the immediate neighborhood and the surrounding community.

Policy LU-18: Encourage development that complements the aesthetic style and character of existing development nearby to help build a cohesive identity for the area.

Policy LU-31: Strive to achieve a natural nighttime environment and an uncompromised public view of the night sky by reducing light pollution.

City of Elk Grove General Plan

The City General Plan guides future development in the City, including the Project area. The following General Plan policies contained in the Conservation Element, Open Space Element, Land Use Element, and Safety Element guide the development of the visual character of the City Planning Area.

Policy NR-2-1: Preserve large native oak and other native tree species as well as large nonnative tree species that are an important part of the City's historic and aesthetic character. When reviewing native or non-native trees for preservation, consider the following criteria: health of tree, safety hazards posed by the tree, suitability for preservation in place, biological value, aesthetic value, shade benefits, water quality benefits, runoff reduction benefits, and air quality benefits (pollutant reduction).

Policy NR-2-5: Ensure that trees that function as an important part of the City's or a neighborhood's aesthetic character or as natural habitat on public and private land are retained or replaced to the extent possible during the development of new structures, roadways (public and private, including roadway widening), parks, drainage channels, and other uses and structures.

Policy LU-5-1: Ensure that new development reflects the City's desire to create a high-quality, attractive, functional, and efficient built environment.

Policy LU-5-3: Reduce the unsightly appearance of overhead and aboveground utilities by requiring the undergrounding of appropriate services within the urban areas of the City.

Policy LU-5-4: Require high standards of architectural and site design, and apply strong design controls for all development projects, both public and private, for the enhancement and development of community character and for the proper transition between areas with different types of land uses. Design standards shall address new construction and the reuse and remodeling of existing buildings.

Policy CIF-2-2: Require that new utility infrastructure for electrical, telecommunication, natural gas and other services avoid sensitive resources, be located so as to not be visually obtrusive, and, if possible, be located within roadway rights-of-way or existing utility easements.

AFFECTED ENVIRONMENT

A Visual Impact Assessment (VIA) should be considered for every project that has the potential to change the visual environment. Because the Project includes the construction of roadway thoroughfares, *Visual Impact Assessment for Highway Projects* (2015) was used to determine the visual quality of the aesthetics study area. The FHWA uses three criteria to measure visual quality, which are defined as follows:

- **Vividness**: The visual power or memorability of landscape components as they combine in distinctive visual patterns.
- **Intactness**: The visual integrity of the natural and human built landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as in natural settings.
- **Unity**: The visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of the individual components in the landscape.

A Department questionnaire to determine the level of VIA was completed. The score from this assessment determined that a full VIA would be required for the Project. In 2015, a VIA was prepared and approved for the Kammerer Road Extension Project. At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2015 VIA approval, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than previously analyzed, and the No-Build Alternative. In May 2018 an Addendum to the 2015 VIA was prepared and approved (Dokken Engineering 2018c), which addresses the change in Project description and examines any additional potential visual impacts identified as a result of the revised Build Alternative. The following is a summary of the findings in the 2018 VIA Addendum.

Project Setting

The visual setting of the Project is also referred to as the corridor or Project corridor, which is defined as the area of land that is visible from, adjacent to, and outside the Project's right-of-way (defined in the VIA as "highway"), and is determined by topography, vegetation, and viewing distance.

The Project is located in the Sacramento Valley of Northern California. The landscape is characterized by flat land with scattered trees. Land uses within the corridor are primarily farmsteads with scattered neighborhoods as well as some areas of light commercial development. The Project extends for approximately 5.5 miles from the I-5/Hood Franklin Road Interchange to SR 99. The Stone Lakes NWR is located in County, south of the City of Sacramento, west of the City, and west of the Project. Stone Lakes NWR offers a number of scenic resource observation opportunities, including wildlife observation guided walks and wildlife observation paddle tours, and access to the blue heron trails.

The regional landscape establishes the general visual environment of the Project, while the specific visual environment upon which this assessment is focused is determined by definition of landscape units in the Project viewshed. A viewshed is defined as the area visible from a specific point within the line-of-site. Viewsheds vary depending on the viewer's height, slope, and obstructions.

Elevation within the Project area ranges between approximately 45 feet above mean sea level (MSL) in the west to approximately 5 feet MSL in the east. Dominant visual characteristics in the Project area from SR 99 to Bruceville Road include Kammerer Road, agricultural land and activities, vacant land, and residential and agricultural structures north and south of the roadway. From Bruceville Road to I-5, the dominant visual characteristics include agricultural land and activities and residential and agricultural structures.

Existing Visual Resources

Visual resources of the Project setting are defined by assessing visual character and visual quality in the Project area as identified below.

Visual Character

Visual character includes attributes such as form, line, color, and texture, and is used to describe, not evaluate; that is, these attributes are neither considered good nor bad. However, a change in visual character can be evaluated when it is compared with the viewer response to that change. Changes in visual character can be identified by how visually compatible a project would be with the existing condition by using visual character attributes as an indicator. For the Project, the following attributes were considered:

- Form – visual mass or shape
- Dominance – position, size, or contrast
- Scale – apparent size as it relates to the surroundings

The dominant visual characteristics in the Project area include Kammerer Road, the I-5/Hood Franklin Road Interchange and SR 99/Grant Line Road/Kammerer Road Interchange, residential and rural properties, agricultural lands, Union Pacific Railroad (UPRR) tracks, existing transmission lines and towers, and activities on both sides of the existing, and the proposed extension of, Kammerer Road. The roadway is two lanes with no shoulders, curbs, gutters, or sidewalks, except for a small segment of sidewalk on the north side of Kammerer Road immediately west of the Kammerer Road/Lent Ranch Parkway intersection. Residences and a few businesses are located along Kammerer Road and along driveways and side streets off of Kammerer Road. Several parcels seen from Kammerer Road are undeveloped or vacant and consist of expanses of flat land covered by annual grasses. Shallow drainage ditches run along the existing roadway and a large drainage channel extends from SR 99 to Bruceville Road.

Urban/ruderal, grassland, wetland, and vernal pool habitats are present in the Project area. The most noticeable habitats to the typical viewer traveling through or residing in the Project area are urban/ruderal and grassland. The majority of views experienced in this area are of a flat landscape covered by grasses with a sparse distribution of trees and residential structures.

Visual Quality

Visual quality is evaluated by identifying the vividness, intactness, and unity present in the Project viewshed. Public attitudes validate the assessed level of quality and predict how changes to the Project corridor can affect these attitudes. This process helps identify specific methods for

addressing each visual impact that may occur as a result of the Project. The three criteria for evaluating visual quality are defined below:

- Vividness is the extent to which the landscape is memorable and is associated with distinctive, contrasting, and diverse visual elements.
- Intactness is the visual integrity of the visual features in the landscape and the extent to which the existing landscape is free from nontypical visual intrusions.
- Unity is the extent to which all visual elements combine to form a coherent, harmonious visual pattern.

These three criteria are assigned a number from the Visual Quality Evaluation scale ranging from 1 (very low) to 7 (very high) following guidelines contained in the *Visual Impact Assessment for Highway Projects* and as analyzed in the VIA prepared for this Project. Once each quality (vividness (V), intactness (I), and unity (U)) have been assigned an individual rating, the visual quality (VQ) can be calculated by the sum of the ratings divided by 3 ($VQ = (V+I+U)/3$).

The visual corridor in the Project area is composed of elements that combine to create a visual environment with moderately low to moderate vividness. The residential structures seen from Kammerer Road and adjacent roadways are not visibly unique; some are at the end of long driveways and mostly surrounded by vegetation that screens them from view. The agricultural structures/barns are commonplace in this area of the County. Kammerer Road is framed by large expanses of agricultural and undeveloped land to the north and south with fences, weedy vegetation, and grasses lining the majority of the length of the roadway. The stretches of open grasslands and agricultural parcels over the vastly flat landscape surrounding the Project area offer visually agreeable views from the roadway, which are more commonly observed in this area of the County, than in the majority of City. Stone Lakes NWR covers approximately 11,550 acres west of the I-5/Hood Franklin Road Interchange, and offers views of undisturbed and open expanses of land that can be seen from the interchange. Viewpoints in and outside of the Project area with views of natural landscapes uninterrupted by the presence of man-made structures were rated moderately high for vividness.

The visual intactness is moderate for the majority of viewpoints in the Project area. The areas surrounding Kammerer Road, Bruceville Road, Franklin Boulevard, Hood Franklin Road, and the I-5/Hood Franklin Road Interchange are composed of agricultural, residential, and open space land uses. These land uses are interspersed with one another; for example, residential structures are frequently seen on, adjacent to, and near agricultural parcels and undeveloped open space areas, as the majority of land in the Project area is agricultural or undeveloped. Agricultural and open space areas blend together in the Project area. The landscape is relatively free from encroaching elements within a quarter mile of the Project except for the stretches of roadway, residential structures, and overhead utilities. North of the Project area, higher-density residential areas are present.

Visual unity is moderately high for the majority of the viewpoints throughout the Project area. The agricultural, residential, and open space land uses in the Project area have moderately high visual coherence as the landscape is rarely interrupted by man-made structures, except for fences, overhead utilities, and residential and agricultural structures that are generally seen as mild to moderate interruptions to the natural flat landscape. Agricultural and undeveloped parcels exist along Kammerer Road, Bruceville Road, Franklin Boulevard, Hood Franklin Road, and the I-5/Hood Franklin Road Interchange in harmony with one another.

Viewers and Viewer Response

The population affected by the Project is composed of *viewers*. Viewers are people whose views of the landscape may be altered by the Project—either because the landscape itself has changed or their perception of the landscape has changed.

Existing Viewer Groups

There are two major types of viewer groups for highway projects: highway neighbors and highway users. Each viewer group has its own particular level of *viewer exposure* and *viewer sensitivity*, resulting in distinct and predictable visual concerns for each group, which help to predict their responses to visual changes.

- Highway neighbors are people who have views to the road. They can be subdivided into different viewer groups by land use. For example, residential, commercial, industrial, retail, institutional, civic, educational, recreational, and agricultural land uses may generate highway neighbors or viewer groups with distinct reasons for being in the corridor and therefore having distinct responses to changes in visual resources. For the Project, the following highway neighbors were considered:
 - Residential viewers along Kammerer Road, Bruceville Road, Franklin Boulevard.
 - Residential viewers in the Rancho Verde subdivision.
- Highway users are people who have views from the road. They can be subdivided into different viewer groups in two different ways—by mode of travel or by reason for travel. For example, subdividing highway users by mode of travel may yield pedestrians, bicyclists, transit riders, car drivers and passengers, and truck drivers. Dividing viewer groups by reason for travel creates categories like tourists, commuters, and haulers. It is also possible to use both mode and reason for travel simultaneously, creating a category such as bicycling tourists. For the Project, the following highway users were considered:
 - Viewers on Kammerer Road, Hood Franklin Road, and the I-5/Hood Franklin Road Interchange
 - Viewers on Bruceville Road and Franklin Boulevard
 - Residential viewers along Kammerer Road, Bruceville Road, and Franklin Boulevard
 - Tourists and motorists driving for pleasure.

Visual Assessment Units and Key Viewpoints

Visual Assessment Units

For the purpose of this analysis, the Project area was divided into a series of “outdoor rooms” or *visual assessment units*. Each visual assessment unit has its own visual character and visual quality. It is typically defined by the limits of a particular viewshed. A landscape unit will often correspond to a place or district that is commonly known to local viewers. For this Project, the following four visual assessment units were identified (**Figure 25**).

- Visual Assessment Unit 1: This landscape unit consists of views from existing Kammerer Road as motorists travel in the eastbound or westbound directions through the eastern portion of the Project area. The primary landscape features along this portion of the

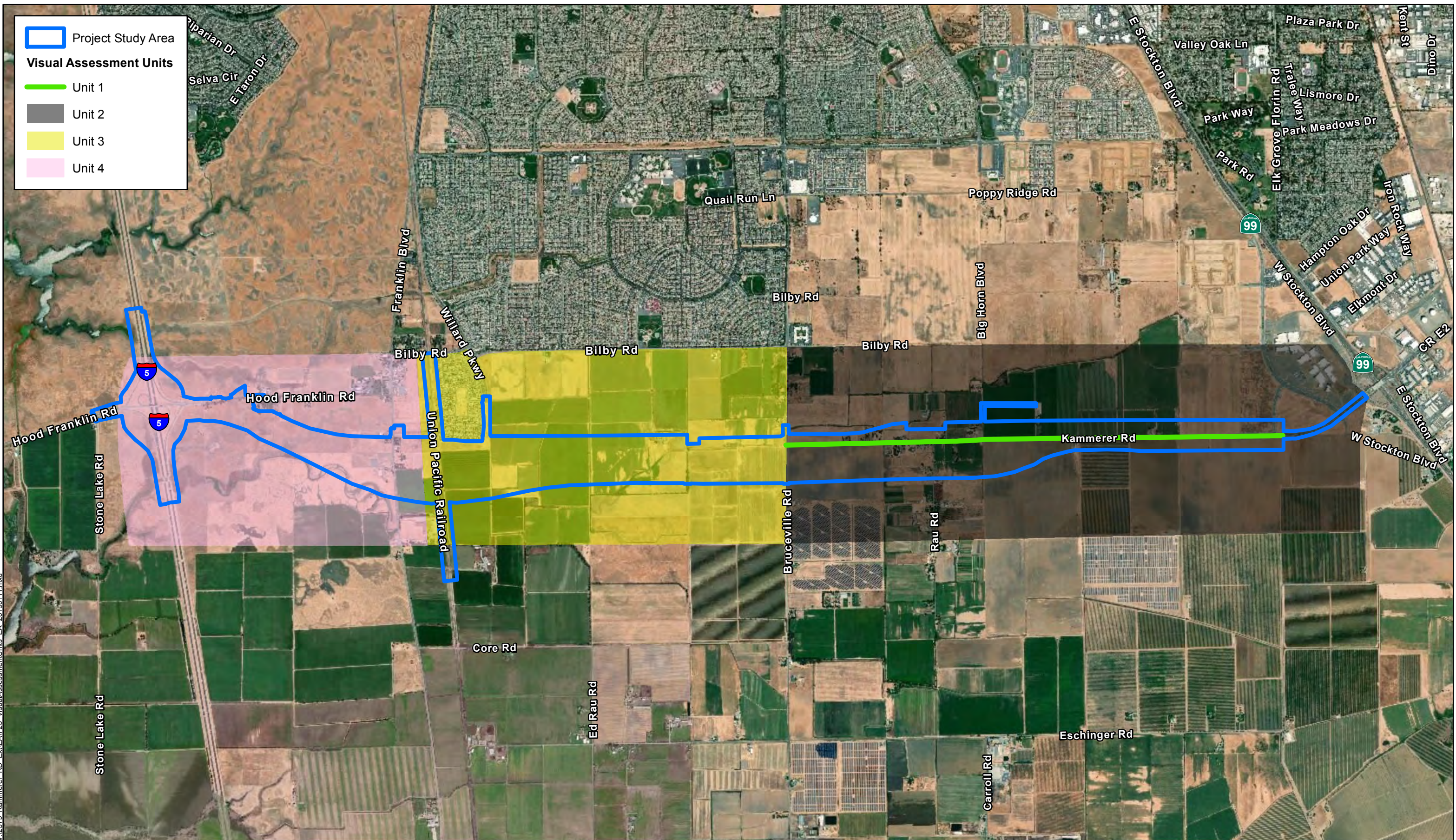
corridor between SR-99 and I-5 include the roadway in the foreground framed by agricultural and vacant, undeveloped areas, covered by crops and annual grasses, with a sparse distribution of residential properties in the middle ground. In both the eastbound and westbound directions, viewers of the road experience a vastly flat landscape with sights of overhead utilities, residential and agricultural structures, and clusters of various trees in the middle ground and background.

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Project Study Area


Visual Assessment Units

- Unit 1
- Unit 2
- Unit 3
- Unit 4



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

 1 inch = 2,400 feet

0 1,000 2,000 3,000 4,000 5,000
Feet

FIGURE 25
Visual Assessment Units

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California

- Visual Assessment Unit 2: This landscape unit consists of views from roads and a highway, which intersect existing Kammerer Road as motorists travel in the northbound or southbound directions toward or away from Kammerer Road. Specifically, these roadways and the highway are SR-99, Promenade Parkway, Lent Ranch Parkway, McMillan Road, Rau Road, and Bruceville Road. This landscape unit also consists of views representing what is visible from residences along existing Kammerer Road and the adjacent roadways. This area was identified to represent the landscape of the residential, agricultural, and vacant properties located north and south of existing Kammerer Road. The primary landscape features in this unit consist of Kammerer Road in the foreground, middle ground, and background (depending on the location of the viewpoint), the roadways and the highway listed above, and a vastly flat landscape in all directions. Along Kammerer Road, McMillan Road, Rau Road, and Bruceville Road, residential structures, fences, and various trees are seen in the foreground and middle ground.
- Visual Assessment Unit 3: This landscape unit is similar to Visual Assessment Unit 2; however, because Kammerer Road terminates at Bruceville Road, fewer residential structures are present along the Project alignment within unit 3; however, there is a residential housing development to the north of the Project alignment. This landscape unit consists primarily of agricultural and undeveloped, vacant land. The landscape is also vastly flat and open in all directions. Bilby Road represents the northern limit of this landscape unit as the land use changes from agricultural south of Bilby Road to neighborhood-residential north of Bilby Road. This unit also includes the Rancho Verde subdivision, which will have views of the UPRR overhead grade separation for the expressway segment of Kammerer Road.
- Visual Assessment Unit 4: This landscape unit includes the historic Town of Franklin, and the I-5/Hood Franklin Road Interchange and surrounding area. Franklin is a small unincorporated town in the County with an area of approximately 2 square miles and a population of approximately 160 people. The town primarily exists along Franklin Boulevard and Hood Franklin Road. This landscape unit consists of views from Franklin Boulevard and residences along Franklin Boulevard, Hood Franklin Road, and the I-5/Hood Franklin Road Interchange. The primary landscape features along Franklin Boulevard consist of residential structures, businesses, a cemetery, and a school in the foreground and middle ground and agricultural and open space land in the background. Along Hood Franklin Road and at the I-5/Hood Franklin Road Interchange, the landscape is essentially flat for as far as a viewer's eyes can see, except for the elevated I-5/Hood Franklin Road overpass. Stone Lakes NWR is located near the western portion of the Project area and the I-5/Hood Franklin Road Interchange and covers approximately 11,550 acres of open space.

Key Viewpoints

Because it is not feasible to analyze all the views in which the Project would be seen, it is necessary to select a number of key views associated with visual assessment units that would most clearly demonstrate the change in the Project's visual resources. Key views also represent the viewer groups that have the highest potential to be affected by the Project, considering exposure and sensitivity. The following are brief descriptions of the 21 key viewpoints selected for the evaluation in the VIA. Ratings of vividness, intactness, and unity for each of these existing viewpoints is provided in **Table 36**. Representative photographs of existing conditions at the 21 key viewpoints can be found in **Table 37**. **Figure 26** depicts the location and direction of each viewpoint.



Table 36. Existing Visual Quality Ratings for Key Viewpoints


Visual Assessment Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality ¹	Visual Quality Rating ¹
1	1	2.25	3.75	4.00	3.33	Moderately Low
	3	2.33	3.67	4.00	3.33	Moderately Low
	4	2.17	4.25	5.25	3.89	Moderate
	5	2.33	5.75	5.75	4.61	Moderately High
	6	2.33	4.00	4.25	3.52	Moderate
	8	2.42	5.50	5.50	4.47	Moderately Low
2	2	2.33	4.50	4.50	3.78	Moderate
	7	2.25	4.25	4.38	3.63	Moderate
	10	2.17	5.13	5.75	4.35	Moderately Low
3	9	2.17	5.50	5.75	4.47	Moderate
	11	2.75	4.50	5.75	4.33	Moderate
	12	2.25	4.75	4.89	3.96	Moderate
	16	2.67	5.25	5.75	4.56	Moderately High
	22	3.00	4.00	5.00	4.00	Moderate
4	13	1.83	4.25	4.50	3.53	Moderate
	14	2.25	3.88	5.00	3.71	Moderate
	15	2.63	5.75	5.75	4.71	Moderately High
	17	2.33	4.50	5.75	4.19	Moderate
	18	2.17	4.00	4.00	3.39	Moderately Low
	19	2.17	4.25	5.00	3.81	Moderate
	20	2.50	5.38	5.75	4.54	Moderately High
	21	2.08	5.50	5.50	4.36	Moderate


Source: Visual Impact Assessment (Department 2015; Department 2017)



Notes:¹Overall Visual Quality = average of the vividness, intactness, and unity ratings for the subject viewpoint. Ratings of vividness, intactness, and unity for each existing viewpoint, are assigned on the following scale: 1 (Very Low), 2 (Low), 3 (Moderately Low), 4 (Moderate), 5 (Moderately High), 6 (High), and 7 (very high). These results are provided in **Table 38**. Once each quality (vividness (V), intactness (I), and unity (U)) have been assigned an individual rating, the visual quality (VQ) can be calculated by the sum of the ratings divided by 3 ($VQ = (V+I+U)/3$).


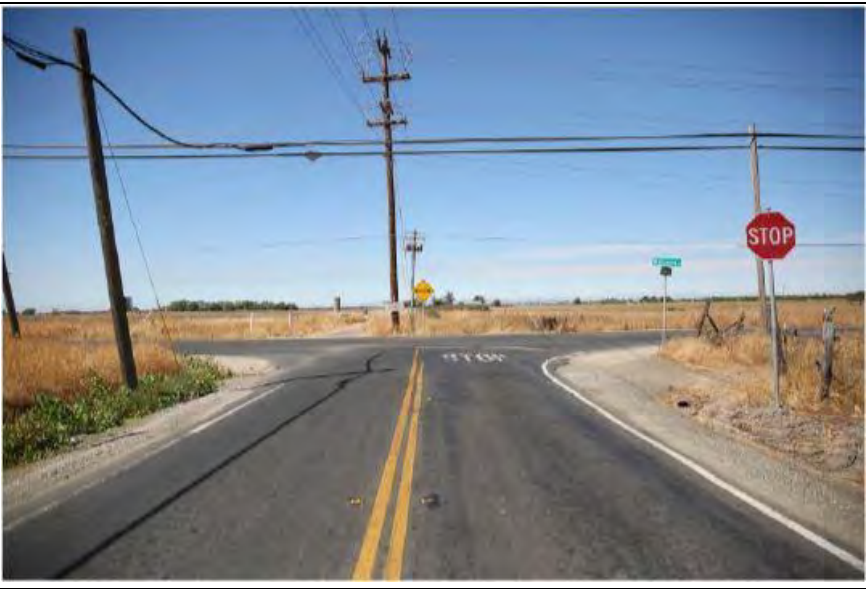
Table 37. Representative Photographs of Existing Conditions



Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions		
1	1			
1	3			



Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions	
1	4		
1	5		



Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions	
1	6		
1	8		



Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions	
2	2		
2	7		



Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions	
2	10		 <p>A photograph showing a paved road intersection. The road surface is asphalt. In the foreground, there is a wide gravel shoulder on the left side, bordered by dry, yellowish-brown grass. The road extends into the distance under a clear blue sky. The horizon is flat with some distant trees and structures.</p>
3	9		 <p>A photograph of a road intersection. The road has a double yellow line down the center. On the right side, there is a red octagonal stop sign on a wooden post. Next to it is a green street sign. Utility poles with power lines are visible on the left side of the road. The background shows a flat landscape with dry grass and a clear blue sky.</p>



Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions	
3	11		 <p>A photograph showing a two-lane asphalt road stretching into the distance under a clear blue sky. On the left side of the road, there is a tall utility pole with several power lines extending across the frame. The ground on both sides of the road is covered with dry, yellowish-brown grass and some sparse green weeds. The overall scene is rural and open.</p>
3	12		 <p>A photograph of a road similar to the one above, but from a different perspective. The road is paved and has a white line marking on the right side. On the right side of the road, there is a white mailbox mounted on a wooden post. In the background, there are several utility poles and some green trees. The sky is clear and blue.</p>

Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions
3	16	
3	22	

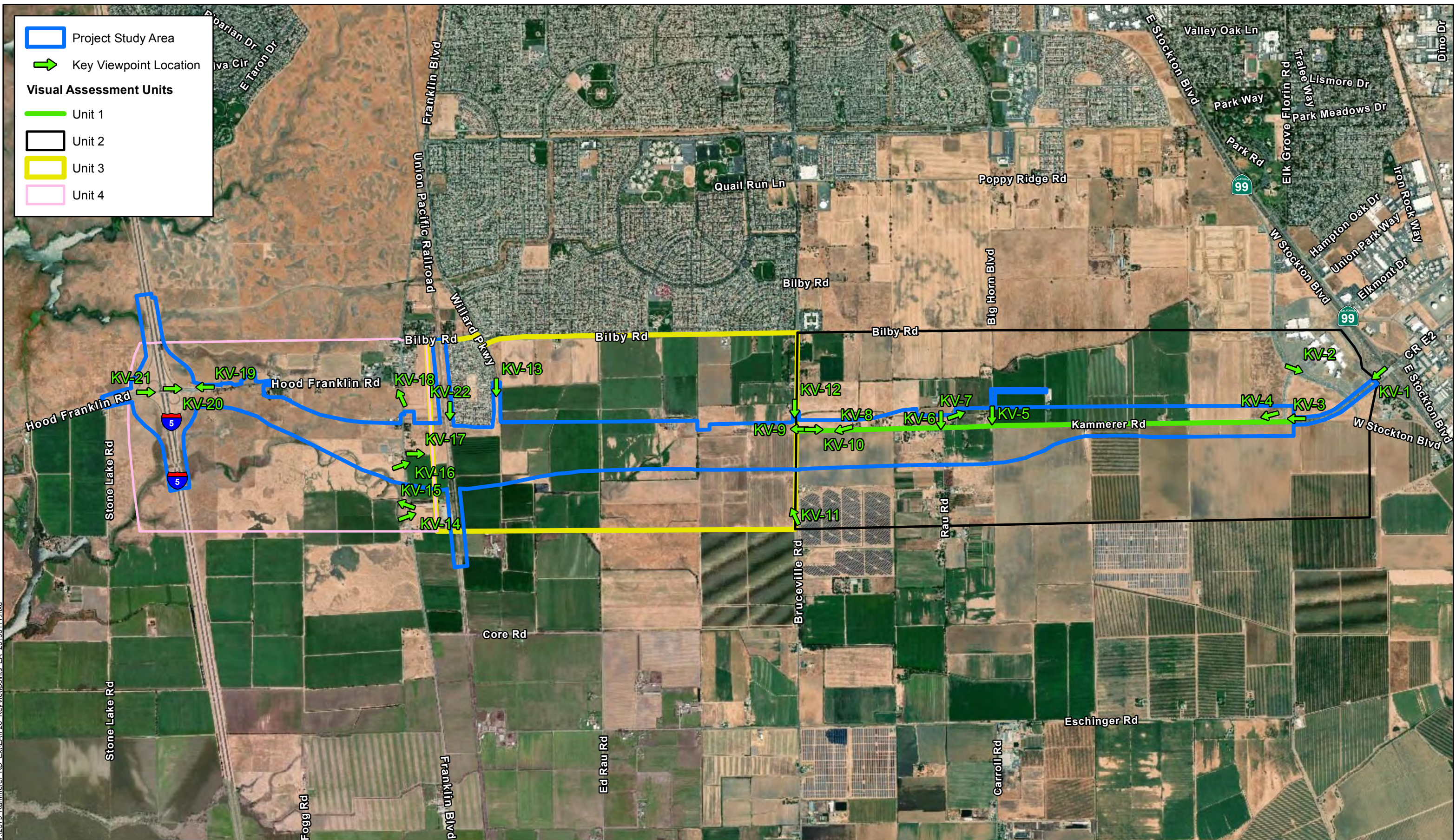
Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions	
4	13		
4	14		

Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions		
4	15			
4	17			

Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions	
4	18		
4	19		

Visual Assessment Unit	Key Viewpoint	Photograph of Existing Conditions	
4	20		
4	21		

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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

FIGURE 26
Key Viewpoints

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California

Visual Assessment Unit 1

- **Key Viewpoint 1** represents a motorist's view approaching Kammerer Road in the westbound direction from the SR 99/Kammerer Road overpass facing southwest toward the intersection of Kammerer Road and Promenade Parkway. The foreground and middle ground of this view consist almost entirely of the six-lane roadway, and the background view consists of vast expanses of undeveloped and agricultural lands over a relatively flat landscape for nearly as far as the eye can see. Visual quality is rated as moderately low at this viewpoint.
- **Key Viewpoint 3** represents a motorist's view traveling west on Kammerer Road, approaching the Kammerer Road/Lent Ranch Parkway intersection looking west. This viewpoint was photographed facing west on Kammerer Road east of the Kammerer Road/Lent Ranch Parkway intersection. From Key Viewpoint 3, motorists view Kammerer Road as a six-lane roadway tapering down to one lane in each direction, separated by a median with left-turn and right-turn pockets at the intersection and sidewalk along the westbound side of the roadway. In this view, expanses of open space over a flat landscape are visible north and south of Kammerer Road, separated by the roadway, and overhead utilities and trees are seen in the middle ground and background. Vegetation consists primarily of annual grasses. Key Viewpoint 3, and the views it represents, is of moderately low visual quality.
- **Key Viewpoint 4** represents a motorist's view from along Kammerer Road, west of Lent Ranch Parkway looking southwest. This viewpoint was photographed on the eastbound side of Kammerer Road approximately 12 feet west of Lent Ranch Parkway facing southwest. From this viewpoint, overhead power lines frame Kammerer Road to the south and stretches of flat land extend north and south of Kammerer Road. At this point along Kammerer Road, the roadway tapers down from six lanes to two lanes. Key Viewpoint 4, and the view it represents, is of moderate visual quality.
- **Key Viewpoint 5** represents a motorist's view at the intersection of Kammerer Road and McMillan Road looking south and a resident's view north of Kammerer Road along McMillan Road looking south. This viewpoint was photographed at the intersection of Kammerer Road and McMillan Road facing south. In the foreground of this view, weedy vegetation and a fence run along the eastbound lane of Kammerer Road and overhead power lines are visible. The middle ground and background are composed of a flat and open landscape covered primarily by annual grasses with a sparse distribution of trees at the farthest point of visibility. Visual quality is rated as moderately high at this viewpoint.
- **Key Viewpoint 6** represents a motorist's view traveling along Kammerer Road looking south. This viewpoint was photographed along the westbound side of Kammerer Road at the intersection of Kammerer Road and Rau Road. In this view, residential properties and other man-made structures are seen west of Rau Road. Trees are distributed more frequently throughout, and the landscape is less open and uninterrupted at this viewpoint than at other viewpoints along Kammerer Road. Visual quality is rated as moderate at this viewpoint.
- **Key Viewpoint 8** represents a motorist's view traveling along Kammerer Road looking south, just west of the proposed roadway known as Collector 2, and the views of residents north of Kammerer Road and west of Collector 2 looking south. This viewpoint was photographed along Kammerer Road west of Collector 2 facing south. The foreground of this view is composed of Kammerer Road, framed along the eastbound side of the roadway by a drainage channel and natural vegetation. In the middle ground and

background, wide open expanses of flat landscape covered by grasses fill the viewshed, and clusters of trees and man-made structures are present along the visible limits of the background. Visual quality is rated as moderate at this viewpoint.

Visual Assessment Unit 2

- **Key Viewpoint 2** represents a motorist's view of the landscape surrounding Kammerer Road north of the roadway as the motorist travels southeast on Promenade Parkway through the Promenade Parkway/Lent Ranch Parkway intersection approximately one-third mile north of Kammerer Road. This viewpoint was photographed at the Promenade Parkway/Lent Ranch Parkway intersection facing south. At this distance, Kammerer Road is noticeable as vehicles travel in the eastbound and westbound directions. Grasses covering the landscape in the middle ground and background north and south of Kammerer Road blend in such a way that minimizes the appearance of Kammerer Road. Visual quality is rated as moderate at this viewpoint.
- **Key Viewpoint 7** represents a motorist's view traveling north or south of Rau Road looking east and a resident's view along the west side of Rau Road looking northeast. This viewpoint was photographed facing northeast on Rau Road, approximately one-quarter mile south of Kammerer Road. The majority of this view is composed of an undeveloped, flat parcel of land with a cluster of trees in the background, shielding parts of structures from view. Signs of encroachment are minimal at this viewpoint and include overhead power lines, few man-made structures, and fencing. Visual quality is rated as moderate at this viewpoint.
- **Key Viewpoint 10** represents the view of the Kammerer Road/Bruceville Road intersection looking east. This viewpoint was photographed along the northbound side of Bruceville Road at the intersection of Kammerer Road and Bruceville Road facing east. In this view, Bruceville Road is lined by a narrow gravel shoulder and weedy vegetation along a drainage channel. In the middle ground and background, a wide expanse of flat open land is seen to the north and south of Kammerer Road, which bisects the landscape, and clusters of trees and man-made structures are present in the background. **Figure 27** shows a comparative visual simulation of Key Viewpoint 10 under existing conditions and the Project. Visual quality is rated as moderate at this viewpoint.

Visual Assessment Unit 3

- **Key Viewpoint 9** represents a motorist's view at the intersection of Kammerer Road and Bruceville Road looking west. This viewpoint was photographed at the Kammerer Road/Bruceville Road intersection facing west toward the proposed North Alignment Kammerer Road extension. In this view, agricultural and open space lands dominate the viewshed, and overhead utilities and grazing activities are seen within the relatively uninterrupted natural landscape. **Figure 28** shows a comparative visual simulation of Key Viewpoint 9 under existing conditions and the Project. Visual quality is rated as moderate at this viewpoint.
- **Key Viewpoint 11** represents the view traveling north along Bruceville Road toward Kammerer Road looking northwest. This viewpoint was photographed along Bruceville Road approximately one-half mile south of Kammerer Road facing northwest. This view is primarily composed of undeveloped land covered by grasses throughout the middle ground and background of the view. Overhead power lines are visible in the foreground along Bruceville Road and clusters of trees are seen far off in the distance, lining the landscape to the west. Visual quality is rated as moderate at this viewpoint.

Figure 27. Key Viewpoint 10 Comparison of Existing Conditions and Build Alternative



Key Viewpoint 10 – Existing Condition



Key Viewpoint 10 – Proposed Condition

Figure 28. Key Viewpoint 9 Comparison of Existing Conditions and Build Alternative



Key Viewpoint 9 – Existing Condition



Key Viewpoint 9 – Proposed Condition

- **Key Viewpoint 12** represents a motorist's view from Bruceville Road north of the Kammerer Road/Bruceville Road intersection looking south. The photograph at Key Viewpoint 12 was taken along Bruceville Road approximately one-tenth mile north of Kammerer Road facing south toward Kammerer Road. From this viewpoint, fences, grasslands, grazing activities, and overhead utilities are visible in the foreground, middle ground, and background. The consistency of the vegetation north and south of Kammerer Road minimizes the appearance of the roadway. Visual quality is rated as moderate at this viewpoint.
- **Key Viewpoint 16** represents a motorist's view traveling along Franklin Boulevard looking northeast. This viewpoint was photographed along Franklin Boulevard approximately one-half mile south of Hood Franklin Road, south of the location of the proposed South Alignment. From this viewpoint, motorists and the residents on the west side of Franklin Boulevard have a relatively unobstructed view of the flat landscape, aside from clusters of trees along Franklin Boulevard and surrounding residences along the roadway. Parcels in the foreground, middle ground, and background are undeveloped, agricultural, or residential. **Figure 29** shows a comparative visual simulation of Key Viewpoint 16 under existing conditions and the Project. Visual quality from this viewpoint is rated as moderately high.
- **Key Viewpoint 22** represents motorists' and resident's views from within the Rancho Verde residential community north of the proposed UPRR grade separation. This viewpoint was photographed on Fossil Way approximately 300 feet north of the intersection of Fossil Way and Tusk Way looking south. Residential homes, fences, masonry walls, and residential streets and associated landscaping are present in the foreground and middle ground. The background is largely unobscured; however, transmission lines run north-south outside of the residential community and fade into the distance. **Figure 30** shows a comparative visual simulation of Key Viewpoint 18 under existing conditions and the Project. The overall visual quality is rated as moderate under existing conditions.

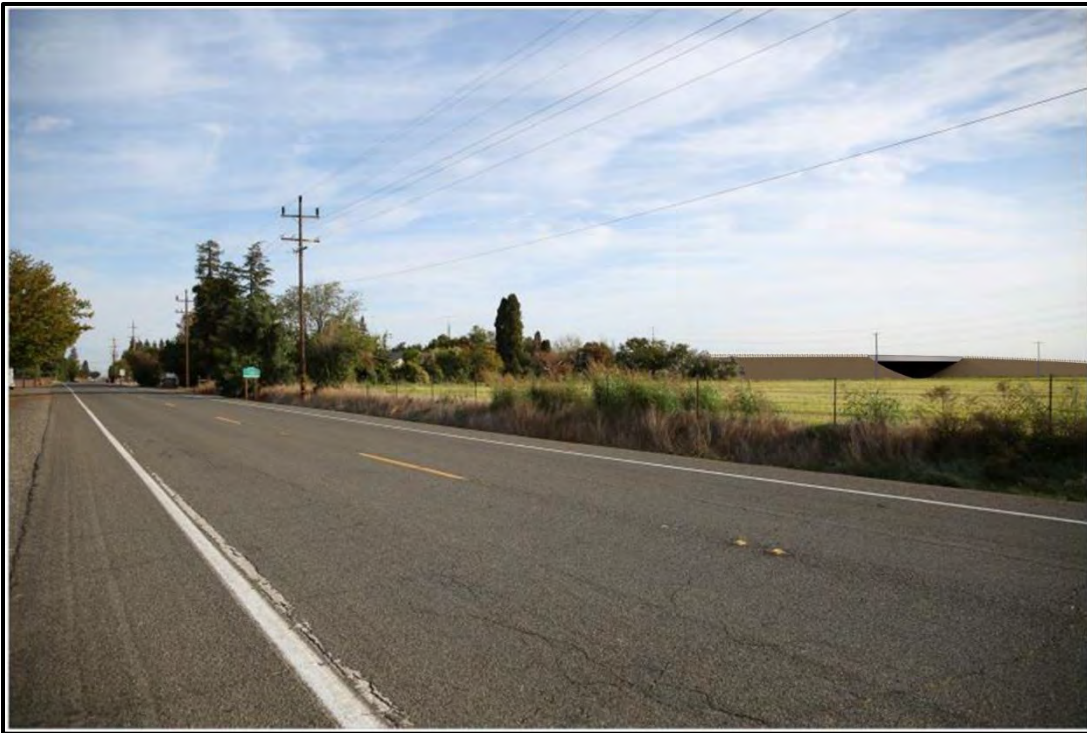
Visual Assessment Unit 4

- **Key Viewpoint 13** represents motorists' and residents' views from Willard Parkway, north of the proposed Kammerer Road extension. This viewpoint was photographed on Willard Parkway approximately one-third mile north of the Project, looking south, near a residential subdivision. Man-made structures are present in the middle ground and background and include fencing, walls, and unidentifiable structures in the distance. Visual quality is rated as moderate at this viewpoint.
- **Key Viewpoint 14** represents the view traveling north on Franklin Boulevard looking northeast. This viewpoint was photographed along Franklin Boulevard approximately one-third mile south of the proposed South Alignment Build Alternative and approximately one-quarter mile south of Hood Franklin Road. In the foreground, the eastern edge of Franklin Boulevard is met by gravel along a narrow ditch, which is lined by fencing to the east. The middle ground is composed of grassland over relatively flat terrain. In the background, trees are sparsely distributed and overhead power lines span across the landscape running north to south. A residential subdivision is present to the north in the background.

Figure 29. Key Viewpoint 16 Comparison of Existing Conditions and Build Alternative



Key Viewpoint 16 – Existing Condition



Key Viewpoint – Proposed Condition

Figure 30. Key Viewpoint 22 Comparison of Existing Conditions and Build Alternative



Key Viewpoint 22 – Existing Condition



Key Viewpoint 22 – Proposed Condition

- **Key Viewpoint 15** represents a motorist's view traveling along Franklin Boulevard looking northwest. This viewpoint was photographed along Franklin Boulevard approximately three-quarter mile south of Hood Franklin Road, south of the proposed South Alignment roadway extension, facing northwest. From this viewpoint, motorists can see Stone Lakes NWR property in the background and wetland features in the middle ground. The landscape is primarily natural and free from encroachment elements. Visual quality from this viewpoint is rated the highest out of the 22 viewpoints discussed.
- **Key Viewpoint 17** represents a motorist's view along Franklin Boulevard looking east toward a dirt road along the roadway. This viewpoint was photographed along Franklin Boulevard south of Hood Franklin Road. In this view, a dirt road, overhead utility poles and lines, and agricultural and undeveloped parcels of land are seen in the foreground, middle ground, and background, and a residential subdivision is visible to the north in the background of the view. The overall visual quality at this viewpoint is rated as moderate.
- **Key Viewpoint 18** represents a motorist's view traveling south on Franklin Boulevard looking south. This viewpoint was photographed along Franklin Boulevard approximately one-tenth mile north of Hood Franklin Road facing south. In this view, Franklin Boulevard is framed by gravel and grasses to the west and grasses and fencing to the east in the foreground and middle ground. In the background, a variety of trees are present along Hood Franklin Road. Street signs are visible in the foreground and middle ground, and overhead power lines are visible throughout the viewshed. **Figure 31** shows a comparative visual simulation of Key Viewpoint 18 under existing conditions and the Project. Visual quality is rated as moderately low at this viewpoint.
- **Key Viewpoint 19** represents a motorist's view traveling west on Hood Franklin Road toward the I-5/Hood Franklin Road Interchange. This viewpoint was photographed along Hood Franklin Road approximately one-quarter mile east of the center of the I-5/Hood Franklin Road overpass, facing west. In this view, Hood Franklin Road and the interchange are the focus, with fenced undeveloped parcels to the north and south of the roadway. A variety of sparsely distributed trees are present in the foreground, middle ground, and background. Man-made elements within this view include Hood Franklin Road and the interchange, fences, road signs, and overhead utilities. Visual quality is rated as moderate at this viewpoint.
- **Key Viewpoint 20** represents a motorist's view traveling east over the I-5/Hood Franklin Road Interchange looking east. This viewpoint was photographed to the east of the center of the overpass, facing east. The viewpoint is composed of two-lane Hood Franklin Road and the northbound on- and off-ramps of I-5. Landcover in the foreground and middle ground consists primarily of annual grasses and a sparse distribution of trees, and clusters of trees are seen in the background. Visual quality is rated as moderately high at this viewpoint.
- **Key Viewpoint 21** represents a motorist's view traveling east on Hood Franklin Road approaching the I-5 southbound on-ramp looking east. This viewpoint was photographed along Hood Franklin Road just west of the I-5/Hood Franklin Road Interchange facing east). The majority of land in this view is covered by pavement or gravel with grasses on either side of Hood Franklin Road and the overpass between the roadway and on- and off-ramps. Numerous man-made elements such as the pavement, roadway signs, and poles lining the interchange are present in this view. However, the land surrounding the interchange consists of relatively flat topography and open space covered by grassland, much like the land in many other views in the corridor. Visual quality is rated as moderate at this viewpoint.

Figure 31. Key Viewpoint 18 Comparison of Existing Conditions and Build Alternative



Key Viewpoint 18 – Existing Condition



Key Viewpoint – Proposed Condition

Scenic Corridors and Scenic Highways

According to the Department's *California Scenic Highway Mapping System* (2011), there are no designated scenic corridors or scenic highways within the Project area.

ENVIRONMENTAL CONSEQUENCES

The visual impacts of a project are determined by assessing both changes to the visual resources (resource change) and predicting viewer response to those changes. These impacts can be beneficial or detrimental and are rated on a scale from low to high as follows:

- **Low:** Minor adverse change to the existing visual resource, with low viewer response to change in the visual environment. May or may not require mitigation.
- **Moderate:** Moderate adverse change to the visual resource with moderate viewer response. Impact can be mitigated within five years using conventional practices.
- **Moderately High:** Moderate adverse visual resource change with moderate viewer response or high adverse visual resource change with moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than five years to mitigate.
- **High:** A high level of adverse change to the resource or a high level of viewer response to visual change such that architectural design and landscape treatment cannot mitigate the impacts. Viewer response level is high. An alternative project design may be required to avoid highly adverse impacts.

Method for Predicting Viewer Response

Viewer response is composed of two elements: viewer sensitivity and viewer exposure. These elements combine to form a method of predicting how the public might react to visual changes brought about by a highway project.

Viewer Sensitivity

Viewer sensitivity is a measure of the viewer's recognition of a particular object. It has three attributes: activity, awareness, and local values. Activity relates to the preoccupation of viewers—are they preoccupied, thinking of something else, or are they truly engaged in observing their surroundings? The more that viewers are actually observing their surroundings, the more sensitivity they will have to changes in visual resources. Awareness relates to the focus of view—the focus is wide and the view general, or the focus is narrow and the view specific. The more specific the awareness, the more sensitive a viewer is to change. Local values and attitudes also affect viewer sensitivity. If the viewer group values aesthetics in general or if a specific visual resource has been protected by local, State, or national designation, it is likely that viewers will be more sensitive to visible changes. High viewer sensitivity helps predict that viewers will have a high concern for any visual change.

The Project area is composed of elements that combine to create a visual environment with low to moderately low vividness, and moderate to moderately high intactness and unity. Man-made structures in the Project area are not visibly unique and many are only partially visible from the roadways as they are surrounded by vegetation that screens them from view. The stretches of open grasslands and agricultural parcels over the vastly flat landscape surrounding the Project

area offer visually open views from the roadway, which are commonly observed in this area of the County. The landscape is relatively free from encroaching elements within a quarter-mile of the Project except for urban street networks, including stretches of roadway; residential, agricultural, public, and commercial structures; and overhead utilities. Views of the surrounding landscape are rarely interrupted by man-made structures, except for the occasional presence of residential, agricultural, and commercial structures, resulting in a moderate to moderately high visual coherence within the Project area.

Viewer Exposure

Viewer exposure is a measure of the viewer's ability to see a particular object. Viewer exposure has three attributes: location, quantity, and duration. Location relates to the position of the viewer in relationship to the object being viewed. The closer the viewer is to the object, the higher the exposure. Quantity refers to how many people see the object. The more people who can see an object or the greater frequency with which an object is seen, the more exposure the object has to viewers. Duration refers to how long a viewer is able to keep an object in view. The longer an object can be kept in view, the higher the exposure. High viewer exposure helps predict that viewers will have a response to a visual change.

Viewsheds vary according to the type and location of the viewer.

- **Local Motorists:** For motorists along Kammerer Road, Bruceville Road, Franklin Boulevard, Hood Franklin Road, and adjacent roadways, the viewshed includes views of agricultural lands and activities, residential properties, open space, and vacant parcels. Drivers traveling through the Project area would have views of the newly widened four-lane roadway and extension of the roadway, but exposure of these views would be relatively short in duration as they pass through the area. Driver focus is expected to remain primarily on the roadway itself, rather than on the surrounding views. Passengers would have a higher awareness of the surrounding views.
- **Local Residents/Employees:** Local residents and business owners/employees using this route for commuting purposes would be expected to have a higher sensitivity to changes in visual appearance, due to their familiarity of the area.
- **Nonlocal Motorists:** Tourists or other nonlocal drivers traveling through the area would be expected to have a somewhat higher awareness of the visual characteristics of the area, but would not be as sensitive to changes in the visual setting. Kammerer Road is most likely rarely used by tourists and nonlocal motorists, as no restaurants, gas stations, or rest stops exist along the roadway. However, tourists may use the Project area as a route to Stone Lakes NWR. Because the visual characteristics of the extended Kammerer Road will be similar to that of the widened Kammerer Road configuration, changes in the landscape resulting from the Project are not likely to be obvious to this viewer group.

Group Viewer Response

The narrative descriptions of viewer exposure and viewer sensitivity for each viewer group were merged to establish the overall viewer response of each group.

Viewers on Kammerer Road, Hood Franklin Road, and the I-5/Hood Franklin Road Interchange

Drivers traveling along Kammerer Road (Viewpoints 1, 3, 4, 6, 8, 9, and 10), Hood Franklin Road (Viewpoint 18), and the I-5/Hood Franklin Road Interchange (Viewpoints 19, 20, and 21) would have views of the new widened and extended configuration of the roadway, but existing viewer sensitivity for this group is relatively low since most of the viewers are commuter motorists traveling on Kammerer Road who would be exposed to the Project on a daily or weekly basis. The typical commuter motorists are focused on driving and work-related activities rather than on the views seen during regular commutes and will therefore have a low level of sensitivity to the widened and extended configuration of Kammerer Road.

Viewers on Bruceville Road and Franklin Boulevard

Drivers traveling north and south on Bruceville Road (Viewpoints 11 and 12) and Franklin Boulevard (Viewpoints 14, 15, 16, and 17) include commuter motorists and residents who would have views of the new widened and extended configuration of the roadway as they approach or pass Kammerer Road. This viewer group has both low and high viewer sensitivity. The commuter motorists, exposed to these views on a daily or weekly basis, are less likely to focus on the scenic quality and visual resources of the landscape and would have a relatively low sensitivity, while the residents are more likely to take in their surroundings and have a relatively high sensitivity.

Residential Viewers along Kammerer Road, Bruceville Road, and Franklin Boulevard and Rancho Verde Residential Community

Residents along Kammerer Road (Viewpoints 6, 7, and 8), Bruceville Road (Viewpoint 12), and in the Town of Franklin along Franklin Boulevard (Viewpoints 16, 17, and 18) would have views of the widened and extended configuration of the roadway, depending on the location of the residence. The majority of drivers along side streets to Kammerer Road, Bruceville Road, and Franklin Boulevard are residents of the area and would also have views of the new widened and extended configuration of the roadway. Residents within the Ranch Verde residential community (Viewpoint 22) will have direct views of the new Kammerer Road embankment and overcrossing. Residents within the Ranch Verde community have a relatively high level of sensitivity to these changes in visual resources. Residents of homes with direct views of existing Kammerer Road and the area between Bruceville Road and I-5/Hood Franklin Road Interchange where the roadway will be extended are expected to have a relatively high level of sensitivity to changes in visual resources and scenic quality of the landscape. This viewer group is more likely to focus on details of the landscape in view of their place of residence and would therefore have a higher level of sensitivity.

Tourists and Motorists Driving for Pleasure

Drivers traveling through the area for the first time as a tourist or traveling along the roadway for the purpose of gazing about the landscape to experience the scenic quality and visual resources have a relatively high level of sensitivity. Tourists may use the Project area as a route to Stone Lakes NWR. Aside from these potential tourists, the number of tourists traveling through the Project area is relatively low as options for gas stations, rest stops, and restaurants are limited within the Project area.

Build Alternative*Visual Quality Comparison*

Table 38 below summarizes the visual quality ratings at each key viewpoint under existing, Project conditions.

Table 38. Visual Quality Comparison – Existing and Build Alternative

Key Viewpoint	Project	Vividness	Intactness	Unity	Overall Visual Quality ¹	VQ Difference
Visual Assessment Unit 1						
1	Existing	2.25	3.75	4.00	3.33	--
	Build Alternative	2.25	3.63	4.00	3.29	-0.04
3	Existing	2.33	3.67	4.00	3.33	--
	Build Alternative	2.33	3.38	3.88	3.20	-0.13
4	Existing	2.17	4.25	5.25	3.89	--
	Build Alternative	2.17	4.00	5.00	3.75	-0.17
5	Existing	2.33	5.75	5.75	4.61	--
	Build Alternative	2.17	4.75	5.38	4.10	-0.51
6	Existing	2.33	4.00	4.25	3.52	--
	Build Alternative	2.17	4.00	4.25	3.47	-0.05
8	Existing	2.42	5.50	5.50	4.47	--
	Build Alternative	2.42	5.38	5.50	4.43	-0.04
Visual Assessment Unit 2						
2	Existing	2.33	4.50	4.50	3.78	--
	Build Alternative	2.33	4.38	4.50	3.74	-0.04
7	Existing	2.25	4.25	4.38	3.63	--
	Build Alternative	2.25	4.25	4.38	3.63	-0.00
10	Existing	2.17	5.13	5.75	4.35	--
	Build Alternative	2.00	3.50	4.50	3.33	-1.02
Visual Assessment Unit 3						
9	Existing	2.17	5.50	5.75	4.47	--
	Build Alternative	2.00	4.00	4.25	3.42	-1.05
11	Existing	2.75	4.50	5.75	4.33	--
	Build Alternative	2.75	4.50	5.75	4.33	-0.00
12	Existing	2.25	4.75	4.89	3.96	--
	Build Alternative	2.17	3.75	4.00	3.30	-0.66

Key Viewpoint	Project	Vividness	Intactness	Unity	Overall Visual Quality ¹	VQ Difference
16	Existing	2.67	5.25	5.75	4.56	--
	Build Alternative	2.33	5.00	5.25	4.19	-0.37
22	Existing	3	4	5	4	--
	Build Alternative	2.50	3.50	4.50	3.50	-0.5
Visual Assessment Unit 4						
13	Existing	1.83	4.25	4.50	3.53	--
	Build Alternative	1.83	4.00	4.50	3.44	-0.09
14	Existing	2.25	3.88	5.00	3.71	--
	Build Alternative	2.25	3.50	4.75	3.50	-0.21
15	Existing	2.63	5.75	5.75	4.71	--
	Build Alternative	2.63	5.75	5.75	4.71	-0.00
17	Existing	2.33	4.50	5.75	4.19	--
	Build Alternative	2.33	4.13	5.50	3.98	-0.21
18	Existing	2.17	4.00	4.00	3.39	--
	Build Alternative	2.17	3.88	3.75	3.26	-0.13
19	Existing	2.17	4.25	5.00	3.81	--
	Build Alternative	2.17	4.13	4.63	3.64	-0.17
20	Existing	2.50	5.38	5.75	4.54	--
	Build Alternative	2.50	5.13	5.50	4.38	-0.16
21	Existing	2.08	5.50	5.50	4.36	--
	Build Alternative	2.08	5.38	5.50	4.32	-0.04

Source: Visual Impact Assessment (Department 2015)

Notes:

¹ Overall Visual Quality = average of the vividness, intactness, and unity ratings for the subject viewpoint

Summary of Visual Impacts

Table 39 below summarizes and compares the narrative ratings for visual resource change, viewer response, and visual impacts between build conditions for each key viewpoint.

Table 39. Summary of Key View Narrative Ratings

Visual Assessment Unit	Key Viewpoint	Build Alternative		
		Resource Change	Viewer Response	Visual Impact
1	1	ML	M	ML
	3	ML	L	L
	4	L	ML	L
	5	M	M	M
	6	ML	L	ML
	8	L	L	L
2	2	M	M	M
	7	L	L	L
	10	M	ML	M
3	9	ML	ML	ML
	11	L	L	L
	12	ML	L	L
	16	L	L	L
	22	ML	H	ML
4	13	L	L	L
	14	ML	ML	ML
	15	L	L	L
	17	ML	ML	ML
	18	L	L	L
	19	L	L	L
	20	L	L	L
	21	L	L	L

Source: Visual Impact Assessment (Department 2015); L = Low; ML = Moderately low; M = Moderate; H = High

Roadway Improvements

The Project would cause a low level of change in the visual environment between SR 99 and Bruceville Road and a moderate level of change in the visual environment between Bruceville Road and I-5, as seen from the identified key viewpoints. Under the Project and South Alignment Build Alternative, views from each viewpoint between SR 99 and Bruceville Road would change slightly due to the widened roadway along the existing alignment of Kammerer Road under the Project, but the overall visual character would remain similar to existing conditions. From Bruceville Road to I-5, changes to the visual character of the views from each viewpoint are more substantial than between SR 99 and Bruceville Road due to the extension of Kammerer Road as

a new roadway and the UPRR overhead grade separation structure. The approach fill and the UPRR overhead grade separation structure would obstruct views of the surrounding landscape at some locations within the Project viewshed. Design and construction of the overhead grade separation structure may incorporate design features to minimize the appearance of the structure. These design features may include vegetative cover and the use of cut and fill around the structure, so it appears to grow out of and blend in with the surrounding landscape.

Changes in the Project area as seen from the identified key viewpoints would be viewed by motorists and residents along Kammerer Road, Bruceville Road, Franklin Boulevard, side streets, and surrounding areas. Based on the existing conditions and the Project conditions analyzed in the VIA, the Project will result in moderately low level impacts east of Bruceville Road and moderate to moderately high level impacts west of Bruceville Road. The Project would not impact a designated landmark, historic resources, visually significant trees, or rock outcroppings. In regard to the exposure and sensitivity for each of the viewer groups, the moderately low through moderately high level of impacts of the Project on the views represented by the key viewpoints may be reduced through implementation of minimization and mitigation measures. Mitigation measures **VIS-1** through **VIS-4** will be implemented to avoid and minimize affects to viewers throughout the Project corridor.

Lighting and Glare

The main source of daytime glare in the area is from sunlight reflecting from structures with reflective surfaces such as windows. Building materials (e.g., reflective glass and polished surfaces) are the most substantial sources of glare. The amount of glare depends on the intensity and direction of sunlight, which is more acute at sunrise and sunset because the angle of the sun is lower during these times.

A source of glare during the nighttime hours is artificial light. The sources of new and increased nighttime lighting and illumination include residential properties in the Project area, lighting from nonresidential uses, lights associated with vehicular travel (e.g., car headlights), and street lighting. Implementation of the Project would introduce new sources of nighttime lighting and illumination levels in the Project area due to the placement of street lighting along the roadway and the addition of traffic signals at some intersections between the I-5/Hood Franklin Road Interchange and SR 99.

Reflection off of street lighting poles and traffic signal poles would add to daytime glare in the Project area. At night, this lighting could result in “spillover” lighting, which is defined as artificial lighting that spills over onto adjacent properties. Spillover lighting from the widened and extended roadway could interrupt sleeping patterns or cause other nuisances to neighboring residents. Additionally, headlights from vehicles traveling on the widened and extended roadway and the possible UPRR overhead grade separation structure would add to the overall nighttime glare, particularly due to the higher elevation of the possible UPRR overhead grade separation structures.

Daytime and nighttime glare from street lighting and traffic signals would be similar throughout the Project area and would be highest for Key Viewpoints 5, 7, 10, 11, 13, 15, 17, and 19. Lighting impacts would be considered moderately high. Therefore, mitigation measures **VIS-3** and **VIS-4** shall be implemented.

Temporary Construction

During construction of the Project, there would be temporary visual impacts associated with on-site storage of construction materials and debris, movement of soil, and other construction activities that would be visible to viewers in the area. These activities would be visible from all viewpoints to varying degrees depending on the phase of construction and distance of the viewer from the construction site. However, these changes in the visual makeup of the Project area are temporary, and necessary in the interest of safety for roadway users. Therefore, due to the temporary nature of the impacts, the loss of views and visual quality during construction is not considered significant.

Some work for the Project may occur after daylight hours. Construction lighting would be required for these activities. This lighting could result in spillover lighting. Spillover lighting from the Project area would interrupt sleeping patterns or cause other nuisances to neighboring residents. In addition, lighting would disturb drivers passing by these construction activities.

The presence of construction personnel and equipment working on the roadways, intersections, and UPRR overhead would be short term and, therefore, not result in significant impacts. Temporary construction impacts would be considered moderate, and mitigation is required to reduce the level of impacts.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. As a result, the goals of Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link from I-5 to SR-99, the No-Build Alternative would fail to aide in the economic viability for the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Furthermore, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area. Under the No-Build Alternative, the Project would not be constructed and there would be no affects to the visual environment.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following avoidance, minimization and/or mitigation measures have been developed for visual and aesthetic impacts.

VIS-1: To minimize visual impacts of staged construction equipment, adherence of Department Standard Specification for Construction would occur. Construction materials and debris shall be stored away from highly visible areas, which shall include, but not be limited to, residences along Kammerer Road, Bruceville Road, Franklin Boulevard, and the Rancho Verde residential development.

VIS-2: To minimize visual impacts to the Rancho Verde residential development, design and construction of the overhead grade separation structure would incorporate design features to minimize the appearance of the structure. These design features may include vegetative cover and the use of cut and fill around the structure so it appears to grow out

of and blend in with the surrounding landscape. Any hydroseed or vegetation cover would be composed of native species.

VIS-3: During the final design of the Project, the implementing agency will prepare and implement a plan for construction lighting that minimizes the release of light and glare either upward or toward properties and residences adjoining the construction site. At a minimum, the plan will contain the following elements:

- To minimize trespass lighting to the skies, use full cutoff luminaires. Full cutoff luminaires are designed to not emit any light above 90 degrees, thereby reducing sky glow.
- Use internal or external shields when necessary to minimize light trespass onto neighboring properties.

VIS-4: Operational lighting of the Project will be designed for safety and will include features that minimize the release of light and glare either upward or toward properties and residences adjoining the Project corridor. The lighting design will conform to all applicable City, County, State, Federal and public safety standards, as appropriate. Features could include shielding lighting elements, using lower voltage lighting, incorporating downward casting lighting, using lighting features that conform to the visual character of the area, and similar design measures as listed below:

- Consider the least intrusive lighting when improvements are made at an intersection, when lighting is needed for safety reason, or when a new intersection is constructed.
- Minimize continuous roadway lighting,
- Calculate the optimum location, height and spacing for alternative lighting solutions at each intersection using computer software.
- Do not permit the use of high pressure sodium lamps. Metal halide is preferred because of the more natural color rendition and pure white light.
- Minimize trespass lighting to the skies by using full cutoff luminaires. Full cutoff luminaires are designed to not emit any light above 90 degrees, thereby reducing sky glow.
- Reduce the amount of light required for an intersection by using Department, Sacramento County, and City of Elk Grove minimum requirements as appropriate.
- Use internal or external shields when necessary to minimize light trespass onto neighboring properties.

2.1.12 CULTURAL RESOURCES

REGULATORY SETTING

The term “cultural resources,” as used in this document, refers to the “built environment” (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including “historic properties,” “historic sites,” “historical resources,” and “tribal cultural resources.” Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (National Register). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 Code of Federal Regulations [CFR] 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the FHWA, the ACHP, the California State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the ACHP’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA’s responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

State Regulations

CEQA established statutory requirements for establishing the significance of historical resources in Public Resources Code (PRC) Section 21084.1. The CEQA Guidelines (Section 10564.5[c]) also require consideration of potential project impacts to “unique” archaeological sites that do not qualify as historical resources. The statutory requirements for unique archaeological sites that do not qualify as historical resources are established in PRC Section 21083.2. These two PRC sections operate independently to ensure that significant potential effects on historical and archaeological resources are considered as part of a project’s environmental analysis. Historical resources, as defined in Section 15064.5 as defined in the CEQA regulations, include 1) cultural resources listed in or eligible for listing in the California Register of Historical Resources (California Register); 2) cultural resources included in a local register of historical resources; 3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in one of several historic themes important to California history and development.

Under CEQA, a project may have a significant effect on the environment if the Project could result in a substantial adverse change in the significance of a historical resource, meaning the physical demolition, destruction, relocation, or alteration of the resource would be materially impaired. This would include any action that would demolish or adversely alter the physical characteristics of an historical resource that convey its historic significance and qualify it for inclusion in the California Register or in a local register or survey that meets the requirements of PRC Section 5020.1(l) and 5024.1(g). PRC Section 5024 also requires state agencies to identify and protect state-owned resources that meet National Register listing criteria. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the SHPO before altering, transferring, relocation,

or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

CEQA and the CEQA Guidelines also recommend provisions be made for the accidental discovery of archaeological sites, historical resources, or Native American human remains during construction (PRC Section 21083.2(i) CCR Section 15064.5[d and f]).




AFFECTED ENVIRONMENT

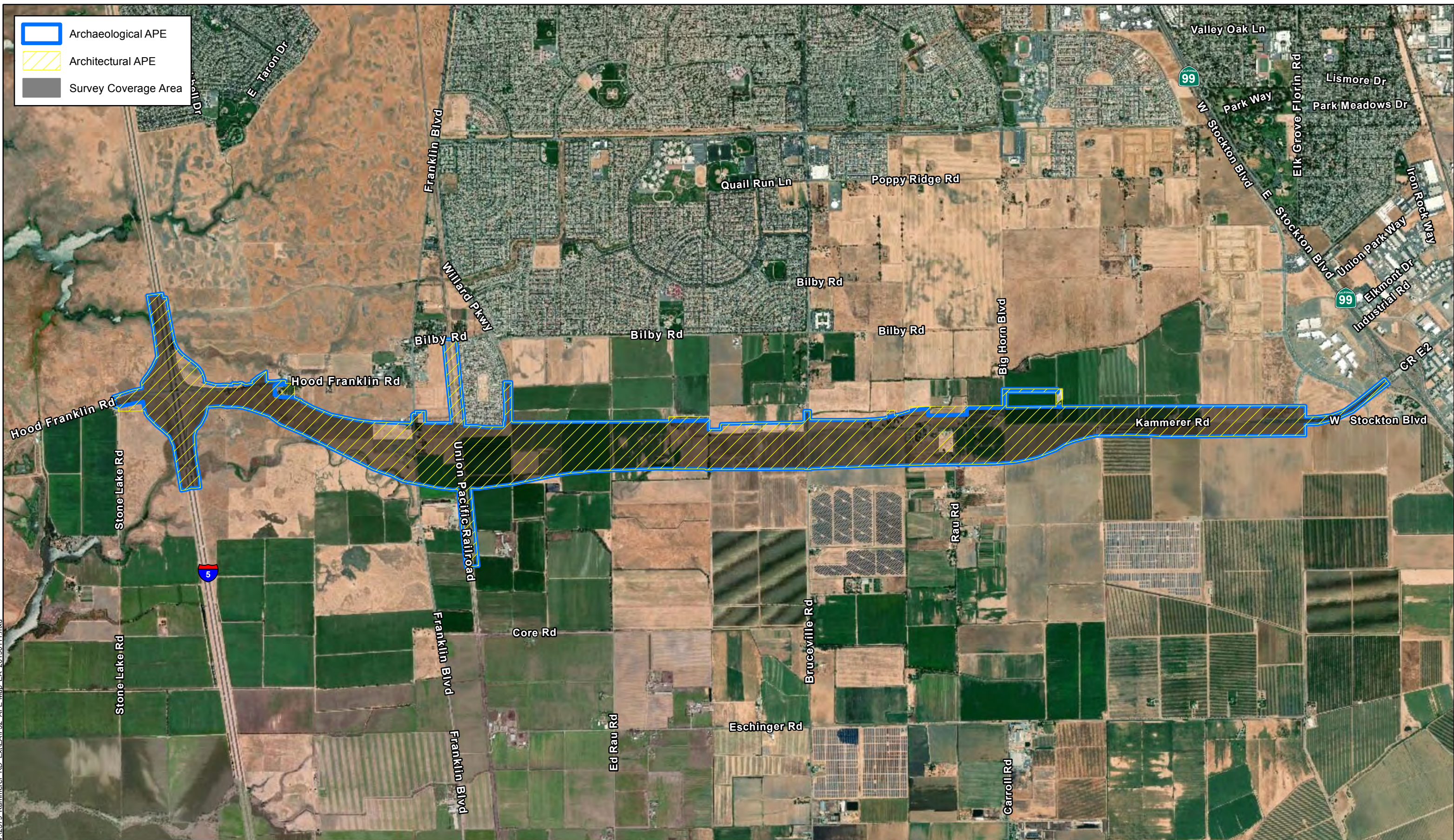
In December 2016, the SHPO concurred with the completed finding of the Historic Property Survey Report (HPSR), Archaeological Survey Report (ASR), and the Historical Resources Evaluation Report (HREER) for the Project. Due to changes in the Project design, a Supplemental HPSR and Supplemental ASR were completed and approved by the Department (Dokken Engineering 2018d, 2018e). This section presents the results of these documents.

Area of Potential Effects

In order to determine whether the Project would impact any cultural resources eligible for or currently listed on the National Register or the California Register, an Area of Potential Effects (APE) was first determined for the Project. The horizontal extent of the APE was established as the area of direct and indirect effects which encompasses the 385-acre Archaeological APE and the 1000-acre Architectural APE. The Archaeological APE includes all direct Project impacts and ground disturbing activity including potential staging, access, utilities, clearing and grubbing, grading, cut and fill areas, stormwater basins and ditches, and installation of roadway pavement sections and bridge structures. In areas where sliver takes (small portions of land acquired that will not affect land use) are required for right-of-way or where temporary construction easements are required to reconstruct drainage and conform driveways, only the areas impacted are included in the Archaeological APE, not the entire parcel (**Figure 32**).

As the majority of the Project will be constructed on fill, the vertical APE for nearly the entire roadway will be less than one foot below ground surface to account for vegetation removal and scarification for fill placement. There are minimal areas where the vertical APE will extend to a maximum of 12 inches for roadway structures. Most culverts will be within the fill prism, but several will be a maximum of 5 feet below ground surface. Other drainage features, culverts, and roadside ditches will occur within the fill prism. Other vertical impacts include 15 feet below ground surface for the relocation of utility poles and column footing excavation; as well as 30 to 45 feet below ground surface for driven piles.

-  Archaeological APE
-  Architectural APE
-  Survey Coverage Area



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

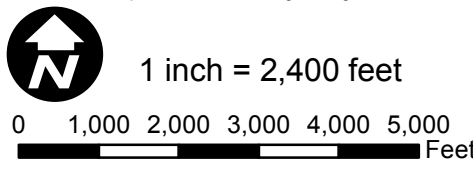


FIGURE 32
Area of Potential Effects

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California

Research and Fieldwork

Once an APE was established, identification efforts were conducted to identify cultural resources that may be present within the Archaeological and Architectural APE. These efforts included a search of cultural resource site records and reports on file at the North Central Information Center (NCIC), a search of the Sacred Lands File (SLF) at the Native American Heritage Commission (NAHC), a search of records on file at the Sacramento County Assessor's Office, consultation with Native American groups, consultation with interested parties, and a pedestrian field survey.

The NCIC records search included the APE and a quarter-mile radius. The search also included review of the following: Inventory of Historic Resources (SHPO 1976), California Points of Historical Interest (SHPO 1992 and updates), California Historical Landmarks (SHPO 1996), and the Directory of Properties in the Historic Property Data File (SHPO 2012). The directory includes the listings of the National Register, National Historic Landmarks, California Register, California Historical Landmarks, and California Points of Historical Interest. The NCIC records search identified one previously recorded Native American cultural resource and one documented occurrence of a single historic-era artifact within the APE. The site record for the Native American cultural resource noted that components of the resource had been removed in the late 1940s/early 1950s but that portions of the site may still be present. The single historic-era artifact recorded within the APE consists of a bottle fragment. The NCIC records search also noted four built environment resources (environment comprised of a human-made object) within the quarter-mile radius; however, these resources would not be directly or indirectly impacted by the Project and are not discussed further.

The NAHC search of the SLF for Native American cultural resources which may be present within the APE returned negative results. A list of Native American Tribal Governments who may have knowledge regarding resources within the APE was also requested from the NAHC. Project notification letters were sent to all Native American Tribal Governments on the list provided by the NAHC, which included the Lone Band of Miwok Indians, the Wilton Rancheria, and the United Auburn Indian Community of the Auburn Rancheria. All three requested to continue consultation on the Project, especially regarding future identification efforts, investigations at the known Native American cultural resource, and review of cultural documents. No additional information beyond what was identified by the NCIC was received during this outreach. Consultation has been ongoing and will continue with the Lone Band of Miwok Indians, the Wilton Rancheria, and the United Auburn Indian Community of the Auburn Rancheria on the future identification efforts, signification evaluations, and mitigation of all Native American cultural resources identified within the APE.

The Elk Grove Historical Society and the Elk Grove Historic Preservation Committee were identified as potentially interested parties and were contacted about the Project via letter which detailed the Project and requested any information or concerns about historic-era resources in the APE. No information regarding any such resources was provided by either group.

Pedestrian surveys of the Archaeological and Architectural APE were completed in 2013, 2014, 2016 and 2017 to identify the NCIC previously recorded resources and to identify any additional cultural resources within the APE. The previously recorded Native American cultural resource was identified but the previously recorded historic-era artifact could not be located. Additionally, fifteen previously undocumented built environment properties were identified within the Architectural APE and recorded. Due to restricted property access, the entirety of the

Archaeological APE was not surveyed. Additional survey efforts will be completed once property access is obtained.

Buried Archaeological Resource Potential Findings

To determine the buried archaeological resource potential within the Archaeological APE, a review of available regional geoarchaeological studies and project-specific geotechnical soil samples were reviewed. The *Geoarchaeological Overview and Assessment of Caltrans District 3: Cultural Resources Inventory of Caltrans District 3 Rural Conventional Highways* by Meyer and Rosenthal (2008) indicates that the majority of the APE consists of older soils formed during the Older Pleistocene age (22,000 to 1.9 million years old) which were deposited before human occupation of the area. The presence of such older soils near the surface indicate that the majority of the Archaeological APE has a very low potential to contain buried Native American archaeological remains as insufficient “recent” soil, or soil that developed during human occupation of the area, has accumulated (Meyer and Rosenthal 2008:107).

There are several smaller locations, mostly in the western portion of the Archaeological APE, which have been identified as forming during the Holocene or Latest Holocene (modern to 11,500 years old), when humans occupied the area, and therefore have high to very high potential for buried Native American archaeological deposits. Historic aerial photography and historic topographic maps do depict several ephemeral and intermittent streams that run through the western portion of the Archaeological APE. The sole identified Native American cultural resource identified within the Archaeological APE is located in one such area. The locations of this resource and the areas of sensitivity are not disclosed in this environmental document for confidentiality purposes.

The buried archaeological resource potential for historic-era resources was also evaluated through review of historic aerial photography and historic topographic maps. The results revealed that there were very few structures within or near the Archaeological APE. Only one location contained several structures, which have since been demolished. It is possible in this location that a privy or trash pit could be present which would contain historic-era artifacts. The location of this sensitive area is not disclosed in this environmental document for confidentiality purposes.

As restricted property access prevented pedestrian survey in some locations, subsurface presence/absence testing within locations identified as being potentially sensitive for buried archaeological resources, and archaeological evaluation of the one identified Native American cultural resource within the Archaeological APE, the Department has proposed a Programmatic Agreement detailing the additional identification, significance evaluation, and mitigation efforts required to complete Section 106 of the NHPA compliance, once access is obtained to these locations.

Evaluated Resources

Fifteen historic-era built environment resources were identified within the Archaeological and Architectural APE, which consisted of the following:

APN	Address/Location	Property Type
132-0262-004 & 132-0262-003	3206 Hood Franklin Rd., Elk Grove	Farm
132-0300-016	8051 Kammerer Rd., Elk Grove	Farm

APN	Address/Location	Property Type
132-0131-018	2322 Hood Franklin Rd., Elk Grove	Farm/Ranch
132-0132-037	Western Pacific Railroad Segment	Railroad
132-0132-007	6304 Bilby Rd., Elk Grove	Farm
132-0300-012	7809 Kammerer Rd., Elk Grove	Single-Family Residence
132-0300-014	7909 Kammerer Rd., Elk Grove	Single-Family Residence
132-0300-019	8109 Kammerer Rd., Elk Grove	Farm
132-0300-034	8170 Kammerer Rd., Elk Grove	Farm
132-0300-035	8198 Kammerer Rd., Elk Grove	Single-Family Residence
132-0300-020	8215 Kammerer Rd., Elk Grove	Farm
132-0300-024	8250 Kammerer Rd., Elk Grove	Single-Family Residence
132-0300-023	8279 Kammerer Rd., Elk Grove	Farm
132-0320-002	8665 Kammerer Rd., Elk Grove	Utility Building
132-0132-033	10595 Franklin Blvd., Elk Grove	Single-Family Residence

All fifteen resources were determined not eligible for inclusion in the National Register or California Register, either individually or as contributors to a historic district, due to a lack of integrity or association with a historic context. As such, none of these resources are considered historic properties for the purposes of Section 106 of the NHPA or are considered historical resources for the purposes of CEQA. The SHPO concurred with these determinations on December 8, 2016.

The mapped location of the previously recorded Native American cultural resource identified by the NCIC was visually inspected in 2016 to identify the presence of any artifacts, features, or other indicators that a surface or subsurface component of the resource was still present. One possible feature and two possible artifacts were noted; however, restricted property access prevented additional identification efforts which would have definitively determined the presence and extent of the resource. Archaeological excavation to determine presence/absence of a subsurface archaeological deposit and if needed, archaeological evaluation of any such identified deposit to determine eligibility for listing in the National Register and California Register, will occur once access has been obtained.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Due to the restricted property access, efforts to identify archaeological resources which could be considered historic properties under Section 106 of the NHPA or historical resources under CEQA, could not be completed. As such, the Department has proposed the *Programmatic Agreement Between the California Department of Transportation and the State Historic Preservation Officer Regarding the Capital SouthEast Connector A1/A2 Kammerer Road Project* (Kammerer PA) (**CR-1** and **CR-2**) to detail the remaining identification, significance evaluation, and if needed, resolution of adverse effects/mitigation efforts needed. As construction of the Project will likely be phased, the Kammerer PA provides direction on the steps needed for each design/construction phase. The Department, City, County, Connector JPA, and the Wilton Rancheria have been consulted on the stipulations outlined in the Kammerer PA and the SHPO will be consulted to ensure that all potential Project impacts to the Native American cultural resource identified in the Archaeological APE and to any other archaeological resource identified during the remaining efforts shall be mitigated to a less than significant level, should the additional identification and evaluation efforts detailed in the Kammerer PA confirm the resource is eligible for listing on the National Register and/or California Register. Further, the Kammerer PA will state that consultation will continue with the Lone Band of Miwok Indians, the Wilton Rancheria, and the United Auburn Indian Community of the Auburn Rancheria on the remaining identification efforts, significance evaluations, and mitigation of all Native American cultural resources identified within the Archaeological APE.

Although the Kammerer PA will specifically discuss compliance with Section 106 of the NHPA, the stipulations therein will also ensure that any previously unidentified resources will be treated appropriately in accordance with CEQA.

The Department, the City, the County, the Connector JPA, and the Wilton Rancheria will consult on the stipulations outlined in the Memorandum of Understanding, to ensure that impacts to the Native American human remains, should any be identified, shall be mitigated to a less than significant level. Should the NAHC identify a MLD other than the Wilton Rancheria, the implementing agency will initiate consultation with the designated MLD (**CR-3**). In addition, a Memorandum of Understanding for the treatment of Native American human remains is being prepared, should any be discovered as a result of earthmoving activities and the Wilton Rancheria is determined to be the Most Likely Descendant (MLD) (**CR-4**).

Further, as no historic-era historic properties or historical resources have been identified in the Archaeological or Architectural APE, there are no cultural resources which also qualify as resources protected under Section 4(f) of the Department of Transportation Act of 1966.

Regardless of the determinations of eligibility, avoidance and minimization measures **CR-2** through **CR-4** would be implemented for dealing with the discovery of cultural materials or human remains.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. As a result, the goals of Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and

approved growth of the area, including a deteriorating LOS. By not improving the link from I-5 to SR-99, the No-Build Alternative would fail to aid in the economic viability for the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Furthermore, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area. Under the No-Build Alternative, the Project would not be constructed and there would be no affects to cultural or historic resources.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Due to access restrictions, a phased approach is needed to complete cultural resource identification efforts, significance evaluation, and if needed, resolution of adverse effects/mitigation efforts needed to complete compliance with Section 106 of the NHPA for the Project. Stipulations and procedures detailing the necessary actions of this approach are detailed in the Kammerer Programmatic Agreement which will be executed between the SHPO and the Department. As it is anticipated that the Project shall be constructed in phases, all requirements of the Kammerer Programmatic Agreement shall be completed as access is gained for each design/construction phase but prior to ground disturbing activities for each design/construction phase of the Project. Implementation of the following cultural resource measures would reduce these impacts to a less-than significant level.

- CR-1:** The Kammerer Programmatic Agreement shall be executed between the SHPO and the Department and shall detail the remaining actions needed to complete cultural resource identification efforts, evaluation of potential historic properties, assess the potential for substantial adverse changes, and potential mitigation of substantial adverse changes for the Project. As it is anticipated that the Project shall be constructed in phases, all requirements of the Kammerer Programmatic Agreement shall be completed as access is gained for each design/construction phase but prior to ground disturbing activities for each design/construction phase of the Project. Although the Kammerer Programmatic Agreement will specifically discuss compliance with Section 106 of the National Historic Preservation Act, the stipulations therein will also ensure that any previously unidentified resources will be treated appropriately in accordance with CEQA.
- CR-2:** Should cultural resources be identified during construction, the actions outlined in the Kammerer Programmatic Agreement regarding cultural resource discovery during construction shall be implemented, including implementation of ESA fencing, evaluation for listing on the NRHP if it cannot be protected in place, and appropriate curation or repatriation.
- CR-3:** Should human remains be discovered during implementation of the Project, they will be treated in accordance with the requirements of Section 7050.5(b) of the California Health and Safety Code. If, pursuant to Section 7050(c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of Section 5097.98(a)-(d) of the California Public Resources Code, which states that the coroner will notify the Native American Heritage Commission (NAHC), who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). Additionally, the Department District 3 Environmental Branch Manager shall be contacted, so that the Department can work with the MLD on the respectful treatment

and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

- CR-4:** If Native American human remains are discovered and the Wilton Rancheria is identified as a Most Likely Descendant by the Native American Heritage Commission, the *Memorandum of Understanding between the Capital SouthEast Connector Joint Powers Authority, the City of Elk Grove, the Sacramento County, the California Department of Transportation, and the Wilton Rancheria Regarding the Treatment and Disposition of Native American Human Remains Encountered during the Capital SouthEast Connector A1/A2 Kammerer Road Project* (Kammerer MOU) will become effective. The Kammerer MOU identifies the appropriate human remains treatment, recovery methodology, documentation, disposition, and information dissemination. Should the Native American Heritage Commission identify a Most Likely Descendant other than the Wilton Rancheria, the implementing agency will initiate consultation with the designated MLD.

2.2 Physical Environment

2.2.1 HYDROLOGY AND FLOODPLAIN

REGULATORY SETTING

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The FHWA requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

Sacramento County General Plan

The County General Plan (amended November 2011) guides future development in County, including a portion of the Project area. The following General Plan policies in the Conservation and Safety Elements guide the development of the environmental character of the County.

Policy CO-26: Protect areas susceptible to erosion, natural water bodies, and natural drainage systems.

Policy CO-93: Discourage fill in the 100-year floodplain.

Policy CO-94: Development within the 100-year floodplain and designated floodplain of Sacramento streams, sloughs, creeks, or rivers shall be:

- Consistent with policies to protect wetlands and riparian areas; and
- Limited to land uses that can support seasonal inundation.

Policy CO-95: Development within the 100-year floodplain should occur in concert with the development of the Floodplain Protection Zone.

Policy CO-105: Channel modification projects should retain topographic diversity including maintaining meandering characteristics, varied berm width, naturalized side slope, and varied channel bottom elevation.

Policy CO-107: Maintain and protect natural function of channels in developed, newly developing, and rural areas.

- Policy CO-109:** Channel modifications should not prevent minimum water flows necessary to protect and enhance fish habitats, native riparian vegetation, water quality, or groundwater recharge.
- Policy CO-110:** Improvements in watercourses will be designed for low maintenance. Appropriate Manning's "n" 13 values will be used in design of the watercourses to reflect future vegetative growth (including mitigation plantings) associated with the low maintenance concept.
- Policy CO-112:** The use of concrete and impervious materials is discouraged where it is inconsistent with the existing adjacent watercourse and overall ecological function of the stream.
- Policy SA-11:** The County shall implement the improvement of natural drainage channels and certain floodplains for urbanized or urbanizing portions of the County to reduce local flooding. Such improvements shall comply with the General Plan policies contained in the Conservation Element, Urban Streams, and Channel Modification Section.

City of Elk Grove General Plan

The following City General Plan policies are contained in the Conservation Element, Open Space Element, and Safety Element.

- Policy NR-1-4:** Avoid impacts to wetlands, vernal pools, marshland, and riparian (streamside) areas unless shown to be technically infeasible. Ensure that no net loss of wetland areas occurs, which may be accomplished by avoidance, revegetation, restoration on-site or through creation of riparian habitat corridors, or purchase of credits from a qualified mitigation bank.
- Policy NR-1-5:** Recognize the value of naturally vegetated stream corridors, commensurate with flood control and public desire for open space, to assist in removal of pollutants, provide native and endangered species habitat and provide community amenities.
- Policy NR-1-6:** Encourage the retention of natural stream corridors, and the creation of natural stream channels where improvements to drainage capacity are required.
- Policy NR-3-1:** Ensure that the quality of water resources (e.g., groundwater, surface water) is protected to the extent possible.
- Policy ER-2-2:** The City shall require that all new projects not result in new or increased flooding impacts on adjoining parcels on upstream and downstream areas.
- Policy ER-2-6:** Development shall not be permitted on land subject to flooding during a 100-year event, based on the most recent floodplain mapping prepared by FEMA or updated mapping acceptable to the City of Elk Grove. Potential development in areas subject to flooding may be clustered onto portions of a site which are not subject to flooding, consistent with other policies of this General Plan.

Policy ER-2-17: Require all new development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans.

Policy ER-2-18: Drainage facilities shall be properly maintained to ensure their proper operation during storms.

AFFECTED ENVIRONMENT

In February 2015, a drainage study (including the Location Hydraulic Study Form and the Floodplain Evaluation Report) was prepared for the Project by HDR (HDR 2015). At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2015 report, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than previously analyzed, and the No-Build Alternative. An updated Location Hydraulic Study Form and Summary Floodplain Encroachment Report was prepared and submitted in December 2018 (Dokken Engineering 2018f) addressing the changes in the Project and examining updated on- and off-site drainage facilities and water quality features. The following information is a summary of the updated information within the drainage report.

Hydrology in the Project Vicinity

The Project is within the Sacramento River watershed, which includes the drainage for the entire Sacramento River starting from Mount Shasta in the north and emptying into Suisun Bay to south. Major reservoirs in the Sacramento River watershed include Lake Shasta, Lake Oroville, Folsom Lake, Clear Lake, and Lake Berryessa.

The Project is located within the South American subbasin of the Sacramento Valley groundwater basin. The South American subbasin is bounded on the east by the Sierra Nevada, the Sacramento River on the west, the American River to the north, and on the south by the Cosumnes and Mokelumne Rivers. The subbasin covers 248,000 acres and has approximately 4,816,000 acre-feet of groundwater storage capacity (CDWR 2014).

The County receives an average annual rainfall of approximately 20 inches and the City receives approximately 15 to 20 inches of rain annually. Precipitation is the principal source of runoff in the Project vicinity. Agricultural practices in the area also produce irrigation runoff which is collected in ditches and agricultural drainages. The City contains both natural and constructed water features that convey stormwater runoff.

The topography of the Project area is relatively flat. Surface water and runoff flows west through a series of ditches and drainages and ultimately empties into Stone Lake. The Project is located within the Shed C watershed and Stone Lake-Snodgrass watersheds. Hydrologic features in the Shed C watershed include the Cosumnes River, Franklin Creek, Stone Lake, and Sacramento River. Hydrologic features in the Stone Lake-Snodgrass watershed include Sacramento River, Stone Lake, and Franklin Creek. The only flowing water feature in the Project area is the Shed C channel.

Sacramento River

The Sacramento River is California's largest river and covers a drainage area of approximately 27,100 square miles. The Sacramento River flows 383 miles from the Klamath Mountains in Siskiyou County south through the Central Valley and empties into the Suisun Bay, which is part of the Sacramento-San Joaquin Delta. Its primary tributaries are the Pit, McCloud, Feather, and American Rivers. Historical flooding within the Sacramento Valley has led to the creation of a series of levees, weirs, and flood control structures along the Sacramento River. The Project area is approximately 2.25 miles east of the Sacramento River.

Cosumnes River

The Cosumnes River flows east to west just south of the City limits. It flows for approximately 52.5 miles from the Sierra Nevada through the Central Valley where it empties into the Mokelumne River in the Sacramento-San Joaquin Delta. The Cosumnes River is located roughly 2.25 miles south of the eastern limits of the Project area.

Stone Lake

Stone Lake is a natural water body within the Stone Lakes NWR. Drainage features and waterways in the City and in the Project area drain west into Stone Lake. The Stone Lakes NWR has a 17,640-acre boundary with 6,550 acres directly managed by USFWS and other acres under cooperative agreements and easements with landowners. Waters from Stone Lake connect to the Snodgrass Slough, which is a tributary to the Sacramento River. Stone Lake and the Stone Lakes NWR is just west of the Project area.

Franklin Creek

Franklin Creek flows west through the City where it collects surface flow and runoff from the City. It has historically been altered to convey residential stormwater and flood control. Franklin Creek drains directly into North Stone Lake less than one-half mile north of the Project area.

Shed C Channel

The Shed C channel is the only stream in the vicinity of the Project. The Shed C channel is an agricultural channel which flows southwest and west through the Project area. Runoff flows over the land into a series of agricultural swales and ditches and collects into the Shed C channel. Water flows through Shed C channel and eventually into Stone Lake, located in the western portion of the Project area adjacent to I-5.

The Shed C channel has been highly altered from its natural form through 90-degree turns, uniform steep slopes, channelization and straightening along portions, and vegetation removal. It runs from an existing detention basin in the northeast portion of the area for approximately 4 miles south and west to Stone Lakes. The Shed C channel initially flows west and parallel to the existing Kammerer Road for approximately 12,600 feet until it reaches Bruceville Road. The channel then crosses under Bruceville Road and flows southwest, then west for approximately 22,000 feet where it crosses under I-5 and enters Stone Lake. The existing capacity of the channel provides less than the 10-year flow event. The proposed channel improvements will provide greater capacity and allow for the 100-year flood event.

Physical Conditions

The topography in the City is relatively flat; elevation ranges in the Project area from approximately 45 feet above mean sea level to roughly 5 feet above mean sea level.

Most of the soils in the City contain low erosion potential and runoff rates. However, as discussed below, the soils in the Project area have a high runoff potential. Additionally, the Project soils have moderate to high levels of the potential to expand during the wet season and shrink during the dry season; they are moderately to well drained. The two major types of soil that occur in the Project area include:

- Dierssen sandy clay loam, drained, 0 to 2 percent slopes;
- San Joaquin silt loam, 0 to 1 percent slopes.

Other soils which make up a lower percentage of the Project area include:

- Clear Lake clay, partially drained, 0 to 2 percent, frequently flooded;
- Clear Lake clay, hardpan substratum, drained, 0 to 1 percent slopes;
- Galt clay, leveled, 0 to 1 percent slopes; and
- Durixeralfs-Galt complex, 0 to 2 percent slopes;
- San Joaquin-Durixeralfs complex, 0 to 1 percent slopes;
- San Joaquin silt loam, leveled, 0 to 1 percent slopes;
- San Joaquin-Galt complex, leveled, 0 to 1 percent slopes;
- San Joaquin-Galt complex, 0 to 3 percent slopes;
- San Joaquin-Xerarents complex, leveled, 0 to 1 percent slopes; and
- Xerarents-San Joaquin complex, 0 to 1 percent slopes.

The dominant soils, San Joaquin silt loam and Galt clay, are moderately well-drained soils. The San Joaquin silt loam is in Hydrologic Soil Group B; Group B soils have moderate infiltration (the rate water enters soil at the surface) rates when thoroughly wetted, with a rate of approximately 0.30 inches per hour. Galt clay is in Hydrologic Soil Group D; Group D soils have high runoff potential with very low infiltration rates when thoroughly wetted, with a rate of approximately 0 to 0.05 inches per hour. The majority of the soil in the Project area is classified as Group D.

Project Area Drainage and Hydrology

The Project area contains a series of roadside ditches and agricultural drainages which convey surface water, from rainfall runoff and agricultural practices, into Stone Lake. Wetlands, vernal pools, and agricultural ponds also exist within the Project area, and hold water year-round or fill and drain seasonally.

The main watershed in the Project area is the Shed C watershed, which covers approximately 7,900 acres from SR-99 to I-5. The groundwater in the City (and Project area) is underlain by the Sacramento Valley aquifer system. Groundwater monitoring wells within the SEPA identified groundwater levels ranging from 20 feet below mean sea level to 60 feet below mean sea level (West Yost Associates 2018).

Surface waters in the Project area flow into Shed C channel and eventually west into Stone Lake. Waters from Stone Lake enter Sacramento River – Delta Waters to the south. Franklin Creek and

Cosumnes River occur within the watershed; however, they are not hydrologically connected to the Project.

Floodplain

The FEMA Flood Insurance Rate Maps (FIRMs) for the Project area show that the far western portion of the Project area is located in Zone AE floodplain, which is defined as an area that is within 1% annual chance (100 year) floodplain, with the base flood elevation defined. For this area, the base flood elevation has been defined as elevation 18.0 feet (NAVD88).

There is a local floodplain along the Shed C Channel. The existing 100-year floodplain along the Shed C Channel in the vicinity of the SouthEast Connector is shown on Figure 4. This floodplain is a locally defined floodplain and is not a FEMA regulatory floodplain. The limits of the FEMA floodplain in the vicinity of the Project are shown on **Figure 33**.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

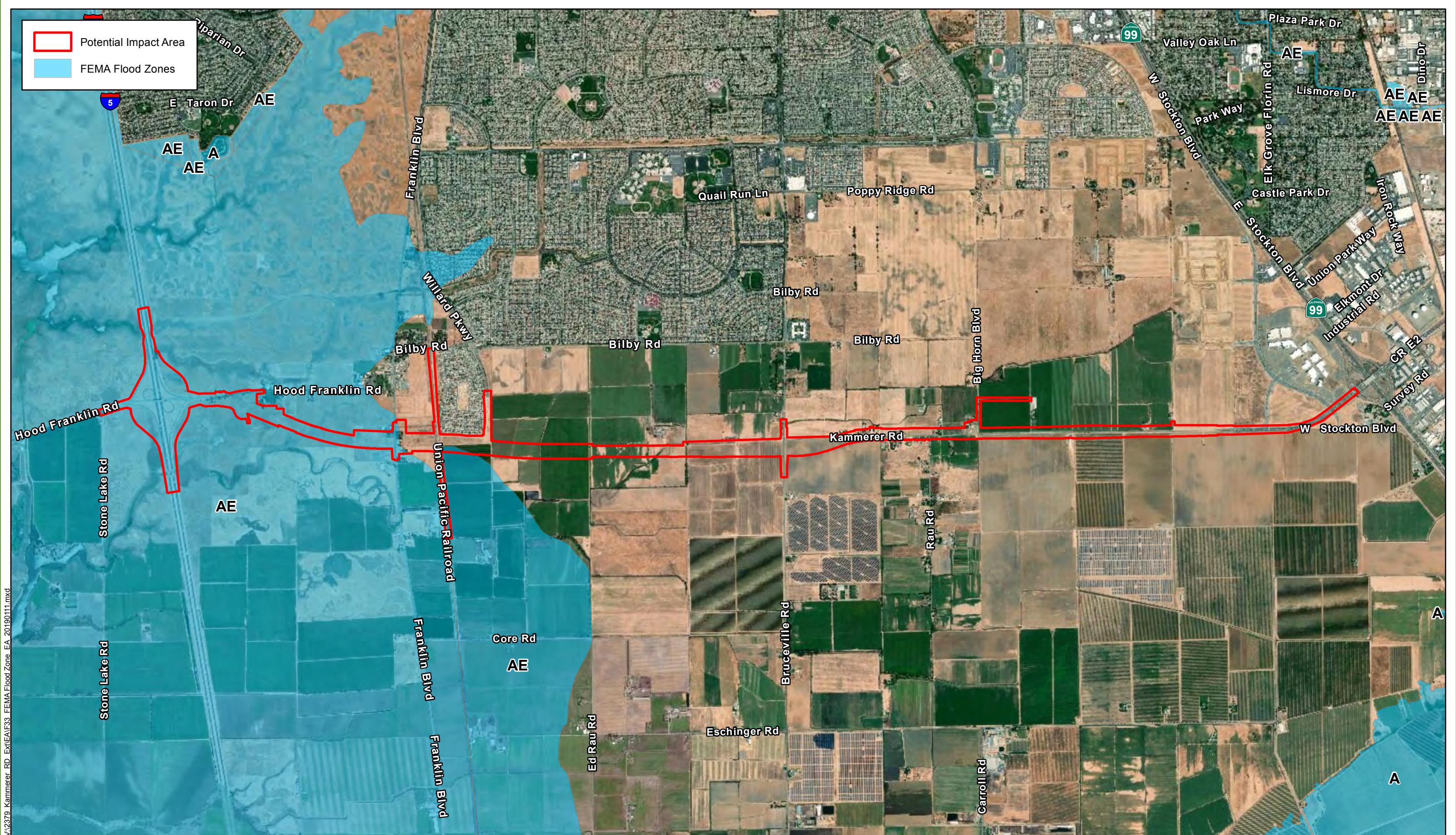
Proposed Drainage Facilities

In accordance with the Capital SouthEast Connector – Project Design Guidelines, the selection and conceptual design of the proposed drainage facilities was based on the following objectives:

- Maintain existing drainage flow patterns and minimize diversions from one watershed to another to the extent possible.
- Provide low-impact development and stormwater treatment best management practices to improve runoff water quality and minimize downstream erosion/sedimentation.

The SEPA Drainage Study (West Yost Associates 2014) prepared for the City's SEPA development project, recommends a multifunctional drainage corridor that will create and enhance the natural stream and habitat values, and include a low-flow channel that is stable and self-sustaining, with design based on natural processes for the Shed C Channel north of existing Kammerer Road. This recommendation is based upon the Elk Grove Storm Drainage Master Plan (SDMP, City of Elk Grove 2019), and results of the drainage study. As development of SEPA occurs, Shed C will be required to provide flood protection and mitigation, and the subsequent SEPA Drainage Study was completed. The proposed low-flow channel will meander within a larger floodplain corridor that will provide flood storage and conveyance as well as an opportunity for the creation of wetlands habitat. The proposed drainage concept for this portion of the Shed C Channel also includes detention basins at major inflow points to the drainage corridor, which will provide flood storage and flow duration control to mitigate for potential flood flow increases and hydromodification effects due to the proposed urban development in the watershed.

The Project is not anticipated to impact surface hydrology in the Project area. Agricultural and roadway drainages would still convey surface flow into the Shed C channel, which would drain into Stone Lake. If additional crossings are required to prevent flooding north of Kammerer Road, culverts would be installed with the appropriate dimensions to allow for 10-year and 100-year flood events.



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

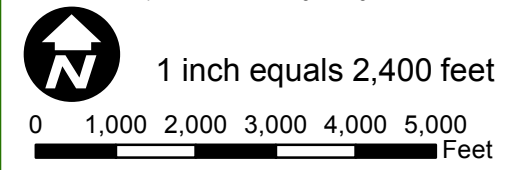


FIGURE 33
FEMA Flood Zones

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California

Groundwater

Temporary Construction Activities

The Build Alternative may encounter groundwater during construction if pile-driving activities are required. The estimated depth to groundwater in the Project area is approximately 45 to 55 feet below ground surface (Kleinfelder 2015a). If groundwater is encountered during construction activities, measures would be implemented to prevent impacts to water quality and groundwater. For more information on measures which will reduce impacts to water quality refer to Section 2.2.2, "Water Quality and Stormwater Runoff." Construction-related effects to groundwater would be temporary and are not expected to substantially affect groundwater supplies or groundwater recharge.

Long-term Operational Activities

The Project does not create a long-term need for water supply other than minor landscaping needs, which would not be expected to substantially change the need for groundwater supplies in the area.

Project activities such as road widening would create new impervious surfaces. The Build Alternative would result in an increase of approximately 91.08 acres of paved surface area, which would result in an incremental reduction in the amount of natural soil surface available for infiltration of rainfall and runoff and which would contribute to an increase in the volume of stormwater runoff from the roadway; however, the Project's traditional detention basins are proposed to provide capacity and treatment for stormwater runoff from the roadway, which would increase absorption and recharge in the area.

Flooding

Temporary Construction Activities

Temporary effects to drainage features may occur due to construction activities. Excavation, grading, soil stockpiling, and pile driving may temporarily alter drainage patterns and cause pooling and/or flooding in the area. Standard BMPs and other measures are required and included to ensure that, during construction, drainage capabilities are maintained and will decrease flooding potential.

Long-term Operational Activities

FEMA Floodplain Impacts

As noted above, a FEMA floodplain covers most of the proposed roadway alignment west of Franklin Boulevard (West Yost Associates 2018). The floodplain in this area is caused by flows from the Cosumnes River, Mokelumne River, Morrison Creek, and some smaller local watersheds. The flows from these waterways join in the northern Sacramento-San Joaquin Delta (North Delta) near Walnut Grove. The channel capacity in the North Delta is not sufficient to convey the combined peak flow from these waterways during very large storm events and the excess flows back up and flow north toward Elk Grove and Sacramento. This results in a very large area of ponded water covering the Stone Lakes National Wildlife Refuge and surrounding areas. West of the Union Pacific Railroad, the floodplain is a flat pool with a flood elevation of 18.0 feet (NAVD88). The roadway is proposed to be filled above this elevation to protect it from

flooding. The floodplain elevation increases to elevation 19.0 feet immediately east of the Union Pacific Railroad, but the proposed roadway will be an elevated overpass in this area and will not be subject to flooding. The FEMA floodplain does not extend into the area east of the proposed overpass

An evaluation was performed to estimate the potential impact of placing fill within the floodplain. Based on a preliminary road profile, Dokken Engineering estimated that 160,000 cubic yards of fill will be placed within the floodplain. The effects of this fill were estimated with use of an HEC-RAS hydraulic model prepared by MBK Engineers. That model represents the Project area as a storage area (rather than a conveyance channel). The model was revised to remove 160,000 cubic yards of storage from the storage area. The results from the revised model indicate that the placement of fill will have no effect on the floodplain elevations (0.00 foot increase in water surface elevations) (West Yost Associates 2018).

The roadway fill will not block flood waters from reaching one side of the road or the other because there are large culverts under Interstate 5 on both sides of the proposed road. Flood flows can readily pass through these culverts to both the north and south sides of the proposed road.

Shed C Channel Floodplain Impacts

The Shed C Channel is the main drainage conveyance channel in the vicinity of the Project. The proposed roadway will cross the Shed C Channel approximately 2,600 feet west of Bruceville Road. This will result in some fill being placed in the floodplain and will require a culvert or bridge to be constructed at the crossing. Hydrologic and hydraulic modeling for the Shed C Channel were previously prepared on behalf of the City for the SEPA Drainage Study. For that study, hydrologic calculations were performed with SacCalc and the hydraulic calculations were performed with HEC-RAS. For this current study, the SacCalc model that was previously prepared for existing conditions was used as-is. The existing condition HEC-RAS model was updated by revising the cross sections from Bruceville Road to approximately 4,500 feet to the west based on the recent topographic mapping that was developed for the SouthEast Connector Project.

The Project would be constructed on fill to keep it above the Shed C Channel floodplain. The existing conditions HEC-RAS hydraulic model was revised to estimate the potential effects of the road Project on flood flows and water surface elevations and to size the required bridge or culvert at the crossing of the Shed C Channel. To represent post-Project conditions, the HEC-RAS cross sections were revised to represent the road Project in areas where fill is proposed within the floodplain and a culvert was added at the Shed C Channel crossing. For the preliminary drainage study, it was assumed that concrete box culverts would be constructed at the crossing. Three 14 feet (width) by 5 feet (height) box culverts are required to convey the 100-year storm.

Results from the HEC-RAS model indicate that construction of the road Project, including the proposed box culverts, would result in relatively small changes to the 100-year water surface elevations. There are small increases to the 100-year water surface elevations predicted downstream of the crossing ranging from 0.01 to 0.09 feet, which are not considered significant based on County's floodplain management ordinance. Upstream of the crossing, there are reductions predicted to the 100-year water surface ranging from 0.01 to 0.17 feet. One exception to these reductions occurs at the first cross section upstream of the proposed culverts. At that location, the model predicts an increase in the 100-year water surface elevation of 0.24 feet. This increase is limited to one cross section in the transitional area between the proposed culvert and the channel upstream where there is significant uncertainty in the model results due. A more

detailed analysis, possibly with 2D modeling in this crossing area, should be performed during the design phase.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and changes to the hydrology and floodplain of the Project area would not occur. Portions of the Shed C channel in the northeast area near the Project would still be improved as part of the SEPA planned development area. As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aide in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Stormwater discharge for this Project is subject to the requirements of Sacramento Areawide NPDES Municipal Stormwater Permit No. CAS0085324 – Order No. R5-2016-0040. This permit requires that BMPs be implemented to the maximum extent practicable to reduce the discharge of pollutants to waters of the U.S. The Project is classified as a streets and roads project with greater than 5 acres of impervious surfaces. Projects in this category are required to implement source controls, low impact development controls, treatment controls, and hydromodification controls. (discussed in Section 2.2.2, “Water Quality and Stormwater Runoff”). All other water quality regulations would be followed according to agency consultation and approved regulatory permitting guidelines.

2.2.2 WATER QUALITY AND STORMWATER RUNOFF

REGULATORY SETTING

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source¹ unlawful unless the discharge is in compliance with a NPDES permit. This act and its amendments are known today as the CWA. Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the USACE.

The goal of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE’s Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s (U.S. EPA) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that

¹ A point source is any discrete conveyance such as a pipe or a man-made ditch.

order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent² standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined, and this definition is broader than the CWA definition of “pollutant.” Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or

² The U.S. EPA defines “effluent” as “wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall.”

operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department’s MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0077-DWQ (effective July 1, 2014) and Order No. 2015-0036-EXEC (effective April 7, 2015) has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) BMPs, to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The Project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit, Order No. 2009-2009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH

and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Department's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Sacramento County NPDES Permit

The City, along with the County and the Cities of Citrus Heights, Folsom, Galt, Rancho Cordova, and Sacramento, operates under the NPDES to discharge urban runoff from MS4s in its municipal jurisdiction (NPDES Permit No. CAS082597). The permit requires that the City prepare a Stormwater Quality Improvement Plan and impose water quality and watershed protection measures for all development projects. The intent of the WDRs in the NPDES permit is to attain water quality standards and protection of beneficial uses consistent with the Basin Plan. The NPDES permit prohibits discharges from causing violations of applicable water quality standards or resulting in conditions that create a nuisance or water quality impairment in receiving waters.

Sacramento County General Plan

The County General Plan (amended November 2011) guides future development in the County, including a portion of the Project area. The following are County General Plan – Conservation and Safety policies.

Policy CO-24: Comply with the Sacramento Areawide NPDES Municipal Stormwater Permit or subsequent permits, issued by the Central Valley RWQCB to the County, and the Cities of Sacramento, Elk Grove, Citrus Heights, Folsom, Rancho Cordova, and Galt (collectively known as the Sacramento Stormwater Quality Partnership).

Policy CO-26: Protect areas susceptible to erosion, natural water bodies, and natural drainage systems.

Policy CO-93: Discourage fill in the 100-year floodplain.

Policy CO-94: Development within the 100-year floodplain and designated floodplain of Sacramento streams, sloughs, creeks, or rivers shall be:

- Consistent with policies to protect wetlands and riparian areas; and
- Limited to land uses that can support seasonal inundation.

Policy CO-95: Development within the 100-year floodplain should occur in concert with the development of the Floodplain Protection Zone.

Policy CO-105: Channel modification projects should retain topographic diversity including maintaining meandering characteristics, varied berm width, naturalized side slope, and varied channel bottom elevation.

Policy CO-107: Maintain and protect natural function of channels in developed, newly developing, and rural areas.

Policy CO-109: Channel modifications should not prevent minimum water flows necessary to protect and enhance fish habitats, native riparian vegetation, water quality, or groundwater recharge.

Policy CO-110: Improvements in watercourses will be designed for low maintenance. Appropriate Manning's "n" values will be used in design of the watercourses to reflect future vegetative growth (including mitigation plantings) associated with the low maintenance concept.

Policy CO-112: The use of concrete and impervious materials is discouraged where it is inconsistent with the existing adjacent watercourse and overall ecological function of the stream.

Policy SA-11: The County shall implement the improvement of natural drainage channels and certain floodplains for urbanized or urbanizing portions of the County to reduce local flooding. Such improvements shall comply with the General Plan policies contained in the Conservation Element, Urban Streams, and Channel Modification Section.

City of Elk Grove General Plan

The following City General Plan policies are contained in the Conservation Element, Open Space Element, and Safety Element.

Policy NR-1-4: Avoid impacts to wetlands, vernal pools, marshland, and riparian (streamside) areas unless shown to be technically infeasible. Ensure that no net loss of wetland areas occurs, which may be accomplished by avoidance, revegetation, restoration on-site or through creation of riparian habitat corridors, or purchase of credits from a qualified mitigation bank.

Policy NR-1-6: Encourage the retention of natural stream corridors, and the creation of natural stream channels where improvements to drainage capacity are required.

Policy NR-3-1: Ensure that the quality of water resources (e.g., groundwater, surface water) is protected to the extent possible.

Policy NR-3-2: Integrate sustainable stormwater management techniques in site design to reduce stormwater runoff and control erosion.

Policy NR-3-3: Implement the City’s National Pollutant Discharge Elimination System permit through the review and approval of development projects and other activities regulated by the permit.

Policy ER-2-2: The City shall require that all new projects not result in new or increased flooding impacts on adjoining parcels on upstream and downstream areas.

Policy ER-2-17: Require all new development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing comprehensive drainage plans.

Policy ER-2-18: Drainage facilities shall be properly maintained to ensure their proper operation during storms.

AFFECTED ENVIRONMENT

In February 2015, a drainage study (including the Location Hydraulic Study Form and the Floodplain Evaluation Report) was prepared for the Project by HDR (HDR 2015). In October 2015, a Water Quality Assessment Report was also prepared by MBI (MBI 2015a). At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2015 reports, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than previously analyzed, and the No-Build Alternative. An updated Location Hydraulic Study Form and Summary Floodplain Encroachment Report was prepared and submitted in December 2018 addressing the changes in the Project and examining updated on- and off-site drainage facilities and water quality features. In addition, revalidation of the Water Quality Assessment occurred in February 2018 by Dokken Engineering (Dokken Engineering 2018g). The following information is a summary of the updated information from the updated technical studies.

Surface Water

The City contains natural and constructed water features (such as channels, creeks, and ditches) that convey stormwater and roadway drainage. The topography of the area is relatively flat. As previously discussed in Section 2.2.1, “Hydrology and Floodplain,” surface features within the surrounding area of the Project include the Sacramento River, Cosumnes River, Stone Lake, Franklin Creek, and Shed C channel. Stormwater and agricultural runoff in the Project area flow into Shed C channel and eventually west into Stone Lake. Waters from Stone Lake enter Sacramento River – Delta waters to the south. Franklin Creek and Cosumnes River occur within the watershed; however, they are not hydrologically connected to the Project.

Aquatic features in the Project area include freshwater marshes, seasonal wetlands, swales, steams/creeks, vernal pools, and open water. For more detailed information on the aquatic features found within the Project area, refer to Section 2.3.2, “Wetlands and Other Waters.”

Local Contaminants

Land uses within and surrounding the Project area include a majority of agricultural land with sparse distribution of rural residential properties. The City General Plan designates the land surrounding the Project as low-, medium-, and high-density residential, commercial, and the

SEPA. These land uses may impact existing water quality, with both point source and nonpoint source discharges contributing contaminants to existing surface waters and groundwater. A majority of the land surrounding the Project area is within the unincorporated portion of the County. This land is designated under the County General Plan as agricultural aside from small portions of land near the I-5/Hood Franklin Road Interchange which are designated as agricultural-residential, low-density residential, and commercial/offices.

Typical pollutant sources from agricultural areas include pesticides, fertilizer, ammonia, livestock waste, and oil or fuels from farm equipment. The small distribution of residential and mixed-commercial uses near the Project area may impact local water quality with contaminants such as urban/roadway runoff which may contain hydrocarbons, metals, bacteria, and trash.

Surface Water Quality

The Statewide Discharge Characterization Report prepared by the Department in November 2003 characterized stormwater runoff from transportation facilities throughout California and identified copper, lead, and zinc as high-priority constituents for monitoring. These constituents typically have a high concentration in runoff. According to the report data, concentrations of dissolved copper range from <0.04 to 0.26 microgram per liter ($\mu\text{g/L}$); concentrations of lead range from <0.50 to 1.3 $\mu\text{g/L}$; and zinc concentrations range from <0.50 to 160 $\mu\text{g/L}$ (Department 2003).

In the County, the Sacramento Stormwater Quality Partnership (SSWQP) holds a NPDES permit for water quality regulation in participating cities. The SSWQP includes the Cities of Elk Grove, Citrus Heights, Folsom, Galt, Rancho Cordova, and Sacramento. The cities in the partnership were reissued a NPDES MS4 permit requiring the permittees in the partnership to reduce pollutants in urban stormwater discharges as much as possible. The SSWQP Joint Program Annual Report for fiscal year 2006–2007 reported dissolved lead and dissolved zinc as exceeding water quality objectives in the Sacramento region. The Project is partially located within the unincorporated portion of the County and in the City; therefore, as part of the SSWQP, the Project would be covered by the NPDES MS4 permit and would need to control discharges into waterways in the Project area.

The Shed C channel is the only waterway located within a 3-mile radius of the Project area and is not listed by the Department *Water Quality Planning Tool* (Department 2017) as an impaired 303(d) water body. However, the waters from the Shed C channel and the Project area drain into Stone Lake and eventually into Delta waterways, which are listed as impaired on the 303(d) list with pollutant concentrations and stressors above the established total maximum daily loads, including chlorpyrifos, DDT, diazinon, electrical conductivity, invasive species, group A pesticides, mercury, and unknown toxicity.

Beneficial Water Uses

Beneficial uses are defined as the uses of water necessary for the survival or well-being of humans, plants, and wildlife. Designated State waters that promote economic, social, and environmental goals (beneficial uses) include water used for domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Surface Waters

The Shed C channel is a man-made (or non-natural) ditch and is used for agricultural and stormwater runoff. Wetland features in the Project area include the Stone Lakes NWR, freshwater emergent and seasonal wetlands, ditches, swales, agricultural ponds, and vernal pools.

Beneficial uses for the Shed C channel are not specifically identified in the Basin Plan (which covers all watershed tributaries to the Sacramento River north of the Cosumnes River watershed) or the City Storm Drain Master Plan (SDMP); however, the Shed C channel eventually discharges to the Sacramento River and Delta waters for which the SWRCB does identify beneficial uses. The Basin Plan states that surface waters in the Sacramento River watershed that do not have designated beneficial uses are designated Municipal and Domestic Supply in accordance with the provisions of State Water Board Resolution No. 88-63.

Therefore, surface water features in the Project area do not have designated beneficial uses. However, downstream receiving waters are identified as having designated beneficial uses. These downstream receiving waters are included in the Basin Plan under the "Other Lakes and Reservoirs in the Sacramento River Basin 5A" (Central Valley RWQCB 1998). Existing beneficial uses for "Other Lakes and Reservoirs" in the Sacramento River Basin 5A include the following:

- 1 Municipal and Domestic Supply (MUN) – Uses of water for community, military, or individual water supply systems, including, but not limited to, drinking water supply.
- 2 Irrigation and Stock Watering (AGR) – Uses of water for farming, horticulture, or ranching, including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
- 3 Process (PROC) – Waters are used for industrial activities that depend primarily on water quality. These uses may include, but are not limited to, process water supply and all uses of water related to product manufacture or food preparation.
- 4 Power (POW) – Use of power for hydroelectric generation.
- 5 Contact Recreation (REC-1) – Uses of water for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and uses of natural hot springs.
- 6 Other Non-Contact Recreation (REC-2) – Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where water ingestion is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- 7 Warm Freshwater Habitat (WARM) – Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- 8 Cold Freshwater Habitat (COLD) – Uses of water that support cold water ecosystems, including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- 9 Cold Freshwater Habitat – Spawning (SPWN) – Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

- 10 Wildlife Habitat (WILD) – Uses of waters that support wildlife habitats, including, but not limited to, the preservation and enhancement of vegetation and prey species used by wildlife, such as waterfowl.

Surface Water Quality Objectives

The Basin Plan and the City SDMP designate water quality objectives for inland surface waters. The Shed C Channel is not specifically identified as a surface water feature for which the SWRCB designates water quality objectives; however, the channel discharges into the Sacramento River for which the SWRCB does identify water quality objectives. Surface water quality objectives for “Other Lakes and Reservoirs” in the Sacramento River Basin 5A downstream of the Project (as identified in the Basin Plan) are summarized in **Table 40**.

Table 40. Surface Water Quality Objectives

Component/Constituent	Objective
Fecal Coliform (Bacteria)	In waters designated for REC-1, the fecal coliform concentration based on a minimum of not less than 5 samples for any 30-day period shall not exceed a geometric mean of 200/100 ml (milliliter), nor shall more than 10 percent of the total number of samples taken during any 30-day period exceed 400/100 ml.
Biostimulatory Substances	Water shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
Color	Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.
Dissolved Oxygen	Within the legal boundaries of the Delta, the dissolved oxygen concentration shall now be reduced below 7.0 mg/l (milligram per liter) in the Sacramento River (below the I Street Bridge) and in all other Delta waters except for those bodies of water which are constructed for special purposes and from which fish have been excluded or where the fishery is not important as a beneficial use.
Floating Material	Water shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.
Methylmercury	For the Sacramento-San Joaquin Delta, the average methylmercury concentrations shall not exceed 0.08 and 0.24 mg methylmercury/kilogram (kg), wet weight, in muscle tissue of trophic level 3 and 4 fish, respectively (150–500 millimeters [mm] total length). The average methylmercury concentrations shall not exceed 0.03 mg methylmercury/kg, wet weight, in whole fish less than 50 mm in length.
Oil and Grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
pH	The pH shall not be depressed below 6.5 nor raised above 8.5.
Pesticides ¹	<ul style="list-style-type: none"> • No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. • Discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses. • Total identifiable persistent chlorinated hydrocarbon pesticides shall not be present in the water column at concentrations detectable within

Component/Constituent	Objective
	<p>the accuracy of analytical methods approved by the EPA or other executive officer.</p> <ul style="list-style-type: none"> • Pesticide concentrations shall not exceed those allowable by applicable antidegradation policies (see SWRCB Resolution No. 68-16 and 40 CFR Section 113.12). • Pesticide concentrations shall not exceed the lowest levels technically and economically achievable. • Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the maximum contaminant levels set forth in California Code of Regulations (CCR), Title 22, Division 4, Chapter 15. • Waters designated for use as domestic or MUN shall not contain concentrations of thiobencarb in excess of 1.0 µg/l.
Radioactivity	<p>Radionuclides shall not be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.</p> <p>Waters designated for use as domestic or MUN shall not contain concentrations of radionuclides in excess of the maximum contaminant levels specified in Table 64442 of Section 64442 and Table 64443 of Section 64443 of Title 22 CCR.</p>
Sediment	<p>The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.</p>
Settleable Material	<p>Waters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.</p>
Suspended Material	<p>Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.</p>
Tastes and Odors	<p>Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.</p>
Toxicity	<p>All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.</p>
Turbidity	<p>Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.</p>

Note: ¹ For purpose of this objective, the term pesticide shall include: (1) any substance or mixture of substances which is intended to be used for defoliating plants, regulating plant growth, or for preventing, destroying, repelling, or mitigating any pest, which may infest or be detrimental to vegetation, man, animals, or households, or be present in any agricultural or nonagricultural environment whatsoever, or (2) any spray adjuvant, or (3) any breakdown products of these materials that threaten beneficial uses. Note that discharges of "inert" ingredients included in pesticide formulations must comply with all applicable water quality objectives.

Source: Central Valley RWQCB 1998

Groundwater

Elk Grove and the Project are underlain by the Sacramento Valley aquifer system. The Sacramento Valley aquifer system consists of sand and gravel with considerable amounts of silt and clay. The deeper aquifer in the Elk Grove Planning Area ranges from approximately 200 feet thick in the eastern County to over 2,000 feet thick in parts of western County (City of Elk Grove 2003). Streams, subsurface inflows from adjacent areas, percolation of rainfall, and applied water provide recharge to the aquifer system in Elk Grove. Groundwater in the vicinity of Elk Grove is a sodium calcium bicarbonate or calcium sodium bicarbonate (CDWR 2014). Shallow areas in the aquifer system in the planning area are sometimes contaminated by septic tanks, feed lots, and dairies, resulting in nitrate concentrations higher than 5 milligrams per liter (City of Elk Grove 2003). Agricultural activities within the planning area can cause groundwater to become excessively saline.

Groundwater Quality Objectives

The Basin Plan designates groundwater quality objectives for the Sacramento River basin, applicable to all groundwater of the Sacramento River basin, including the City and the Project area. These objectives are based on the designated beneficial uses identified for a water body, and ensuring that the water bodies can continue to support these uses. Groundwater quality objectives exist in the Project area for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity. Groundwater objectives in the Project area as identified in the Basin Plan are summarized in **Table 41**.

The SCWA and the Elk Grove Water District pump groundwater for municipal uses to provide the domestic water supply in Elk Grove. Beneficial uses of groundwater in the City include domestic, municipal, agricultural, and industrial uses.

Table 41. Groundwater Water Quality Objectives

Component/Constituent	Objective
Fecal Coliform (Bacteria)	The most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 ml in groundwater used for domestic or MUN.
Chemical Constituents	Groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses.
Radionuclides	At a minimum, groundwater designated for use as domestic or MUN shall not contain concentrations of radionuclides in excess of the maximum contaminant levels specified in Table 4 of the CCR Title 22 Section 64443.
Tastes and Odors	Groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
Toxicity	Groundwater shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial use(s).

Source: Central Valley RWQCB 1998

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Operational Impacts

Increase in Impervious Surface and Stormwater Runoff

Project activities such as road widening would create new impervious surfaces. The Project would result in an increase of approximately 91.08 acres of paved surface area, which would result in an incremental reduction in the amount of natural soil surfaces available for infiltration of rainfall and runoff and which would contribute to an increase in the volume of stormwater runoff from the roadway. In addition, the increase in impervious surfaces, along with the increase in surface water runoff, could increase the nonpoint source discharge of pollutants such as sediment, pesticides, oil and grease, nutrients, metals, bacteria, and trash. Contributions of these contaminants to stormwater and other runoff could degrade the quality of receiving waters. During the dry season, vehicle use and other urban activities release contaminants onto impervious surfaces, where they can accumulate until the first storm event. During this initial storm event, or first flush, the concentrated pollutants are transported via runoff to stormwater drainage systems. Without controls, contaminated runoff waters could flow into the stormwater drainage systems that discharge into rivers, agricultural ditches, sloughs, and channels and ultimately could degrade the water quality of any of these water bodies. In general, this could result in effects to waters of the U.S. and could degrade the quality of wetlands and waters of the U.S. Waters of the U.S. are regulated by USACE under Section 404 of the CWA. Waters of the state within the study area are regulated by the Central Valley RWQCB. For Project direct impacts to wetlands, vernal pools and other waters of the U.S., see Section 2.3.2, Wetlands and Other Waters.

The drainage design for the Project, however, would comply with the Capital SouthEast Connector Project Design Guidelines Version 4.0 (Connector JPA 2015), which references the Sacramento County Drainage Manual for areas within the County's right-of-way. The roadway drainage system that is part of the Project's design, including the bioswales (shallow roadside ditches) and other stormwater treatment measures, would minimize the potential for increased sedimentation and pollutants in Morrison Creek and Sacramento River. The proposed roadside ditches along the Project would be sufficient to accommodate the runoff from the increased impervious area. Diverting new stormwater runoff from the pavement into BMPs such as bioswales and/or basins would keep contaminants such as heavy metals, oil, and grease from vehicular traffic in the basins, minimizing sedimentation and erosion in surface waters downstream of the Project footprint. Therefore, the Project's effects on water quality from additional impervious surface would be minimal.

The SEPA Drainage Study (West Yost Associates 2014) recommends a multifunctional drainage corridor that will create and enhance the natural stream and habitat values and include a low-flow channel that is stable and self-sustaining, with design based on natural processes for the Shed C Channel north of existing Kammerer Road (HDR 2015). The proposed low-flow channel will meander within a larger floodplain corridor that will provide flood storage and conveyance as well as an opportunity for the creation of wetlands habitat. The proposed drainage concept for this portion of the Shed C Channel also includes detention basins at major inflow points to the drainage corridor, which will provide flood storage and flow duration control to mitigate for potential flood flow increases and hydromodification effects due to the proposed urban development in the watershed. West of Bruceville Road, the Shed C Channel should be designed to adopt a similar drainage concept as the one proposed for the channel north of Kammerer Road,

extending the multifunctional\ drainage corridor to create and enhance the natural stream as it flows toward and enters the Stone Lakes NWR.

Hydromodification

The study area is susceptible to the effects of hydromodification based on the criteria stated in the Hydromodification Management Plan (SSQP 2017). Hydromodification refers to changes in the quantity and timing of stormwater runoff caused by changes in land use that potentially create adverse environmental effects. The increase in impervious area can result in the modification of runoff hydrographs to existing receiving water bodies by increasing the flow volumes and rates and peak durations from the loss of unpaved overland flow routes and infiltration capacity. These hydromodification impacts can increase bed and bank erosion, loss of habitat, sediment transport and deposition, and flooding potential. However, the Project's stormwater management features, such as the ones described above, would reduce impacts from hydromodification. Based on the Hydromodification Management Plan (SSQP 2017) and because the Project would add more than 5 acres of impervious area, the Project must implement permanent hydromodification control BMPs. With implementation of the BMPs listed in HYD-4 impacts from hydromodification would be minimal.

Surface Water Quality

The Shed C Channel has not been identified under CWA Section 303(d) as impaired, but the receiving waters for the Shed C Channel, the Bay-Delta, are 303(d) listed for a variety of contaminants. These constituents originate from a variety of sources, but generally include agricultural activities, such as irrigation runoff, and urban nonpoint sources of runoff from landscaping, rooftops, trash, and illicit dumping. Under the CWA listing, these water bodies have no remaining assimilative capacity or ability to accommodate additional quantities of these contaminants, irrespective of concentration. Projects are required to comply with requirements of approved TMDLs by the Central Valley RWQCB through issuance of WDRs and NPDES permit amendments. Implementation of the listed avoidance and minimization measures below would reduce these impacts by requiring compliance with contaminant control requirements.

Groundwater Quality

The Project would include activities, such as road widening, that would result in new impervious surfaces and could reduce rainwater infiltration and groundwater recharge. Infiltration rates vary depending on the overlying soil types. In general, sandy soils have higher infiltration rates and can contribute to significant amounts of groundwater recharge, clay soils tend to have lower percolation potentials, and impervious surfaces such as pavement significantly reduce infiltration capacity and increase surface water runoff. The amount of new pavement and the extent to which it affects infiltration depends on the site-specific soil type. Projects located in urban areas would have less of an impact than projects converting open lands and spaces. The Project is located in primarily rural areas, with a small portion located within an urban area. The Project is located along an existing roadway where many of the surfaces are already paved or impervious. The Project would increase this impervious area through new facilities. Implementation of the below measures would avoid and minimize impacts by requiring the design and installation of infiltration systems.

Stormwater Quality Control Measures

The Design features to address water quality impacts are a condition of the Central Valley Region Phase I MS4 NPDES Permit, and other regulatory agency requirements. With proper implementation of BMPs, short-term construction-related water quality impacts and permanent water quality impacts would be avoided or minimized.

The Project footprint traverses the City and County rights-of-way. The Central Valley Region Phase I MS4 NPDES permit covers the City and incorporated areas of the County within its urban area boundary. The Project will be consistent with the requirements of the Central Valley Region Phase I MS4 NPDES, and with the implementation of the below measures, impacts related to alterations of existing drainage patterns, runoff, and water quality would be reduced and minimized to the greatest extent practicable.

Flooding

A portion of the Project would be within a 1 percent Annual Chance Flood Hazard Area. However, the Project is not growth inducing and would not place housing within a 100-year flood hazard area as mapped on the Federal Official National Flood Hazard Layer, or expose people or structures to a significant risk of loss, injury or death involving flooding. The Project would have no impact related to housing within a 100-year hazard area or risk of loss, injury, or death involving flooding.

The Project is anticipated to place structures within the 100-year floodplain in the proposed alignment and interchange from I-5 to approximately 1000 feet west of Franklin Boulevard. The Project would implement the below measures to avoid restriction of potential flood flows within the 100-year Floodplain. With the implementation of the below measures, potential impacts related to placement of structures within a 100-year floodplain would be reduced and minimized to the greatest extent practicable.

The Project area is not located near any lake susceptible to seiche fluctuations and is located approximately 70 miles from the coast, outside the reach of tsunamis. The Project area is not located on any steep slopes that would put downslope properties at risk of mudflows if destabilized. The Project is anticipated to have no impact on exposing people or structures to inundation by seiche, tsunami, or mudflow.

Construction Impacts

Construction-related earth-disturbing activities of the road and other various improvement projects included in the Project would introduce the potential for increased erosion and sedimentation, with subsequent effects on water quality and storm drain capacity. During site grading, trenching, and other construction activities, areas of bare soil would be exposed to erosive forces during rainfall events. Bare soils are much more likely to erode than vegetated areas because bare areas lack dispersion, infiltration, and retention properties that covering vegetation provides. Aside from actions to minimize erosion, the extent of the impacts would be dependent on soil erosion potential, type of construction practice, extent of disturbed area, timing of precipitation events, and topography and proximity to drainage channels. In addition, construction equipment and activities would have the potential to leak hazardous materials, such as oil and gasoline, and potentially affect surface water or groundwater quality. Improper use or accidental spills of fuels, oils, and other construction-related hazardous materials, such as pipe sealant, solvents, and paints, could also pose a threat to the water quality of local water bodies. These potential leaks or spills, if not contained, would be considered a potentially significant

impact on groundwater and surface water quality. Without precautions to contain or capture sediments or accidental hazardous spills, construction activities could produce substantial pollutants in stormwater runoff and result in a significant impact on the existing surface water quality.

The Project is required to follow the requirements of the CGP, including Risk Level-based analysis. Requirements of the CGP include determining the risk level of a construction site, which considers the site's sediment risk and receiving water risk during periods of soil exposure (e.g., grading and site stabilization). For instance, Risk Level 2 and 3 require development of a Rain Event Action Plan to ensure that active construction sites have adequate erosion and sediment controls implemented prior to the onset of a storm event, even if construction is planned only during the dry season. This would minimize sedimentation and erosion during a rain event. Bioassessment monitoring may be required if the Project's Risk Level is Risk Level 3. The Risk Level analysis would be performed during the design phase, after approval of the environmental document, when the construction schedule and periods of soil exposure are known. (Refer to the CGP for the different Risk Level requirements.) Additional requirements of the CGP include preparation of a SWPPP, which establishes measures to reduce sedimentation and erosion by watering pervious areas, covering stockpiles with plastic, and installing silt fences. HYD-1 describes the SWPPP.

Depending on the location, trenching and excavation associated with the Project may reach depths that can expose the water table and create a direct path to the groundwater basin for contaminants to enter the groundwater system. Primary construction-related contaminants that could thereby reach groundwater would include oil and grease, and construction-related hazardous materials and dewatering effluent. Absent controls, dewatering operations may temporarily impact existing beneficial uses of municipal and domestic supply, freshwater replenishment, and groundwater recharge in surface waters. Similarly, impacts on surface waters include discharge of pollutants, and groundwater may be removed for construction purposes. Implementation of the below measures would reduce and minimize Project impacts to the greatest extent practicable by requiring that future contractors meet all regulatory requirements for avoidance of surface water impacts.

BMPs would be implemented for the Project in adherence to all applicable NPDES requirements and other water quality regulations to minimize impacts to water quality. The Project will include construction and post-construction BMPs such as stabilized construction entrances and exits, temporary concrete washouts, and sand bag barriers to control increased erosion and sedimentation during construction; and treatment BMPs including detention basins, swales, and other on-site measures to remove pollutants from runoff water. Specific BMPs to be used during construction would be identified as project design advances and finalized within the approved Project SWPPP.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and changes to the water quality and stormwater runoff would not occur. Portions of the Shed C channel in the northeast area near the Project would still be improved as part of the SEPA planned development area. As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating

LOS by not improving the link to I-5, the No-Build Alternative would fail to aid in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

With proper implementation of BMPs, short-term construction-related water quality impacts and permanent water quality impacts will be avoided or minimized. The following avoidance and minimization measures are included to minimize and reduce potential impacts to water quality during operation and construction.

HYD-1: The implementing agency will implement the following actions either directly or through contract specifications:

1. During the design of individual projects, in consultation with the applicable regulatory agencies, develop specific design and construction standards for stream crossings, including, but not limited to, maintaining open surface (bridged versus closed culvert) crossings, infrastructure setbacks, erosion control measures, sediment controlling excavation/fill practices, and other BMPs as described in item 3 below.
2. The implementing agency will obtain the required permits from the appropriate agencies for impacts to waters.
3. During and after construction activities, monitor and ensure compliance with water quality objectives outlined in the Central Valley RWQCB Basin Plan.
4. Minimize sediment transport caused by construction by following BMPs undertaken as part of National Pollutant Discharge Elimination System (NPDES) Permit and Storm Water Pollution Prevention Plan (SWPPP) requirements that will be included in construction permits. The BMPs will be designed so that, when employed in concert, they will meet the requirement of the NPDES permit and avoid the transport of sediment from the Project site. BMPs may include, but are not limited to, measures such as the following:
 - a. providing permeable surfaces where feasible and where this would not result in erosion or the release of sediment;
 - b. retaining and treating stormwater on site using catch basins and filtering wet basins;
 - c. minimizing the contact of construction materials, equipment, and maintenance supplies with stormwater;
 - d. reducing erosion through soil stabilization, watering for dust control, installing perimeter silt fences, placing rice straw bales, and installing sediment basins; and
 - e. maintaining water quality by using infiltration systems, detention systems, retention systems, constructed wetland systems, filtration systems, biofiltration/bioretention systems, grass buffer strips, ponding areas, organic mulch layers, planting soil beds, sand beds, and vegetated systems such as

swales and grass filter strips that are designed to convey and treat either fallow flow (swales) or sheet flow (filter strips) runoff.

5. Develop and implement a procedure for spill prevention and control to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during all construction activities. If a spill should occur during construction that causes a release of a hazardous material, including oil and radioactive materials, the proper agencies will be notified and an Emergency Release Follow-up Notice Reporting Form will be submitted no more than 30 days following the release.
6. Use methods such as habitat restoration, reconstruction of [habitat] on site, and habitat replacement off site to minimize surface water quality impacts.
7. Comply with conditions included in permits issued under Sections 404 and 401 of the federal CWA.
8. Comply with the requirements of a state Streambed Alteration Agreement for work along the banks of various surface water bodies.
9. Where feasible, avoid significant development of facilities in areas that may have substantial erosion risk, including areas with erosive soils or steep slopes.

HYD-2: The implementing agency will require the following actions as part of construction contract specifications. Before discharging any dewatered effluent to surface water the contractor will determine whether the volume of water from the dewatering operation is covered under the NPDES Construction General Permit. If it is deemed that the volume is greater than the Construction General Permit allows, the contractor will obtain coverage under an NPDES Low Threat Discharge and Dewatering Permit from the Central Valley RWQCB. The NPDES Low Threat Discharge and Dewatering Permit will require the water from the dewatering operation to be treated prior to discharge to any local water way.

HYD-3: Final design will include, and the implementing agency will implement, either directly or through contract specifications, source and treatment control measures contained in Central Valley Region Phase I MS4 NPDES Permit. General site housekeeping and design control measures incorporated into the Project design can include, but are not limited to, conserving natural areas, protecting slopes and channels, and minimizing impervious areas. Treatment control measures may include use of vegetated swales and buffers, detention basins, wet ponds, or constructed wetlands, infiltration basins, and other measures. LID approaches will be incorporated into site design and stormwater management to maintain the site's predevelopment runoff rates and volumes. Examples of such measures include, but are not limited to, sidewalk storage, vegetated swales, landscaped buffers and strips, tree preservation, permeable pavers, and impervious surface reduction and disconnection. The Connector JPA or local agency will select and implement specific LID measures and techniques depending on project size and stormwater treatment needs.

HYD-4: The implementing agency will conduct drainage studies for later projects on a site-specific basis. The results of the studies will be integrated into the design of the later project's drainage systems. The studies will address County and City drainage study requirements that typically include the following topics:

- A calculation of predevelopment runoff conditions and post-development runoff

scenarios using appropriate engineering methods. This analysis will evaluate potential changes to runoff through specific design criteria and account for increased surface runoff.

- An assessment of existing drainage facilities within the project area and an inventory of necessary upgrades, replacements, redesigns, or rehabilitation, including the sizing of onsite stormwater detention features and pump stations.
- A description of the proposed maintenance program for the onsite drainage system.
- Standards for drainage systems to be installed on a project-/parcel-specific basis.
- Design measures to ensure structures will not impact 100-year floodplain areas.

Drainage systems for the individual project will be designed in accordance with the findings of the studies, the requirements of the applicable local flood control agencies, and flood control design criteria established under applicable local ordinances. As a performance standard, the systems will provide for no net increase in peak stormwater discharge relative to current conditions to ensure that 100-year flooding and its potential impacts are maintained at or below current levels and that people and structures are not exposed to additional flood risk.

HYD-5: The implementing agency will include infiltration systems, where feasible. Infiltration devices will be installed to replace the natural recharge rate of the soil to be paved over, reduce stormwater peak discharges and volumes to downstream catchments, and improve the quality of stormwater discharged to water bodies. Examples of infiltration devices include, but are not limited to, infiltration basins, pervious concrete, retention trenches, and bioretention measures. As discussed in **HYD-3**, LID techniques will be implemented to increase soil infiltration. Much of the proposed project is located within areas with Hydrologic Soil Group (HSG) D soils where certain infiltration devices do not work well. In these cases, other measures such as detention basins or vegetative barriers that will help retain waters.

HYD-6: Potential impacts of flooding that could result from the Project would be alleviated through the FEMA Letter of Map Revision (LOMR) approval process, as well as the requirements of the Central Valley Flood Protection Board, when applicable. The design of the Project will proceed in accordance with the best available mapping from DWR, FEMA, and USACE. The Project design will comply with the requirements of the applicable local flood control agencies, and flood control design criteria established under applicable local ordinances. If unavoidable construction would occur within a 100-year floodplain, the implementing agency will prepare a letter of map amendments and submit to FEMA before construction of the Project. The LOMR will include revised local base flood elevations for projects constructed within flood-prone areas. If the LOMR is approved, the design will reflect its provisions.

HYD-7: During the design of individual projects, the implementing agency will consult with the applicable flood control agencies to ensure that the flooding risks of pre-project conditions will not increase as a result of construction of the individual projects. If a project has the potential to impede or redirect flows from a levee or dam failure, such that there would be less than a 1% chance that flooding would extend to areas not previously mapped as inundation areas, the Project will be redesigned to the maximum extent practicable so that the Project would not expand the area subject to pre-project inundation conditions. This may be achieved through incorporation of culverts or bridges into the Project design.

2.2.3 GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

REGULATORY SETTING

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under the CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Structures are designed using the Department’s Seismic Design Criteria. The Seismic Design Criteria provides the minimum seismic requirements for highway bridges designed in California. A bridge’s category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department’s Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

Sacramento County General Plan

The County General Plan (amended November 2011) guides future development in the County, including a portion of the Project area. The following General Plan policies in the Safety Element guide development in the County to ensure safety of its citizens and businesses.

Policy SA-1: The County shall require geotechnical reports and impose the appropriate mitigation measures for new development located in seismic and geologically sensitive areas.

Policy SA-4: The County shall prohibit development on ground surfaces which exceed 40 percent in slope, such as the bluff areas along the American River. Development shall be set back from these slopes at a distance established by the Zoning Code.

City of Elk Grove General Plan

The City General Plan guides future development in the City, including the Project area. The following General Plan policies contained in the Safety Element guide development in the City Planning Area to ensure the City’s residents and businesses are safe from known and reasonably foreseeable hazards.

Policy ER-3-1: Support efforts by federal, State, and other local jurisdictions to investigate local seismic and geological hazards and support those programs that effectively mitigate these hazards.

Policy ER-3-2: Seek to ensure that new structures are protected from damage caused by geologic and/or soil conditions.

AFFECTED ENVIRONMENT

Information in this section is based on a geotechnical report prepared by Kleinfelder in November 2015. The geotechnical report included a review of previous studies, published geologic and soil survey maps, a visual site reconnaissance, test boring, and soil sample testing. In February 2018, a Preliminary Geotechnical Design/Materials Report (GEOCON 2018) was prepared by Geocon Consultants for the updated Build Alternative. The following section is based on the information from these reports.

Geology and Topography

The Project area is situated within two geomorphic provinces: the Great Valley Geomorphic Province to the west and Sierra Nevada Geomorphic Province to the east. The Great Valley of California, also called the Central Valley, is a nearly flat alluvial plain extending from the Tehachapi Mountains in the south to the Klamath Mountains in the north, and from the Sierra Nevada in the east to the Coast Ranges in the west. The valley is about 450 miles long and averages about 50 miles wide. Elevations of the alluvial plain are generally just a few hundred feet above MSL, with extremes ranging from a few feet below MSL to about 1,000 feet above MSL. The Sierra Nevada is a strongly asymmetric mountain range with a long gentle western slope and a high, steep eastern escarpment. The range averages 50 to 80 miles wide, and it runs west to north through eastern California for more than 400 miles, from the Mojave Desert to the south to the Cascade Range and Modoc Plateau to the north (CDOC 1966).

The Project area is located in the southwestern portion of the Sacramento Valley and is associated with the Elk Grove, Bruceville, Florin, and Galt, California, USGS 7.5-minute quadrangles. The topography in the Project area is relatively flat with only a slight decrease in elevation from approximately 45 feet above MSL in the western portion of the Project area, to approximately 5 feet MSL in the east.

The geology of the area consists of Quaternary alluvium. The soil in the Project Area is made primarily of San Joaquin silt loam (leveled, 0 to 1 percent slopes, and 0 to 3 percent slopes), San Joaquin-Galt complex (leveled, 0 to 1 percent slopes, and 0 to 3 percent slopes), and Galt clay (leveled, 0 to 1 percent slopes, and 0 to 3 percent slopes) (NRCS 2017). The San Joaquin and Galt soils are made up of moderately well drained alluvium derived from granite.

Seismicity

Seismic hazards are earthquake fault ground rupture and ground shaking (primary hazards), and liquefaction and earthquake-induced slope failure (secondary hazards). Compared to other areas of the state (e.g., the San Francisco Bay region), the Project Area is not located in a very seismically active region. However, with respect to ground shaking, earthquakes have occurred in the vicinity of the Project Area and can be expected to occur again. The nearest fault system is the Midland Fault Zone, a Quaternary fault zone located approximately 15 miles southwest of the western terminus of the Project.

The Project area is predominately flat, with approximate elevation ± 40 MSL. The alignment is underlain by thick Quaternary alluvial deposits that originated from millennia of erosion of materials from the west slopes of the Sierra Nevada. Although the mountainous areas to the west are seismically active, the Central Valley is considered to be relatively seismically stable.

California's Alquist-Priolo Earthquake Fault Zoning Act (PRC 2621 et seq.) is intended to reduce the risk to life and property from surface fault rupture during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as *active*, and establishes a process for reviewing building proposals in and adjacent to earthquake fault zones. Faults identified in an Alquist-Priolo earthquake fault zone are typically active faults. As defined under the Alquist-Priolo Act, an active fault has had surface displacement within Holocene time (about the last 11,000 years). An early Quaternary fault has had surface displacement during Quaternary time (the last 1.6 million years). A pre-Quaternary fault has had surface displacement before the Quaternary period. The Project Area is not identified as being located in an Alquist-Priolo earthquake fault zone (Hart and Bryant 1997), and the Uniform Building Code (UBC) recognizes no seismic sources in the Sacramento region.

Landslides

Within the limits of the Project Area, the risk of naturally occurring large landslides varies depending on slope, underlying geology, surface soil strength, and moisture in soil. Significant excavation, grading, or fill work during construction might introduce landslide hazards along the Project alignment. Because the Project alignment is flat and no significant excavation is planned at this point, the potential for direct impact from landslides is considered very low.

Soils

Because of the large size of the Project Area, characterization of soils has been inferred using major land resource area (MLRA) information. A MLRA is a geographically associated land resource unit (LRU). An LRU is a geographic area, usually several thousand acres, characterized by a particular pattern of soil, climate, water resources, and land use. A unit can be a continuous area or several separate nearby areas. An LRU is the basic unit from which an MLRA is determined. It is also the basic unit for state land resource maps. It is coextensive with state general soil map units, but some general soil map units are subdivided into LRUs because of significant geographic differences in climate, water resources, and land use (NRCS 2006). The Project Area is located within MLRA 17. Descriptions of soil texture and erosion, runoff, and expansion hazards are described for the surface horizon of the soils only.

Within the Project area, soils are alluvial and nearly level, occurring on low terraces, fans, floodplains, and basins. Soil textures are generally clayey to loamy sand. Soils in the Project area are predominately deep San Joaquin silt loam and Galt clay. Erosion hazard is slight to none, runoff is very slow, and soil expansiveness is low to high, depending on geographic location and texture.

Expansive Soils

Expansive soils shrink and swell with wetting and drying. The shrink-swell capacity of expansive soils can result in differential movement beneath foundations/pavements. Based on the County soil survey data, the Project alignment is mainly underlain by San Joaquin silt loam (NRCS 2017). In addition, the depth to water is shallow and significant shrink-swelling would not be expected. Based on this information, the likelihood of expansive soils to be present at the site is low (NRCS 2017).

ENVIRONMENTAL CONSEQUENCES

Seismicity

Ground rupture is caused when an earthquake event along a fault creates a rupture at the surface. The Project area is located in a region with low potential for ground shaking. No known active faults exist in the Project vicinity. The nearest fault is approximately 15 miles southwest of the Project area and is an inactive Quaternary fault. The Project will need to be designed and constructed to withstand moderate to strong earthquake shaking, as specified in the Department Standards and 2007 CBC for Seismic Zone 3. Therefore, the risk of rupture of a known earthquake fault rupture and the risk of strong seismic ground shaking would be very low.

Liquefaction

Based on the low existing ground shaking hazard from seismic-related events, sediment characteristics of the soils, and depth to groundwater, the liquefaction hazard to construction workers and users of Project facilities is expected to be low. Mitigation Measures **GEO-1** and **GEO-2**, which include implementing the recommendations of the geotechnical investigation to conduct site-specific geotechnical investigations.

Landslides

Soil units within the Project area are considered stable and not prone to lateral spreading, subsidence, liquefaction, or collapse. The Project area is not located on or near any large slopes susceptible to landslides. Vegetation will be removed from the banks of South Yuba River within the Project area, potentially destabilizing the soil; however, construction and post-construction BMPs and Mitigation Measures **GEO-1** and **GEO-2** will be implemented.

Expansive Soils and Erosion

The shrink-swell capacity of expansive soils can result in differential movement beneath foundations/pavements. Although the likelihood of expansive soils in the Project area is low, if present beneath planned Project components, they could compromise the structural integrity of proposed new facilities (including roadways and associated features); this is considered a significant impact. As described above, Mitigation Measures **GEO-1** and **GEO-2**, which include implementing the recommendation of the geotechnical investigation to conduct site-specific geotechnical investigations.

Grading, excavation, removal of vegetation cover, and loading activities associated with construction activities could temporarily increase runoff, erosion, and sedimentation. Construction activities also could result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at construction sites and staging areas. This is considered a significant impact. However, the implementing public agencies will require grading and construction contractors to comply with the applicable County or City (Municipal Code Chapter 16.44) grading requirements as a contract specification, which would reduce any adverse effects associated with erosion and sedimentation. Avoidance and minimization measure **HYD-1** in the Section 2.2.2 "Water Quality and Stormwater Runoff" would further reduce the potential impact.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and potential changes geology and soils would not occur. As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aid in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following avoidance, minimization and/or mitigation measures have been developed for geology, soils, seismic and topography.

- GEO-1:** Prior to construction, the implementing agency will ensure that the Project is designed and constructed in compliance with the latest California Building Standards Code, the Department seismic design criteria, and County and City General Plans seismic standards to ensure that all project components can withstand moderate to strong earthquake-shaking.
- GEO-2:** Prior to construction, the implementing agency will prepare project-specific geotechnical investigations to guide the design of earthworks and foundations for proposed structures. Based on the subsurface conditions expressed through geotechnical investigation, the implementing agency, in conjunction with soil scientists or engineers, will ensure that specific project elements are designed to accommodate the effects of liquefaction of expansive soils. For roadways and bridges, subsurface borings at regular intervals along proposed roadways and in the vicinity of proposed bridges are recommended as part of the geotechnical evaluations. If the site specific geotechnical investigations find that liquefiable soils, soils susceptible to seismically induced settlement, or expansive soils are present at any location where project activities would occur, corrective actions will be taken. These actions may include, depending on the extent and depth of susceptible soils and findings of the geotechnical evaluations, removal and replacement of soils; on site densification; grouting; and design of special foundations or other similar measures. All of these measures reduce pore water pressure during ground shaking by making the soil denser or improving its drainage capacity. The implementing agency will ensure that their contractors implement one or more of these measures in consultation with a qualified engineer prior to beginning and during construction. The implementing agency will ensure, as a contract specification, that their contractors implement the recommendations of site specific geotechnical reports pertaining to site clearing and preparation, organic removal, engineered fill placement, trench backfilling, foundation design, soundwall systems, exterior flatwork, pavement design, and site drainage to minimize any adverse effects associated with runoff, erosion, and sedimentation.

2.2.4 PALEONTOLOGY

REGULATORY SETTING

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

23 CFR 1.9: Federal-aid funds shall not participate in any cost which is not incurred in conformity with applicable Federal and State law, the regulations in this title, and policies and procedures prescribed by the Administrator. Federal funds shall not be paid on account of any cost incurred prior to authorization by the Administrator to the State highway department to proceed with the project or part thereof involving such cost

42 USC 4321: [National Environmental Policy Act] directs federal agencies to use all practicable means to "Preserve important historic, cultural, and natural aspects of our national heritage..." (Section 101(b) (4)). Regulations for implementing the procedural provisions of NEPA are found in 40 CFR 1500 1508.

State Regulations

Under California law, paleontological resources are protected by the CEQA.

Paleontological resources are classified as non-renewable scientific resources and are protected by State statute (e.g., Public Resources Code Section 5097.5 (a), Removal or Destruction; Prohibition), and Appendix G to the CEQA Guidelines.

According to the State CEQA Guidelines, a project is considered to have a significant impact on paleontological resources if it will:

- Directly result in the destruction of a unique paleontological resource; or
- Indirectly result in the destruction of a unique paleontological resource.

Local Regulations

Sacramento County Conservation Element

The following County General Plan Conservation Element policies are applicable to the Project.

Policy CO-161: As a condition of approval for discretionary projects, require appropriate mitigation to reduce potential impacts where development could adversely affect paleontological resources.

Policy CO-162: Projects located within areas known to be sensitive for paleontological resources, should be monitored to ensure proper treatment of resources and to ensure crews follow proper reporting, safeguards and procedures.

Policy CO-163: Require that a certified geologist or paleo resources consultant determine appropriate protection measures when resources are discovered during the course of development and land altering activities.

AFFECTED ENVIRONMENT

The following information is a summary of the Paleontology Identification and Evaluation Report prepared for the Project in 2022. A literature review, assessment of published geologic maps, querying the online repository list of University of California Museum of Paleontology, a search of the Paleontological Collections at the California Academy of Sciences, and a review of published manuscripts and resource reports was performed to determine sensitivity and any previously identified paleontological resources in the County and the City.

The subsurface materials encountered in the various studies in the Project area consisted of interlayered alluvial deposits that generally consisted of soft to hard silts, firm to hard sandy lean clays and medium dense to dense sands and silty sands. Cemented silts and clays were also encountered as well as occasional layers of sands with gravels and sandy gravels.

A search of the University of California Museum of Paleontology (UCMP) collections database identified six localities in the County where paleontological resources have been identified. These fossil remains were encountered during excavation activities in the County within Pleistocene aged formations, and all were within the Riverbank formation.

The City General Plan states that a GeoRef database covering the years 1785 to present and a road reconnaissance-level field survey of the City were conducted to identify potential outcrops of fossiliferous geological formations. Neither the database search nor field survey identified officially reported fossils in the City; however, there have been information finds, including a 1959 discovery of a Pleistocene bone bed within the Riverbank Formation along the west side of Deer Creek. A geologist from California State University, Sacramento, reportedly examined the fossils found by a local farmer; however, the find was never published (City of Elk Grove 2003).

A review of the Geologic Map of the Sacramento Quadrangle prepared by the California Geological Survey (2001) shows the Project APE is within the Riverbank Formation. While a locality search did not identify any occurrences of paleontological resources within the Project's direct impact area, literature research revealed that a fossilized mammoth was found in the City, within the Rancho Verde residential housing development, in 2006. The Rancho Verde housing development is directly adjacent to the Project. Due to the proximity of the Project to the known paleontological site, and the Project area being identified within the Riverbank formation, the Project would have a moderate potential for paleontological resources to occur.

ENVIRONMENTAL CONSEQUENCES

Based on these guidelines and the information from the published geological map and museum records and literature search, the majority of the Project area is of High Potential as it involves disturbance of the Pleistocene lower Riverbank Formation which is known to contain diverse Ice Age fossil resources. The Holocene basinal sediments in the west are too young to contain fossil resources or Low Potential. Any areas previously disturbed, including disturbed sediments or artificial fill used for earlier projects, would be considered Low Potential as any fossil remains would be out of context.

The following Project components, in **Table 42**, involve ground disturbance and have the potential to affect paleontological resources for the duration of the depth of disturbance:

Table 42. Potential Effects to Paleontological Resources

Component	Max. Depth	Description	Location
Roadway	6 ft.	Excavation to maintain grade with existing Kammerer Road	Throughout the Project at elevations higher than existing grade
Overhead	6 ft.	Roadway improvements including roadside ditch excavation	Franklin/Willard
Drainage, Culverts, and Channel Improvements	10 ft.	Channel improvements including box culvert	Along channel located west of Bruceville
Street Lighting and Signal Improvements	15 ft.	Installation of lighting and signal foundations	Throughout the Project (lights required every 160-180 feet on both sides; signals at intersections)
Utility Relocation	40 ft.	Gas transmission line relocation and/or electrical transmission tower foundation	SMUD poles at east side of Project will need to be relocated; relocation unknown; gas line to be relocated just east of Franklin at UPRR crossing
Abutments and Footing Piles	100 ft.	Conservative estimate of structure footing depth at UPRR grade separation	East of Franklin at UPRR crossing

Grading, excavation and other surface and subsurface excavation in defined areas of the proposed Project have the potential to impact significant nonrenewable fossil resources in the Pleistocene Riverbank Formation; the exact nature and location of the subsurface units with respect to artificial fill or pre-disturbed sediments has not been determined. During excavation, an onsite Paleontological Monitor may recommend decreasing the amount of monitoring. For instance, in some units, periodic spot-checking may be sufficient.

A Paleontological Mitigation Plan (PMP) should be prepared by a Qualified Paleontologist who meets Caltrans and industry standards.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following avoidance, minimization and/or mitigation measures have been developed for potential impacts to paleontological resources.

PAL-1: The implementing agency shall retain a qualified paleontologist to develop an acceptable monitoring and fossil remains treatment plan or Paleontological Mitigation Plan (PMP) for construction-related activities that could disturb potential unique paleontological resources within the Project area. This plan shall be implemented and enforced by the implementing agency during the full phase of construction, and will include:

- Paleontological late discovery plan;
- Specifications for paleontological spot-check monitoring; and
- Guidelines for recordation, evaluation, recovery, and treatment of resources as required by state and local governmental guidelines.

PAL-2: Due to the continual potential for discovery of subsurface fossil deposits, a qualified paleontological monitor will be present for activities in sensitive areas defined in the PMP. The monitor may recommend decreasing the amount of monitoring and recommend spot-check monitoring.

PAL-3: Prior to the start of construction, all construction personnel would receive a paleontological sensitivity training, detailing the types of paleontological resources that may be encountered and procedures to follow if a find should occur.

PAL-4: If paleontological resources (i.e., fossils) are discovered during ground-disturbing activities, the implementing agency will immediately be notified, and will ensure that their contractors shall stop work in that area and within 100 feet of the find until a qualified paleontologist can assess the significance of the find and develop appropriate treatment measures. Treatment measures will be made in consultation with the implementing agency, and would be included in the PMP.

PAL-5: Grading plan notes will state that there is a potential for paleontological resources to be discovered during ground disturbance, and procedures to follow if a find should occur.

2.2.5 HAZARDOUS WASTE/MATERIALS

REGULATORY SETTING

Hazardous materials, including hazardous substances and wastes, are regulated by many federal laws. Statutes govern the generation, treatment, storage, and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 and the Resource Conservation and Recovery Act (RCRA) of 1976. The purpose of CERCLA, often referred to as “Superfund,” is to identify and cleanup abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for “cradle to grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Section 121(d) of CERCLA requires that remedial action plans include consideration of more stringent state environmental “Applicable or Relevant and Appropriate Requirements” (ARARs). The 1990 National Oil and Hazardous Substances Pollution Contingency Plan (NCP) also requires compliance with ARARs during remedial actions and during removal actions to the extent practicable. As a result state laws pertaining to hazardous waste management and cleanup of contamination are also pertinent.

In addition to the acts listed above, Executive Order (EO) 12088, Federal Compliance with Pollution Control Standards, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

AFFECTED ENVIRONMENT

In 2015, a Hazardous Waste Initial Site Assessment (ISA) was prepared for the Project (Kleinfelder 2015b). At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2015 ISA approval, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than what was previously analyzed, and the No-Build Alternative. In February 2018, an ISA Addendum to the 2015 ISA was submitted and approved by the Department (Dokken Engineering 2018h). The following information is a summary of potential hazardous waste impacts within the Project area as specified within the ISA and ISA Addendum.

The purpose of the ISA is to evaluate the Subject Properties for the presence of Recognized Environmental Conditions (RECs) and/or Activity and Use Limitations (AULs), which are:

REC: "...the presence or the likely presence of any hazardous substances or petroleum hydrocarbons on the (Subject Property) that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum hydrocarbons into structures or into the ground, groundwater, or surface water of the subject property."

AUL: "...an explicit recognition by a federal, tribal, state, or local agency that residual levels of hazardous substances or petroleum hydrocarbons may be present on the property, and that unrestricted use of the property may not be acceptable."

The ISA was prepared in accordance with the Department ISA Guidance Document and ASTM International (ASTM) Designation E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM 2014) and in general compliance with EPA's *Standards and Practice for All Appropriate Inquiries* (AAI) (Title 40 CFR, Part 312). Due to limited access along the alignment, property appraisals and property owner interviews were not conducted and are exceptions to the AAI standard. The scope of an ISA is limited to anecdotal and visual evidence of recognized environmental conditions and does not include collection or analysis of samples. While owners were not interviewed, available regulatory data provided information on the potential RECs and AULs. The ISA identified several properties within approximately 1 mile of the Project footprint as potential environmental concerns.

The study area is defined as Kammerer Road and includes the existing Kammerer Road from SR-99 to Bruceville Road, and the properties included within the planned roadway alignment from Bruceville Road to the I-5 Hood Franklin Road Interchange. The study area envelopes potential parcels requiring acquisition, and utility facilities along Kammerer Road and along the planned alignment.

Database Search and Other Records Review

Federal, state and local regulatory agencies publish databases or "lists" of businesses and properties that handle hazardous materials or hazardous waste, or are the known location of a release of hazardous substances to soil and/or groundwater. These databases are available for review and/or purchase at regulatory agencies, or the information may be obtained through a commercial database service. A commercial database service, Environmental Data Resources (EDR), performed a review of the SWRCB online GeoTracker™ Database to review the regulatory agency lists for references of properties within the Project area, and for listings within the American Society of Testing and Materials Guidelines 1-mile radius of the Project area. The EDR listings, as available, include the type of hazardous material, the quantity, and regulatory agency involved. Each listing was reviewed to assess whether these properties would likely pose a hazardous waste impact to the Project area based on the following, or a combination thereof:

- Based on the hazard type, the listed property was located at a distance where the facility would be an unlikely hazardous waste impact to the Project area.
- The listed property was located in a down-gradient or cross-gradient direction from the Project area at a distance that would be unlikely to pose a hazardous waste impact concern beneath the Project area.

- The listed property was identified in low-hazardous risk databases (i.e., underground storage tank [UST], Facility and Manifest Data (HAZNET), Small Quantity Generator [SQG] databases) not on or immediately adjoining the Project area and were not listed in other databases and/or was not listed as having any associated violations. The listing of a facility on these databases is not indicative of an unauthorized release.
- The listing of the facility suggested a short-term release had occurred (i.e., from incidental traffic accidents, or chemicals from illegal drug labs found at residences) with an associated hazardous materials cleanup.
- The quantity of the substances released was not considered to cause a significant hazardous waste impact to the Project area.
- The listing indicates that the reported release affected soil was not on or immediately adjoining the Project area.

Based on these criteria, these listings were not considered a potential hazardous waste concern to the Project.

The remaining listings were reviewed to assess whether properties within close proximity to the Project area may have had significant environmental releases or incidents, which may have resulted in a hazardous waste impact to the Project. Listings, if any, which indicate a significant release had occurred and/or which remain as an open case with the designated regulatory agency, were further assessed by requesting a file review with the appropriate regulatory agency. Further evaluation was made as to whether the listed release may represent a hazardous waste impact to the Project.

Based on the review of the EDR database report, two properties are located within the Project Area:

- “Carmo Dairy” (10775 Franklin Boulevard) – The Project area passes through this property, which adjoins to the east of Franklin Boulevard. This property is listed in the California Water Resources Control Board Waste Discharge System database as an active facility that discharges agricultural waste. In addition, the facility is listed in the Enforcement Action Listing database as a privately-owned agricultural business that consists of dairy farming and animal feeding. It was issued notices of violation for failure to submit 2011 and 2012 annual reports. The listings for this facility are not indicative of a release and therefore, do not suggest a hazardous waste impact to the Project area.
- “Verizon Wireless” and “AT&T Mobility-Franklin” (3307 Hood Franklin Road) – This property is located within the study area on the north side of Hood Franklin Road. Verizon Wireless facility is listed in the HAZNET database, which includes information extracted from copies of hazardous waste manifests received each year by the State of California Department of Toxic Substances Control (DTSC), and the County Master Hazardous Materials Facility List database. The AT&T Mobility-Franklin facility is listed in the FINDS database. Detailed information is not provided in the listings for these facilities. However, based on information obtained from the Sacramento County Environmental Management Department, a cellular phone tower occupies this location. Based on the type of facility, it is not considered a likely hazardous waste impact to the Project area.

Based on the review of the remaining listings and information reviewed on GeoTracker™, there are no listings in the EDR report that are considered to represent a hazardous waste concern to the site.

Sites not plotted by EDR due to poor or inadequate address information are referred to as orphan sites. There are numerous unmapped sites in the EDR report. The orphan summary/unmapped sites reports were reviewed to assess the potential for properties located outside the site improvement areas that might pose a hazardous waste impact to the Project.

These orphan sites appear to be on other database listings already discussed, or fall under one or more, or the above listed criteria and do not represent a hazardous waste impact to the Project.

Local Agency Environmental Records

Local regulatory agencies were contacted for reasonably ascertainable and practically reviewable documentation regarding environmental conditions present in the Project area and within 1-mile radius to the Project. The following agencies were contacted for documentation:

- State of California, Department of Toxic Substances Control (DTSC) EnviroStor Database
- Sacramento County Environmental Management Department
- State Water Resources Control Board GeoTracker™ Database
- Sacramento County, Agricultural Commissioner
- State of California, Office of the State Fire Marshal, Pipeline Safety Division
- Building and Safety / Planning Departments

After review of information pertaining to properties within the Project Area and within 1-mile radius, there were no facility listings that were considered a potential hazardous waste concern to the Project. A copy of the EnviroStor and GeoTracker™ search results can be found in the approved ISA Addendum (2018).

Naturally Occurring Asbestos

Naturally occurring asbestos (NOA) can occur in serpentine. The most common forms of naturally occurring asbestos minerals are chrysotile, actinolite, and tremolite. A review of the “General Location Guide for Ultramafic Rocks in California – Areas likely to Contain Naturally Occurring Asbestos” (California Geological Survey Open-File Report 2000-19, 2000) indicated that naturally occurring asbestos was not mapped on, or near, the vicinity of the Project.

Site Reconnaissance

Visual reconnaissance visits were conducted in August and September 2014 and again in September 2017 to assess and photograph present site conditions within the Project area, and to look for evidence of RECs. These observations were intended to identify the presence, or likely presence, of hazardous substances or petroleum products in the study area, or adjacent properties, under conditions that could significantly affect the feasibility or cost of the Project.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

The scope of an ISA is limited to anecdotal and visual evidence of potential RECs and does not include verification of RECs based on environmental testing. The roadway and the surrounding area within the Project limits were observed for indications of materials that may be considered hazardous. Based on a regulatory records search, file reviews, aerial photography review, topographic map review, and a visual site survey, the following is a list of observations or environmental conditions that may involve the use, storage, disposal or generation of hazardous substances or petroleum products:

- Properties located within the Project area maintain above ground storage tanks (ASTs) containing both gasoline and diesel fuel. Due to access limitations to structures on private properties, other ASTs or chemical storage may be present within the Project area.
- Minor surficial oil staining was observed on the property located at 10632 Franklin Road (adjoins west of Franklin Boulevard). The staining was observed adjacent to a mobile AST north of the residence. The staining is considered *de minimis* and is not considered a hazardous waste impact to the Project.
- Five unlabeled 55-gallon plastic drums were observed in the vicinity of farm equipment on the property location at 10632 Franklin Road. No staining was observed in the vicinity of the drums.
- Numerous pole-mounted transformers were observed within the study area. No evidence of leakage or staining was observed on the transformers or on the ground beneath them.
- Elevated concentrations of lead and other metals are sometimes associated with older roadways (I-5 and Kammerer Road). Yellow traffic markings were observed on I-5 on-and off-ramps, and on Kammerer Road, Franklin Boulevard, and Bruceville Road. These yellow traffic markings may potentially contain hazardous levels of lead chromate.
- The Build Alternative passes through a UPRR right-of-way east of Franklin Boulevard. The potential exists for herbicides, petroleum hydrocarbons, and metals to be present in shallow soil in the vicinity of the tracks. Pipeline markers were observed within the UPRR right-of-way. Based on the review of information for the Project area, Pacific Gas and Electric Company (PG&E) and Sacramento Municipal Utilities District (SMUD) operate natural gas pipelines along the railroad.

No other potentially hazardous materials were observed within the study area.

Naturally Occurring Asbestos

Mitigation practices can reduce the risk of exposure to NOA-containing dust. If NOA is confirmed to be on-site, mitigation measures outlined in the Section 2.2.6 “Air Quality” will be implemented. If NOA is not present, mitigation measures outlined in the Section 2.2.6 “Air Quality” will not be implemented.

Aerially Deposited Lead

Aerially deposited lead (ADL) from the historical use of leaded gasoline exists along roadways throughout California. If encountered, soil with elevated concentrations of lead as a result of ADL on the state highway system right-of-way within the limits of the Project will be managed under the July 1, 2016, ADL Agreement between the Department and the California Department of Toxic

Substances Control. This ADL Agreement allows such soils to be safely reused within the Project limits as long as all requirements of the ADL Agreement are met.

The Project is anticipated to require acquisition of right-of-way from 3 residential single-family properties, partial acquisition of 1 non-residential utility parcel, as well as relocation of an active AT&T cellular tower within the remainder of the parcel. Because soil testing was not completed, the potential for unknown contamination is still present. As a result, a Phase II Site Assessment Testing would occur prior to construction to confirm the presence of hazardous substance. A Phase II Environmental Site Assessment (Phase II Study) would be conducted according to ASTM E1903 during the appraisal of the property, prior to ROW acquisition, if access to conduct the testing is not granted prior, to determine if sites to be acquired are contaminated. A Phase II Study involves collection and analysis of soil, groundwater, or building material samples to confirm presence or absence of hazardous materials and, as appropriate, recommended materials handling during construction. Any contaminated materials will be handled and disposed in accordance with local, state, and federal regulations. Avoidance, minimization, and/or mitigation measures will be determined following file review and physical investigation of the parcels identified. Property owners are legally responsible to clean up regulated contamination on their properties. If contamination is present that cannot be mitigated, the limits of acquisition may be adjusted to avoid the residual contamination. If acquisition limits cannot be adjusted, minimization measures may include indemnification, reduction in price, or acquisition as highway easement instead of in fee.

In addition, any removal of striping and pavement markings and disposal of treated wood waste would be done in compliance with the Department Standard Specification 2014, Section 14-11.

Hazardous Waste Transport, Use, Disposal, and Accident

Operation of most roadways, including Kammerer Road, typically includes the transportation of hazardous materials and wastes. Permanent use (transportation) of hazardous materials and hazardous wastes would be governed by regulations that prescribe the proper handling, transportation, use, and disposal of such materials. Additionally, construction of the Project would temporarily increase the use of large construction equipment, storage, and disposal of hazardous materials, petroleum products, and hazardous wastes commonly used at construction sites (e.g., diesel fuel, lubricants, paints and solvents, lead-based paint). Temporary use of hazardous materials and hazardous wastes would be governed by regulations that prescribe the proper handling, transportation, use, and disposal of these materials.

Access into structures (residences, associated out buildings, storage sheds, and barns) on developed parcels was not provided at the time of the field reconnaissance visits. It is possible that chemicals (e.g., petroleum products, pesticides, herbicides, etc.) are used/stored within these structures. Other ASTs and containers may be located between, or within, structures that were not visible due to access restrictions. Spills, leaks, or stains may be present in the vicinity of ASTs, containers, or equipment between, or within structures that were not visible due to access restrictions. The implementation of avoidance and minimization measures outlined at the end of this section would further reduce the risk of creating a significant hazard to the public or environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials.

If new hazardous materials are encountered, the construction would follow the OSHA-required Health and Safety Plan (HASP) and the Department Unknown Hazards Procedures, which would be developed prior to beginning construction.

A site-specific HASP, as required by OSHA, would be prepared by the implementing agency or contractor and retained onsite during all field activities. All work will be conducted according to the HASP. The HASP should contain information on the properties of the hazardous materials known to be onsite. This information is equivalent to that contained in Material Safety Data Sheets, which are required by the Occupational Safety and Health Administration for potentially harmful substances.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and potential impacts from hazardous waste/materials would not occur. However, Kammerer Road would still operate as a roadway, and such operation typically includes the transportation of hazardous materials and wastes. Transportation of hazardous materials and hazardous wastes is governed by regulations that prescribe the proper handling, transportation, use, and disposal of such materials.

As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aid in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following mitigation measures are based on the research, site reconnaissance and records search performed as part of the ISA.

HAZ-1: Prior to construction, a visual survey of those areas not accessed at the time of the field reconnaissance visits will be performed. If spills, leaks, or stains from equipment, ASTs, or other containers are observed, soil sampling will be performed to assess the presence of hazardous materials that may pose a potential hazardous waste to the proposed roadway alignment areas.

HAZ-2: The potential exists for herbicides, petroleum hydrocarbons and metals to be present in shallow soil in the vicinity of the UPRR right-of-way. The Build Alternative proposes to construct either a bridge over the railroad. Prior to construction, soil samples will be collected within the UPRR right-of-way and analyzed for chlorinated herbicides, petroleum hydrocarbons, and metals using US EPA Methods 8151, 8260B, and 6010/7471A, respectively.

HAZ-3: PG&E and SMUD should be contacted to assess the locations of their pipelines prior to construction of the proposed bridge over the UPRR tracks.

HAZ-4: The potential exists for persistent pesticides to be present in soil as a result of historical agricultural use of the area. Additionally, the potential exists for buried asbestos-

containing cementitious pipe (“transite”), which was commonly used for water transportation as part of historical agricultural practices, to be present within the Project area. To assess the presence of persistent pesticides in soil, sampling and analysis is recommended. Soil samples will be analyzed for OCPs using US EPA Method 8081. Additionally, if signs of transite piping are observed during construction activity, sampling and analysis will be conducted at that time.

- HAZ-5:** Elevated concentrations of lead (from use of leaded gasoline) and other metals are sometimes associated with older roadways. Based on a review of historical sources, a roadway at the location of Kammerer Road was present from SR-99 west to Bruceville Road since at least 1937. Roads were also present at the locations of Franklin Road and Bruceville Road as early as 1894. In addition, I-5 was present since the mid- to late-1970s. Sampling for ADL in unpaved areas along the existing roadways where soil will be disturbed as part of the Project improvement areas is recommended.
- HAZ-6:** Comply with the Department’ Standard Special Provision 14-11.12 “Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue” regarding yellow striping and pavement marking materials to avoid impacts from the removal of pavement striping during construction.
- HAZ-7:** Although not anticipated, should impacted soil (as evidenced by staining and/or odors) be encountered during construction activities, construction shall cease in the affected area and the District Construction Emergency contract procedures implemented. The resident engineer overseeing construction shall not allow the construction contractor to work in the affected area until cleared by the District Environmental staff.
- HAZ-8:** Groundwater is anticipated to be encountered at depths greater than 50 feet bgs. Should groundwater be encountered during construction/excavation activities and dewatering become necessary, regulatory compliance and permitting consistent with the CVRWQCB and NPDES requirements will be adhered to, and groundwater sampling will be conducted.
- HAZ-9:** Should domestic or agricultural water wells be affected by the proposed roadway alignment, they will be abandoned or relocated in accordance with local and state guidelines/regulations.
- HAZ-10:** Many of the observed pole-mounted transformers are unlikely to be impacted by the Project. Should transformer removal be required, the utility company be contacted prior to handling or removing of electrical transformers. Should wooden utility poles require removal, it is recommended that additional sampling and analysis be conducted to assess the presence of creosote (often associated with the preservation of wooden utility poles) and resultant waste managed appropriately.
- HAZ-11:** Should the Project require the demolition of building structures, a survey and sampling for ACMs and LBP will be performed of these building structures after property acquisition and prior to demolition. The surveys will be performed in conformance with the US EPA NESHAPs 40 CFR and Sacramento Metropolitan Air Quality Management District guidelines.
- HAZ-12:** If access to conduct the Phase II PSI is not granted prior, the testing would occur during the appraisal of the property, prior to ROW acquisition, so that remediation costs, special

handling, treatment, or disposal provisions associated with hazardous wastes can be included in construction documents.

- HAZ-13:** Prior to the issuance of demolition permits for existing onsite structures, asbestos material sampling shall be conducted to determine if materials are present. Any identified asbestos containing building materials present in each of the structures to be dismantled shall be removed under acceptable engineering methods and work practices by a licensed asbestos abatement contractor prior to removal. These practices include, but are not limited to: containment of the area by plastic, negative air filtration, wet removal techniques and personal respiratory protection and decontamination. The process shall be designed and monitored by a California Certified Asbestos Consultant. The abatement and monitoring plan shall be developed and submitted for review and approval by the appropriate regulatory agency (the Sacramento Metropolitan Air Pollution Management District).
- HAZ-14:** Prior to the issuance of demolition permits for existing onsite structures, all loose and peeling paint shall be removed and disposed of by a licensed and certified lead paint removal contractor. in accordance with local, state, and federal regulations.
- HAZ-15:** For any parcels determined to be contaminated during Phase II testing and anticipated to be relinquished to Caltrans, and acquisition of these sites is unavoidable, then the Request for Acquisition of Contaminated Properties (RACP) shall be in compliance with the approval process defined in Caltrans Project Delivery Directive 02. Acquisition by Caltrans of any contaminated parcel will only occur after mitigation of any contamination by the owner or relinquishing party.
- HAZ-16:** For any parcels determined to be contaminated during Phase II testing the project design will be modified to avoid the contaminated parcel or portion of the parcel, if feasible by the implementing agency.

2.2.6 AIR QUALITY

REGULATORY SETTING

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by the U.S. EPA and the CARB, set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM) — which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM₁₀) and particles of 2.5 micrometers and smaller (PM_{2.5}) — and sulfur dioxide (SO₂). In addition, national and state standards exist for lead (Pb), and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel “Conformity” requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits the USDOT and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. “Transportation Conformity” applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The Project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and in some areas (although not in California), sulfur dioxide (SO₂). California has nonattainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO₂, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met. If the conformity

analysis is successful, the Metropolitan Planning Organization (MPO), FHWA, and Federal Transit Administration (FTA) make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept and scope and the “open-to-traffic” schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP; the Project has a design concept and scope that has not changed significantly from those in the RTP and TIP; Project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the Project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

Federal and State Ambient Air Quality Standards

California and the federal government have established standards for several different pollutants. For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). The pollutants of greatest concern in the Project area are ozone, PM_{2.5} and PM₁₀. **Table 43** shows the state and federal standards for a variety of pollutants.

State Regulations

Responsibility for achieving the California Ambient Air Quality Standards (CAAQS) is placed on the CARB and local air districts, and is to be achieved through district-level air quality management plans that will be incorporated into the SIP. In California, the EPA has delegated authority to prepare SIPs to the CARB, which in turn has delegated that authority to individual air districts.

CARB has traditionally established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs. Please refer to the following section for a discussion of SIPs approved by the SMAQMD and EDCAPCD, respectively.

The California Clean Air Act (Cal-CAA) of 1988 substantially added to the authority and responsibilities of air districts. The California CAA designates air districts as lead air quality planning agencies, requires them to prepare air quality plans, and grants them authority to implement transportation control measures (TCMs). The California CAA also requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan if the district violates the CAAQS. These clean air plans are specifically designed to attain these standards and must be designed

Table 43. Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	Averaging Time	California Standards ¹		National Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,5}	Method ⁷
Ozone (O ₃) ⁸	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m ³)		0.070 ppm (137 µg/m ³)		
Respirable Particulate Matter (PM ₁₀) ⁹	24 Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		—		
Fine Particulate Matter (PM _{2.5}) ⁹	24 Hour	—	—	35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12.0 µg/m ³	15 µg/m ³	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m ³)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—	—	
Nitrogen Dioxide (NO ₂) ¹⁰	1 Hour	0.18 ppm (339 µg/m ³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m ³)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)		0.053 ppm (100 µg/m ³)	Same as Primary Standard	
Sulfur Dioxide (SO ₂) ¹¹	1 Hour	0.25 ppm (655 µg/m ³)	Ultraviolet Fluorescence	75 ppb (196 µg/m ³)	—	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (for certain areas) ¹¹	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas) ¹¹	—	
Lead ^{12,13}	30 Day Average	1.5 µg/m ³	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m ³ (for certain areas) ¹²	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m ³		
Visibility Reducing Particles ¹⁴	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ¹²	24 Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

See footnotes on next page ...

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Table 43 Continued

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above $150 \mu\text{g}/\text{m}^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from $15 \mu\text{g}/\text{m}^3$ to $12.0 \mu\text{g}/\text{m}^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at $35 \mu\text{g}/\text{m}^3$, as was the annual secondary standard of $15 \mu\text{g}/\text{m}^3$. The existing 24-hour PM10 standards (primary and secondary) of $150 \mu\text{g}/\text{m}^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard ($1.5 \mu\text{g}/\text{m}^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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to achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors. Please refer to the following section for a discussion of air quality plans approved by the SMAQMD and EDCAPCD, respectively.

The California CAA requires that the state air quality standards be met as expeditiously as practicable, but unlike the federal CAA, it does not set precise attainment deadlines. Instead, it establishes increasingly stringent requirements for areas that will require more time to achieve the standards. In addition, the California CAA emphasizes the control of “indirect and area-wide sources” of air pollutant emissions and gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish TCMs.

Local Regulations

Sacramento Metropolitan Air Quality Management District

The Project corridor is located within the jurisdiction of the SMAQMD. As discussed above, under the California CAA, the SMAQMD is required to develop an air quality plan for nonattainment criteria pollutants within the air district. Counties within the Sacramento area (Sacramento, Yolo, and portions of Placer, El Dorado, Solano, and Sutter) have adopted the 2009 Sacramento Metropolitan Area 8-Hour Ozone Attainment Plan. This plan outlines strategies to achieve the health-based ozone standard. The Sacramento region is also in the process of developing a plan to address PM.

The Project is subject to SMAQMD rules and regulations at the time of construction, and may be subject to the following SMAQMD, as well as other, rules. These rules have been adopted by the SMAQMD to reduce emissions throughout the district. Failure to comply with any applicable district rule would be a violation subject to district enforcement action.

- Rule 201: General Permit Requirements. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from SMAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or heater should contact the SMAQMD early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower is required to have a SMAQMD permit or a California Air Resources Board portable equipment registration. Other general types of uses that require a permit include dry cleaners, gasoline stations, spray booths, and operations that generate airborne particulate emissions.
- Rule 402 (Nuisance): Prohibits the discharge of air containments which cause injury, detriment, nuisance, or annoyance.
- Rule 403 (Fugitive Dust): Regulates operations which periodically may cause fugitive dust.
- Rule 404 (Particulate Matter): Limits the quantity of PM through concentration limits.
- Rule 412 (Stationary Internal Combustion Engines): Limits emissions of NO_x, CO, and nonmethane hydrocarbons from stationary internal combustion engines. (If construction requires engines rated at more than 50 brake horsepower.)
- Rule 453 (Cutback and Emulsified Asphalt Paving): Limits emissions of ROG_s from the use of cutback and emulsified asphalt paving materials, paving, and maintenance operations.

AFFECTED ENVIRONMENT

The topography of a region can substantially impact air flow and resulting pollutant concentrations. California is divided into 15 air basins with similar topography and meteorology to better manage air quality throughout the state. Each air basin has a local air district that is responsible for identifying and implementing air quality strategies to comply with ambient air quality standards.

The Project is located in the County and City, which fall within the Sacramento Valley Air Basin (SVAB). The SVAB includes Sacramento, Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yuba, Yolo, and parts of Solano and Placer Counties. Air quality regulation in SVAB is administered by Sacramento Metropolitan Air Quality Management District (SMAQMD).

Current and forecasted population for the entire County is 1,418,788 in 2010 and 1,888,340 in 2035 and the County's economy is largely driven by government sector, professional and business services, retail trade, educational and health services, and leisure and hospitality.

Meteorology (weather) and terrain can influence air quality. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight, and the type of winds at the surface and above the surface. Winds can transport ozone and ozone precursors from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as a barrier that prevents ozone from dispersing.

The Sacramento Executive Airport Air Monitoring Site climatological station, maintained by SMAQMD, is located near the Project site and is representative of meteorological conditions near the Project. The Sacramento Valley has a Mediterranean climate, which is characterized by hot, dry summers and mild, rainy winters. During the course of an average year, the temperature may range from 20 to 115 degrees Fahrenheit with summer highs usually in the 90s and winter lows occasionally below freezing. Average annual rainfall is about 20 inches, and the rainy season generally occurs from November through March. The prevailing winds are moderate in strength and vary from moist sea breezes from the south to dry land flows from the north.

The mountains surrounding the SVAB create a barrier to airflow, which can trap air pollutants under certain meteorological conditions. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells collect over the Sacramento Valley. The lack of surface wind during these periods and the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with temperature inversions that trap pollutants near the ground.

The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September, however, a phenomenon called the "Schultz Eddy" prevents this from occurring. Instead of allowing for the prevailing wind patterns to move north carrying the pollutants out, the Schultz Eddy causes the wind pattern to circle back to the south, preventing pollutants from cycling out of the air basin. This phenomenon has the effect of exacerbating the pollution levels in the area and increases the likelihood of violating federal or state standards. The eddy normally dissipates around noon when the delta sea breeze arrives.

Existing Air Quality

The California Environmental Protection Agency's (CalEPA) Air Resources Board (ARB) air quality monitoring program collects accurate real-time measurements of ambient level pollutants at over 40 sites located throughout the state. The data generated are used to define the nature and severity of pollution in California, determine which areas of California are in attainment or nonattainment, identify pollution trends in the state, support agricultural burn forecasting, and develop air models and emission inventories.

The SMAQMD operates several ambient air quality monitoring stations throughout the County. Not every pollutant is monitored at each monitoring station, therefore representative ambient air quality at the Project site was determined from the closest station that monitors each pollutant.

The closest monitor to the Project site is the Elk Grove-Bruceville Road monitoring station, which is located approximately 4.5 miles north of the Project location (**Figure 34**). Ozone (O₃) and nitrogen dioxide (NO₂) data were obtained from this station.

Carbon monoxide (CO) is not measured at the Elk Grove-Bruceville Road monitoring station. Therefore, CO data were obtained from the Sacramento-Del Paso Manor station, located approximately 16.5 miles north-northeast of the Project location.

Respirable and fine particulate matter (PM₁₀ and PM_{2.5}) are not measured at the Elk Grove-Bruceville Road monitoring station. Therefore, particulate matter data were obtained from the Sacramento Health Dept. - Stockton Blvd monitoring station, located approximately 12.5 miles north of the Project location.

The only station in the County that monitors sulfur dioxide (SO₂) concentrations is the Sacramento-Del Paso Manor station, located approximately 16.5 miles north-northeast of the Project location. Therefore, SO₂ data were obtained from this station.

Ambient air quality data for the most recent three-year period available (2014–2016) are presented in Table 44 below was compiled from the California Air Resources Board's *iADAM: Air Quality Data Statistics* (CARB 2016b) and the Environmental Protection Agency's *Monitor Values Report* (EPA 2017).

As shown in **Table 44**, the area surrounding the Project did not exceed the state or federal standards for PM₁₀, 1-hour and 8-hour carbon monoxide, or nitrogen dioxide in the period 2014–2016. Levels of ozone exceeded the state and federal 8-hour standard on multiple days every year from 2014-2016. Levels of PM_{2.5} exceeded the national 24-hour standard in 2015.

Figure 34. Map of Air Quality Monitoring Stations

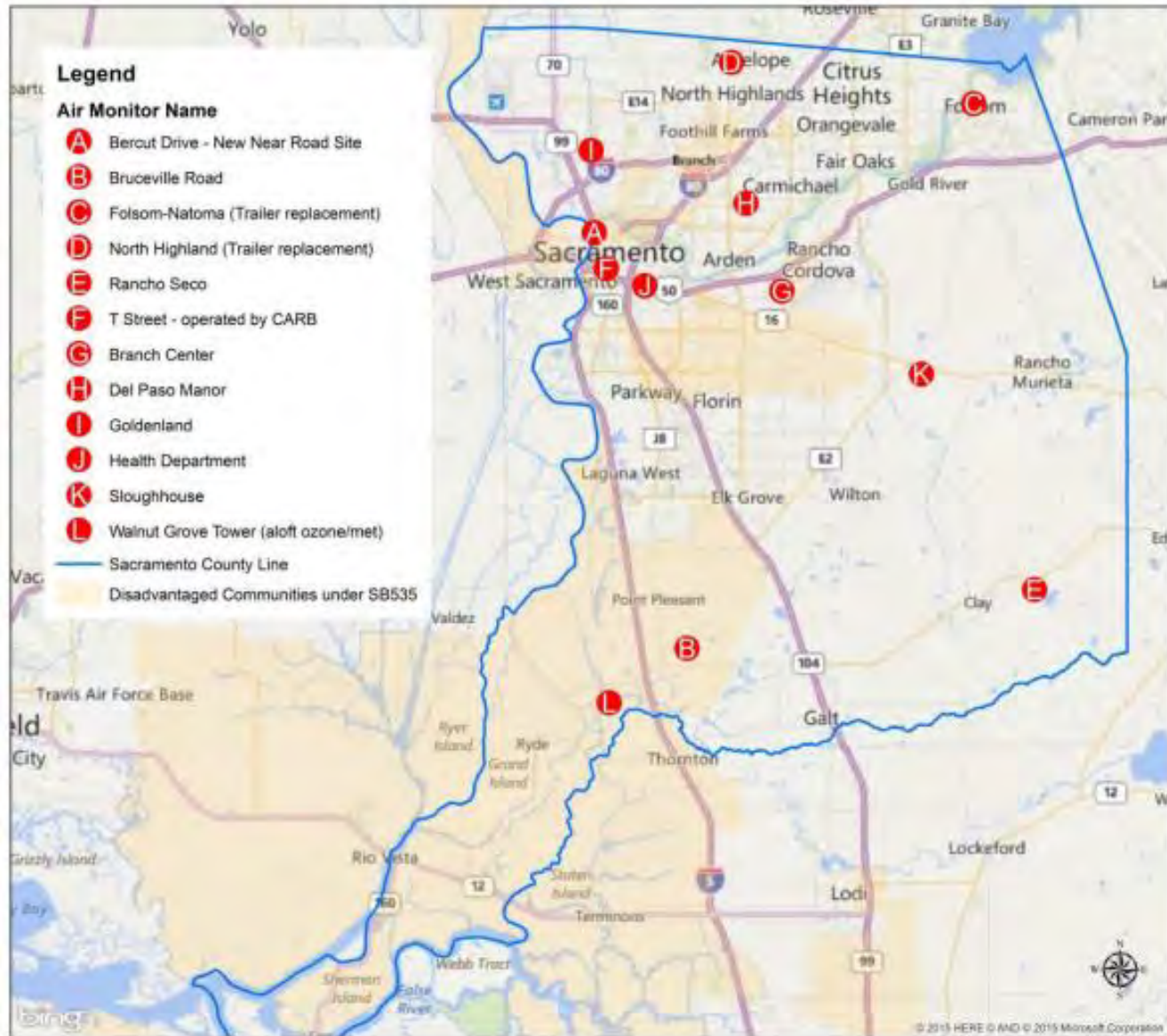


Table 44. Ambient Air Quality Data

Pollutant	Standard	2016	2017	2018	2019	2020
Ozone¹						
Max 1-hr concentration		0.089 ppm	0.104 ppm	0.096 ppm	0.103 ppm	0.111 ppm
No. days exceeded:	0.09 ppm	0	0	1	2	1
State						
Max 8-hr concentration ⁵		0.072 ppm *0.073 ppm	0.085 ppm *0.086 ppm	0.082 ppm *0.082 ppm	0.077 ppm *0.078 ppm	0.082 ppm *0.082 ppm
No. days exceeded:	0.070 ppm	1	3	2	4	2
State						
Federal	0.070 ppm	1	3	2	6	2
Carbon Monoxide²						
Max 1-hr concentration		2.4 ppm	1.9 ppm	3.9 ppm	1.6 ppm	2.5 ppm
No. days exceeded:	20 ppm 35 ppm	0	0	0	0	0
State						
Federal		0	0	0	0	0
Max 8-hr concentration		2.1 ppm	1.8 ppm	3.8 ppm	1.2 ppm	2.1 ppm
No. days exceeded:	9.0 ppm 9 ppm	0	0	0	0	0
State						
Federal		0	0	0	0	0
PM₁₀³						
Max 24-hr concentration		34.0 µ/m ³ *33.0 µ/m ³	_ ₄	_ ₄	_ ₄	_ ₄
No. days exceeded:	50 µg/m ³ 150 µg/m ³	0	0	0	ND	0
State						
Federal		0	0	0	ND	0
Max annual concentration		20 µg/m ³	_ ₄	_ ₄	_ ₄	_ ₄
No. days exceeded: State			_ ₄	_ ₄	_ ₄	_ ₄
PM_{2.5}³						
Max 24-hr concentration		22.9 µ/m ³ *22.9 µ/m ³	_ ₄	_ ₄	_ ₄	_ ₄
No. days exceeded:	35 µg/m ³	0	_ ₄	_ ₄	_ ₄	_ ₄
Federal						
Max annual concentration			_ ₄	_ ₄	_ ₄	_ ₄
No. days exceeded:	12 µg/m ³ 12.0 µg/m ³	_ ₄	_ ₄	_ ₄	_ ₄	_ ₄
State						
Federal		_ ₄	_ ₄	_ ₄	_ ₄	_ ₄
Nitrogen Dioxide¹						
Max 1-hr concentration		27.0 ppb *27.0 ppb	34 ppb *34 ppb	33 ppb *33 ppb	59 ppb *59 ppb	21 ppb *21ppb
No. days exceeded:	0.18 ppm 100 ppb	0	0	0	0	0
State						
Federal		0	0	0	0	0
Max annual concentration			_ ₄	_ ₄	_ ₄	_ ₄
No. days exceeded:	0.030 ppm 53 ppb	_ ₄	_ ₄	_ ₄	_ ₄	_ ₄
State						
Federal		_ ₄	_ ₄	_ ₄	_ ₄	_ ₄

Pollutant	Standard	2016	2017	2018	2019	2020
* State Data						
Data not provided for Lead (Pb), Hydrogen Sulfide (H ₂ S), Vinyl Chloride, or Visibility Reducing Particles as these pollutants are not currently monitored within Sacramento County.						
¹ Data derived from the Elk Grove-Bruceville Road monitoring station.						
² Data derived from the Sacramento-Del Paso Manor monitoring station.						
³ Data derived from the Sacramento Health Dept-Stockton Blvd monitoring station.						
⁴ Insufficient (or no) data available to determine the value.						
⁵ National 8-hour ozone standard was 0.075 ppm over the monitored period. The standard was lowered to 0.070 ppm effective 10/01/2015.						
Sources: California Air Resources Board, http://www.arb.ca.gov/adam and U.S. EPA, https://www.epa.gov/outdoor-air-quality-data/monitor-values-report and accessed 04/13/2022.						

Table 45 shows the status of U.S. EPA-approved SIPs that are relevant to the Project and includes the SIP objective and the status of budget adequacy findings by the U.S. EPA on submitted implementation plans.

Table 45. Status of SIPs Relevant to the Project Area

Name/Description	Status
Sacramento Metro Area PM10 Maintenance Plan	Adequate (12/8/2011)
Sacramento Metro Area 8-hr Ozone Attainment Demonstration and Reasonable Further Progress	Adequate/Inadequate (1/29/2015)
Sacramento Metro Area 8-hr Ozone Reasonable Further Progress	Adequate (3/29/2006)
Sacramento Urbanized Area Carbon Monoxide Maintenance Plan	Adequate (1/30/2006)

Air Quality Attainment Status

State law requires the ARB to designate areas of the state as attainment, nonattainment, nonattainment-transitional, or unclassified for each California Ambient Air Quality Standard (CAAQS). An area is designated attainment for a given criteria pollutant if the state standard for that pollutant was not violated at any site in the area during a three-year period. An area is designated nonattainment for a given pollutant if there was at least one violation of a state standard for that pollutant in the area. A pollutant is designated nonattainment-transitional if the area is close to attaining the standard for that pollutant. A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

To identify the severity of the problem and the extent of planning required, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme).

The size of the CAAQS designated areas may vary depending on the pollutant, the location of contributing emission sources, the meteorology, and the topographic features. Currently, areas for ozone, nitrogen dioxide, PM₁₀, sulfates, and visibility reducing particles are designated at the air basin level. Areas for carbon monoxide, sulfur dioxide, lead, and hydrogen sulfide are designated at the county level. Each year, the Board reviews the area designations and updates them as appropriate, based on the three most recent complete and validated calendar years of air quality data.

The Federal Clean Air Act requires the EPA to designate areas as attainment, nonattainment, or unclassified for the National Ambient Air Quality Standards (NAAQS). These designations are similar to their state-level counterparts. Areas that were nonattainment but have recently achieved attainment are referred to as maintenance areas.

Table 46 provides a summary of the NAAQS and CAAQS attainment status in the Sacramento Valley Air Basin (SVAB) of the Project.

Table 46. NAAQS and CAAQS Attainment Status (SVAB)

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – 8-Hour	Nonattainment	Nonattainment
Ozone – 1-Hour	Attainment	Nonattainment
PM ₁₀	Attainment-Maintenance	Nonattainment
PM _{2.5}	Nonattainment	Attainment
Carbon Monoxide	Attainment/Unclassifiable	Attainment/Maintenance
Nitrogen Dioxide	Attainment/Unclassifiable	Attainment
Sulfur Dioxide	Attainment/Unclassifiable	Attainment
Sulfates	No Federal Standard	Attainment
Lead	Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility Reducing Particles	No Federal Standard	Unclassified
Vinyl Chloride	No Federal Standard	Unclassified
<i>Sources: SMAQMD 2017</i>		

Air Pollutant Properties, Effects, and Sources

The following section describes the pollutants of greatest importance in the Sacramento Valley. It provides a description of the physical properties, the health and other effects of the pollutant, and the sources of the pollutant.

Ozone (O₃)

Ozone is a photochemical pollutant: it is not emitted directly into the atmosphere but is formed by a complex series of chemical reactions between reactive organic gases (ROG), NO_x, and sunlight. ROG and NO_x are emitted from automobiles, solvents, and fuel combustion, the sources of which are widespread throughout the Sacramento Valley. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind.

While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels.

Reactive Organic Gases (ROG)

Reactive organic gases, also known as volatile organic compounds, are photochemically reactive hydrocarbons that are important for ozone formation. This definition excludes methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonates, methylene chloride, methyl chloroform and various chlorofluorocarbons (CFCs).

There are no health standards for ROG separately. The main concern with ROG is its role in photochemical ozone formation. In addition, some compounds that make up ROG are also toxic.

An example is benzene, which is a carcinogen. The primary sources of ROG are mobile sources, solvents, farming operations and other area sources, and oil & gas production.

Nitrogen Oxides (NO_x)

NO_x is a family of gaseous nitrogen compounds and are precursors to ozone formation. The major component of NO_x, nitrogen dioxide (NO₂), is a reddish-brown gas that is toxic at high concentrations. NO_x results primarily from the combustion of fossil fuels under high temperature and pressure.

Health effects associated with NO_x are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO₂ may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. Airborne NO_x can also impair visibility. NO_x is a major contributor to acid deposition in California. Motor vehicles and fuel combustion are the major sources of this air pollutant.

Carbon Monoxide (CO)

CO is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels and is emitted directly into the air. Under most conditions, CO does not persist in the atmosphere and is rapidly dispersed. CO exceedances are most likely to occur in the winter, when relatively low inversion levels trap pollutants near the ground and concentrate the CO. Since CO is somewhat soluble in water, normal winter conditions of rainfall and fog can suppress CO concentrations.

CO binds strongly to hemoglobin, the oxygen-carrying protein in blood, and thus reduces the blood's capacity for carrying oxygen to the heart, brain, and other parts of the body. The primary source of CO in the Sacramento Valley is on-road motor vehicles. Other CO sources include other mobile sources and waste burning. Because most of these CO sources are the indirect result of urban development, most emissions and unhealthy CO levels occur in major urban areas.

Particulate Matter (PM₁₀ and PM_{2.5})

Suspended particulate matter (airborne dust) consists of particles small enough to remain suspended in the air for long periods. Respirable particulate matter (PM₁₀ and PM_{2.5}) includes particulates of 10 microns or less in diameter—those which are small enough to be inhaled, pass through the respiratory system, and lodge in the lungs, with resultant health effects. PM₁₀ and PM_{2.5} are comprised of dust, sand, salt spray, metallic, and mineral particles, pollen, smoke, mist, and acid fumes. Also of importance are sulfate and nitrates, which are secondary particles formed as precipitates from photochemical reactions of gaseous sulfur dioxide (SO₂) and NO_x in the atmosphere. The actual composition of PM₁₀ and PM_{2.5} varies greatly with time and location. It depends on the sources of the material and meteorological conditions.

Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Generally speaking, PM_{2.5} sources tend to be combustion sources like vehicles, power generation, industrial processes, and wood burning, while PM₁₀ sources include these same sources plus roads and farming activities. Fugitive windblown dust and other area sources also represent sources of airborne dust in the Sacramento Valley.

Toxic Air Contaminants (TAC)

TACs include air pollutants that may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. ARB regulates emissions of TACs through the California Air Toxics Program.

Motor vehicles and their fuels are the largest source of toxic air emissions, with particulate matter from diesel-fueled engines (diesel PM) contributing over 70% of the known risk from air toxics today. Diesel PM has the potential to cause cancer, premature death, and other health problems. Those most vulnerable are children whose lungs are still developing and the elderly who may have other serious health problems. Diesel engines also contribute to California's fine particulate matter (PM_{2.5}) air quality problems.

Naturally occurring asbestos (NOA) is a designated TAC. When rock containing asbestos is broken or crushed, asbestos fibers may be released and become airborne. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma, and asbestosis. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

Odors

While offensive odors rarely cause physical harm, they can be unpleasant, leading to considerable annoyance and distress among the public and can generate citizen complaints to local governments and air districts. Odors can be generated from a variety of source types, including both construction and operational activities.

Potential Sensitive Receptors

Sensitive receptors are facilities that house or attract children, the elderly, people with illnesses or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors. Air quality problems arise when sources of air pollutants and sensitive receptors are located near one another.

No schools are adjacent to the Project; however, residential neighborhoods consisting of single-family and multi-family dwellings are adjacent to the Project area. Please see **Figure 35** for locations of these potential sensitive receptors.

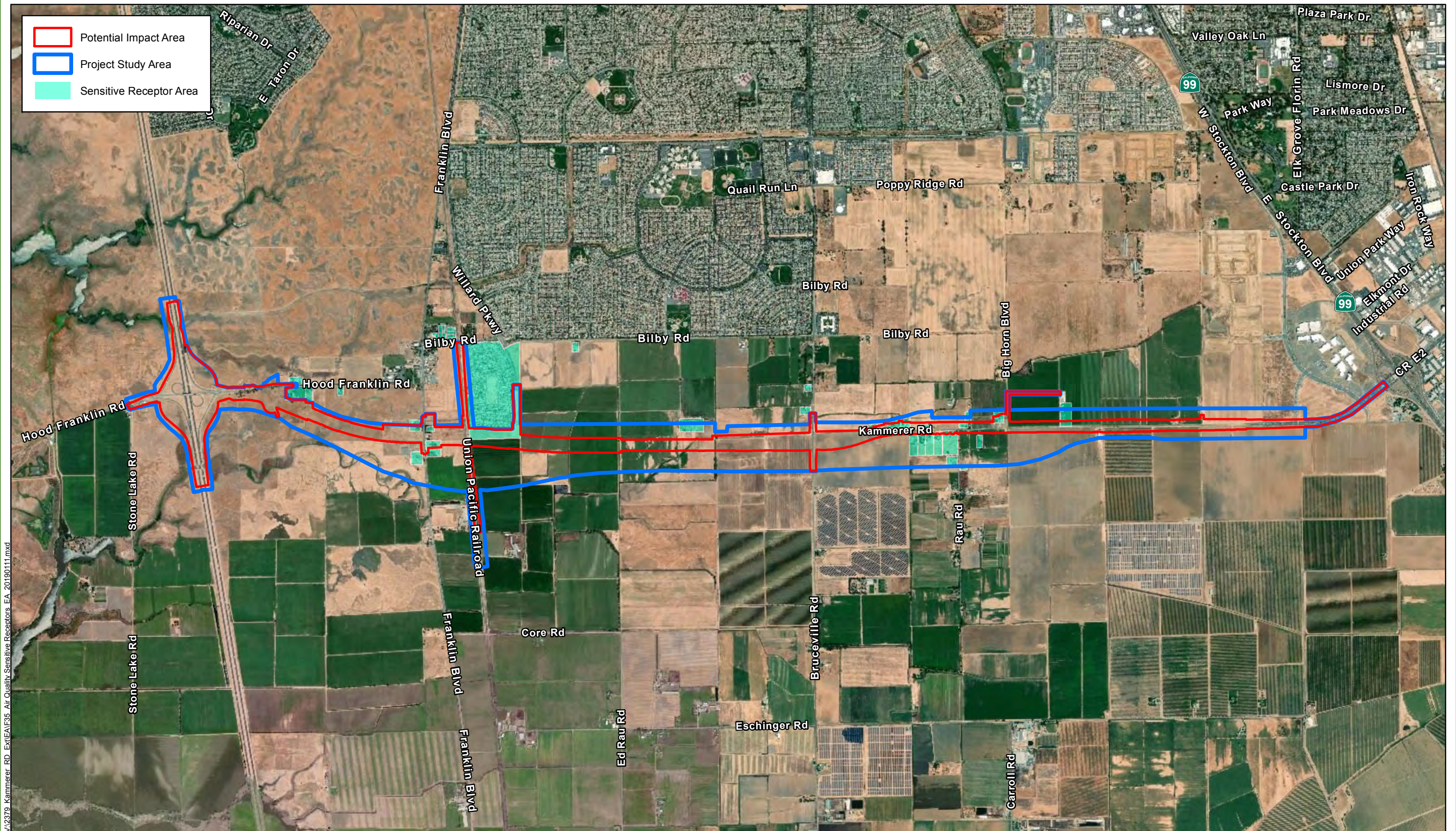
ENVIRONMENTAL CONSEQUENCES

Build Alternative

The Project is located in an area designated nonattainment for federal ozone and PM_{2.5} standards. As such, the Project is not exempt from conformity per 40 CFR 93.126 or 40 CFR 93.128 and it is not exempt from regional conformity per 40 CFR 93.127.

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- Potential Impact Area
- Project Study Area
- Sensitive Receptor Area



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

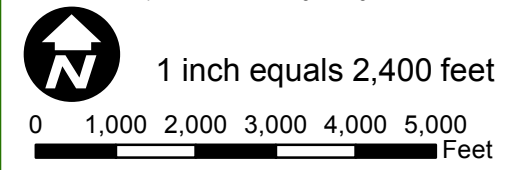


FIGURE 35
Sensitive Air Quality Receptors within 500 feet of Potential Impact Area

Regional Conformity

The Project is located in an area designated nonattainment for federal ozone and PM_{2.5} standards. As such, the Project is not exempt from conformity per 40 CFR 93.126 or 40 CFR 93.128 and it is not exempt from regional conformity per 40 CFR 93.127.

The Traffic Report relied on information contained within the SACOG financially constrained 2016 MTP/SCS (SACOG 2016a), which contains the Project. The Project is also included in the SACOG financially constrained 2017/2020 MTIP (SACOG 2016b). SACOG adopted the Final 2017/2020 MTIP, Amendment #4 to the 2016 MTP/SCS, and Air Quality Conformity Analysis on September 15, 2016. FHWA and FTA approved the 2017/2020 MTIP and Air Quality Conformity Analysis on December 16, 2016. The design concept and scope of the Project is consistent with the project description in the 2016 MTP/SCS, 2017/2020 MTIP, and the SACOG 2016 Air Quality Conformity Analysis (SACOG 2016c).

The Project was included in the regional emissions analysis conducted by SACOG for the conforming 2016 MTP/SCS. The plan is in conformity, and therefore, the individual projects contained in the plan are conforming projects and will have air quality impacts consistent with those identified in the state implementation plans (SIPs) for achieving the National Ambient Air Quality Standards (NAAQS). The FHWA determined the MTP to conform to the SIP on December 16, 2016.

In addition, the Project continues to be listed in the new SACOG financially constrained 2020 MTP/SCS (SACOG 2020a). The Project is also included in the SACOG financially constrained 2021/2024 MTIP (SACOG 2020b). SACOG adopted the Final 2021/2024 MTIP and Air Quality Conformity Analysis on February 18, 2021. FHWA and FTA approved the 2021/2024 MTIP and Air Quality Conformity Analysis on April 16, 2021. The design concept and scope of the Project is consistent with the project description in the 2020 MTP/SCS, 2021/2024 MTIP, and the SACOG 2020 Air Quality Conformity Analysis (SACOG 2020c).

The Project was included in the regional emissions analysis conducted by SACOG for the conforming 2020 MTP/SCS. The plan is in conformity, and therefore, the individual projects contained in the plan are conforming projects and will have air quality impacts consistent with those identified in the state implementation plans (SIPs) for achieving the National Ambient Air Quality Standards (NAAQS). The FHWA determined the MTP to conform to the SIP on April 16, 2021.

Therefore, the Project meets regional conformity requirements for purposes of project-level analysis and would be consistent with SMAQMD's regional air quality plans.

Project-Level Conformity

Interagency Consultation

SACOG completed an Interagency Consultation to determine if it is a Project of Air Quality Concern (POAQC) as defined in 40 CFR 93.116 and 93.123 and U.S.EPA's Hot-Spot Guidance. The Project obtained concurrence from both EPA and FHWA that the Project is not a POAQC on December 7, 2018. The concurrence is included in Appendix F, and a summary of the interagency consultation process for this Project can be found in **Table 47** below.

Table 47. Summary of Interagency Consultation Process.

Date	Format	Participants	Discussion Summary	Outcomes
12/5/18	Email	Connector JPA	Connector JPA initiated interagency consultation and requested	Interagency consultation initiated
12/6/18	Email	EPA	EPA submitted concurrence that project is not a project of air quality concern	EPA concur not a POAQC
12/7/18	Email	FHWA	Project Level Conformity Group has determined that the Capital SouthEast Connector A1/A2 Kammerer Road Extension Project (SAC24094, SAC24114) is Not a Project of Air Quality Concern (POAQC)	Project not a POAQC

Long-Term Effects (Operational Emissions)

Operational emissions take into account long-term changes in emissions due to the Project (excluding the construction phase). The operational emissions analysis compares forecasted emissions for existing/baseline, No-Build, and all Build alternatives. **Table 48** below contains a summary of all long-term operational emissions associated with the Project. Additional information regarding each criterion pollutant can be found in the following subsections of this chapter and emission calculations can be found in Appendix F.

Table 48. Summary of Comparative Emissions Analysis based on VMT

Scenario/ Analysis Year	CO (grams/day)	PM ₁₀ (grams/day)	PM _{2.5} (grams/day)	NO _x (surrogate for NO ₂) (grams/day)
Baseline (Existing Conditions) 2017	293,296.69	8,302.05	3,948.34	75,452.34
No-Build Future (2034)	150,486.36	8,853.92	3,684.44	30,744.29
Future + Project (2034)	150,588.80	8,859.94	3,686.95	30,765.22
No-Build Horizon Year (2036)	149,809.64	9,011.61	3,738.11	30,301.40
Horizon Year (2036)	149,914.67	9,017.93	3,740.73	30,322.64
No-Build Future (2044)	155,367.10	9,692.15	3,994.01	30,673.97
Future + Project (2044)	149,809.64	9,011.61	3,738.11	30,301.40

Particulate Matter

The Project is located in SVAB, which is in nonattainment for PM_{2.5}, thus a project-level hot-spot analysis for PM_{2.5} is required under 40 CFR 93.109. The Project does not cause or contribute to any new localized CO, PM_{2.5}, and/or PM₁₀ violations, or delay timely attainment of any NAAQS

or any required interim emission reductions or other milestones during the timeframe of the transportation plan (or regional emissions analysis).

PM emissions were estimated for Baseline, No-Build, and Build alternative for the existing, interim year 2034, horizon year 2036, and design year 2044. The results can be seen in **Table 49** below.

Table 49. PM Emissions based on VMT

Scenario/Analysis Year	PM10 Emissions (grams/day)	PM2.5 Emissions (grams/day)
Baseline (Existing Conditions) 2017	8,302.05	3,948.34
Open to Traffic (2034)		
<u>No Build</u>	8,853.92	3,684.44
<i>% Change from Existing</i>	+6.65%	-6.69%
<u>Build Alternative</u>	8,859.94	3,686.95
<i>% Change from Existing</i>	+6.72%	-6.62%
<i>% Change from No Build</i>	+0.001%	+0.001%
Horizon Year (2036)		
<u>No Build</u>	9,011.61	3,738.11
<i>% Change from Existing</i>	+8.55%	-5.26%
<u>Build Alternative</u>	9,017.93	3,740.73
<i>% Change from Existing</i>	+8.62%	-5.26%
<i>% Change from No Build</i>	+0.001%	+0.001%
Design-Year (2044)		
<u>No Build</u>	9,692.15	3,994.01
<i>% Change from Existing</i>	+16.74%	+1.16%
<u>Build Alternative</u>	9,011.61	3,738.11
<i>% Change from Existing</i>	+8.55%	-5.32%
<i>% Change from No Build</i>	-7.02%	-6.41%

The extension of Kammerer Road on a new alignment as a four lane expressway would result in higher PM emissions when compared to existing conditions due to the new segment of road that will be added as part of the connection to Hood Franklin Road. As shown in Table 49, PM₁₀, would be slightly higher than the existing conditions, but lower than the No-Build. PM_{2.5} would be less than the existing conditions and lower compared to the No-Build. Overall emissions are not anticipated to be substantially higher with the Project. Operational air quality impacts would not be substantial. Further, no cumulative impacts to criteria pollutants in non-attainment are anticipated as the Project's operational emissions for non-attainment pollutants are not significant under the Build Alternative.

Greenhouse Gas

Table 50 gives projected CO₂ emissions for existing, design year No-Build, and design year Build Alternative conditions. The projected emissions are based on VMT data. In the existing year, CO₂ emissions were modelled to be approximately 24,236 tons. CO₂ emissions in the design year under the no-build alternative were modelled to be approximately 19,455 tons. CO₂ emissions in the design year under the build alternative were modelled to also be approximately 19,455 tons. CO₂ emissions in the design year are expected to remain the same when compared to no-build conditions. For NEPA, future Build scenario emissions are compared with future No-Build scenario emissions; for CEQA, existing emissions are compared with future Build scenario emissions. The extension of Kammerer Road on a new alignment as a four lane expressway would result in higher CO₂ emissions when compared to existing conditions due to the new segment of road that will be added as part of the connection to Hood Franklin Road.

Table 50. Modeled CO₂ Emissions based on VMT

Alternative	CO ₂ Emissions (Tons)
Baseline (Existing Conditions) 2017	24,236.0
Open to Traffic (2034)	
No Build	18,943.5
<i>% Change from Existing</i>	-21.84%
Build Alternative	18,943.5
<i>% Change from Existing</i>	-21.84%
<i>% Change from No Build</i>	0.00%
Horizon Year (2036)	
No Build	18,870.5
<i>% Change from Existing</i>	-22.14%
Build Alternative	18,870.5
<i>% Change from Existing</i>	-22.14%
<i>% Change from No Build</i>	0.00%
Design-Year (2044)	
No Build	19,454.5
<i>% Change from Existing</i>	-19.73%
Build Alternative	19,454.5
<i>% Change from Existing</i>	-19.73%
<i>% Change from No Build</i>	0.00%

It should be noted that while these emission numbers are useful for comparing alternatives, they do not necessarily accurately reflect what the true CO₂ emissions will be because CO₂ emissions are dependent on other factors. The relative magnitudes however, as used for the comparison above, can be assumed to be reasonably accurate.

Hot-Spot Analysis

In November 2015, the U.S. EPA released an updated version of Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas (Guidance) for quantifying the local air quality impacts of transportation projects and comparing them to the PM NAAQS (75 FR 79370). The U.S. EPA originally released the quantitative guidance in December 2010 and released a revised version in November 2013 to reflect the approval of EMFAC 2011 and U.S. EPA's 2012 PM NAAQS final rule. The November

2015 version reflects MOVES2014 and its subsequent minor revisions such as MOVES2014a, to revise design value calculations to be more consistent with other U.S. EPA programs, and to reflect guidance implementation and experience in the field. Note that EMFAC, not MOVES, should be used for project hot-spot analysis in California. The Guidance requires a hot-spot analysis to be completed for a project of air quality concern (POAQC). The final rule in 40 CFR 93.123(b)(1) defines a POAQC as:

- (i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
- (ii) Projects affecting intersections that are at Level-of-Service (LOS) D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
- (iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
- (iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
- (v) Projects in or affecting locations, areas, or categories of sites which are identified in the PM_{2.5} and PM₁₀ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The Project is subject to PM conformity analysis because it is located within a PM_{2.5} nonattainment area. As the first step in demonstrating PM_{2.5}/PM₁₀ conformity, SACOG completed an Interagency Consultation to determine if it is a Project of Air Quality Concern (POAQC) as defined in 40 CFR 93.116 and 93.123 and U.S.EPA's Hot-Spot Guidance. SACOG obtained concurrence from both EPA and FHWA that the Project is not a POAQC on March 5, 2018. The concurrence is included in Appendix E within the Air Quality Report.

Table 51 details why the Project does not meet the definition of a Project of Air Quality Concern.

Table 51. Projects of Air Quality Concern

EPA Definition of POAQC	Project
(i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;	The Project would replace an existing portion of Kammerer Road with a four-lane thoroughfare, construct a new four-lane expressway section to I-5, and implement railroad grade separation and interchange improvements as discussed below. Based on the average daily traffic (ADT) volumes and heavy truck percentages provided by DKS Associates in October 2018, construction of the Project would not result in significant increased daily truck trips under both existing and future conditions on affected roadways. The highest ADT volume that would occur under Future + Project conditions is 51,600 ADT. Therefore, no traffic volume increase exceeding the 125,000 vehicle criteria for a POAQC would occur. In addition, the highest truck average daily trips under Future + Project conditions is estimated to be 2,064 daily truck trips. Therefore, the total truck average daily trips would remain below the 10,000 vehicle criteria for POAQC.
(ii) Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;	The Project does not affect intersections that are at level of service D, E, or F with a significant number of diesel vehicles.
(iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;	The Project does not include new bus or rail terminals and transfer points.
(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and	The Project does not include expanded bus or rail terminals and transfer points.
(v) Projects in or affecting locations, areas, or categories of sites which are identified in the PM ₁₀ or PM _{2.5} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.	The Project is not in, nor will it affect, a location of violation or possible violation.
<i>Source: DKS Associates, 2018</i>	

Carbon Monoxide Hot-Spot Analysis

In March 2018, the U.S. EPA sent out a letter to document that the transportation conformity requirements under Clean Air Action section 176(c) for certain CO maintenance areas would end on June 1, 2018. The areas listed in the letter included Bakersfield, Chico, Fresno, Lake Tahoe North Shore, Lake Tahoe South Shore, Modesto, Sacramento, San Diego, San Francisco-Oakland-San Jose, and Stockton. This date marked 20 years from the redesignation of the areas to attainment for the CO NAAQS. As such, a CO analysis for this Project is not required.

NO₂ Analysis

The U.S. EPA modified the NO₂ NAAQS to include a 1-hr standard of 100 ppb in 2010. Currently there is no federal project-level nitrogen dioxide (NO₂) analysis requirement; however, NO₂ is among the near-road pollutants of concern. For project-level analysis, a NO₂ assessment protocol is not available; however, CT-EMFAC-2014 version 6.0.0.29548, provides a NO_x (combination of NO and NO₂) emissions estimate. Near-road NO₂ concentrations will likely be dominated by overall NO_x emissions. As long as ozone is present at relatively low (background) concentrations, most of the directly emitted NO will convert to NO₂ within a few seconds. Therefore, NO_x emissions overall can serve as a useful analysis surrogate for NO₂ (see the Department's Near-Road Nitrogen Dioxide Assessment (Department, 2012)).

For NEPA, future Build scenario emissions are compared with future No-Build scenario emissions; for CEQA, future scenario emissions (Build and No-Build) are compared with Baseline (Existing Conditions) emissions in **Table 52** below.

The extension of Kammerer Road on a new alignment as a four-lane expressway would result in less NO_x emissions. As shown in **Table 52**, NO_x criteria pollutants in attainment in the SVAB, the Build and No-Build Alternatives would be lower than the existing conditions. Overall emissions are not anticipated to be substantially higher with the proposed Project. Operational air quality impacts would not be substantial. Further, no cumulatively considerable impacts to criteria pollutants in non-attainment are anticipated as the Project's operational emissions for non-attainment pollutants are not an adverse impact under the Build Alternative.

Table 52. NO_x Emissions based on VMT

Alternative	NO_x Emissions (grams/day)
Baseline (Existing Conditions) 2017	75,452.34
Open to Traffic (2034)	
<u>No Build</u>	30,744.29
<i>% Change from Existing</i>	-59.25%
<u>Build Alternative</u>	30,765.22
<i>% Change from Existing</i>	-59.23%
<i>% Change from No Build</i>	+0.001%
Horizon Year (2036)	
<u>No Build</u>	30,301.40
<i>% Change from Existing</i>	-59.84%
<u>Build Alternative</u>	30,322.64
<i>% Change from Existing</i>	-59.81%
<i>% Change from No Build</i>	+0.001%
Design-Year (2044)	
<u>No Build</u>	30,673.97
<i>% Change from Existing</i>	-59.35%
<u>Build Alternative</u>	30,301.40
<i>% Change from Existing</i>	-59.84%
<i>% Change from No Build</i>	-0.01%

Mobile Source Air Toxics (MSAT) Analysis

FHWA released updated guidance in October 2016 (FHWA, 2016) for determining when and how to address MSAT impacts in the NEPA process for transportation projects. FHWA identified three levels of analysis:

- No analysis for exempt projects or projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; and
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Projects with no impacts generally include those that a) qualify as a categorical exclusion under 23 CFR 771.117, b) qualify as exempt under the FCAA conformity rule under 40 CFR 93.126, and c) are not exempt, but have no meaningful impacts on traffic volumes or vehicle mix.

Projects that have low potential MSAT effects are those that serve to improve highway, transit, or freight operations or movement without adding substantial new capacity or creating a facility that is likely to substantially increase emissions. The large majority of projects fall into this category.

Projects with high potential MSAT effects include those that:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of Diesel Particulate Matter in a single location; or

- Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000, or greater, by the design year; and
- Are proposed to be located in proximity to populated areas or, in rural areas, in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

Given that design-year traffic volume for the most heavily traveled segment in the modeled area is predicted to be up to 51,600 for the Build Alternative (DKS Associates, 2018), the Project falls within Category 2, a project with low potential MSAT effects. As such, a qualitative MSAT analysis is appropriate.

For each alternative, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The regional VMT estimated for the Build Alternative is slightly higher than the VMT estimated for the No-Project Alternative for both freeways, rural, and urban streets. However, VMT is not evaluated within this NEPA EA as evaluation of VMT is not required under NEPA (as opposed to CEQA, where VMT analysis is now required after the passage of Senate Bill 743). It is expected there is a slight increase in overall MSAT emissions as a result of implementation of the Build Alternative. Emissions, however, are virtually certain to be lower than present levels in the design year as a result of the EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for regional VMT growth) that MSAT emissions in the study area are likely to be lower in the future than they are today.

Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, <http://www.epa.gov/iris/>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on MSAT Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in

occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts - each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (2007)³. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA⁴ and the HEI (2007)⁵ have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld the EPA's approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information

³ (<http://pubs.healtheffects.org/view.php?id=282>)

⁴ (<http://www.epa.gov/risk/basicinformation.htm#g>)

⁵ (<http://pubs.healtheffects.org/getfile.php?u=395>)

against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

The Project would result in slightly increased MSAT emissions over the No-Build and Existing conditions. However, operational air quality impacts would not be substantial.

MSAT Conclusion

Research on mobile source air toxics is still evolving. As the science progresses, FHWA will continue to revise and update the guidance on MSAT analysis in NEPA. FHWA is working with Stakeholders, the EPA and others to better understand the strengths and weaknesses of developing analysis tools and the applicability on the project level decision documentation process.

Short-Term Effects (Construction Emissions)

Construction Equipment, Traffic Congestion, and Fugitive Dust

Site preparation and roadway construction will involve clearing, grading, removing or improving existing roadways, installing a traffic signal, constructing new ADA compliant curbs, and paving roadway surfaces. During construction, short-term degradation of air quality is expected from the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment powered by gasoline and diesel engines are also anticipated and would include CO, NO_x, VOCs, directly emitted PM₁₀ and PM_{2.5}, and toxic air contaminants (TACs) such as diesel exhaust particulate matter. Construction activities are expected to slightly increase traffic congestion in the area, resulting in increases in emissions from traffic during the delays. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Under the transportation conformity regulations (40 CFR 93.123(c)(5)), construction-related activities that cause temporary increases in emissions are not required in a hot-spot analysis. These temporary increases in emissions are those that occur only during the construction phase and last five years or less at any individual site. They typically fall into two main categories:

- *Fugitive Dust*: A major emission from construction due to ground disturbance. All air districts and the California Health and Safety Code (Sections 41700-41701) prohibit “visible emissions” exceeding three minutes in one hour – this applies not only to dust but also to engine exhaust. In general, this is interpreted as visible emissions crossing the right-of-way line. Rule 403 to minimize fugitive dust also applies to all road construction projects within the SMAQMD jurisdiction.

Sources of fugitive dust include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site may deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions may vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

- *Construction equipment emissions:* Diesel exhaust particulate matter is a California-identified toxic air contaminant, and localized issues may exist if diesel-powered construction equipment is operated near sensitive receptors.

Construction emissions were estimated using the latest SMAQMD's Road Construction Model (<http://www.airquality.org/ceqa/>, Version 8.1.0). Construction-related emissions for the Project are presented in **Table 53**. The results of the construction emission calculations are included in Appendix F. The emissions presented are based on the best information available at the time of calculations. The emissions represent the peak daily construction emissions that would be generated by each alternative.

Table 53. Construction Emissions for Roadway

	PM₁₀ (lbs/day)	PM_{2.5} (lbs/day)	CO (lbs/day)	NO_x (lbs/day)	CO₂ (tons/phase)
Grubbing/Land Clearing	12.17	3.22	15.26	36.37	720.66
Grading/Excavation	14.22	5.45	52.03	83.38	2,794.43
Drainage/Utilities/ Sub-Grade	12.76	4.62	44.59	54.76	650.08
Paving	1.77	1.26	22.13	27.17	520.18
Maximum daily (lbs/day)	14.22	5.45	52.03	83.38	2,794.43
Project Total (tons/construction project)	3.22	1.20	11.45	16.96	4,685.36

Implementation of measures **AQ-1** through **AQ-5** would reduce air quality impacts resulting from construction activities. Please note that although these measures are anticipated to reduce construction-related emissions, these reductions cannot be quantified at this time.

Naturally Occurring Asbestos (NOA)

Based on review of the map, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (CDOC 2000), ultramafic rock occurrence is not mapped in the area of the County where NOA is expected to occur.

Odors

During construction, minor sources of odors would be present. Exhaust odors from diesel engines and fuel, as well as emissions associated with asphalt paving may be considered offensive to some individuals. However, because odors would be temporary and would disperse rapidly with distance from the source, construction-generated odors would not be anticipated to result in the frequent exposure of receptors to objectionable odors.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and potential impacts to air quality would not occur. As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aid in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following avoidance and minimization measures have been developed for potential air quality impacts.

AQ-1: Implement SMAQMD Basic and Enhanced Construction Emission Control Practices to Reduce Fugitive Dust, where feasible and applicable to the Project.

The implementing agency will require, as a standard or specification of their contract, the construction contractor(s) to implement basic and enhanced control measures to reduce construction-related fugitive dust. Although the following measures are outlined in the SMAQMD's CEQA guidelines, they are required for the entirety of the construction area. The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

- Water all exposed surfaces two times daily. Exposed surfaces include (but are not limited to) soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour.
- All roadway, driveway, sidewalk, and parking lot paving should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

Enhanced Control Measures – Disturbance Areas

- Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site.
- Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph.
- Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas.
- Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established.

Enhanced Control Measures – Unpaved Roads (Entrained Road Dust)

- Install wheel washers for all exiting trucks, or wash off all trucks and "equipment leaving the site.
- Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The phone number of the District shall also be visible to ensure compliance.

Additional Control Measures – Off-Site Mitigation Fees Payable to the SMAQMD

- In the event that the SMAQMD basic and enhanced construction mitigation measures are not sufficient to reduce NO_x emissions below the SMAQMD's construction NO_x threshold, the remaining NO_x emissions in excess of the SMAQMD's threshold would be offset by the Connector JPA through a fee paid to the SMAQMD who will fund cost-effective Projects that reduce NO_x, in the Project area, to the extent possible, and otherwise within the Sacramento air basin. The fee will be calculated using the SMAQMD's current rate of NO_x per ton at the time of construction in addition to SMAQMD administration fees. Currently, the SMAQMD's off-site mitigation fee is \$30,000 per ton of NO_x, in addition to a 5% administration fee.

AQ-2: Implement SMAQMD Basic Construction Emission Control Practices to Reduce NO_x

The implementing agency will require, as a standard or specification of their contract, that the construction contractor(s) implement basic control measures to reduce NO_x emissions from diesel-powered construction equipment. Although the following measures are outlined in SMAQMD's CEQA guidelines, they will be required by the SMAQMD for the entirety of the construction area. The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

- Minimize idling time either by shutting equipment off when not in use or "limiting the time of idling to 3 minutes (5 minutes required by 13 CCR 2449[d] [3], 2485). Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified

mechanic and determined to be running in proper condition before it is operated. The Connector JPA will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

AQ-3: Implement SMAQMD Enhanced Construction Emission Control Practices to Reduce NOx

The implementing agency will require, as a standard or specification of their contract, that the construction contractor(s) implement enhanced control measures to reduce NOx emissions from diesel-powered construction equipment. The following measures are outlined in SMAQMD's CEQA guidelines and are required for the entirety of the construction area. The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.

- The Project representative shall submit to the lead agency and SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The Project representative shall provide the anticipated construction timeline including start date, and name and phone number of the Project manager and on-site foreman. This information shall be submitted at least 3 business days prior to the use of subject heavy-duty off-road equipment. The inventory shall be updated and submitted monthly throughout the duration of the Project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs.
- Provide a plan for approval by the SMAQMD demonstrating that the heavy-duty (50-horsepower or more) off-road vehicles to be used in the construction Project, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet-average 20% NOx reduction and 45% PM exhaust reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine-retrofit technology, after-treatment products, or other options as they become available.
- Ensure that emissions from all off-road diesel-powered equipment used on the Project site do not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.03) will be repaired immediately. Non-compliant equipment will be documented and a summary provided periodically to the lead agency and air district. A visual survey of all in-operation equipment will be made at least periodically by the proponent agency(s), and a periodic summary of the visual survey results will be submitted throughout the duration of the Project, except that the summary will not be required for any 30-day period in which no construction activity occurs. The summary will include the quantity and type of vehicles surveyed, as well as the dates of each survey. The air districts or other officials may conduct periodic site inspections to determine compliance. Nothing in this measure will supersede other air district or state rules or regulations.

While the Project is not required to mitigate for air quality impacts under NEPA, pursuant to the provisions of CEQA, the Connector JPA will ensure through contract provisions and specifications that the contractor adheres to the CEQA mitigation measures before and during construction and documents compliance with the adopted CEQA mitigation measures.

AQ-4: Implement Additional Exposure Reduction Strategies to Further Minimize Potential Health Risks.

The implementing agency will implement strategies to reduce the potential for sensitive receptors along the Project corridor to be exposed to DPM. Potential strategies include (but are not limited to) creating a buffer zone of at least 50 feet between the roadway and sensitive land uses (e.g., residences, parks, churches, and medical facilities), as well as planting additional vegetation along the Project corridor (A laboratory study indicates that all forms of vegetation are effective in removing PM₁₀, although the greatest removal rates are achieved with redwood and deodar cedar –[Sacramento Metropolitan Air Quality Management District 2010]). These strategies should be focused in areas where sensitive receptors are directly adjacent to the roadway. Selection of these species should be maximized to help reduce PM₁₀ to the extent feasible.

- A landscape plan shall include a vegetation barrier consistent with the Sacramento Metropolitan Air Quality Management District's Landscaping Guidance for Improving Air Quality near Roadways. The landscape plan shall include individual plant locations, species, approved alternate species for substitutions, plant material size and plant material source. Landscape plans shall be approved by the Connector JPA prior to site preparation and installation activities.

AQ-5: Conduct a Geological Investigation for Naturally Occurring Asbestos and Implement an Asbestos Dust Mitigation Plan if Naturally Occurring Asbestos Is Found in the Project Area.

The implementing agency will conduct a site-specific geological investigation for all construction areas with known potential to contain NOA. According to the CGS, this includes all portions of the construction area east of Folsom (California Geological Survey 2006). If NOA is identified in the Project area, the implementing agency will submit an asbestos dust mitigation plan to the SMAQMD pursuant to the State of California's Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. This plan shall be prepared prior to ground breaking by the implementing agency.

2.2.7 NOISE

REGULATORY SETTING

The NEPA of 1969 provides the broad basis for analyzing and abating highway traffic noise effects. The intent of this law is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement under NEPA are described below.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA involvement (and the Department, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 Code of Federal Regulations [CFR] 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). **Table 54** lists the noise abatement criteria for use in the NEPA/23 CFR 772 analysis.

Figure 36 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

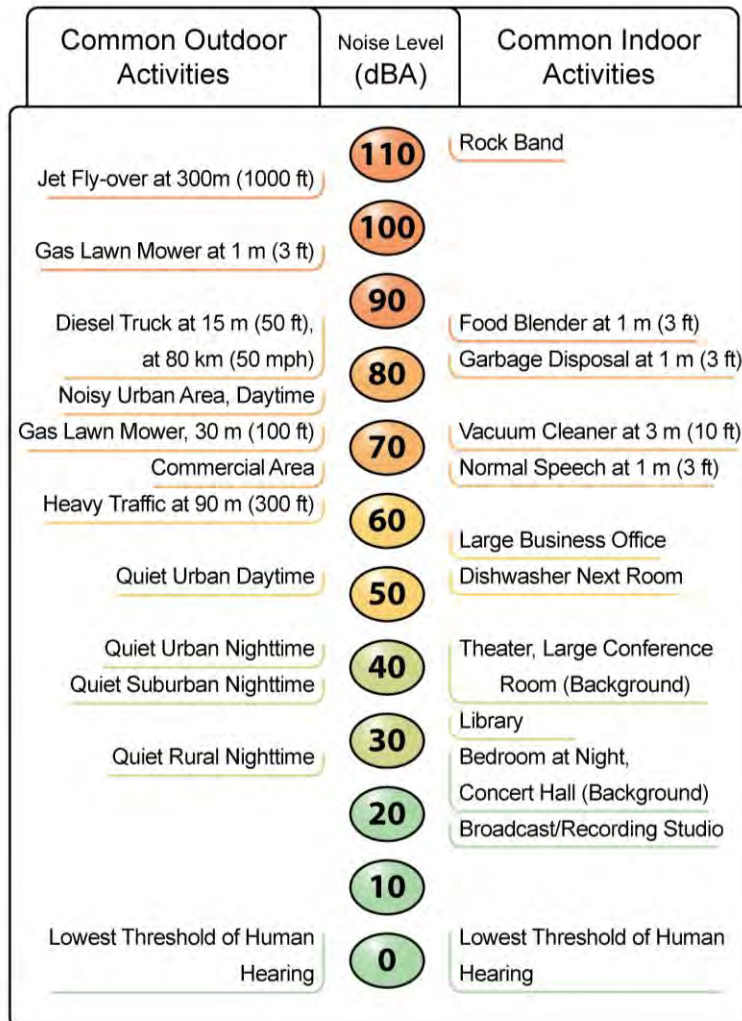
Table 54. Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ¹	67 (Exterior)	Residential.
C ¹	67 (Exterior)	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.

Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

¹ Includes undeveloped lands permitted for this activity category.

Figure 36. Noise Levels of Common Activities



According to the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011*, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the Project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the Project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the Project.

The Department's Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction for all impacted receptors in the future noise levels must be achieved for an abatement to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. Additionally, a noise reduction of at least 7 dBA must be achieved at one or more benefited receptors for an abatement measure to be considered reasonable. The reasonableness determination is a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance and the cost per benefited residence.

Vibratory Regulatory Setting

There are currently no FHWA or State standards for vibration impacts. The City and County have also not adopted construction vibration thresholds. This document will use recommendation from the Department to assess damage potential to nearby structures from ground vibration induced by construction equipment. **Table 55** below provides guidelines for vibration damage potential threshold criteria.

Table 55. Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5
<i>Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.</i>		
<i>Source: Department Transportation- and Construction-Induced Vibration Guidance Manual, June 2004</i>		

In addition to the Department recommendation for potential damage from vibratory impacts, the Department also recommends the criteria to evaluate the potential for human annoyance. **Table 56** below provides guidelines for vibration annoyance criteria.

Table 56. Guideline Vibration Annoyance Potential Criteria

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.1
Severe	2.0	0.4
<i>Note:</i> Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.		
<i>Source:</i> Department Transportation- and Construction-Induced Vibration Guidance Manual, June 2004		

AFFECTED ENVIRONMENT

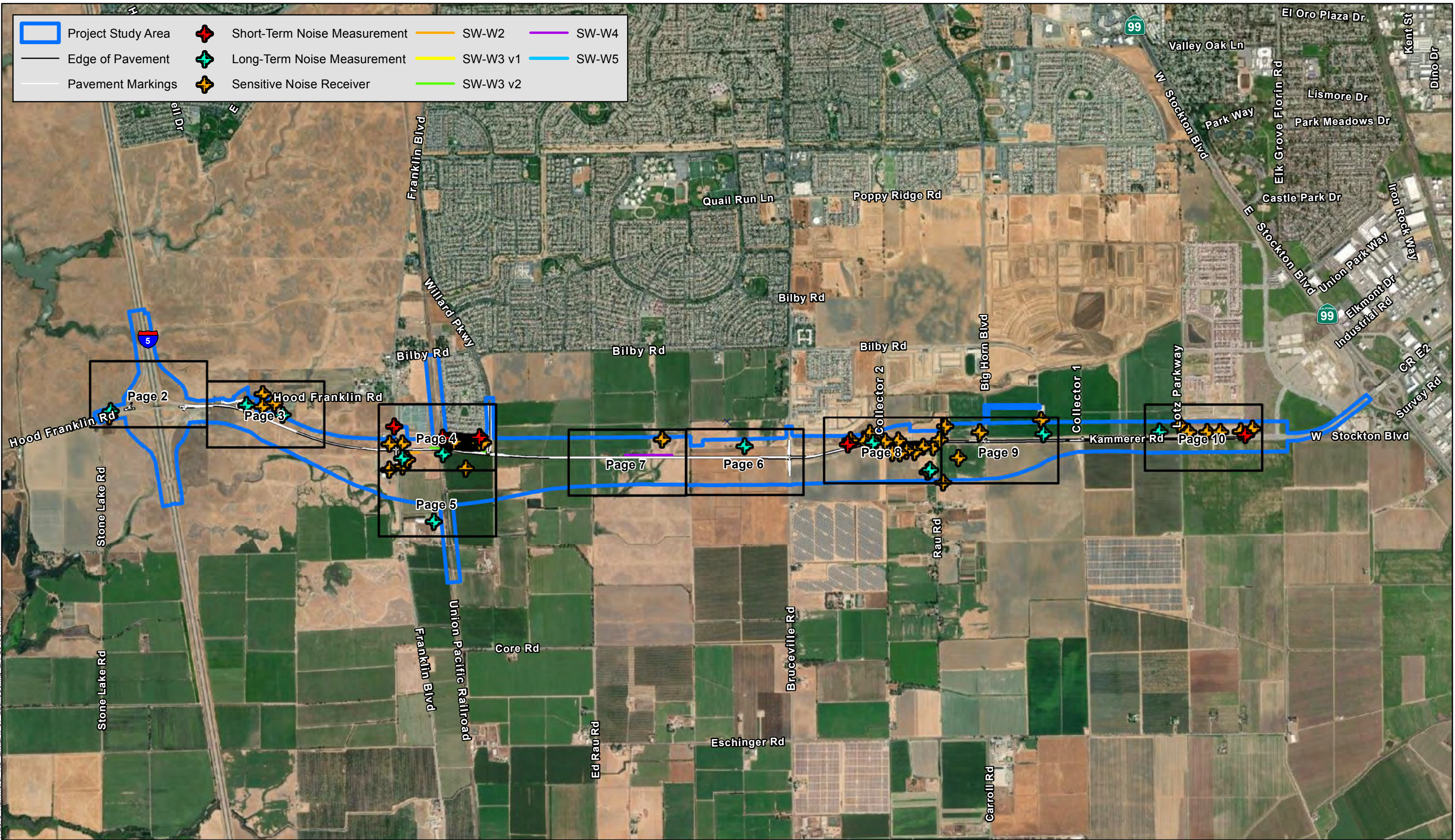
In October 2016, a Noise Study Report (NSR) for the Kammerer Road Extension Project was prepared for the Project (Bollard Acoustical Consultants, Inc 2016). At that time, multiple alternatives were analyzed including a North and a South Overhead alignment. Since the 2016 NSR, the Project has been modified and includes only two alternatives: the Build Alternative, which is located on a slightly modified alignment than what was previously analyzed, and the No-Build Alternative. In January 2019, a revised NSR (Dokken Engineering 2019a) was prepared and approved by the Department. For CEQA requirements, the Project CEQA lead agency, Connector JPA, approved and adopted the Capital SouthEast Connector – A1/A2 Kammerer Road Project Initial Study with Mitigated Negative Declaration in December 2018, which analyzes noise impacts relative to the City and County general plan noise policies. The following information is a summary of potential noise impacts from the 2019 NSR.

Existing Land Uses

Developed and undeveloped land uses in the Project vicinity were identified through inspection of aerial photography and a detailed field investigation. Land uses in the Project vicinity include rural residential, single-family residential, agricultural, and unimproved properties. Within each land use category, sensitive receivers were then identified. A sensitive receiver could be defined as an occupied space where the occupants are sensitive to the noise environment.

Receptors were included in this assessment if they were located within 500 feet of either the I-5/Hood Franklin Road Interchange right-of-way or within 500 feet of the proposed Kammerer Road alignments. A total of fifty-five (55) residential receptor locations were identified within this evaluation area. These modeled receptor locations are shown in **Figures 37** with a 2-lane configuration in the interim year 2034 and in **Figure 38** with a 4-lane configuration in the design year 2044.

- Project Study Area
- + Short-Term Noise Measurement
- SW-W2
- SW-W4
- Edge of Pavement
- + Long-Term Noise Measurement
- SW-W3 v1
- SW-W5
- Pavement Markings
- + Sensitive Noise Receiver
- SW-W3 v2



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Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

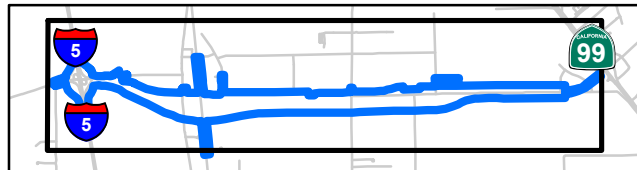
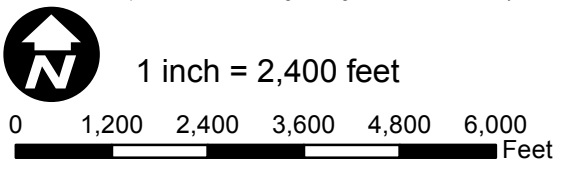











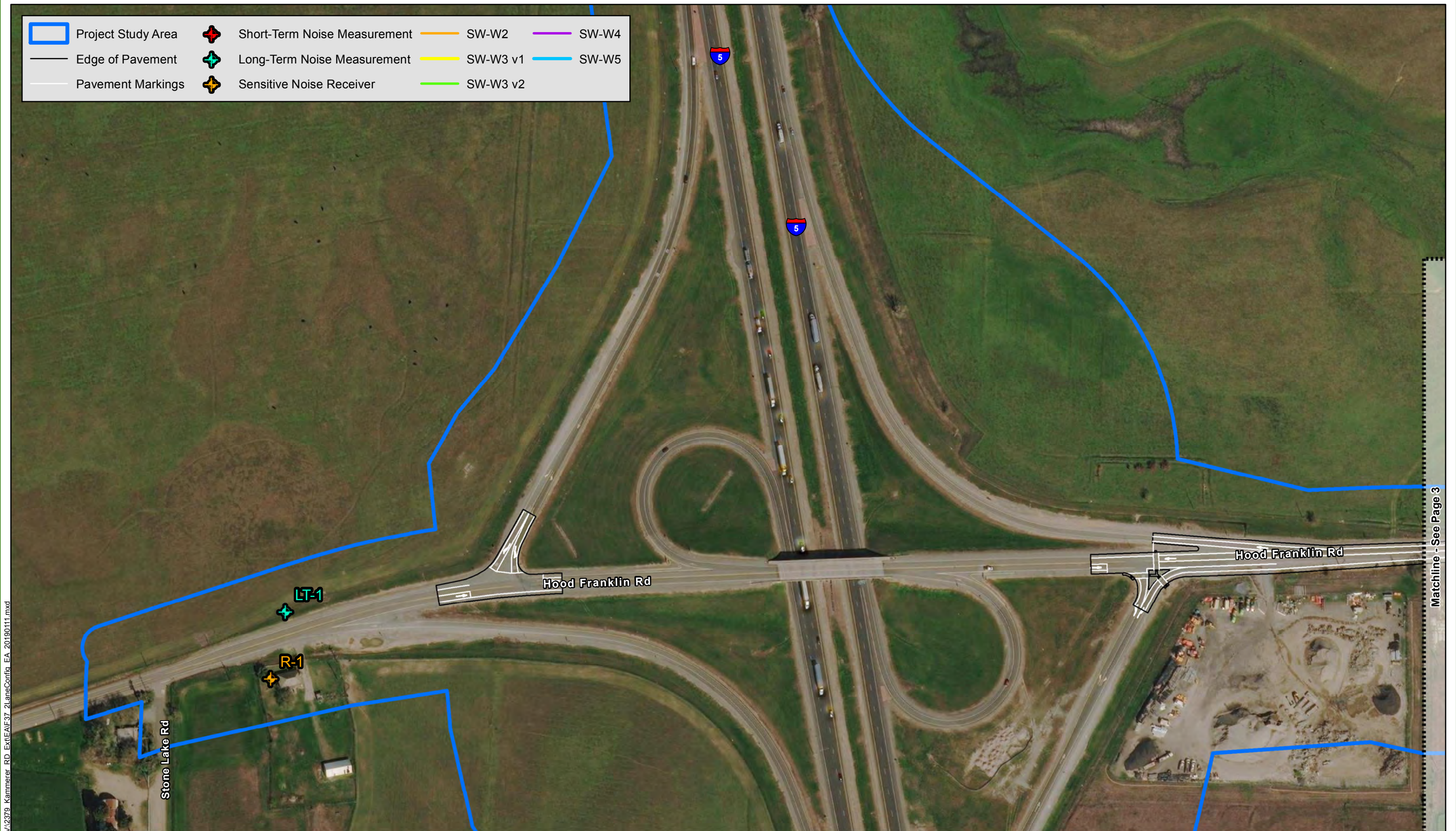


FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
Page 1 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

- | | | | |
|--|--|--|---|
|  Project Study Area |  Short-Term Noise Measurement |  SW-W2 |  SW-W4 |
|  Edge of Pavement |  Long-Term Noise Measurement |  SW-W3 v1 |  SW-W5 |
|  Pavement Markings |  Sensitive Noise Receiver |  SW-W3 v2 | |



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Matchline - See Page 3

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kohen

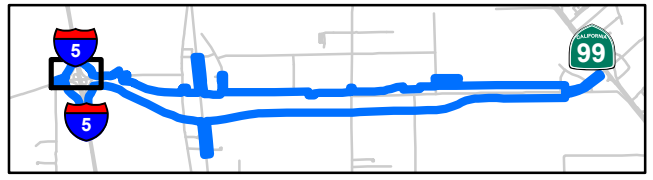
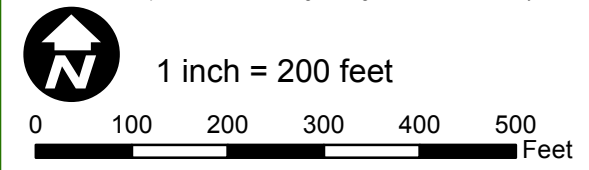













FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
 Page 2 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

-  Project Study Area
-  Short-Term Noise Measurement
-  SW-W2
-  SW-W4
-  Edge of Pavement
-  Long-Term Noise Measurement
-  SW-W3 v1
-  SW-W5
-  Pavement Markings
-  Sensitive Noise Receiver
-  SW-W3 v2

Matchline - See Page 2

V:\2379_Kammerer RD_Ext\EA\F37_2LaneConfig_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

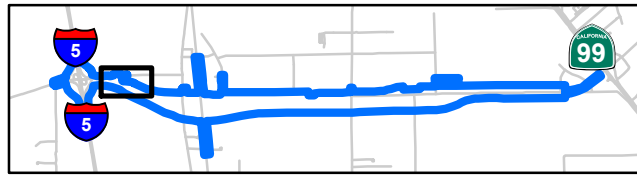
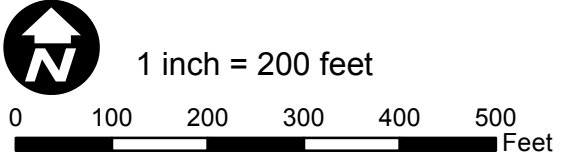
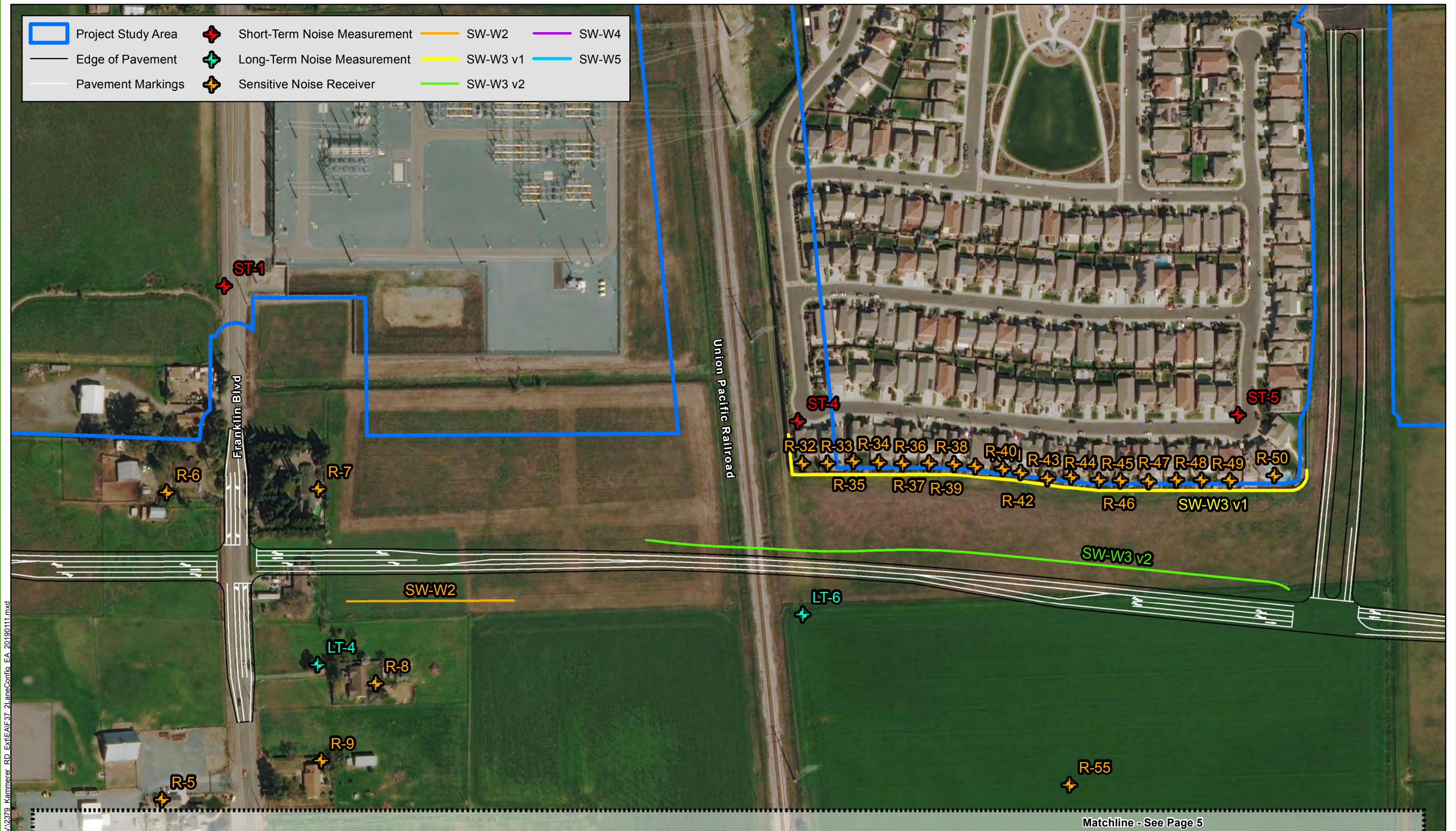


FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
 Page 3 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

- Project Study Area
- Edge of Pavement
- Pavement Markings
- + Short-Term Noise Measurement
- + Long-Term Noise Measurement
- + Sensitive Noise Receiver
- SW-W2
- SW-W3 v1
- SW-W3 v2
- SW-W4
- SW-W5



V:\2379_Kammerer RD_Ext\EA\F37_2LaneConfig_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kohen

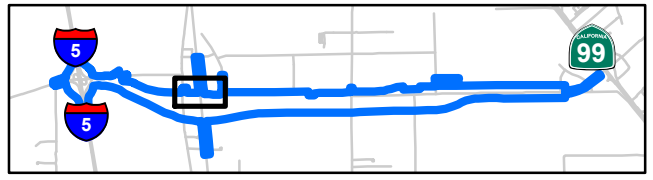
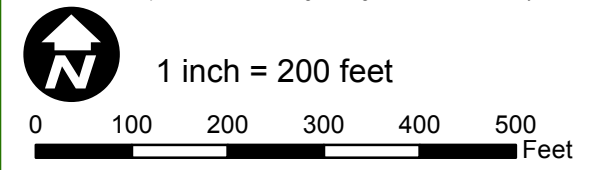











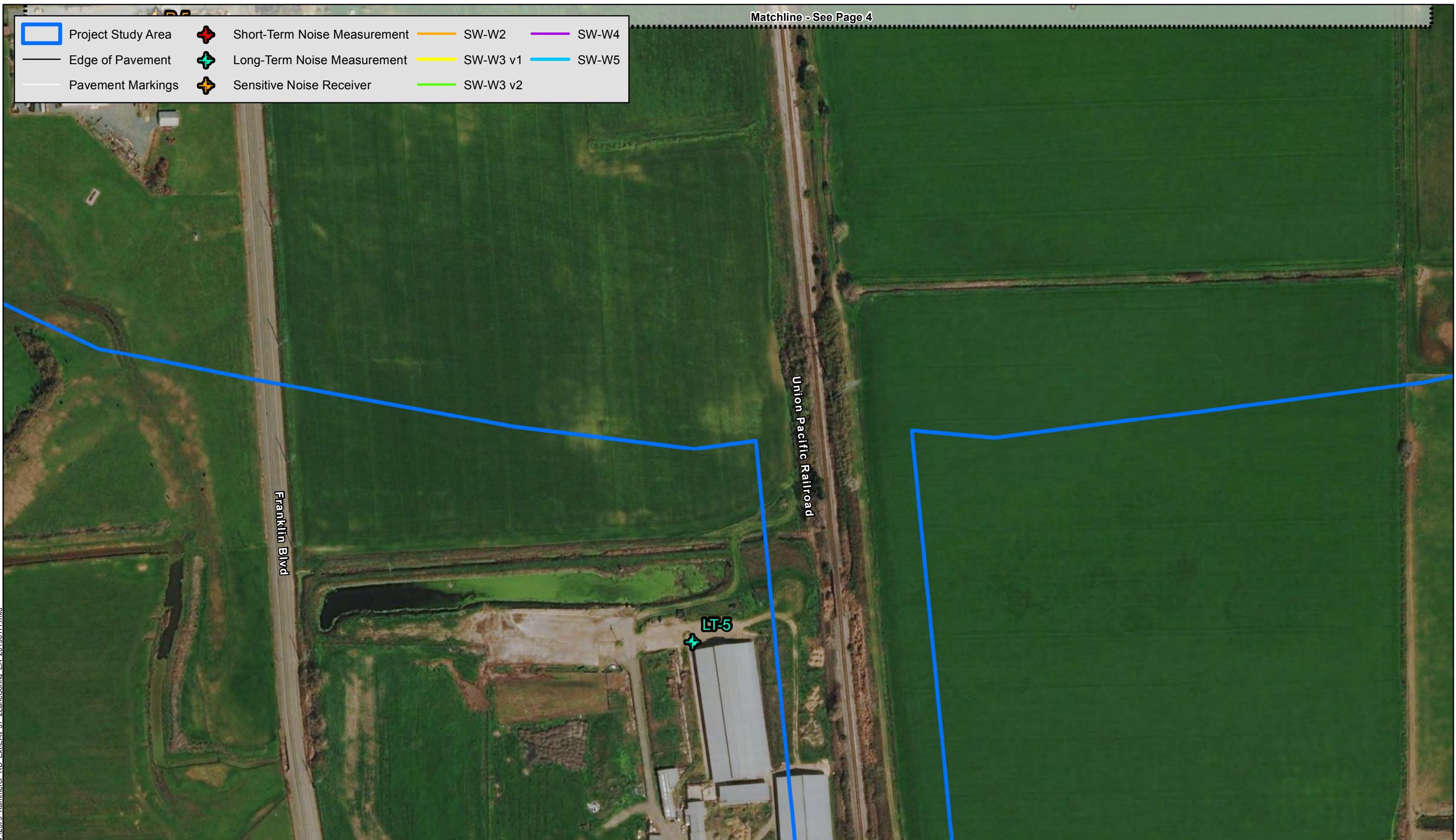


FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
Page 4 of 10

Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Matchline - See Page 4

-  Project Study Area
-  Edge of Pavement
-  Pavement Markings
-  Short-Term Noise Measurement
-  Long-Term Noise Measurement
-  Sensitive Noise Receiver
-  SW-W2
-  SW-W3 v1
-  SW-W3 v2
-  SW-W4
-  SW-W5



V:\2379_Kammerer_RD_Ext\EA\F37_2LaneConfig_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

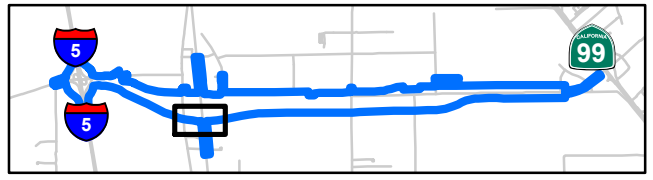
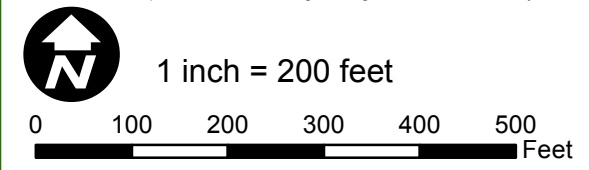













FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
Page 5 of 10

-  Project Study Area
-  Edge of Pavement
-  Pavement Markings
-  Short-Term Noise Measurement
-  Long-Term Noise Measurement
-  Sensitive Noise Receiver
-  SW-W2
-  SW-W3 v1
-  SW-W3 v2
-  SW-W4
-  SW-W5



V:\2379_Kammerer_RD_Ext\EA\F37_2LaneConfig_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

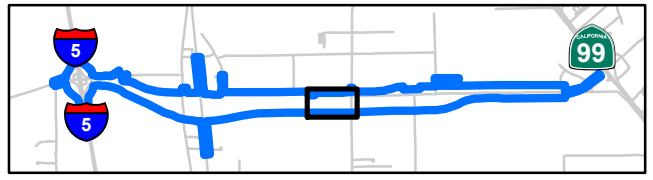
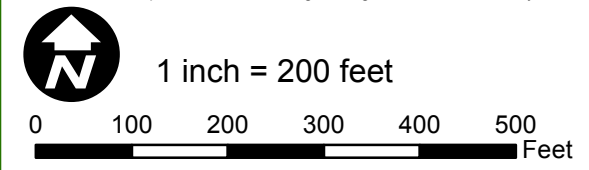











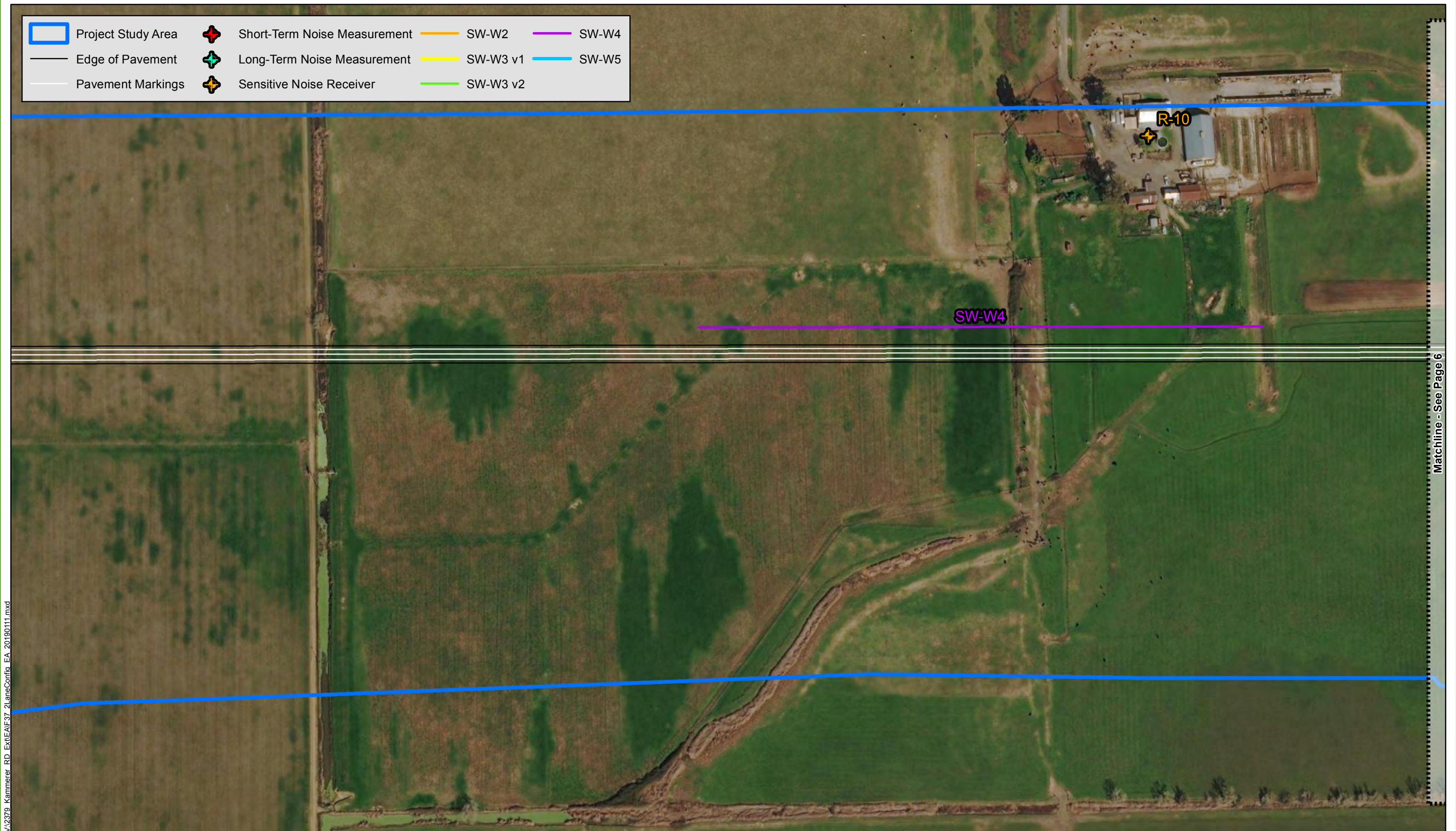


FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
Page 6 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

- | | | | | | | | |
|---|--------------------|---|------------------------------|---|----------|---|-------|
|  | Project Study Area |  | Short-Term Noise Measurement |  | SW-W2 |  | SW-W4 |
|  | Edge of Pavement |  | Long-Term Noise Measurement |  | SW-W3 v1 |  | SW-W5 |
|  | Pavement Markings |  | Sensitive Noise Receiver |  | SW-W3 v2 | | |



Matchline - See Page 6

V:\2379_Kammerer_RD_Ext\EA\F37_2LaneConfig_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

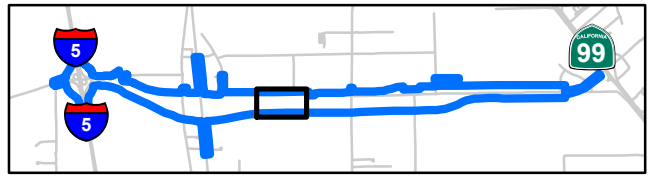
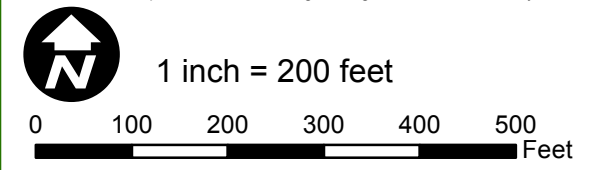











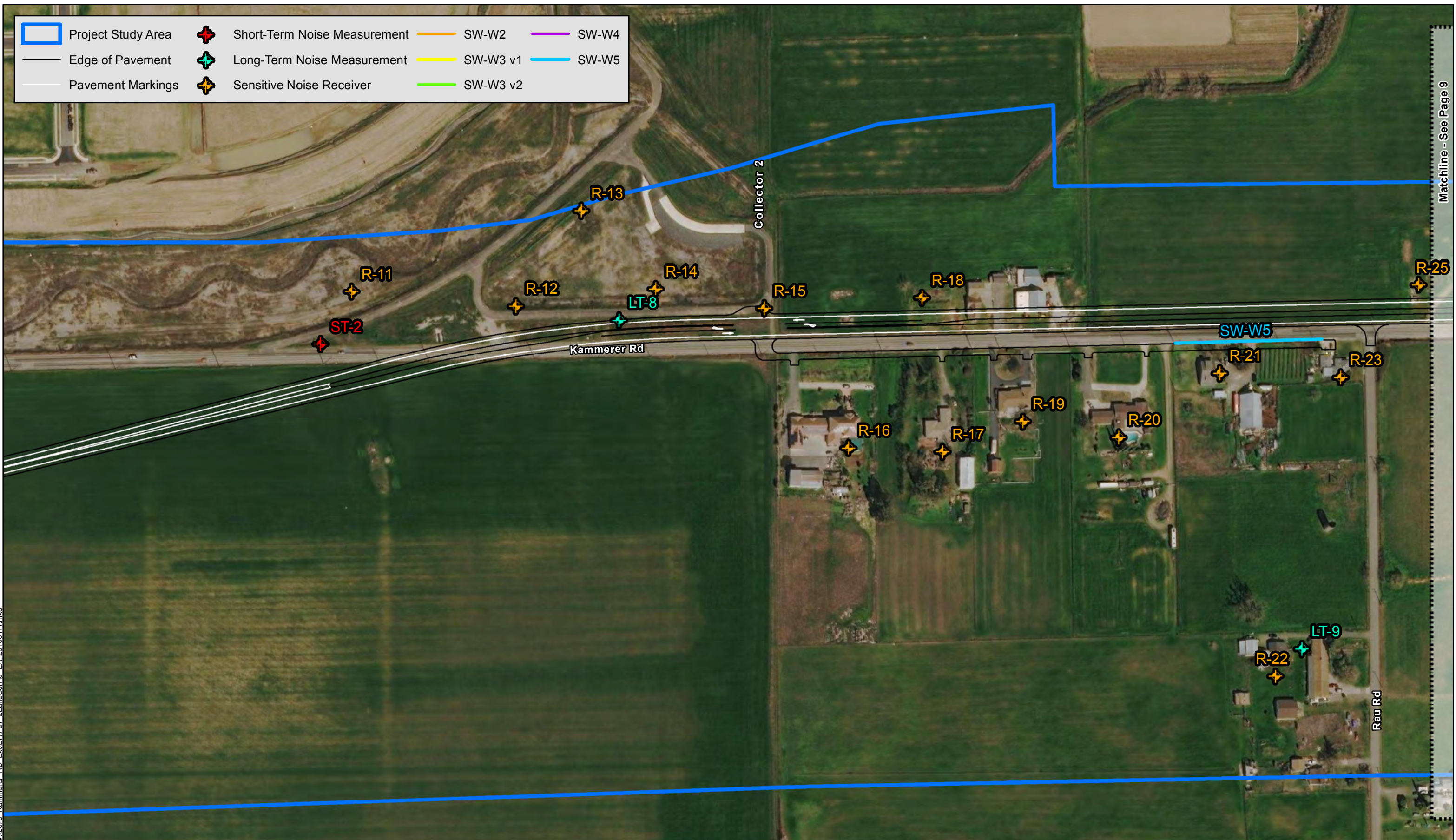


FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
Page 7 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

- | | | | |
|--|--|--|---|
|  Project Study Area |  Short-Term Noise Measurement |  SW-W2 |  SW-W4 |
|  Edge of Pavement |  Long-Term Noise Measurement |  SW-W3 v1 |  SW-W5 |
|  Pavement Markings |  Sensitive Noise Receiver |  SW-W3 v2 | |



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Matchline - See Page 9

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kohen

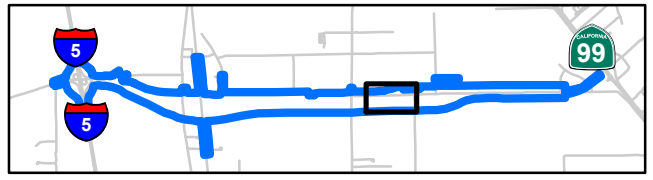
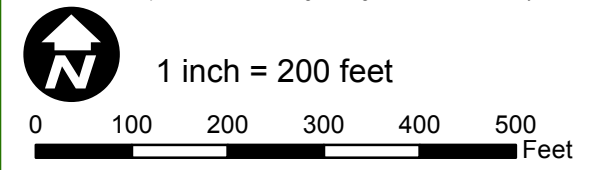


FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
 Page 8 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

	Project Study Area		Short-Term Noise Measurement		SW-W2		SW-W4
	Edge of Pavement		Long-Term Noise Measurement		SW-W3 v1		SW-W5
	Pavement Markings		Sensitive Noise Receiver		SW-W3 v2		



Matchline - See Page 8

V:\2379_Kammerer_RD_Ext\EA\F37_2LaneConfig_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

1 inch = 200 feet

0 100 200 300 400 500 Feet

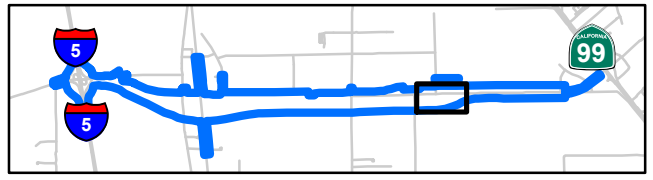











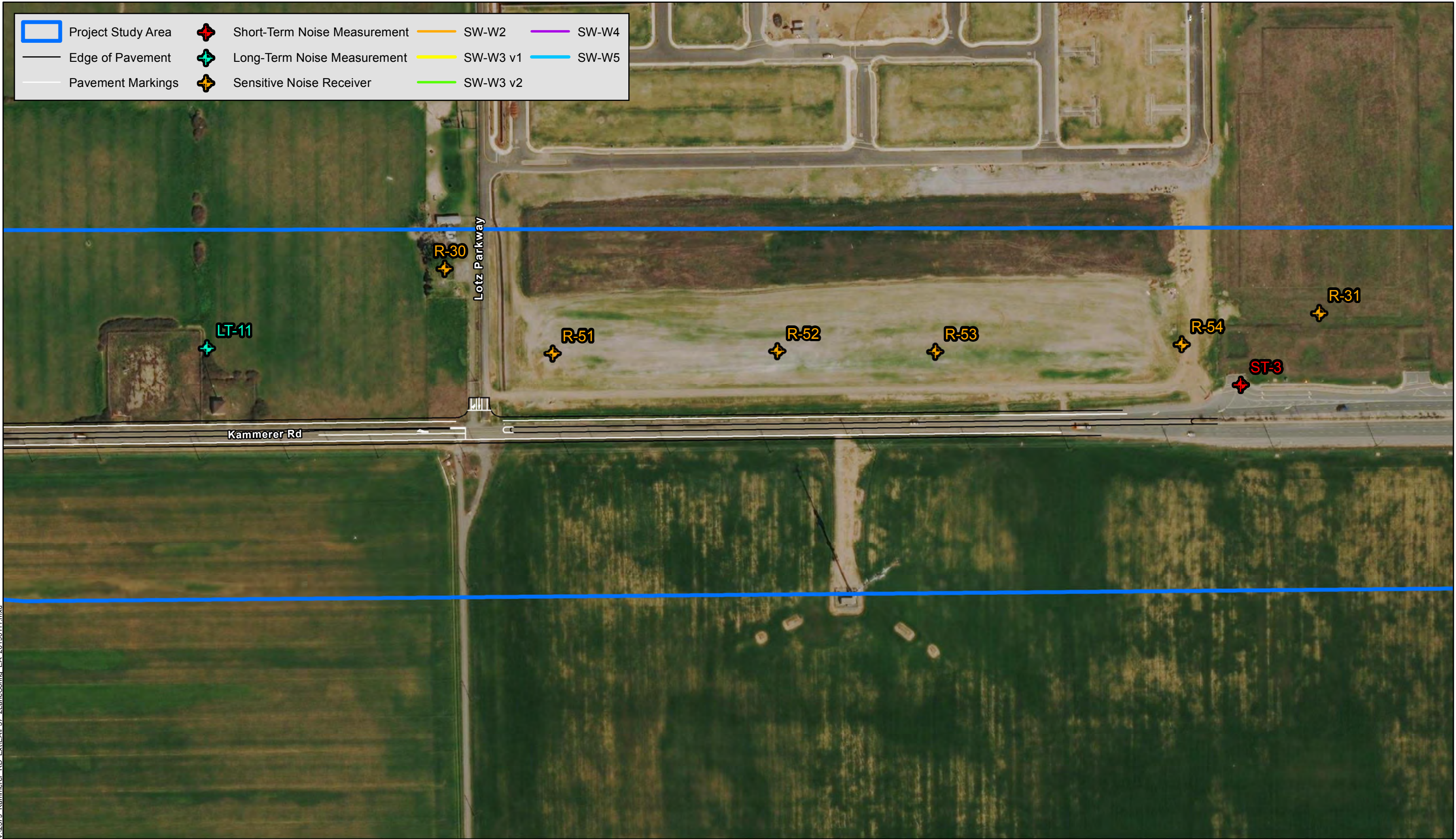


FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
 Page 9 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

- | | | | | | | | |
|---|--------------------|---|------------------------------|---|----------|---|-------|
|  | Project Study Area |  | Short-Term Noise Measurement |  | SW-W2 |  | SW-W4 |
|  | Edge of Pavement |  | Long-Term Noise Measurement |  | SW-W3 v1 |  | SW-W5 |
|  | Pavement Markings |  | Sensitive Noise Receiver |  | SW-W3 v2 | | |



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Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

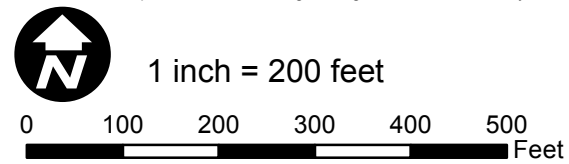











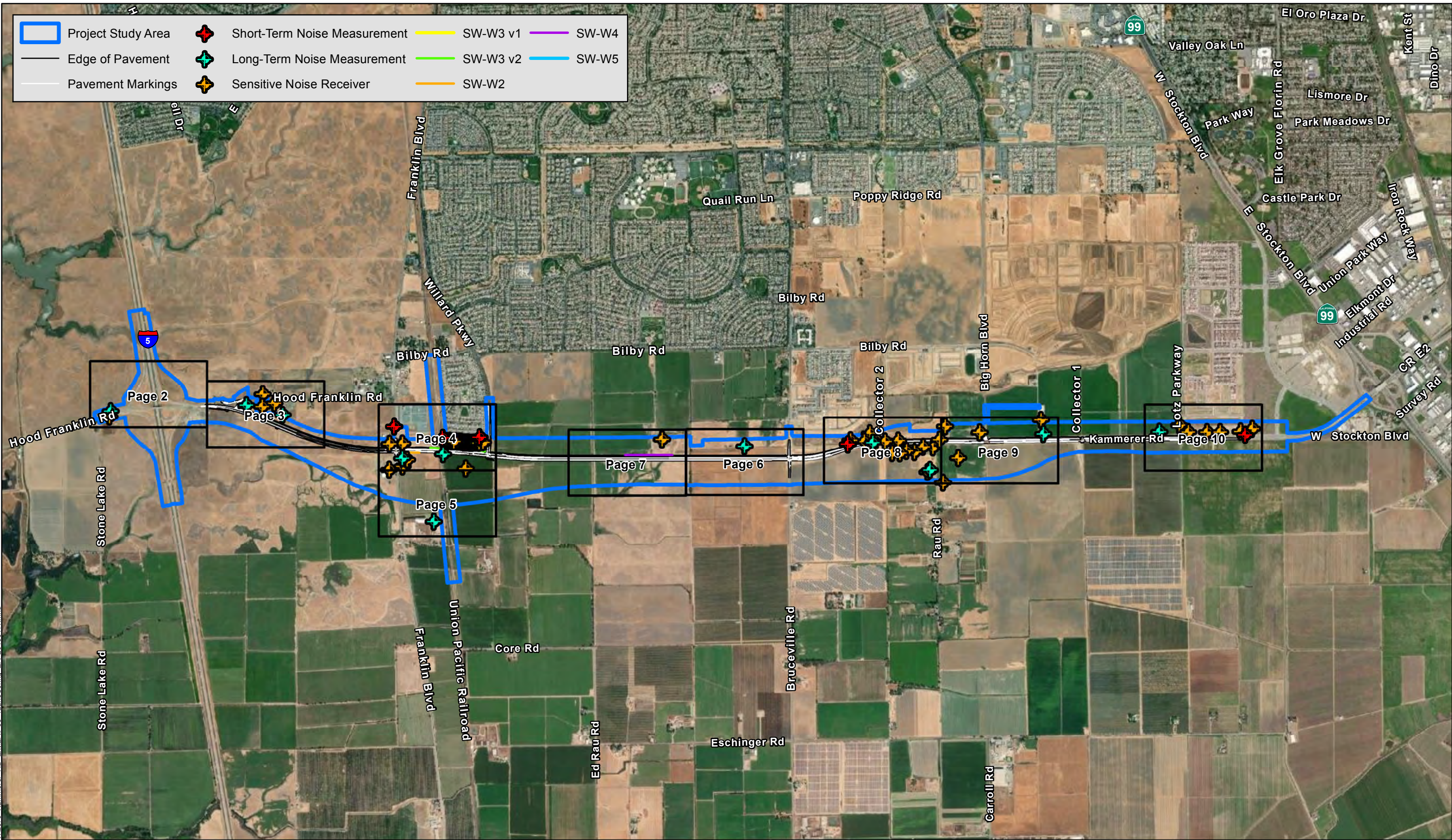


FIGURE 37
Sensitive Noise Receptors Interim Year 2034 Conditions (2-Lane Configuration)
 Page 10 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

-  Project Study Area
-  Short-Term Noise Measurement
-  SW-W3 v1
-  SW-W4
-  Edge of Pavement
-  Long-Term Noise Measurement
-  SW-W3 v2
-  SW-W5
-  Pavement Markings
-  Sensitive Noise Receiver
-  SW-W2



V:\2379_Kammerer RD_Ext\EA\F38_4LaneConfig_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

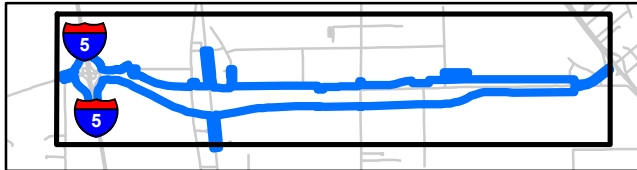
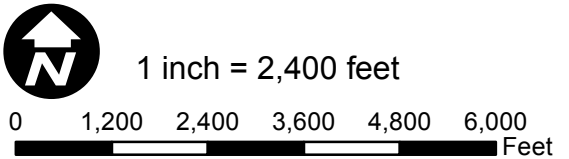



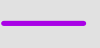


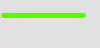
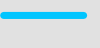





FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
Page 1 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

- | | | | |
|--|--|---|---|
|  Project Study Area |  Short-Term Noise Measurement |  SW-W3 v1 |  SW-W4 |
|  Edge of Pavement |  Long-Term Noise Measurement |  SW-W3 v2 |  SW-W5 |
|  Pavement Markings |  Sensitive Noise Receiver |  SW-W2 | |



V:\2379_Kammerer_RD_Ext\EA\F38_4LaneConfig_EA_20190111.mxd

Matchline - See Page 3

Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kohen

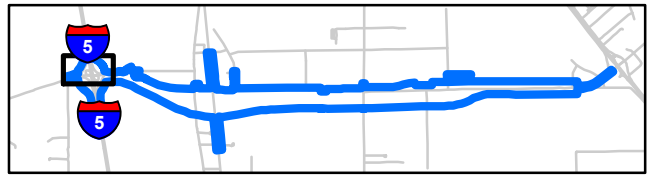
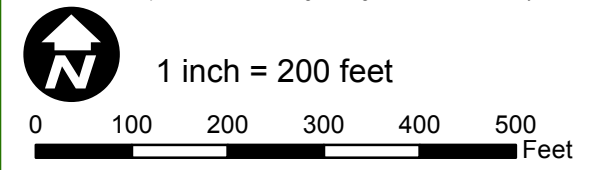













FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
Page 2 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

-  Project Study Area
-  Short-Term Noise Measurement
-  SW-W3 v1
-  SW-W4
-  Edge of Pavement
-  Long-Term Noise Measurement
-  SW-W3 v2
-  SW-W5
-  Pavement Markings
-  Sensitive Noise Receiver
-  SW-W2

Matchline - See Page 2



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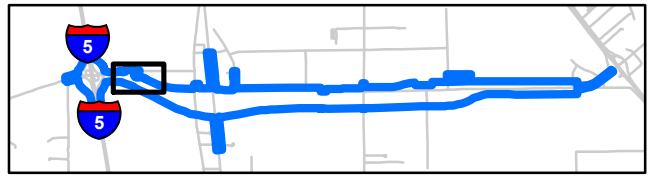
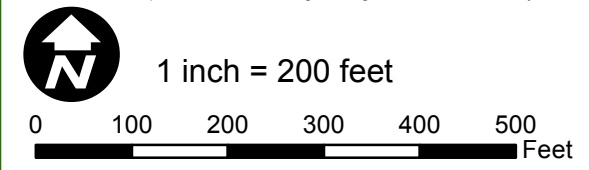
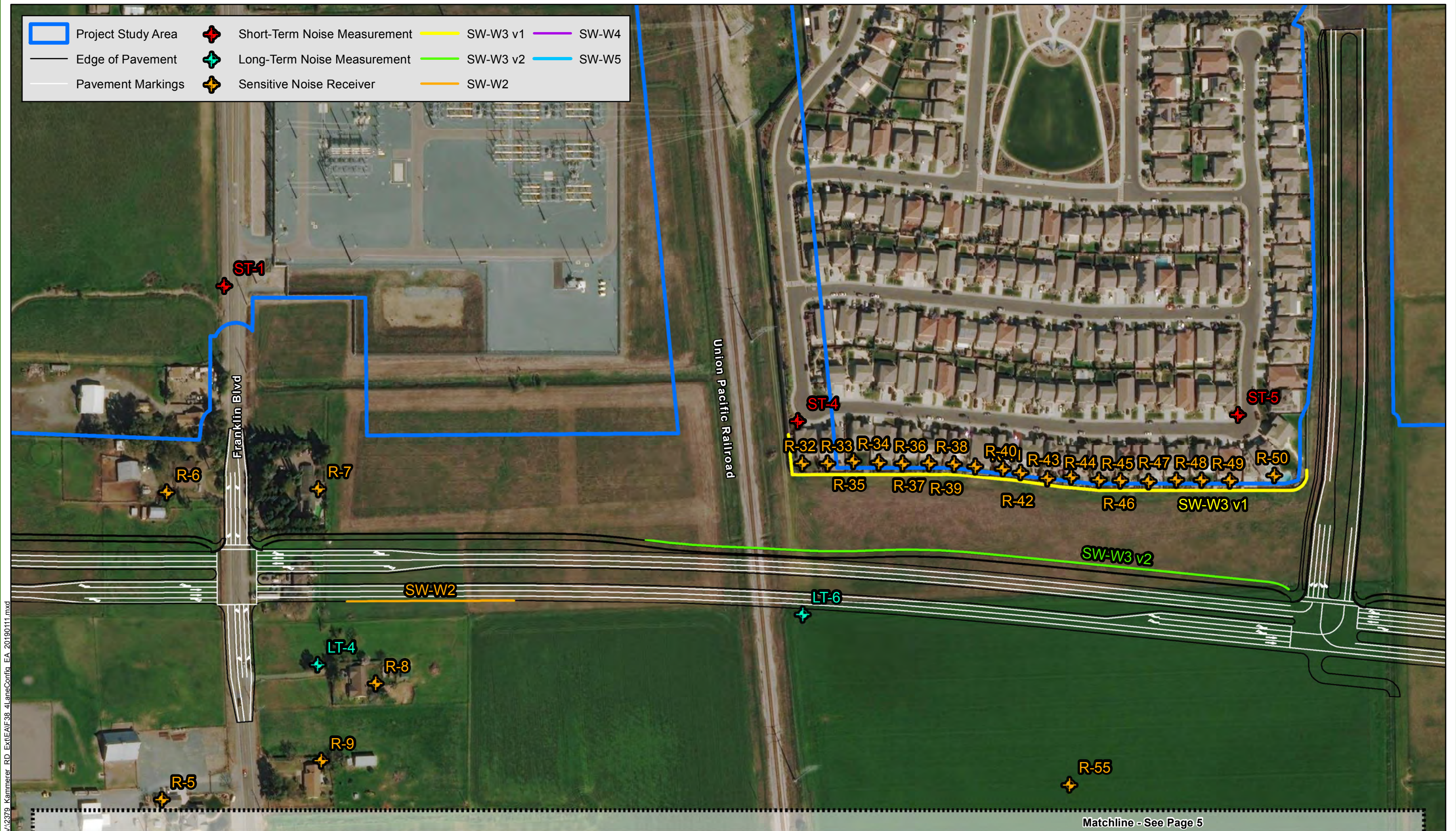


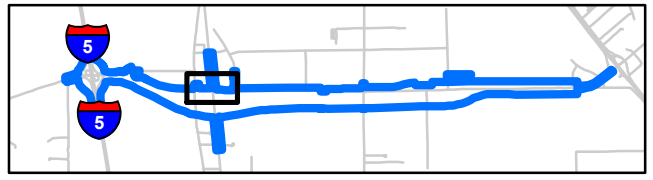
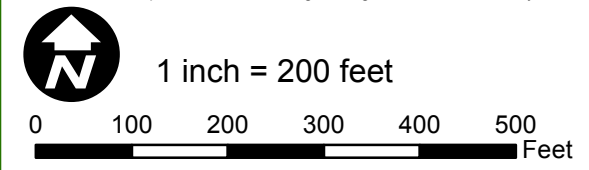
FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
 Page 3 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

- Project Study Area
- Edge of Pavement
- Pavement Markings
- + Short-Term Noise Measurement
- + Long-Term Noise Measurement
- + Sensitive Noise Receiver
- SW-W3 v1
- SW-W3 v2
- SW-W2
- SW-W4
- SW-W5



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










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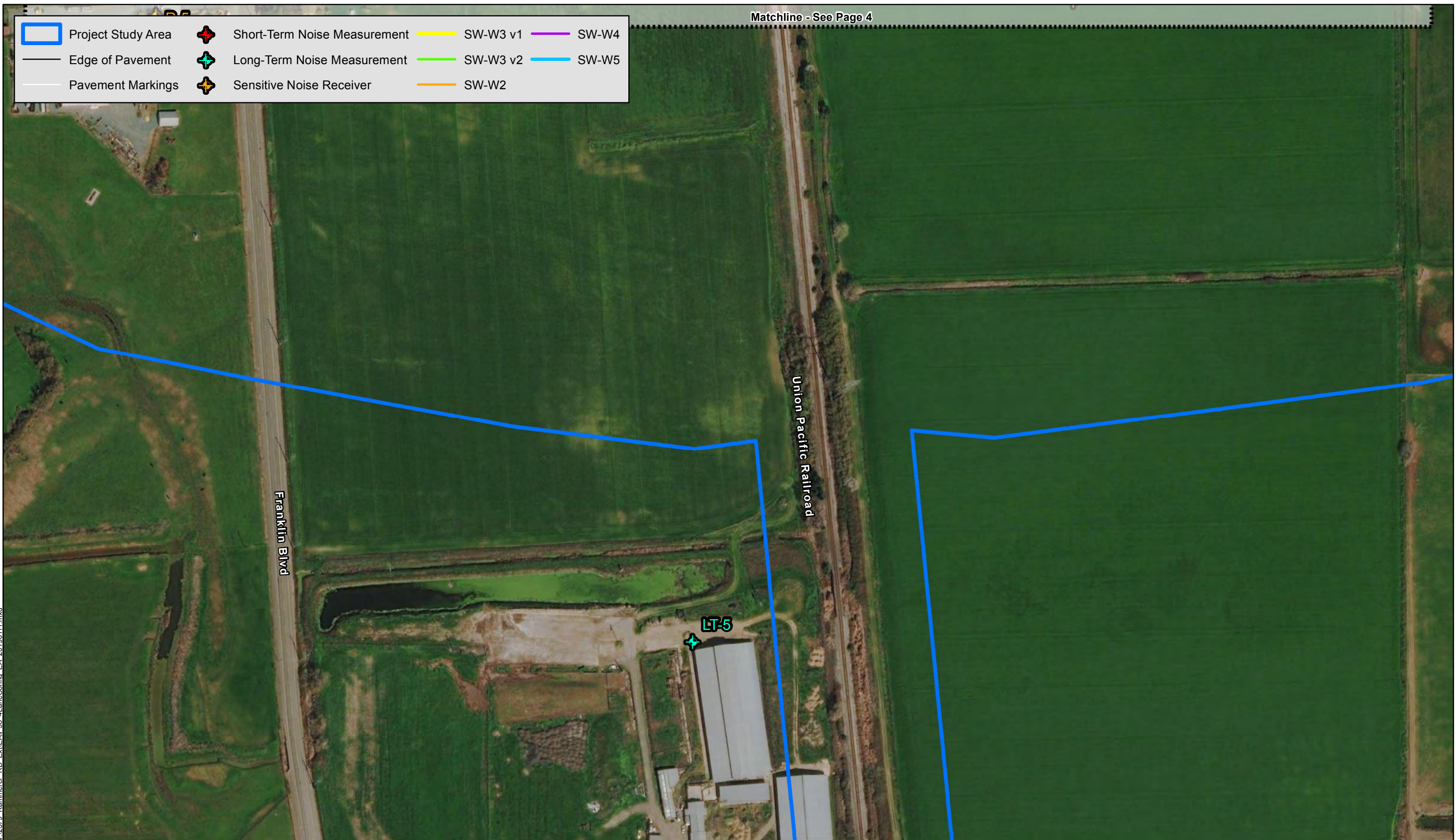


Matchline - See Page 5

FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
 Page 4 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Matchline - See Page 4

-  Project Study Area
-  Edge of Pavement
-  Pavement Markings
-  Short-Term Noise Measurement
-  Long-Term Noise Measurement
-  Sensitive Noise Receiver
-  SW-W3 v1
-  SW-W3 v2
-  SW-W2
-  SW-W4
-  SW-W5



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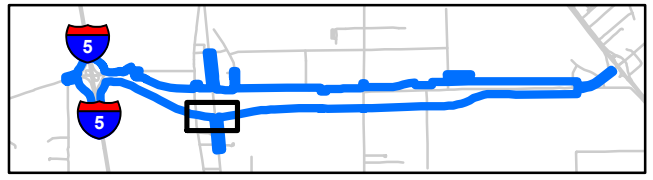
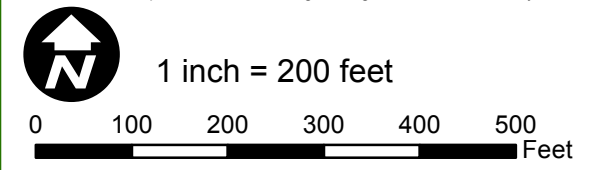











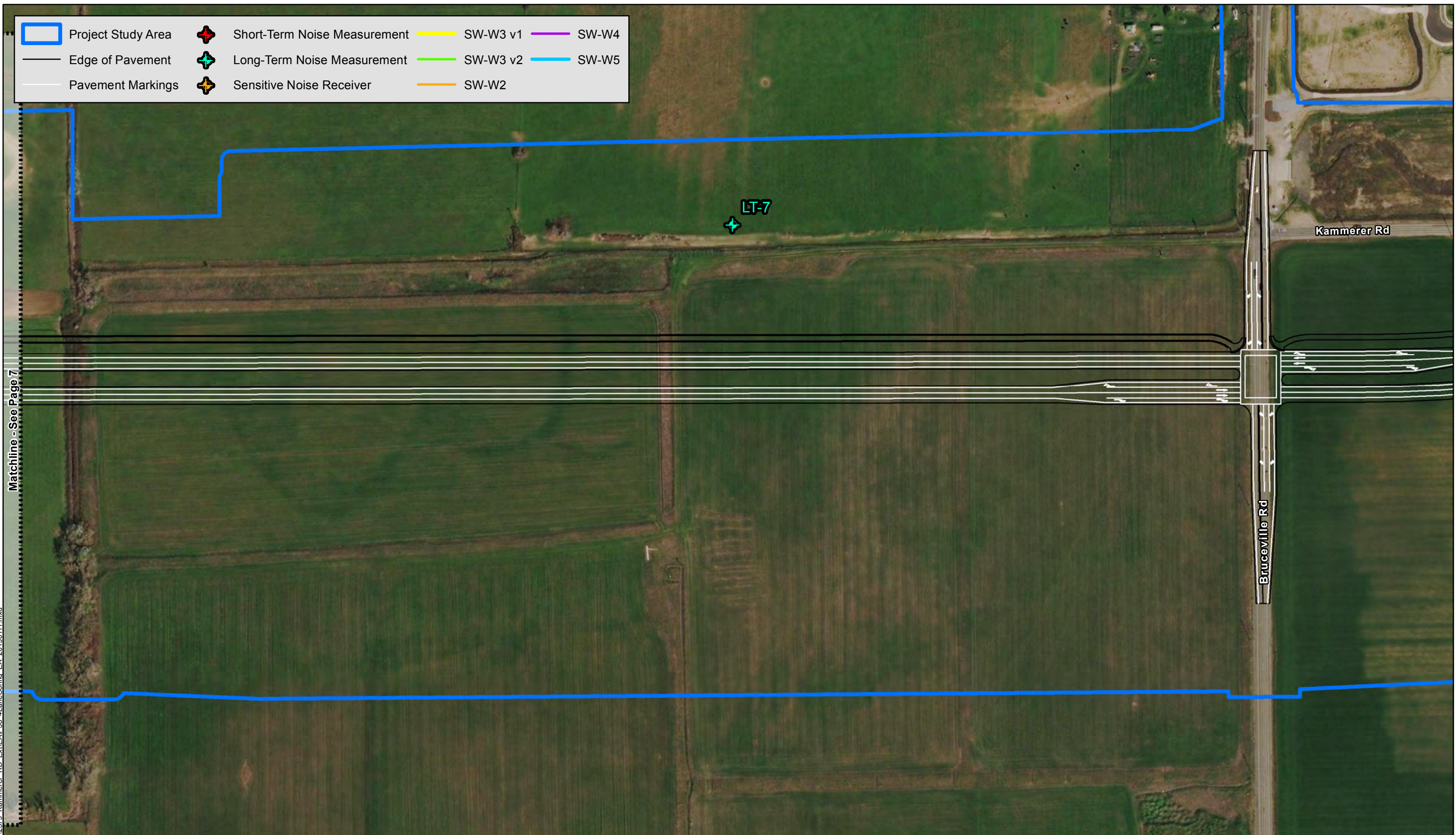


FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
Page 5 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

-  Project Study Area
-  Edge of Pavement
-  Pavement Markings
-  Short-Term Noise Measurement
-  Long-Term Noise Measurement
-  Sensitive Noise Receiver
-  SW-W3 v1
-  SW-W3 v2
-  SW-W2
-  SW-W4
-  SW-W5



Matchline - See Page 7

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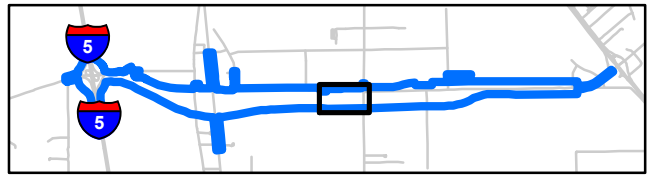
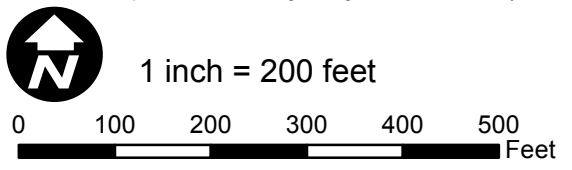











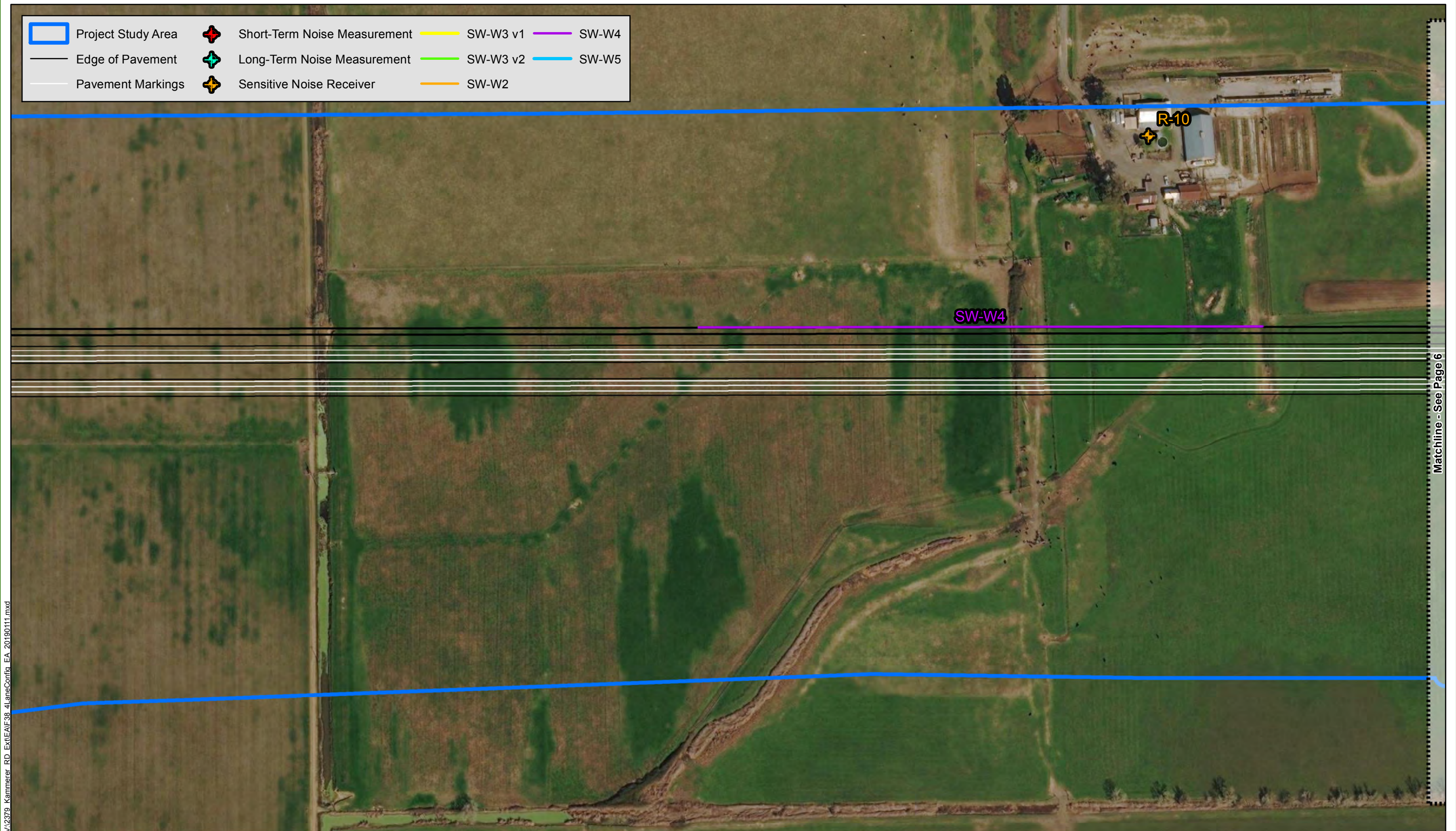


FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
Page 6 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

- | | | | | | | | |
|---|--------------------|---|------------------------------|---|----------|---|-------|
|  | Project Study Area |  | Short-Term Noise Measurement |  | SW-W3 v1 |  | SW-W4 |
|  | Edge of Pavement |  | Long-Term Noise Measurement |  | SW-W3 v2 |  | SW-W5 |
|  | Pavement Markings |  | Sensitive Noise Receiver |  | SW-W2 | | |



Matchline - See Page 6

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Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

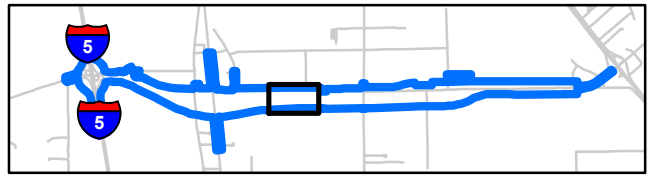
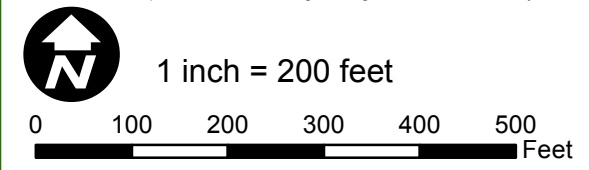











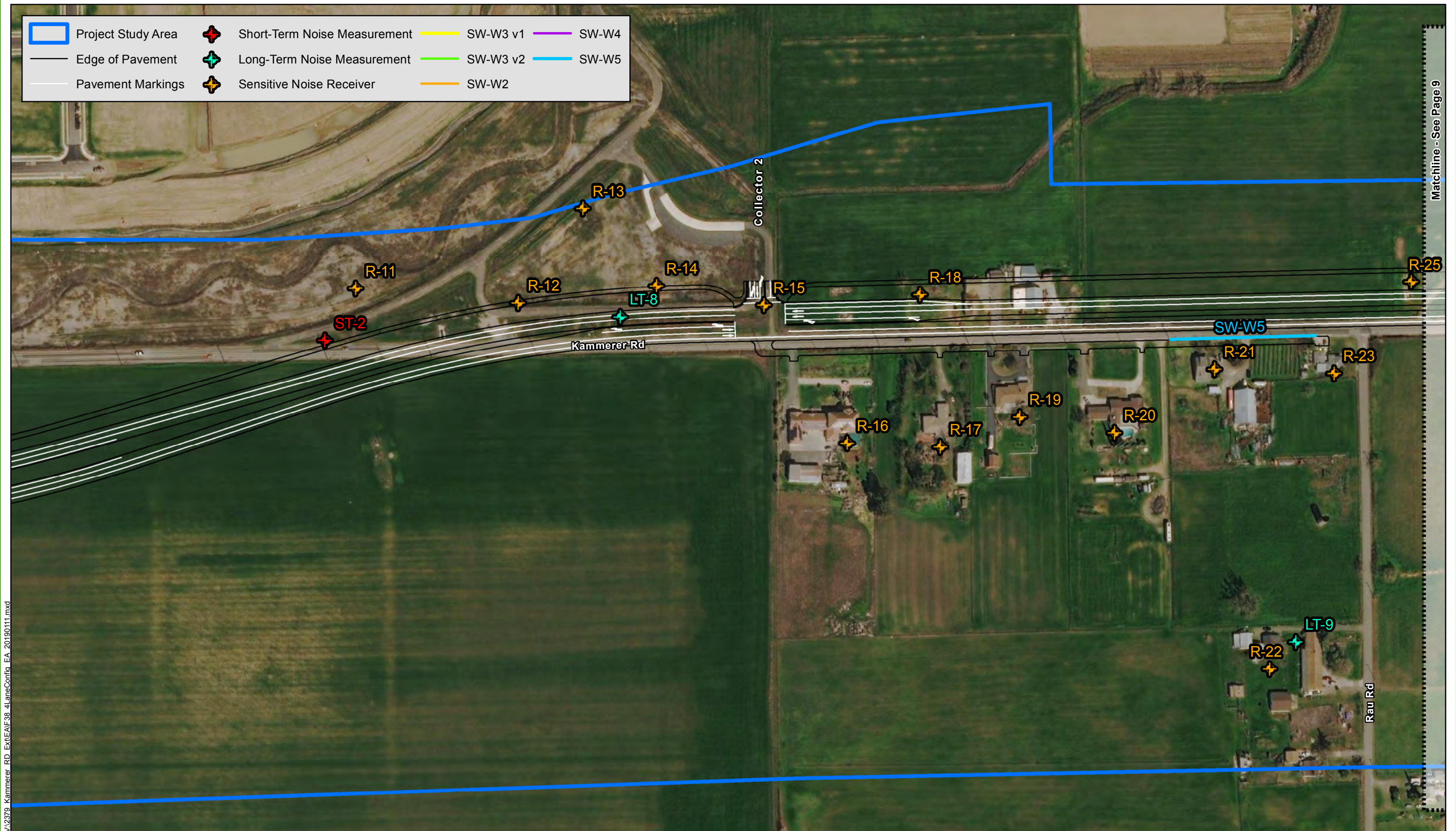


FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
Page 7 of 10

- | | | | | | | | |
|---|--------------------|---|------------------------------|---|----------|---|-------|
|  | Project Study Area |  | Short-Term Noise Measurement |  | SW-W3 v1 |  | SW-W4 |
|  | Edge of Pavement |  | Long-Term Noise Measurement |  | SW-W3 v2 |  | SW-W5 |
|  | Pavement Markings |  | Sensitive Noise Receiver |  | SW-W2 | | |



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Matchline - See Page 9

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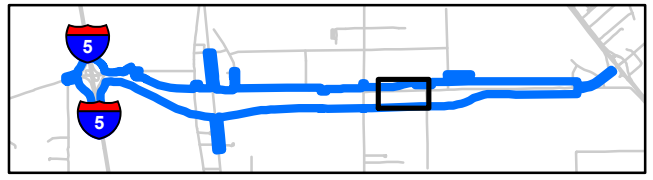
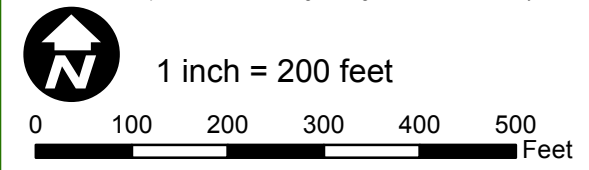













FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
 Page 8 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

-  Project Study Area
-  Edge of Pavement
-  Pavement Markings
-  Short-Term Noise Measurement
-  Long-Term Noise Measurement
-  Sensitive Noise Receiver
-  SW-W3 v1
-  SW-W3 v2
-  SW-W2
-  SW-W4
-  SW-W5



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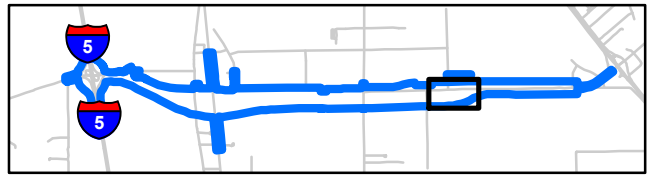
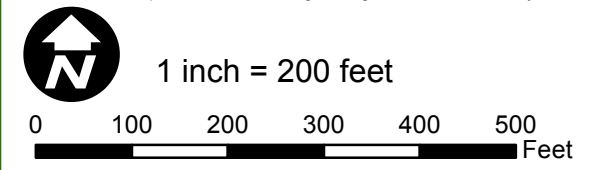











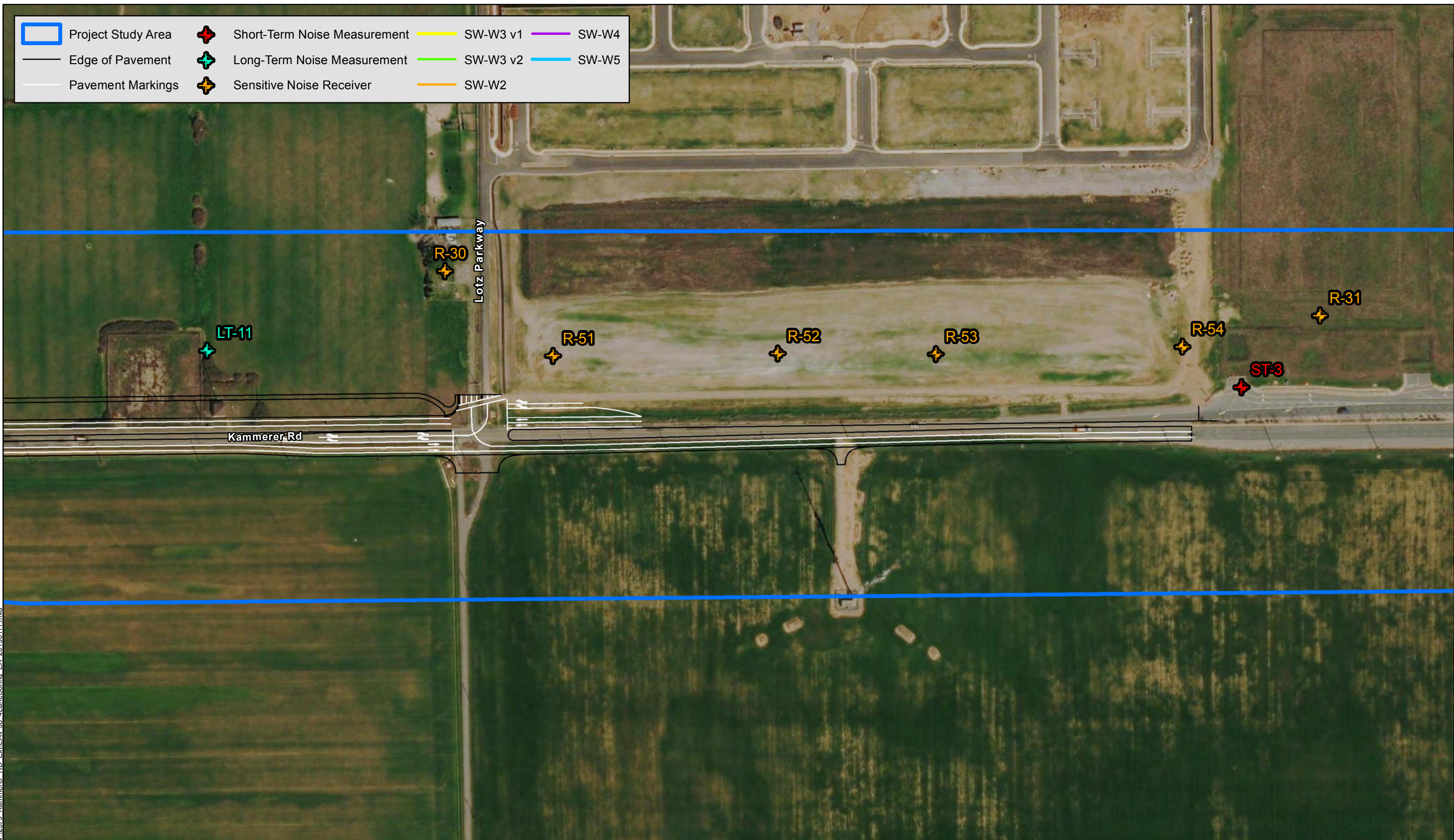


FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
Page 9 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

-  Project Study Area
-  Edge of Pavement
-  Pavement Markings
-  Short-Term Noise Measurement
-  Long-Term Noise Measurement
-  Sensitive Noise Receiver
-  SW-W3 v1
-  SW-W3 v2
-  SW-W2
-  SW-W4
-  SW-W5



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Source: ESRI Maps Online; Dokken Engineering 1/26/2022; Created By: kchen

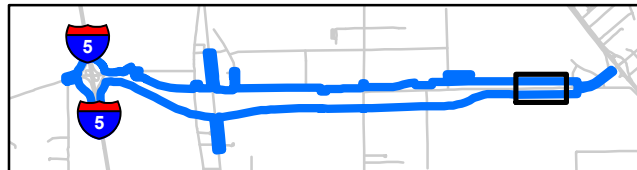
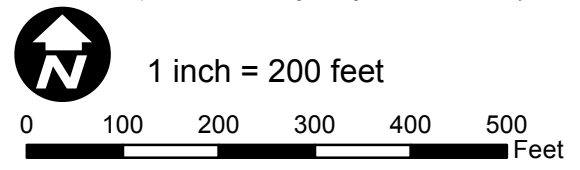


FIGURE 38
Sensitive Noise Receptors Design Year 2044 Conditions (4-Lane Configuration)
 Page 10 of 10
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

The proposed residential development at the northwest quadrant of the I-5/Hood Franklin Road Interchange was not included in this assessment, as the Project developer would be required to include I-5 traffic noise mitigation to ensure compliance with City noise standards, which are more restrictive than the State/Federal noise standards for residential developments. The new residential development located south of the intersection of Willard Parkway and Bilby Road was included in this analysis despite that development incorporating substantial noise mitigation in anticipation of the future Kammerer Road extension. Residences in that development have been identified as Receptors R-32 through R-50.

The proposed residential development located on the north side of the existing Kammerer Road between Lent Ranch Parkway and Lotz Parkway was not included in this analysis. This is because the Project developer will be required to mitigate future Kammerer Road traffic noise levels to a state of compliance with City noise standards. The City's noise standards are more restrictive than the State/Federal noise standards for residential developments.

A field investigation was conducted to identify land uses that could be subject to traffic noise impacts from the Project. Single-family residences in the Project study area were identified as Activity Category B. Agricultural uses in the Project study area were identified as Activity Category F.

As required by the Protocol, noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas. Where such outdoor activity areas of residences were not readily apparent, traffic noise levels were assessed at the residences.

Noise Measurement Results

A field noise study was conducted in accordance with recommended procedures in TeNs. The following is a summary of the measurement equipment and procedures used to collect existing sound level data.

All noise level measurements were conducted using Larson Davis Laboratories (LDL) Model 820 Precision Integrating Sound Level Meters (serial numbers are provided on data sheets included in Appendix C. The meters were equipped with LDL Model PRM 828 preamplifiers and 1/2 -inch LDL 2560 or GRAS 40AQ microphones. The measurement systems were calibrated before use with an LDL Model CAL200 acoustical calibrator. Meters were programmed to provide A-weighted sound pressure levels using the "slow" response setting.

The existing noise environment at the existing residential receptors located within the Project study area were quantified through long-term noise level measurements conducted at eleven (11) locations in October 2013 and short-term noise level measurements conducted at three (3) locations in January 2018 and at two (2) additional locations in January 2019.

Short-Term Noise Level Measurement Results

Short-term monitoring was conducted at three (3) locations in January 2018 and at two (2) additional locations in January 2019 using Larson David Model 824 Type 1 sound level meters. Measurements were taken for a duration of 15-minutes at each site. Short-term monitoring was conducted at or adjacent to Activity Category B and F land uses. The short-term measurements locations are identified in **Figure 37** and **Figure 38** above. Noise measurement field monitoring forms are located in Appendix G.

Table 57 summarizes the results of the short-term noise monitoring conducted in the Project area. Short-term noise measurements ST-1 through ST-3 were used to validate the noise model. Noise measurements ST-4 and ST-5 was taken to represent the existing ambient noise level for residences along Tusk Way that would be subject to traffic noise generated by the future Kammerer alignment.

During the short-term measurements, field staff attended each meter. During the measurement period (15 minutes in duration), dominate noise sources were also identified and logged. The calibration of the meter was checked before and after the measurement using Larson-Davis Model CAL250 calibrator.

During short-term measurements ST-1 through ST-3, wind speeds typically ranged from 2 to 3 mph. Temperatures ranged from 51 to 58°F, with relative humidity typically 72 to 92 percent. During short-term measurements ST-4 and ST-5, wind speeds ranged from 2 to 5 mph. Temperatures ranged from 45 to 50°F, with relative humidity typically 82 to 94 percent. No traffic counts were taken during the January 2019 noise measurements as there is no existing roadway where the proposed Kammerer alignment would be constructed.

Table 57. Summary of Short-Term Measurements

Site	Land Use	Address	Measured Peak Hour Noise Level – Leq (dB)
ST-1	F	North of 10592 Franklin Boulevard	64.9
ST-2	B	7809 Kammerer Road	67.0
ST-3	F	Kammerer Road between Lotz and Lent Parkway	63.0
ST-4 (AM)	B	4800 Tusk Way	45.1
ST-4 (PM)	B	4800 Tusk Way	48.2
ST-5 (AM)	B	4868 Tusk Way	44.5
ST-5 (PM)	B	4868 Tusk Way	44.9

Long-term Noise Level Measurement Results

Long-term noise level measurements were conducted at eleven (11) locations for minimum periods of 24 consecutive hours at each location. The locations of long-term noise measurements are identified in Appendix A and on the field data sheets shown in Appendix C. The purpose of the long-term measurements was the determine existing loudest hour noise levels at sensitive receivers within the Project study area. The long-term sound level data was collected on October 2 and 16, 2013⁶. The detailed 24-hour monitoring results are shown graphically on the field data sheets contained in Appendix G and summarized below in **Table 58**. Existing noise levels at noise monitoring location were quantified by extrapolating the long-term noise measurement data collected at the nearest representative long-term noise monitoring site.

⁶ The long-term noise measurements were taken in an area where adjacent roadways are low traffic rural roads. As the traffic volume, mix, speed, and pavement have remained relatively unchanged since the long-term noise measurements were taken, these measurements remain valid and representative of existing baseline conditions.

Table 58. Summary of Long-Term Measurements

Site	Address	Measured Peak Hour Noise Level – Leq (dB)	Measured Day/Night Noise Level – Ldn (dB)
LT-1	West of I-5/Hood Franklin Road	SFR	B (67)
LT-2	3206 Hood Franklin Road	SFR	B (67)
LT-3	3460 Hood Franklin Road	SFR	B (67)
LT-4	0609 Franklin Boulevard	SFR	B (67)
LT-5	10773 Franklin Boulevard	SFR	B (67)
LT-6	0 Bilby Road	Open Ag	F(N/A)
LT-7	0 Bruceville Road	Open Ag	F(N/A)
LT-8	8051 Kammerer Road	SFR	B (67)
LT-9	10650 Rau Road	SFR	B (67)
LT-10	8499 Kammerer Road	SFR	B (67)
LT-11	Kammerer Road	SFR	B (67)

Model Validation

Noise measurements were conducted at three (3) locations in January 2018 while concurrent traffic volumes were recorded through the use of a video camera. These measurements were conducted to validate the TNM 2.5 model. Traffic speeds were recorded by driving on the roadways immediately after a noise measurement. Traffic counts obtained from the video recordings were used as inputs in the TNM 2.5 model. The traffic counts were tabulated according to three vehicles types, including automobiles, medium trucks (2-axle with 6-wheels but not including pick-up trucks) and heavy trucks (3 or more axles). As a general rule, the noise model is considered to be validated if the field measured noise levels versus the modeled noise levels (using field collected traffic data) agree within 3 dB of each other. If differences are more than 3 dB, refinement of the noise model is performed until there is agreement between the two values. If after thorough reevaluation validation still cannot be achieved due to complex topography or other unusual circumstances, then a validation constant is added such that the measured versus modeled values agree before any predictions can be made with the model.

Table 59 compares measured and modeled noise levels at each measurement location. The predicted sound levels are within 3 dB of the measured sound levels and considered to be in reasonable agreement with the measured sound levels. Therefore, no further adjustment of the model was made.

Table 59. Comparison of Measured and Predicted Sound Levels

Site	Measured Noise Level – Leq (dB)	Predicted Noise Level – Leq (dB)	Measured minus Predicted (Db)
ST-1	64.9	63.5	1.4
ST-2	67.0	66.5	0.5
ST-3	63.0	60.1	2.9

Existing Noise Levels

Five (5) short-term and eleven (11) long-term locations were identified within the Project area. A total of fifty-five (55) existing receiver locations were evaluated in the model. All receiver locations are shown in **Figure 37** and **Figure 38** above. Single-family residences were identified as Activity

Category B land uses in the Project area. Agricultural and non-sensitive land uses were identified as Activity Category F.

Existing noise levels were estimated using existing peak hour traffic data from the Capital SouthEast Connector – A1/A2 Kammerer Road Extension Project Transportation Impact Analysis (DKS Associates, December 2018). Existing peak hour traffic was entered into TNM 2.5 to estimate existing peak hour traffic noise levels, with the exception of receivers R-32 through R-50. Due to the fact that no Kammerer alignment currently exists between Franklin Boulevard and Bruceville Road, receivers R-32 through R-50 are not impacted by traffic noise from any major roadways. Therefore, noise results from short-term measurement ST-4 and ST-5 were used to represent the existing noise level for R-32 through R-50.

Table 60 shows the representative modeled receiver locations, measured ambient noise level, the modeled noise levels using traffic counts and measured vehicle speeds during noise monitoring. The traffic volumes that were used in the validation process are located in Appendix G. TNM 2.5 was used to compare measured traffic noise levels to modeled noise levels at field measurement locations.

The results of the existing traffic noise modeling are shown in **Table 60**. Existing noise levels in the Project area range from 34 to 66 dBA Leq(h). Noise levels do not currently approach within 1 dBA, or exceed respective NAC Activity Category criteria, at any of the sensitive receiver locations analyzed.

Table 60. Summary of Modeled Existing Noise Levels

Receiver ID	Location	Type of Land Use	Number of Dwelling Units	Noise Abatement Category	Modeled Existing Peak Noise Level, dBA Leq(h)
R1	Stone Lake Rd & Hood Franklin Rd	SFR	1	B(67)	59
R2	3307 Hood Franklin Rd	SFR	1	B(67)	66
R3	3206 Hood Franklin Rd	SFR	1	B(67)	62
R4	3460 Hood Franklin Rd	SFR	1	B(67)	61
R5	10632 Franklin Blvd	SFR	1	B(67)	60
R6	10592 Franklin Blvd	SFR	1	B(67)	54
R7	10587 Franklin Blvd	SFR	1	B(67)	48
R8	10609 Franklin Blvd	SFR	1	B(67)	49
R9	10629 Franklin Blvd	SFR	1	B(67)	60
R10	South of Bilby Rd	SFR	1	B(67)	34
R11	7809 Kammerer Rd	SFR	1	B(67)	59
R12	7909 Kammerer Rd	SFR	1	B(67)	62
R13	8051 Kammerer Rd	SFR	1	B(67)	57
R14	8011 Kammerer Rd	SFR	1	B(67)	60
R15	8011 Kammerer Rd	SFR	1	B(67)	60
R16	8088 Kammerer Rd	SFR	1	B(67)	56
R17	8098 Kammerer Rd	SFR	1	B(67)	55

Table 60. Summary of Modeled Existing Noise Levels

Receiver ID	Location	Type of Land Use	Number of Dwelling Units	Noise Abatement Category	Modeled Existing Peak Noise Level, dBA L _{eq} (h)
R18	8109 Kammerer Rd	SFR	1	B(67)	65
R19	8140 Kammerer Road	SFR	1	B(67)	58
R20	8158 Kammerer Road	SFR	1	B(67)	56
R21	8170 Kammerer Road	SFR	1	B(67)	63
R22	10650 Rau Rd	SFR	1	B(67)	45
R23	8198 Kammerer Rd	SFR	1	B(67)	51
R24	10675 Rau Rd	SFR	1	B(67)	43
R25	8215 Kammerer Rd	SFR	1	B(67)	64
R26	8215 Kammerer Rd	SFR	1	B(67)	50
R27	8250 Kammerer Rd	SFR	1	B(67)	49
R28	8279 Kammerer Rd	SFR	1	B(67)	55
R29	8499 Kammerer Rd	SFR	1	B(67)	48
R30	Kammerer Rd	Abandoned Home	0	F(N/A)	47
R31	Promenade Parkway	SFR	1	B(67)	59
R32	4800 Tusk Way	SFR	1	B(67)	45 - 48
R33	4804 Tusk Way	SFR	1	B(67)	45 - 48
R34	4808 Tusk Way	SFR	1	B(67)	45 - 48
R35	4812 Tusk Way	SFR	1	B(67)	45 - 48
R36	4816 Tusk Way	SFR	1	B(67)	45 - 48
R37	4820 Tusk Way	SFR	1	B(67)	45 - 48
R38	4824 Tusk Way	SFR	1	B(67)	45 - 48
R39	4828 Tusk Way	SFR	1	B(67)	45 - 48
R40	4836 Tusk Way	SFR	1	B(67)	45 - 48
R41	4836 Tusk Way	SFR	1	B(67)	45 - 48
R42	4836 Tusk Way	SFR	1	B(67)	45 - 48
R43	4848 Tusk Way	SFR	1	B(67)	45 - 48
R44	4848 Tusk Way	SFR	1	B(67)	45 - 48
R45	4856 Tusk Way	SFR	1	B(67)	45 - 48
R46	4860 Tusk Way	SFR	1	B(67)	45 - 48
R47	4860 Tusk Way	SFR	1	B(67)	45 - 48
R48	4860 Tusk Way	SFR	1	B(67)	45 - 48
R49	4868 Tusk Way	SFR	1	B(67)	45 - 48
R50	4868 Tusk Way	SFR	1	B(67)	45 - 48
R51	8250-8260 Kammerer Rd	MFR	1	B(67)	58
R52	8250-8260 Kammerer Rd	MFR	1	B(67)	59
R53	8250-8260 Kammerer Rd	MFR	1	B(67)	59

Table 60. Summary of Modeled Existing Noise Levels

Receiver ID	Location	Type of Land Use	Number of Dwelling Units	Noise Abatement Category	Modeled Existing Peak Noise Level, dBA L_{eq}(h)
R54	8250-8260 Kammerer Rd	MFR	1	B(67)	59
R55	0 Bilby Road	AG	0	F(N/A)	41

ENVIRONMENTAL CONSEQUENCES

Build Alternative

The Project is considered a Type 1 project under 23 CFR 772 because it involves the widening and extension of Kammerer Road, including the addition of through traffic lanes.

Operational Impacts

Potential long-term noise impacts associated with Project operations arise solely from traffic noise. Traffic noise was evaluated for future scenarios (Future Interim Year 2034 No-Build, Future Interim Year 2034 Build with 2-Lane Configuration, Future Design Year 2044 No-Build, and Future Design Year 2044 Build with 4-Lane Configuration) as worst-case conditions for fifty-five (55) receiver locations. These land uses fall into the NAC Activity Category B and F. The FHWA and the Department NAC for these land uses are as follows:

- Activity Category B, 67 dBA Leq(h).
- Activity Category F, none

The predicted future worst-case traffic noise levels for the Build Alternative were determined using traffic volumes provided in the Project's TIA (DKS Associates, 2018).

TNM 2.5 is sensitive to the volume of trucks on the roadway because trucks contribute disproportionately to the traffic noise. Truck percentages on modeled roadways were obtained via email from the Project's traffic engineer.

Table B-1 and B-2 in Appendix G summarizes the traffic noise modeling results for the interim year (2034) and design year (2044) conditions with the No-Build and Build Alternatives. The modeled future noise levels for the Build Alternative were compared to the respective NAC land use Activity Category to determine whether a traffic noise impact would occur. Traffic noise impacts occur when the traffic noise level at a sensitive receptor location is predicted to "approach, within 1 dBA, or exceed" the NAC. When traffic noise impacts occur, noise abatement measures must be considered.

As stated in the TeNS, modeling results are rounded up to the nearest decibel before comparisons are made. In some cases, this can result in relative changes that may not appear intuitive. An example would be a comparison between sound levels of 64.4 and 64.5 dBA Leq. The difference between these two values is 0.1 dB. However, after rounding, the difference is reported as 1 dB. Under design year 2044 No-Build conditions Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The traffic noise modeling results for the design year No-Build Alternative range from 33 to 65 dBA Leq(h). No evaluated receivers approach or exceed their respective NAC Activity Category standard under No-Build conditions in 2044.

Under No-Build conditions Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. However, in the design year under No-Build conditions Kammerer Road between Bruceville Road and Lent Ranch Parkway will still be widened to four lanes. The traffic noise modeling results for the interim year No-Build Alternative range from 35

to 66 dBA Leq(h), as shown in Table B-1 of Appendix B. The traffic noise modeling results for the design year No-Build Alternative range from 35 to 69 dBA Leq(h), as shown in Table B-2 of Appendix G.

The interim year traffic noise modeling results for the Build Alternative range from 46 to 66 dBA Leq(h), as shown in Table B-1 of Appendix G. Noise levels for the interim year under the Build Alternative are expected to increase by up to 16 dB compared to design year No-Build noise levels. The design year traffic noise modeling results for the Build Alternative range from 49 to 69 dBA Leq(h), as shown in Table B-2 of Appendix G. Noise levels for the design year under the Build Alternative are expected to increase by up to 19 dB compared to design year No-Build noise levels. The extension of Kammerer Road on a new alignment would place new traffic in the vicinity of existing receptors, increasing the noise level substantially where the new alignment would occur. Build noise levels would approach the respective NAC Activity criteria at receiver R-21 (Activity Category B) as a result of the Project in both the interim year and design year. R-31 would also experience noise levels exceeding its respective NAC (Activity Category B) in the design year; however, this receiver is currently undeveloped and the location of its future outdoor use area is unknown. This receiver was analyzed to provide information that will allow the local community to avoid noise-incompatible future land development.

Preliminary Noise Abatement Analysis

In accordance with 23 CFR 772, noise abatement is considered where noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Potential noise abatement measures identified in the Protocol include the following:

- Avoiding the impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise soundwalls;
- Acquiring property to serve as a buffer zone;
- Using traffic management measures to regulate types of vehicles and speeds; and
- Acoustically insulating public-use or nonprofit institutional structures.

All of these abatement options have been considered. However, because of the configuration and location of the Project, abatement in the form of heightened noise soundwalls is the only abatement that is considered to be feasible. Applying traffic management measures, such as restricting truck traffic, would be fundamentally counter to the Project purpose and need. Acquisition of land for creating buffer zones would not be practical, as much of the areas where such measures would be most effective are already used by homes.

Construction of new soundwalls and reconstruction of an existing soundwall at a new height has been evaluated for feasibility based on achievable noise reduction in accordance with the 2020 Caltrans Traffic Noise Analysis Protocol. For each of the noise soundwalls found to be acoustically feasible, reasonable cost allowances were calculated. Table B-1 and B-2 in Appendix G summarizes soundwall analysis results at R-21 and R-32 through R-50.

The analysis was conducted with soundwall heights ranging from 6 to 14 feet at two-foot increments, except for SW-W3 v1, which analyzed up to 16 feet. The soundwalls heights and locations were evaluated to determine if a minimum 5 dB attenuation at the outdoor frequent use areas of the representative receivers could be achieved. The reason for limiting the maximum soundwall height to 14 feet above the ground line is to comply with the suggestions set forth by *Highway Design Manual* (Department, 2007). The minimum soundwall height required to cut the

line-of-sight from each receiver to the exhaust stacks of heavy trucks has been calculated for all feasible soundwalls. These heights were evaluated through calculations performed by TNM 2.5.

For any noise soundwalls to be considered reasonable from a cost perspective the estimated cost of the noise soundwalls should be equal to or less than the total cost allowance calculated for the soundwalls. Furthermore, 23 CFR 772 requires that an acoustical design goal be applied to all noise abatement. The Department's acoustical design goal is that soundwalls must be predicted to provide at least 7 dB of noise reduction at one or more benefited receivers. For a wall to be considered reasonable, the 7 dB design goal must be achieved at one or more benefited receivers. This design goal applies to any receiver and is not limited to impacted receivers. The cost calculations of the noise soundwalls should include all items appropriate and necessary for construction of the soundwalls, such as traffic control, drainage modification, and retaining walls. Construction cost estimates are not provided in the NSR but are presented in the Noise Abatement Decision Report (NADR). A NADR was prepared for the Project in February 2019 (Dokken Engineering 2019b). The NADR is a design responsibility and is prepared to compile information from the NSR, other relevant environmental studies, and design considerations into a single, comprehensive document before public review of the Project. The NADR includes noise abatement construction cost estimates that have been prepared and signed by a licensed engineer based on site-specific conditions. Construction cost estimates are compared to reasonableness allowances in the NADR to identify which soundwalls configurations are reasonable from a cost perspective.

The preliminary noise abatement decision presented in the NADR is based on preliminary Project alignments and profiles, which may be subject to change. As such, the physical characteristics of noise abatement described in the NADR also may be subject to change. If pertinent parameters change substantially during the final Project design, the preliminary noise abatement decision may be changed or eliminated from the final Project design. A final decision to construct noise abatement will be made upon completion of the Project design. Preliminary information on the physical location, length, and height of noise soundwalls, and the preliminary noise abatement decision is provided in this draft environmental document for public review. The preliminary recommendation and decision of the NADR are presented in the sections below.

Receiver R-21 would be subject to noise levels that approach the NAC criterion of 67 dBA $L_{eq}(h)$ under the Build Alternative. Receivers R-8, R-10, and R-32 through R-50 would exceed the existing worst-hour noise level by 12 dBA or more in the design year. Therefore, a noise abatement evaluation was required. Soundwall heights were evaluated in 2-foot increments ranging in height from 6 feet to 16 feet. Results of the noise abatement evaluation are presented in Tables B-1 and B-2 in Appendix G for the Build Alternative.

Evaluated Sound Wall Locations

Receiver R-8

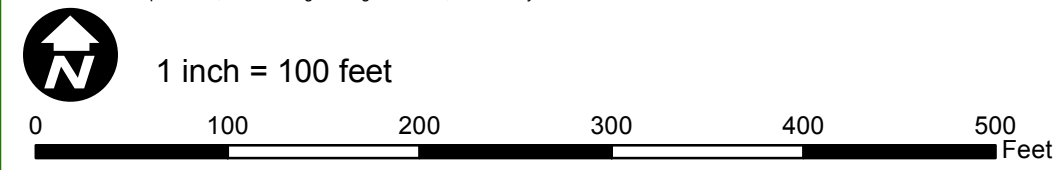
This receiver represents a single-family residence located on the southeast side of the Kammerer Road and Franklin Boulevard intersection at 10609 Franklin Boulevard. The extension of Kammerer Road on a new alignment would place new traffic immediately adjacent of R-8. SW-W2 was evaluated on the edge of shoulder at-grade along the proposed overcrossing to shield receiver R-8. SW-W2 was not found to be feasible at any wall height. Therefore, further reasonableness consideration of construction costs for SW-W2 in a NADR is not warranted. **Figure 39** and **Figure 40** show the evaluated soundwall SW-W2 and receiver location R-8 for in the interim year with the 2-lane configuration and design year 2044 with the 4-lane configuration.

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Source: ESRI Maps Online; Dokken Engineering 2/12/2019; Created By: kchen



2-Lane Configuration	Long-Term Noise Measurement	SW-W2
Pavement Edge	Sensitive Noise Receiver	
Pavement Markings		

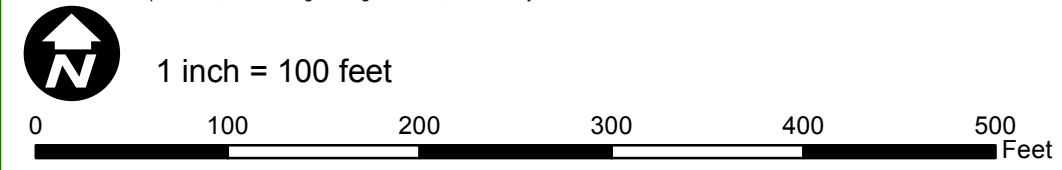
Figure 39
Soundwall SW-W2 in Interim Year 2034

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California



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Source: ESRI Maps Online; Dokken Engineering 2/12/2019; Created By: kchen



4-Lane Configuration	Long-Term Noise Measurement	SW-W2
Pavement Edge	Sensitive Noise Receiver	
Pavement Markings		

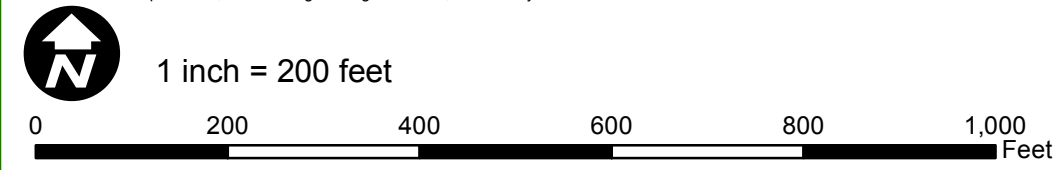
Figure 40
Soundwall SW-W2 in Design Year 2044

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California



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Source: ESRI Maps Online; Dokken Engineering 2/12/2019; Created By: kchen



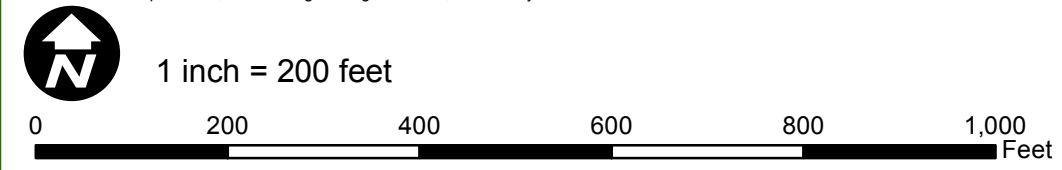
2-Lane Configuration	Sensitive Noise Receiver
Pavement Edge	SW-W4
Pavement Markings	

Figure 41
Soundwall SW-W4 in Interim Year 2034
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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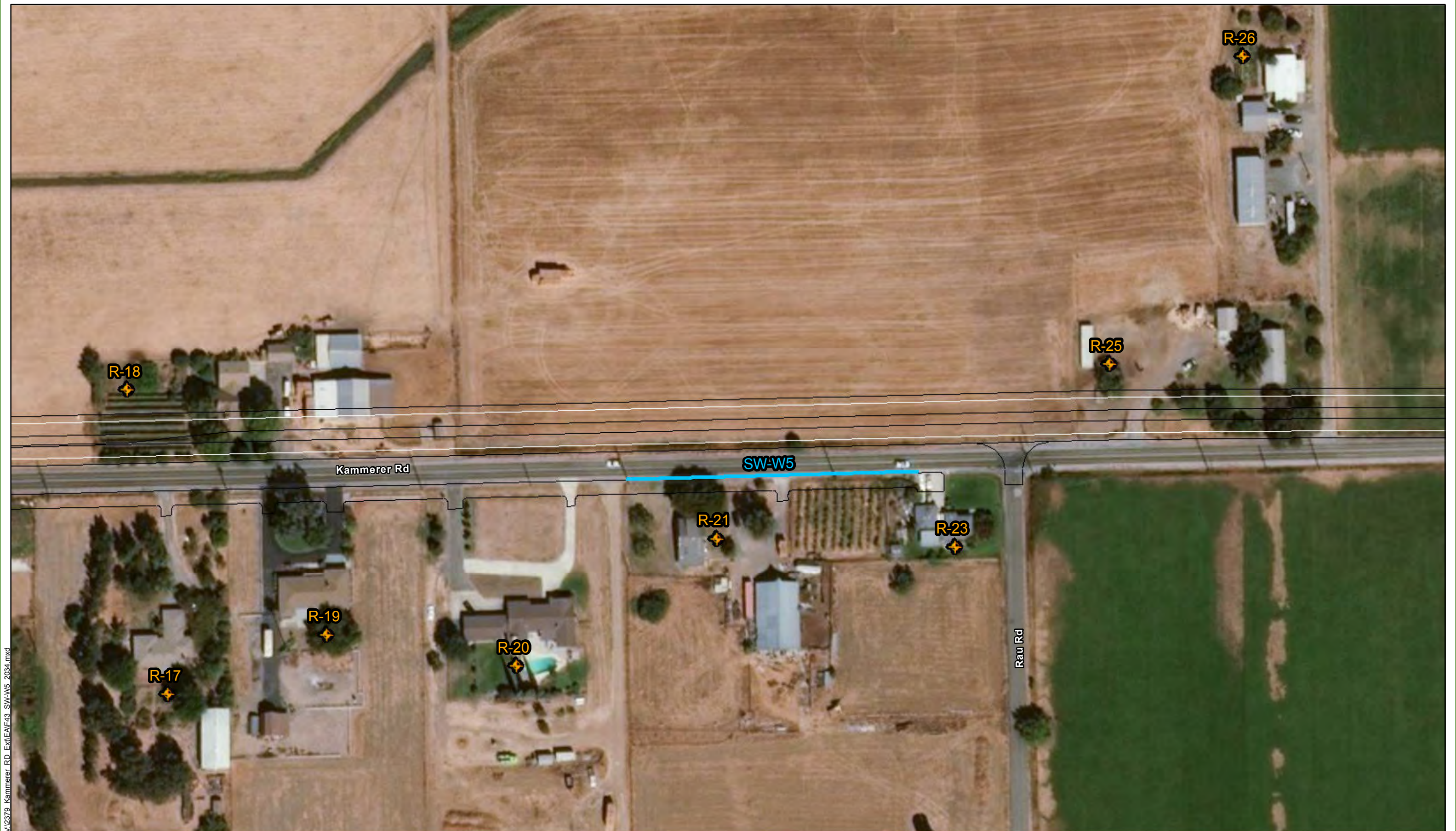
Source: ESRI Maps Online; Dokken Engineering 2/12/2019; Created By: kchen



4-Lane Configuration	Sensitive Noise Receiver
Pavement Edge	SW-W4
Pavement Markings	

Figure 42
Soundwall SW-W4 in Design Year 2044

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California



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Source: ESRI Maps Online; Dokken Engineering 2/12/2019; Created By: kchen

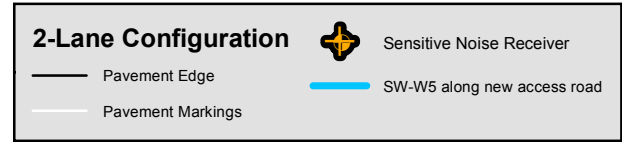
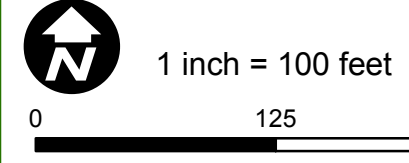
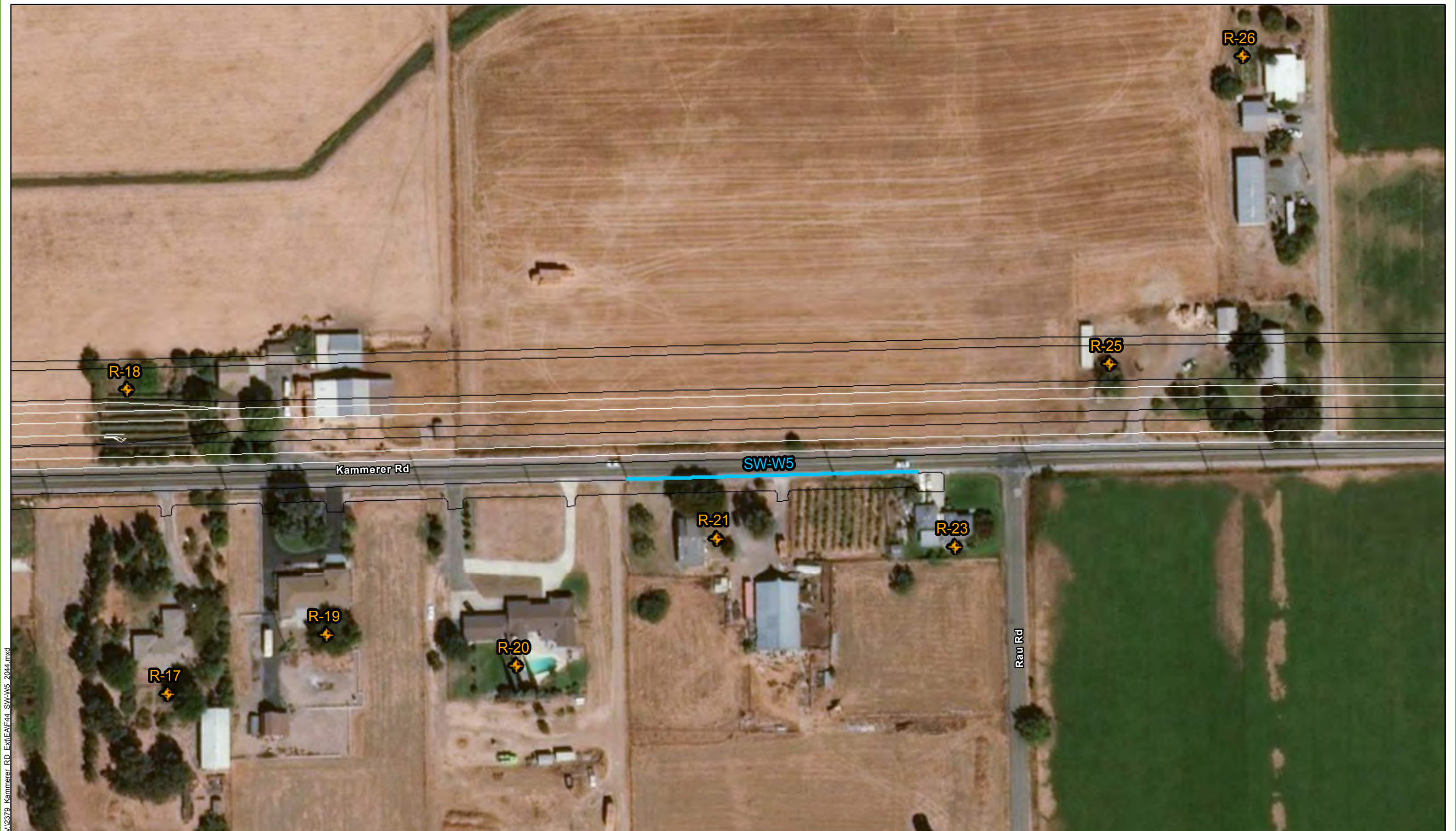


Figure 43
Soundwall SW-W5 in Interim Year 2034
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

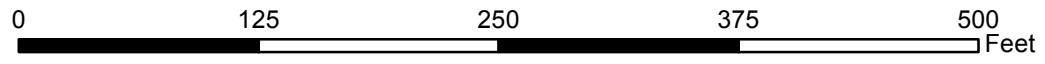


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Source: ESRI Maps Online; Dokken Engineering 2/12/2019; Created By: kchen



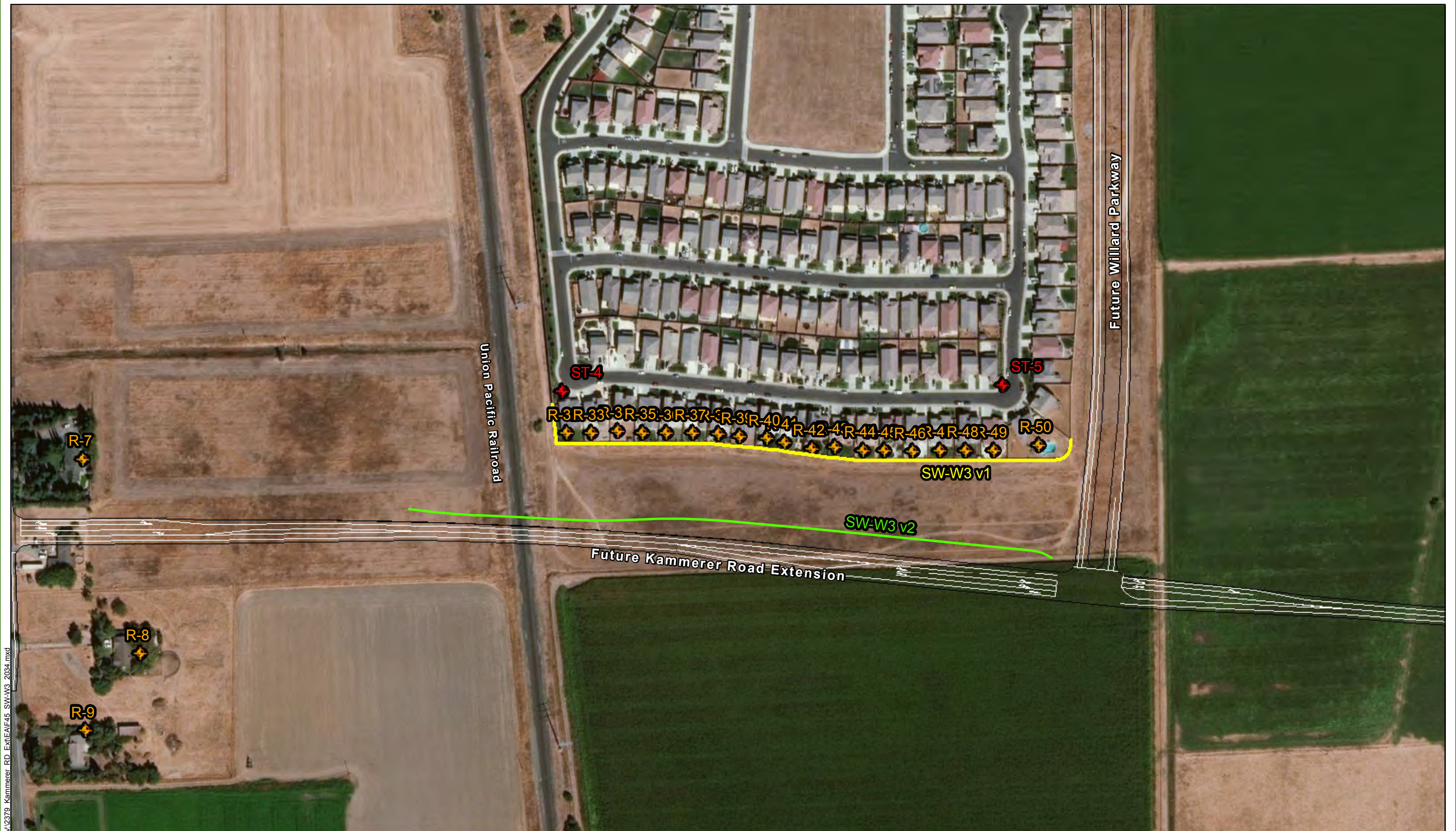
1 inch = 100 feet



4-Lane Configuration	Sensitive Noise Receiver
Pavement Edge	SW-W5 along new access road
Pavement Markings	

Figure 44
Soundwall SW-W5 in Design Year 2044

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California



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Source: ESRI Maps Online; Dokken Engineering 2/12/2019; Created By: kchen



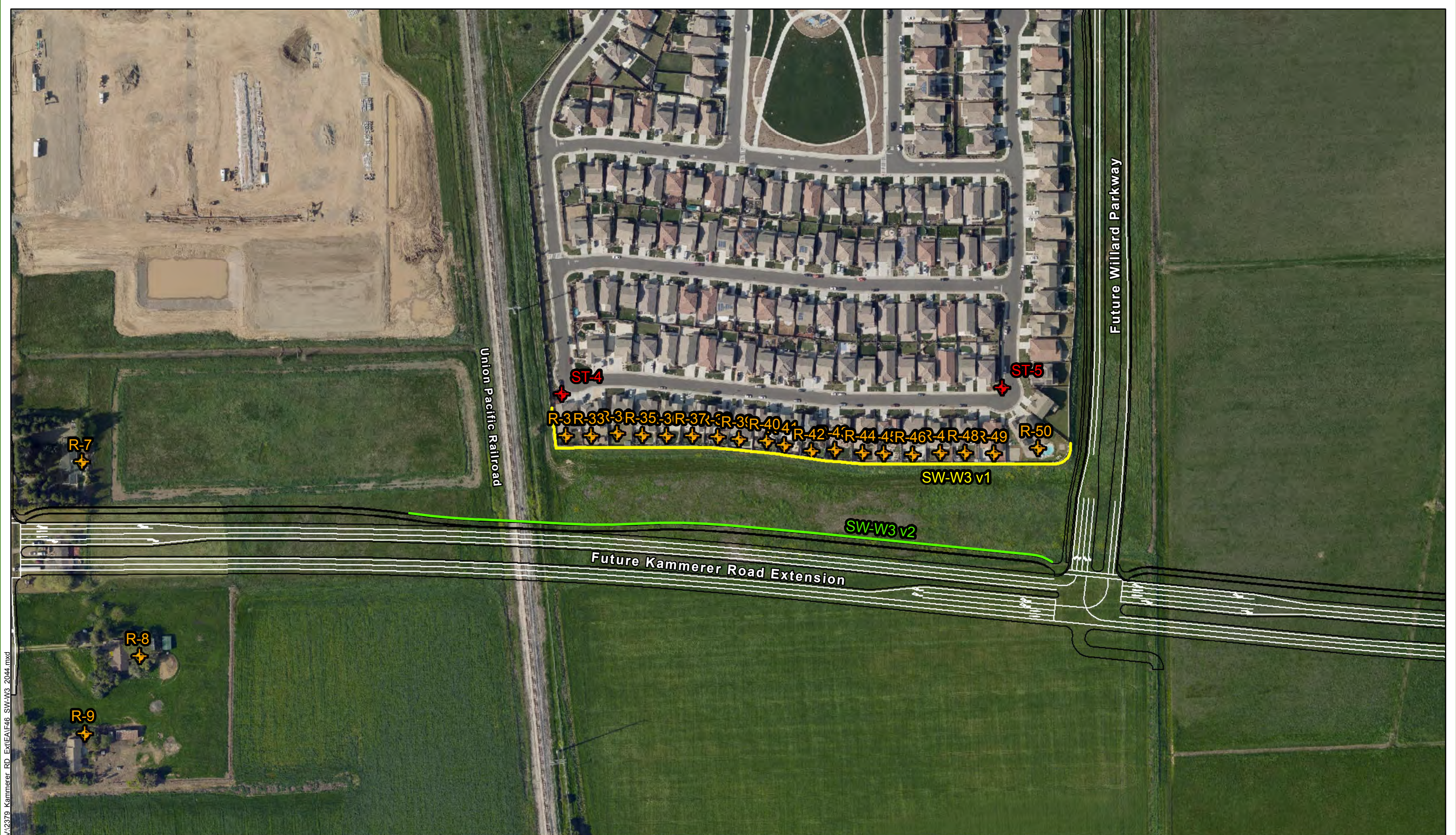
1 inch = 200 feet



2-Lane Configuration	Short-Term Noise Measurement	SW-W3 v1
Pavement Edge	Sensitive Noise Receiver	SW-W3 v2
Pavement Markings		

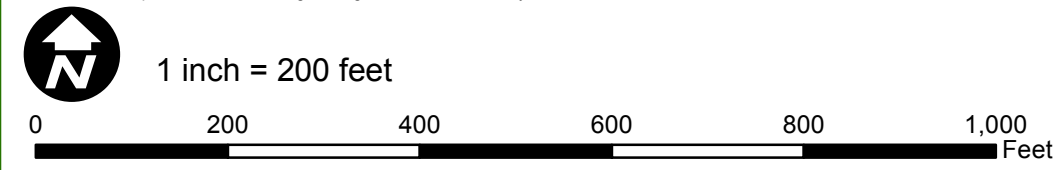
Figure 45
Soundwall SW-W3 in Interim Year 2034

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California



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Source: ESRI Maps Online; Dokken Engineering 9/16/2021; Created By: rramirez



4-Lane Configuration	Short-Term Noise Measurement	SW-W3 v1
Pavement Edge	Sensitive Noise Receiver	SW-W3 v2
Pavement Markings		

Figure 46
Soundwall SW-W3 in Design Year 2044
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Receiver R-10

This receiver represents a single-family residence located on the north side of Kammerer Road between Willard Parkway and Bruceville Road and south of Bilby Road. The extension of Kammerer Road on a new alignment would place new traffic immediately adjacent south of R-10. SW-W4 was evaluated on the edge of shoulder along the proposed Kammerer Road extension to shield receiver R-10. SW-W4 was not found to be feasible at any wall height. Therefore, further reasonableness consideration of construction costs for SW-W4 in a NADR is not warranted.

Figure 41 and **Figure 42** show the evaluated soundwall SW-W4 and receiver location for R-10 in the interim year with the 2-lane configuration and design year 2044 with the 4-lane configuration.

Receiver R-21

This receiver represents a single-family residence located on the southwest side of the Kammerer Road and Rau Road intersection at 8170 Kammerer Road. The extension of Kammerer Road on a new alignment would place new traffic immediately adjacent north of R-21. SW-W5 was evaluated between a proposed access road and the proposed Kammerer Road extension north of the access road to shield receiver R-21. SW-W5 was found to be feasible at a minimum of 6 feet where SW-W5 was raised in 2-foot increments from 6 feet to 14 feet in height. However, in order to meet the Department's acoustical design goal of a 7 dB reduction, SW-W5 must be built to a height of 8 feet. A soundwall at this height is also able to break the line of sight of an 11.5 foot truck stack. **Table 61** summarizes the calculated noise reductions and reasonable allowances for each soundwall height for SW-W5.

Table 61. Summary of Reasonableness Determination Data – SW-W5

Barrier I.D.: SW-W5	6-Foot	8-Foot	10-Foot	12-Foot	14-Foot
Number of Benefited Receivers	1	1	1	1	1
Reasonable Allowance Per Benefited Receiver	\$95,000	\$95,000	\$95,000	\$95,000	\$95,000
Total Reasonable Allowance	\$95,000	\$95,000	\$95,000	\$95,000	\$95,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction.

A benefitted receiver is a dwelling unit that is predicted to receive a noise reduction of at least 5 dBA

^a A NADR was prepared that identified noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

Figure 43 and **Figure 44** above show the evaluated soundwall SW-W5 and receiver location for R-21 in the interim year with the 2-lane configuration and design year 2044 with the 4-lane configuration.

Receiver R-32 through R-50

These receivers represent single-family residences located along Tusk Way on the north side of Kammerer Road between Franklin Boulevard and Willard Parkway. The extension of Kammerer Road on a new alignment would place new traffic immediately adjacent south of R-32 through R-50. Two alternatives for SW-W3 were evaluated to shield receivers R-32 through R-50: SW-W3 v1 would involve the reconstruction of an existing 7-foot wall south of Tusk Way to a higher wall; SW-W3 v2 would involve the construction of a new proposed soundwall at-grade on the proposed railroad overcrossing between Franklin Boulevard and Willard Parkway. Both alternatives for SW-

W3 were found to be feasible where SW-W3 was raised in 2-foot increments from 6 feet to 16 feet in height. SW-W3 v1 was found to be feasible at a minimum height of 10 feet, while SW-W3 v2 was found to be feasible at a minimum height of 6 feet.

Figure 45 and **Figure 46** above show the evaluated soundwall SW-W3 v1 and v2 and receiver locations R-32 through R-50 for in the interim year with the 2-lane configuration and design year 2044 with the 4-lane configuration.

In addition to a minimum 5 dB reduction for a soundwall to achieve feasibility, a soundwall must also meet the Department’s acoustical design goal of a 7 dB reduction at one benefitted receptor to be considered reasonable. SW-W3 v1 must be reconstructed to a new 12-foot soundwall. A soundwall at this height and location also breaks the line of sight of an 11.5-foot truck stack. While SW-W3 v2 meets the Caltrans 7 dB reduction design goal a minimum height of 6 feet, it must be constructed to a height of 10 feet to break the line of sight of an 11.5-foot truck stack. Tables B-1 and B-2 in Appendix G summarizes the results of the soundwall analysis for these receiver locations. **Table 62** and **Table 63** summarizes the calculated noise reductions and reasonable allowances for each soundwall height.

Table 62. Summary of Reasonableness Determination Data – SW-W3 v1

Barrier I.D.: SW-W3 v1	6-Foot	8-Foot	10-Foot	12-Foot	14-Foot	16-Foot
Number of Benefitted Receivers	N/A	N/A	6	10	16	18
Reasonable Allowance Per Benefitted Receiver	N/A	N/A	\$95,000	\$95,000	\$95,000	\$95,000
Total Reasonable Allowance	N/A	N/A	\$570,000	\$950,000	\$1,520,000	\$1,710,000

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction or is not feasible.
 A benefitted receiver is a dwelling unit that is predicted to receive a noise reduction of at least 5 dBA
^a A NADR was prepared that identified noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

Table 63. Summary of Reasonableness Determination Data – SW-W3 v2

Barrier I.D.: SW-W3 v2	6-Foot	8-Foot	10-Foot	12-Foot	14-Foot	16-Foot
Number of Benefitted Receivers	10	10	10	10	11	N/A
Reasonable Allowance Per Benefitted Receiver	\$95,000	\$95,000	\$95,000	\$95,000	\$95,000	N/A
Total Reasonable Allowance	\$950,000	\$950,000	\$950,000	\$950,000	\$1,045,000	N/A

Note: N/A-Not applicable. Barrier does not provide 5 dB of noise reduction or is not feasible.
 A benefitted receiver is a dwelling unit that is predicted to receive a noise reduction of at least 5 dBA
^a A NADR was prepared that identified noise barrier construction cost information and the noise barriers that are reasonable from a cost perspective.

Reasonable Cost Analysis

For each noise barrier found to be acoustically feasible, reasonable cost allowances were calculated. The total reasonable allowance for the cost of construction of the wall is calculated by multiplying the number of benefitted receivers by the reasonable allowance per benefitted receiver, which is currently \$95,000.

For any noise barrier to be considered reasonable from a cost perspective, the estimated cost of the noise barrier should be within 10% or less than the total reasonable cost allowance calculated for the barrier. The cost calculations of the noise barrier should include all items appropriate and necessary for construction of the barrier, such as traffic control, drainage modification, and retaining walls.

A Reasonable Cost Analysis was completed in the Project's Noise Abatement Decision Report (February 2019). The engineer's cost estimate for construction, which include cost of the wall, footings, traffic control, drainage, modified or additional plantings, and miscellaneous items, were compared to the total reasonable allowances for each feasible soundwall.

SW-W3 v1 is acoustically feasible, meets the Caltrans design goal, and breaks the line of sight of an 11.5-foot truck stack at 12 feet. The total length of SW-W3 v1 is 1,290 feet and would cost \$1,360,000 to construct. SW-W3 v1 is considered financially reasonable when constructed at a height of 14 feet since its construction cost is less than its reasonable allowance of \$1,520,000.

SW-W3 v2 is acoustically feasible, meets the Caltrans design goal, and breaks the line of sight of an 11.5-foot truck stack at 10 feet. The total length of SW-W3 v2 is 1,467 feet and would cost \$960,000 to construct. SW-W3 v2 is considered financially reasonable when constructed at a height of 10 feet since its construction cost is within 10% of its reasonable allowance of \$950,000.

SW-W5 is acoustically feasible, meets the Caltrans design goal, and breaks the line of sight of an 11.5-foot truck stack at 8 feet. The total length of SW-W5 is 328 feet and would cost \$180,000 to construct. SW-W5 is not considered financially reasonable since its construction cost exceeds its reasonable allowance of \$95,000. Therefore, SW-W5 was not included as a design feature of the Project.

Noise Abatement Decision

Comparing the total reasonable allowances to the estimated construction costs, both alternatives of SW-W3 have been determined to be financially reasonable as they can be constructed within the total reasonable allowance.

Because SW-W3 v1 is proposed on private right-of-way, its construction would require permission to enter (PTE) from each affected property owner of receivers R-32 through R-50 to remove the existing soundwall 7-foot soundwall and construct the new proposed 14-foot soundwall. Furthermore, 100% of the property owners must support SW-W3 v1 during polling to allow the construction of SW-W3 v1. As SW-W3 v1 is feasible and reasonable at 14 feet, the increased visual obstruction would likely be deemed undesirable by some property owners and would not garner 100% support. Without approval by all affected property owners, traffic noise would not be abated.

SW-W3 v2 would not require PTE as the at-grade overcrossing soundwall would occur within City right-of-way. The City has indicated being in favor of construction of SW-W3 v2 to minimize traffic

noise and maintain noise levels within acceptable levels established in the City General Plan Noise Element. In addition, at a height of 10 feet, SW-W3 v2 would not pose as much of a visual obstruction as SW-W3 v1 at a height of 14 feet. Therefore, due to right-of-way constraints, visual impact considerations, and to ensure the likelihood of construction of SW-W3 to adequately abate traffic noise, SW-W3 v2 is recommended for inclusion as a design feature of the Project at a height of 10 feet.

Construction Impacts

During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. **Table 64** summarizes noise levels produced by construction equipment that is commonly used on roadway construction projects. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. To minimize the construction-generated noise, abatement measures from Standard Specification 14-8.02 "Noise Control" must be followed:

- Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.
- Equip an internal combustion engine with the manufacturer recommended muffler.
- Do not operate an internal combustion engine on the job site without the appropriate muffler.

Table 64. Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Federal Transit Administration 2006.

No adverse noise impacts from construction are anticipated because construction would be conducted in accordance with Standard Specification 14-8.02 and applicable local noise standards. Construction noise would be short-term, intermittent, and overshadowed by local traffic noise. Compliance with the County and City local noise ordinances for construction is recommended to minimize construction noise.

The following 2015 Department Standard Specification (SS 14-8.02) will be implemented to control noise and vibration during construction:

Do not exceed 86 dBA L_{max} at 50 feet from the job site from 9:00 pm to 6:00 am.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and potential noise impacts would not occur. As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in

the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aid in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR ABATEMENT MEASURES

Receptors R-32 through R-50 represents 18 homes located on Tusk Way in the City. Measurements taken at Receptor R-32 through R-50 show that the existing noise level at that location range from 45 to 48 dBA. The future noise level at Receptors R-32 to R-50 with the Project is predicted up to 69 dBA. Because the predicted future noise level exceeds the NAC for residential uses (67dBA), the 18 homes represented by Receptors R-32 to R-50 would be adversely affected by noise. SW-W3 v2 is acoustically feasible, meets the Caltrans design goal, and breaks the line of sight of an 11.5-foot truck stack at 10 feet. The total length of SW-W3 v2 is 1,467 feet and would cost \$960,000 to construct. SW-W3 v2 is considered financially reasonable when constructed at a height of 10 feet since its construction cost is within 10% of its reasonable allowance of \$950,000.

NOI-1: Based on the studies completed to date, the Department intends to incorporate noise abatement in the form of a barrier (SW-W3 v2) at: receptors R-32 through R-50 with respective lengths and average heights of 1,467 feet by 10-feet. Calculations based on preliminary design data show that the barrier will reduce noise levels by 7 dBA for 18 residences at a cost of \$960,000. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision on noise abatement will be made upon completion of the Project design.

NOI-2: The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the following mitigation measures that will be implemented to reduce the effects of construction noise and vibration. Additional measures may be developed once project design has developed sufficiently to identify site-specific impacts.

- Comply with all local sound control and noise level rules, regulations, and ordinances of the pertinent City, county, or both.
- Limit the hours of noise-generating construction and related activity such as deliveries and staging activities to between 6 a.m. and 8 p.m. on Monday through Friday and between 7 a.m. and 8 p.m. on weekends, or as required by local noise ordinances in effect for site-specific projects.
- Require that equipment and trucks used for project construction use noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) as necessary to limit noise to compliance levels.
- Locate stationary noise sources such as generators or pumps as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors will be adequately muffled or an acoustic barrier will be installed to reduce their noise levels to comply with applicable local requirements.

- Designate a complaint coordinator at the implementing agency to be responsible for responding to noise complaints received during the construction phase. The name and phone number of the complaint coordinator will be conspicuously posted at construction areas and on all advanced notifications. This person will be responsible for taking steps required to resolve complaints, including periodic noise monitoring and changes to construction activities, if necessary to meet the required mitigation.
- Mitigate noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence by strategic placement of material stockpiles between the operation and the affected dwelling or by other means such as temporary noise barriers approved by the local jurisdiction.
- Require contractors to implement appropriate additional noise mitigation measures including (but not limited to) shutting off equipment (including trucks transporting aggregate or other construction materials) so that idling time does not exceed 3 minutes, and notifying adjacent residents by mail not less than 1 week in advance of construction work.
- Prohibit pile-driving or blasting operations within 3,000 feet of an occupied residence on Sundays, legal holidays, and between 9 p.m. and 6 a.m. on other days, or as governed by local noise ordinances at site-specific locations.
- Use sonic or vibratory pile drivers instead of impact pile drivers (sonic pile drivers are only effective in some soils). If sonic or vibratory pile drivers are not feasible, install acoustical enclosures as necessary to ensure that pile-driving noise does not exceed applicable local noise standards at the closest sensitive receptor.
- Limit pile driving in residential areas to between 8 a.m. and 5 p.m.
- Use engine and pneumatic exhaust controls on pile drivers as necessary to ensure that exhaust noise from pile driver engines is minimized to the extent feasible.
- Where feasible, pre-drill pile holes to reduce potential noise and vibration impacts.

2.2.8 ENERGY

REGULATORY SETTING

NEPA (42 United States Code [USC] Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

AFFECTED ENVIRONMENT

Energy consumption can be measured in direct and indirect energy use. Direct energy use is the energy consumed in the actual propulsion of a vehicle using the facility. It can be measured in terms of the thermal value of the fuel [usually measured in British thermal units (BTUs) or Joules], the costs of the fuel, or the quantity of electricity used in the engine or motor. Indirect energy is defined as all the remaining energy consumed to run a transportation system, including construction energy, maintenance energy, and any substantial impacts to energy consumption related to Project induced land use changes and mode shifts, and any substantial changes in energy associated with vehicle operation, manufacturing or maintenance due to increased automobile use.

Direct Energy Consumption

Most existing energy consumption in the area attributed to the Project facilities is related to traffic. While the proposed Project would introduce new transportation facilities into the Project area, the Project is intended to accommodate planned growth in the region. Without the Project, future traffic increases would potentially lead to congestion and stop-and-go traffic conditions on existing roadways. These stop-and-go traffic conditions decrease fuel efficiency, thus increasing fuel consumption. As vehicles require more fuel, there is an increase in fuel shipments (via tanker trucks) on existing roadways to the many gas stations along the corridor.

Indirect Energy Consumption

The indirect consumption of energy for transportation system materials and processes competes with other important energy needs. One such use includes the routine wear and replacement of vehicles and vehicle parts, especially during periods of traffic congestion. Driving during peak traffic conditions increases the “wear and tear” on vehicles, which then require more maintenance (such as, for example, oil changes, tire and brake pad replacement).

Another competing energy use includes maintenance. Pavement grinding operations, for example, include the use of water to grind existing pavement, which is then exported to an approved facility, such as a slurry pit, so the grindings can then be properly disposed of. Heavy equipment is needed to perform this work, as well as setting up lane closures and detours, which can negatively affect traffic conditions. Caltrans Maintenance Division also performs routine litter cleanup and graffiti abatement. These activities expose highway workers to dangerous conditions when work is next to live traffic. This work often requires lane closures for worker safety, which could also negatively affect traffic conditions.

ENVIRONMENTAL CONSEQUENCES

Permanent Impacts

Direct Energy (Mobile Sources)

The Project is not anticipated to have substantial energy impacts, as it will aid in relieving traffic congestion. Congested traffic conditions decrease fuel efficiency, and thus can increase fuel consumption. Since the Project is anticipated to improve traffic operations and relieve congestion, fuel consumption and energy impacts are expected to decrease.

Annual fuel consumption under the Build and No Build conditions for each analysis year was calculated by multiplying fuel consumption and fuel economy factors from EMFAC 2017 with the vehicle miles traveled (VMT) per vehicle type for the local roadway segments. Table 65 below shows the comparison of estimated VMT per scenario and the difference in operational fuel consumption. Operational fuel consumption was also converted into British thermal units (BTU)s based on conversion factors provided by the U.S. Energy Information Administration (US EIA, May 2021).

Table 65. Annual Operational Fuel/Energy Consumption

Analysis Year	Annual Local VMT	Vehicle Percentages LDV/LHD1/LHD2	Annual Fuel Consumption		
			Diesel (gallons)	Gasoline (gallons)	Total Energy (BTU)
Baseline Existing (2017)	29,732,810	78%/19%/3%	96,777,095	640,976,616	9.04E+13
Design (2044) No Project	42,040,309	78%/19%/3%	203,339,518	1,410,054,765	1.98E+14
<i>% Change from Existing</i>	41.4%	-	110.1%	120.0%	118.5%
Design (2044) Build	42,097,312	77%/19%/4%	209,597,092	1,395,367,086	1.97E+14
<i>% Change from Existing</i>	41.6%	-	116.6%	117.7%	117.5%
<i>% Change from No Build</i>	0.2%	-	6.5%	-2.3%	-1.0%
LDA – Light Duty Vehicle (Passenger Vehicle) LHD1 – Light Heavy Duty Vehicle LHD2 – Medium to Heavy Heavy Duty Vehicle					

As shown in Table 65, the No Build Alternative in 2044 would result in increased fuel consumption when compared to Existing 2017 conditions due to an increase in annual VMT. The Build Alternative in 2044 would also result in increased fuel consumption when compared to Existing 2017 conditions due to an increase in annual VMT. However, under the Build Alternative, overall energy consumption would be approximately 1% less than under the No Build Alternative. Based on this, the proposed Project would not result in increased energy consumption but rather result in decreased energy expenditures.

Temporary Impacts

Direct Energy (Construction)

Proposed Project construction would primarily consume diesel and gasoline through operation of heavy-duty construction equipment, material deliveries, and debris hauling. Fuel consumption was calculated by inputting emissions results from the SMAQMD Roadway Construction Emissions Model into the U.S. EPA Greenhouse Gas Equivalencies Calculator (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>). Table 66 below shows the estimated annual fuel consumption needed to construct the proposed Project.

Table 66. Annual Construction Fuel Consumption

Construction Year	Annual Fuel Consumption		
	Diesel (gallons)	Gasoline (gallons)	Total Energy (BTU)
2024	193,461	221,608	5.32E+10
2025	193,461	221,608	5.32E+10

As indicated in Table 66, energy use associated with proposed Project construction is estimated to result in the short-term consumption of 386,922 gallons from diesel-powered equipment and 443,216 gallons from gasoline-powered equipment, which is a combined total of approximately 5.32E+10 BTUs consumed annually for construction. This represents a small demand on local and regional fuel supplies that would be easily accommodated, and this demand would cease once construction is complete. Moreover, construction-related energy consumption would be temporary and not a permanent new source of energy demand, and demand for fuel would have no noticeable effect on peak or baseline demands for energy. While construction would result in a short-term increase in energy use, construction design features would help conserve energy. For example, recycled materials will be used where feasible. Recycled products typically have lower manufacturing and transport energy costs since they do not utilize raw materials, which must be mined and transported to a processing facility. These energy conservation features are consistent with SACOG's most recent RTP. Therefore, the Project would not result in an inefficient, wasteful, and unnecessary consumption of energy.

AVOIDANCE, MINIMIZATION, AND/OR ABATEMENT MEASURES

No avoidance, minimization and/or mitigation measures are proposed at this time.

2.3 Biological Environment

For all biological resources, the Biological Study Area (BSA) was used to assess impacts. The BSA is approximately 250-foot buffer around Project Areas. The BSA is much larger than the Project footprint, due to the fact that it provided an assessment of indirect impacts (refer to Sections 2.3.1.1, Affected Environment, and 2.3.2.3, Wetlands and Other Waters, Environmental Consequences, below). The BSA includes the Project footprint (direct impacts), wetland delineation, habitat assessments, and rare plant survey areas.

REGULATORY SETTING

This section describes the Federal, State, and local plans, policies, and laws that are relevant to biological resources. Applicable Federal permits and approvals that will be required before construction of the Project are provided in Chapter 5.

Federal Regulations

National Environmental Policy Act

NEPA provides an interdisciplinary framework for environmental planning by Federal agencies and contains action-forcing procedures to ensure that Federal agency decision makers take environmental factors into account. NEPA applies whenever a Federal agency proposes an action, grants a permit, or agrees to fund or otherwise authorize any other entity to undertake an action that could possibly affect environmental resources. The Department, under delegation from the FHWA, is the NEPA lead agency for this Project.

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973 (16 U.S.C. section 1531 et seq.) provides for the conservation of endangered and threatened species listed pursuant to Section 4 of the Act (16 U.S.C. section 1533) and the ecosystems upon which they depend. These species and resources have been identified by USFWS or National Marine Fisheries Service (NMFS).

Clean Water Act

The CWA was enacted as an amendment to the Federal Water Pollutant Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the U.S. CWA serves as the primary Federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. CWA empowers the U.S. EPA to set national water quality standards and effluent limitations, and includes programs addressing both point-source and non-point-source pollution. Point-source pollution originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Non-point-source pollution originates over a broader area and includes urban contaminants in storm water runoff and sediment loading from upstream areas. CWA operates on the principle that all discharges into the nation's waters are unlawful unless they are specifically authorized by a permit; permit review is CWA's primary regulatory tool. This Project will require a CWA Section 402 National Pollutant Discharge Elimination System (NPDES) Permit regulated by the EPA.

The USACE regulates discharges of dredged or fill material into waters of the U. S. These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a direct or indirect connection to interstate commerce. USACE regulatory jurisdiction pursuant to Section 404 of the CWA is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct (through a tributary system linking a stream

channel with traditional navigable waters used in interstate or foreign commerce) or may be indirect (through a nexus identified in USACE regulations).

The RWQCB has jurisdiction under Section 401 of the CWA and regulates any activity which may result in a discharge to surface waters. Typically, the areas subject to jurisdiction of the RWQCB coincide with those of USACE (i.e., waters of the U.S. including any wetlands). The RWQCB also asserts authority over “waters of the State” under waste discharge requirements pursuant to the Porter-Cologne Water Quality Control Act.

Executive Order 13112: Prevention and Control of Invasive Species

Executive Order (E.O.) 13112 (signed February 3, 1999) directs all Federal agencies to prevent and control introductions of invasive species in a cost-effective and environmentally sound manner. The EO and directives from the FHWA require consideration of invasive species in NEPA analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them.

Executive Order 13186: Migratory Bird Treaty Act

E.O. 13186 (signed January 10, 2001) directs each Federal agency taking actions that could adversely affect migratory bird populations to work with USFWS to develop a Memorandum of Understanding that will promote the conservation of migratory bird populations. Protocols developed under the Memorandum of Understanding will include the following agency responsibilities:

- Avoid and minimize, to the maximum extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- Restore and enhance habitat of migratory birds, as practicable; and
- Prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The E.O. is designed to assist Federal agencies in their efforts to comply with the Migratory Bird Treaty Act (MBTA) (50 Code of Federal Regulations [CFR] 10 and 21) and does not constitute any legal authorization to take migratory birds. Take is defined under the MBTA as “the action of or attempt to pursue, hunt, shoot, capture, collect, or kill” (50 CFR 10.12) and includes intentional take (i.e., take that is the purpose of the activity in question) and unintentional take (i.e., take that results from, but is not the purpose of, the activity in question).

State Regulations

California Environmental Quality Act

California State law created to inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities and to work to reduce these negative environmental impacts. The Connector JPA is the CEQA lead agency for this Project.

California Endangered Species Act (CESA)

The California Endangered Species Act (CESA) (California Fish and Game (CFG) Code Section 2050 et seq.) requires the California Department of Fish and Wildlife (CDFW) to establish a list of endangered and threatened species (Section 2070) and to prohibit the incidental taking of any

such listed species except as allowed by the Act (Sections 2080-2089). In addition, CESA prohibits take of candidate species (under consideration for listing).

CESA also requires the CDFW to comply with CEQA (Pub. Resources Code Section 21000 et seq.) when evaluating incidental take permit applications (CFG Code Section 2081(b) and California Code Regulations, Title 14, section 783.0 et seq.), and the potential impacts the project or activity for which the application was submitted may have on the environment. CDFW's CEQA obligations include consultation with other public agencies which have jurisdiction over the project or activity [California Code Regulations, Title 14, Section 783.5(d)(3)]. CDFW cannot issue an incidental take permit if issuance would jeopardize the continued existence of the species [CFG Code Section 2081(c); California Code Regulations, Title 14, Section 783.4(b)].

Section 1602: Streambed Alteration Agreement (SAA)

Under CFG Code 1602, public agencies are required to notify CDFW before undertaking any project that will divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occurs during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resources. These modifications are formalized in a SAA that becomes part of the plans, specifications, and bid documents for the project.

Section 3503 and 3503.5: Bird and Raptors

CFG Code Section 3503 prohibits the destruction of bird nests and Section 3503.5 prohibits the killing of raptor species and destruction of raptor nests. Trees and shrubs are present in and adjacent to the study area and could contain nesting sites.

Section 3513: Migratory Birds

CFG Code Section 3513 prohibits the take or possession of any migratory non-game bird as designated in the MBTA or any part of such migratory non-game bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

Local Regulations

Capital SouthEast Connector Project Program Environmental Impact Report

The Project is a component of the larger Capital SouthEast Connector. A PEIR was completed for the larger project. All biological resource avoidance, minimization, and mitigation measures from the final PEIR that pertain to this Project, will be adhered to.

South Sacramento County Habitat Conservation Plan

The Project occurs along the boundary of the Urban Development Area (UDA) and Preserve Planning Unit 6 of the South Sacramento Habitat Conservation Plan (SSHCP). The SSHCP Plan Area is functionally divided into two components: inside and outside of the UDA. To assist in development of the SSHCP Conservation Strategy, the Plan Area was further divided into eight Preserve Planning Units that encompass areas where important SSHCP Covered Species resources are present, and where habitat preservation would be planned. The Plan Area excludes the northern portion of the County, the northern portions of the City of Rancho Cordova, the City of Sacramento, the City of Elk Grove, the City of Folsom, the sovereign lands of the Miwok Tribe, and the County community of Rancho Murrieta. The Final SSHCP was circulated in February 2018 and approved by the Connector JPA, County, City of Rancho Cordova, and the City of Galt.

Final plan documents are available at www.southsachcp.com. The SSHCP provides a regional approach to balancing development against conservation and protection of habitat, open space, and agricultural lands. It also provides comprehensive compliance with federal and state endangered species laws, standardizes 28 Covered Species, and protects vernal pool, wetland, and stream habitats with mitigation/compensation measures for a streamlined regulatory process. To mitigate take of Covered Species, the SSHCP will protect and manage desired habitat within the Preserve System (Sacramento County et. al 2018).

The Connector JPA is a Plan Partner Agency of the SSHCP and the entire Project is covered under the SSHCP.

Sacramento County General Plan

The County General Plan includes several policies that have been developed to project sensitive biological resources. These policies were developed to meet the County's goals and objectives in protecting sensitive biological resources within the County.

The County General Plan addresses the need to provide a framework for conservation of open spaces while identifying areas that will likely be developed as the Sacramento urban area expands. The Open Space Element states that "maintaining intact habitat, productive soils, mineral resource availability as open space is essential to resource conservation, and includes both rural and urban open space, both of which provide protections for sensitive plant and wildlife species."

The Conservation Element of the County General Plan establishes goals and objectives for the protection, enhancement, and restoration of sensitive biological resources in the County. Policies CO-58 through CO-149 of the Conservation Element, and their associated implementation measures, apply to sensitive biological resources and are intended for the protection of sensitive plant and wildlife species, sensitive wetland, aquatic, and terrestrial habitats including landmark, heritage, and urban trees.

Sacramento County Tree Preservation and Protection Code

Chapter 19.12 of the County Municipal Code, Tree Preservation and Protection, strives to promote the health, safety, and general welfare, to preserve and protect significant historical heritage values, to enhance the beauty of the County, and to complement and strengthen zoning, subdivision and land use standards and regulations, while at the same time recognizing individual rights to develop private property by preserving all trees possible through its development review process. The County Municipal Code protects any living native oak tree (protected tree) having 6 inches or more in diameter measured 4.5 feet aboveground, or a multi-trunked native oak tree having an aggregate diameter of 10 inches or more measured at 4.5 feet aboveground.

No person shall trench, grade, or fill within the dripline of any protected tree or destroy, kill or remove any protected tree as defined, in the designated urban area of the unincorporated area of the County, on any property, public or private, without a tree permit, or unless authorized as a condition of a discretionary project approval by the Board of Supervisors, County Planning Commission, Zoning Board of Appeals, the Zoning Administrator or the Subdivision Review Committee. An application is required in order to cut down, destroy, or remove any protected tree. The application shall be submitted to the approving body not less than 10 days prior to the time desired to physically remove the tree.

Sacramento County Swainson's Hawk Ordinance

Chapter 16.130 of the County Municipal Code requires that all projects mitigate for impacts to Swainson's hawk foraging habitat. The Swainson's hawk ordinance provides several options for mitigation. The Swainson's Hawk Mitigation Program, amended by the Board of Supervisors December 2009, provides voluntary means for mitigation of impacts to foraging habitat.

City of Elk Grove General Plan

The City General Plan recognizes that lands in and around the City provide habitat to many native plant and animal species as well as open space and agricultural uses. The Conservation Element and Open Space Element provide policies and programs intended to reduce impacts on plants and animals. The General Plan Policy NR-1-4 recognizes the value of vernal pools and wetland and establishes a no net loss policy for these resources. Policy NR-1-2 aims to preserve and enhance natural areas for special-status species, and Policy NR-1-7 specifically addresses the adoption of a habitat conservation plan for rare, threatened and endangered species. Policies NR-1-5 and NR-1-6 provide protections for natural drainage and stream corridors along with their associated vegetation and wildlife through preservation, buffers and design standards.

City of Elk Grove Tree Preservation and Protection Code

Chapter 19.12 of the City Municipal Code, Tree Preservation and Protection, strives to protect and preserve trees of local importance, including coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizeni*), oracle oak (*Quercus moreha*), California sycamore (*Platanus racemosa*), and black walnut (*Juglans hindsii*), with a single trunk 6 inches diameter at breast height (dbh) or greater or a multi-trunk with a combined dbh of 6 inches or greater. Chapter 19.12 requires mitigation for the removal of trees of local importance with dimensions described above; trees that have been selected for preservation n; all portions of adjacent off-site native trees that have driplines that extend into the Project area; and all off-site native trees that may be impacted by utility installation and/or improvements associated with the Project. Current policies require that every inch lost will be mitigated by an inch planted or equivalent credit obtained from a tree mitigation bank.

City of Elk Grove Swainson's Hawk Code

Chapter 16.130 of the City Municipal Code, Swainson's Hawk Impact Mitigation Fees, requires mitigation for the loss of Swainson's hawk habitat at a 1:1 ratio. In some cases mitigation can be achieved through the payment of a fee, if the City has existing Swainson's hawk habitat credits available. Other options for achieving mitigation through the code include the direct transfer to the City of a Swainson's hawk habitat conservation easement along with an easement monitoring endowment or the purchase of credits at a CDFW-approved conservation bank. The code requires that a site must be surveyed to determine whether it is suitable Swainson's hawk foraging habitat.

2.3.1 NATURAL COMMUNITIES

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife migration corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as Critical Habitat under the FESA are discussed in Section 2.3.5 “Threatened and Endangered Species” of this document. Wetlands and other waters are also discussed in Section 2.3.2.

AFFECTED ENVIRONMENT

In 2016, a Natural Environment Study (NES) was prepared and approved for the Kammerer Road Project (MBI 2016a). At that time, four alternatives were analyzed: North Overhead, North Underpass, South Overhead, and South Underpass. Since the 2016 NES approval, the Project has been modified and includes only two alternatives: the Build Alternative and the No-Build Alternative. A NES Addendum (Dokken Engineering 2019c) addressing the changes in the Project area and impacts to natural resources was prepared and approved by the Department in May 2019. Additionally, a Biological Assessment (BA) was prepared in November 2016 (MBI 2016b) and a Biological Opinion was issued by the USFWS December 18, 2016. The information in this and the following sections is based on information provided in the above mentioned documents.

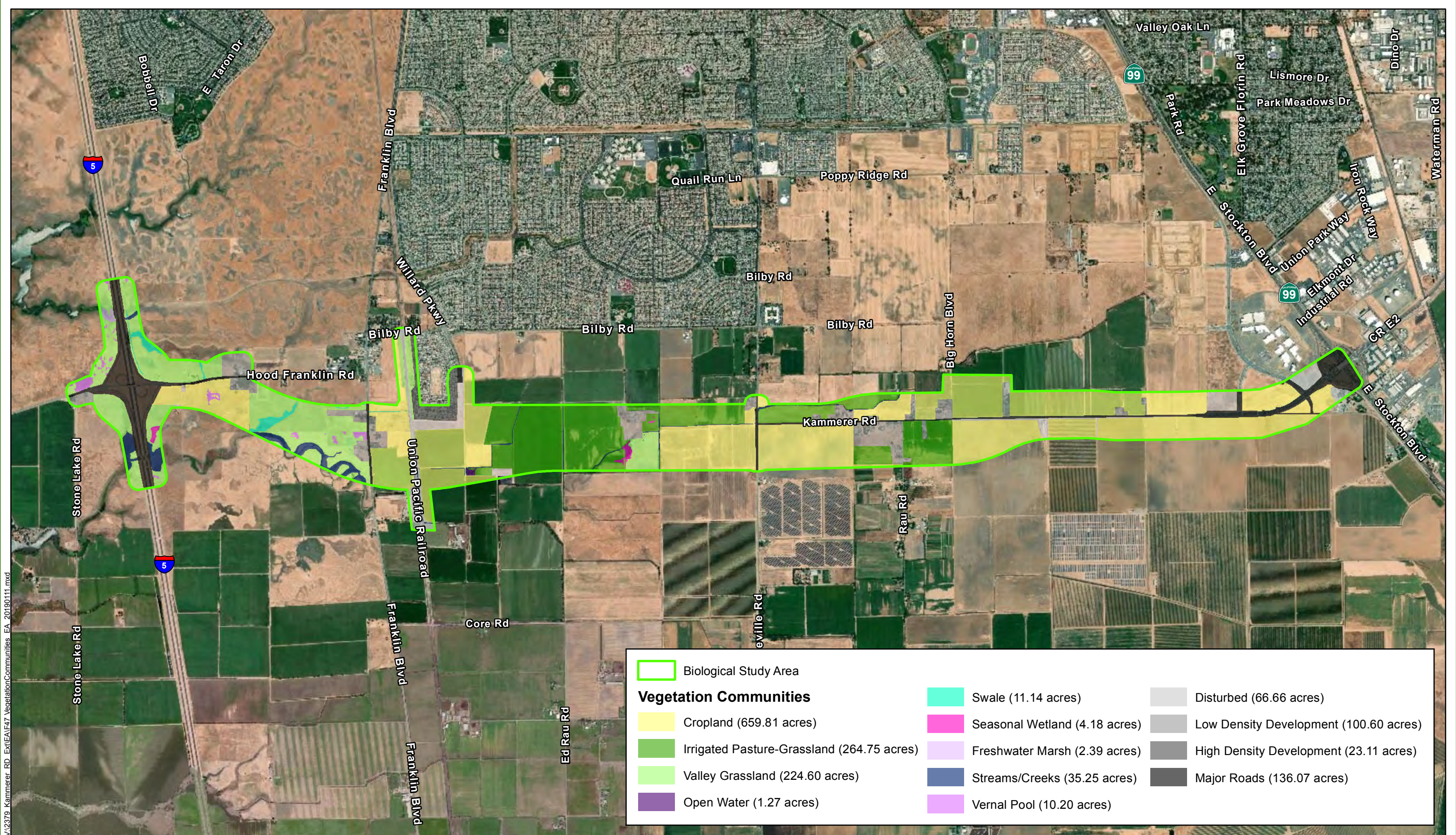
Vegetation Communities

Vegetative communities are assemblages of plant species that occur in the same area and are defined by species composition and relative abundance. Vegetation communities were identified using current literature and aerial imagery and verified during biological surveys. The BSA is a mix of urban and natural communities (**Figure 47**). Each community is described below and is based on descriptions obtained from the CDFW’s *A Guide to Wildlife Habitats of California* (CDFW 2019a) and the approved Final SSHCP.

Valley Grassland

Valley grassland is found throughout the Project area and makes up the majority of the Project area west of Franklin Boulevard. The dominant species found in the valley grassland community includes invasive species such as Italian ryegrass (*Lolium multiflorum*), ripgut brome (*Bromus diandrus*), Medusa head (*Taeniatherum caputmedusae*), yellow star-thistle (*Centaurea solstitialis*), and wild oat (*Avena fatua*). Additional species include Mediterranean barley (*Hordeum marinum*), foxtail barley (*Hordeum murinum*), Bermuda grass (*Cynodon dactylon*), and soft-chess brome (*Bromus hordeaceus*). Common forbs observed include mustard (*Brassica* spp.), filarees (*Erodium* spp.), vetch (*Vicia* sp.), field bindweed (*Convolvulus arvensis*), dove weed (*Croton setigerus*), Italian thistle (*Carduus pycnocephalus*), and dove’s-foot geranium (*Geranium molle*).

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Biological Study Area	Swale (11.14 acres)	Disturbed (66.66 acres)
Vegetation Communities	Seasonal Wetland (4.18 acres)	Low Density Development (100.60 acres)
Cropland (659.81 acres)	Freshwater Marsh (2.39 acres)	High Density Development (23.11 acres)
Irrigated Pasture-Grassland (264.75 acres)	Streams/Creeks (35.25 acres)	Major Roads (136.07 acres)
Valley Grassland (224.60 acres)	Vernal Pool (10.20 acres)	
Open Water (1.27 acres)		

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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

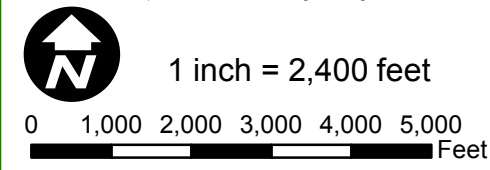


FIGURE 47
Vegetation Communities within the Biological Study Area

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California

Valley grasslands are used by a variety of species for foraging. Characteristic reptiles that breed in valley grasslands include the western fence lizard (*Sceloporus occidentalis*) and common garter snake (*Thamnophis sirtalis*). Mammals typically found in this habitat include the black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), and coyote (*Canis latrans*). Birds that could potentially nest in valley grasslands include horned lark (*Eremophila alpestris*) and western meadowlark (*Sturnella neglecta*). This habitat also provides important foraging habitat for turkey vulture (*Cathartes aura*) and a variety of raptors.

Cropland

Cropland includes all agricultural crops. Vegetation in irrigated row and field crops can include a variety of shapes, sizes, and growing patterns. Crop types vary in structure and can represent a wide range of heights, densities, and canopy covers. The majority of row crops are annual species, while others are perennials. Most annual crops are planted in spring and harvested in summer or fall. Crops may be planted in rotation resulting in multiple harvests per year. Crop rotation helps to conserve nutrients in the soil and maintain soil productivity.

Common irrigated row and field crops in the region include broccoli (*Brassica oleracea*), cabbage (*Brassica oleraceae*), radish (*Raphanus sativus*), onion (*Allium cepa*), tomato (*Lycopersicon esculentum*), butternut squash (*Cucurbita moschata*), soybean (*Glycine max*), kohlrabi (*Brassica oleracea*), okra (*Abelmoschus esculentus*), snow peas (*Pisum sativum var. macrocarpon*), and Swiss chard (*Beta vulgaris flavescens*). In addition to the cultivated species, weedy annuals may grow in the fields, including but not limited to shepherd's purse (*Capsella bursa-pastoris*) and mustard (*Brassica sp.*).

Irrigated Pasture-Grassland

Irrigated pasture-grassland is defined as agricultural cropland in which a mix of perennial grasses and legumes normally provide 100% canopy coverage including alfalfa fields. This vegetation community is the most common in the Project area. Average height of crops is about 1.5 feet (0.46 meters) and structure is typically homogenous with no layering. Plowing may occur annually; however, alfalfa often remains unplowed for three years or more. Most grass hayfields are composed of introduced grass and forb species; however, some "native" hayfields will include naturally occurring species and are generally managed less intensively. Both alfalfa and grass hayfields are regularly irrigated. This cover type may be characterized by a rotating mix of perennial rye (*Lolium perenne*), alfalfa, oats (*Avena spp.*), dallis grass (*Paspalum dilatatum*), annual bluegrass (*Poa annua*), medusahead grass (*Elymus caput-medusae*), and Kentucky fescue (*Festuca arundinacea*).

Irrigated hayfields can provide high-quality seasonal resources for blackbirds (*Agelaius phoeniceus*), doves, egrets (*Egretta spp.*), garter snakes (*Thamnophis spp.*), gophers (*Thomomys spp.*), gopher snakes (*Pituophis catenifer*), hawks (*Buteo spp.*), owls (*Stringiformes*), voles (*Arvicolinae spp.*), waterfowl, and other wildlife species.

Freshwater Marsh

Freshwater emergent wetlands are characterized by erect, rooted herbaceous hydrophytes such as common cattail. Emergent wetlands are flooded frequently enough so that the roots of the vegetation are in an anaerobic environment. On the upper margins of this habitat, saturated or

periodically flooded soils support several moist soil plant species including Baltic rush (*Juncus balticus*), tall flatsedge, smartweed (*Persicaria* spp.), and, on more alkali sites, saltgrass (*Distichlis spicata*). Lower, wetter portions of freshwater emergent wetlands in the Project area are composed of cattails, bulrush, and floating primrose. In the Project area, several freshwater emergent wetlands exist west of Franklin Boulevard.

Freshwater marshes are among the most productive wildlife habitats in California. Many species rely on freshwater marshes for their entire life cycle. The rare giant garter snake uses these wetlands as its primary habitat. Slow-moving waters provide important resting and foraging habitats for migratory water birds such as the mallard (*Anas platyrhynchos*) and cinnamon teal (*Anas cyanoptera*). Wetlands also provide habitat for the American coot (*Fulica americana*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and black phoebe (*Sayornis nigricans*).

Seasonal Wetland

Seasonal wetlands are defined as ephemeral wetlands that pond during the rainy season and dry during the summer dry season. This habitat type is dominated by hydrophytic vegetation types of grasses, herbs, and forbs. The seasonal wetland habitat type occurs in the adjacent lands of the Stone Lakes NWR in the northwest quadrant of the BSA. Seasonal wetlands can provide habitat for vernal pool associates, and habitat for a wide variety of wildlife including song birds, waterfowl, reptiles, and other wildlife species.

Seasonal Swale

The seasonal swale land cover type is defined as low meandering channels that tend to be saturated long enough to support vegetative associations. Swale features often represent the headwaters of streams, connect seasonal wetlands, and/or drain small watersheds into defined creeks. Swales can be supported by minor groundwater seepage. Swales contain rabbitsfoot grass (*Polypogon monspeliensis*), fireweed (*Epilobium pygmaeum*), fiddle dock (*Rumex pulcher*), and pricklyseed buttercup (*Ranunculus muricatus*). Seasonal swales that occur within and between vernal pool complexes are classified as vernal swales.

Streams/Creeks

A network of streams and creeks cover the Project area. These features drain from east to west and ultimately flow into Stone Lake, and includes the Shed C Channel. The vegetation supported by these features is dependent upon each feature's hydroperiod. Features characterized by a short hydroperiod may support primarily upland species, while features with longer hydroperiods can support emergent vegetation such as cattails.

This community is typically simple in structure (i.e., herbaceous layer only) and is characterized by seasonally saturated soils and defined as the average wetted area within the intermittent and perennial linear features such as rivers, streams, creeks, and drainage. Species associated with seasonal wetlands in the Project area include Italian ryegrass, Mediterranean barley, sedges (*Carex* spp.), prostrate knotweed (*Polygonum arenastrum*), loosestrife (*Lythrum* spp.), narrow tarplant (*Holocarpha virgata*), mayweed (*Anthemis cotula*), and curly dock.

Vernal Pool

Vernal pools are characterized by seasonal inundation and their potential to support vernal pool species. A wide variety of herbaceous species are associated with this community type, including

Italian ryegrass, Mediterranean barley, coyote thistle (*Eryngium* spp.), smooth goldfields (*Lasthenia glaberrima*), Fremont's goldfields (*Lasthenia fremontii*), vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), and woolly marbles (*Psilocarphus* spp.). Additional species that may be present include Sacramento mint (*Pogogyne zizyphoroides*), hyssop loosestrife (*Lythrum hyssopifolium*), toad rush (*Juncus bufonius*), popcorn flower (*Plagiobothrys* spp.), alkali weed, mayweed, and curly dock. Vernal pool communities have the potential to support special-status vernal pool invertebrates, such as fairy shrimp (*Branchinecta* spp.) and tadpole shrimp (*Lepidurus* spp.).

Open Water

Open water habitats are man-made depressions or dammed riverine channels containing standing water. Depth can vary from a few centimeters to several meters. Man-made agricultural ponds within the Project area are seasonally inundated. During the dry season, the bottoms of these ponds are vegetated with species such as curly dock, prostrate knotweed, spiny cocklebur (*Xanthium spinosum*), rough cocklebur (*Xanthium strumarium*), lamb's quarters (*Chenopodium album*), and a variety of annual grasses.

Non-Habitat Land Cover Types

High-Density Development

The high-density development land cover type includes urban and suburban residential neighborhoods, urban centers, industrial areas, airports, and wastewater treatment plants. An area of high-density development is within the City to the east of Franklin Boulevard.

Low-Density Development

The low-density development land cover type consists of relatively sparse residences and other structures, such as farm buildings, and small rural neighborhoods with large individual property sizes per house. Low-density development is found within the Project area in the form of rural residences along Kammerer Road and scattered throughout the agricultural areas.

Disturbed

The disturbed land cover type is defined as areas that have been subject to previous or ongoing disturbances such as along roadsides, trails, and parking lots. Scraped or graded land, gravel areas would be included in this land cover type. Disturbed land cover type is vegetated with diverse weedy flora. Vascular plant species associated with these areas typically include Johnson grass (*Sorghum halepense*), Canadian horseweed (*Conyza canadensis*), milk thistle (*Silybum marianum*), yellow-star thistle (*Centaurea solstitialis*), and field bindweed (*Convolvulus arvensis*).

Major Roads

The major roads land cover type includes linear features with paved surfaces and can vary from large freeways to smaller arterials found within urban settings.

Habitat Connectivity

The CDFW Biogeographic Information & Observation System (CDFW 2019b) was reviewed to determine if the BSA is located within an Essential Connectivity Area (ECA). According to the

Essential Connectivity layer, the BSA does extend into the ECA located at the I-5 Hood Franklin Road Interchange.

The BSA consists of mostly open space along Kammerer Road and serves a variety of wildlife species as migration and movement corridors/areas. Wildlife species that may use the BSA as a migratory or movement corridor include birds such as passerines, raptors, wading birds, and waterfowl. Highly mobile mammal species such as black-tailed deer (*Odocoileus hemionus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*) were not observed, but are expected to occasionally move through the BSA likely along the drainages, such as the Shed C channel.

ENVIRONMENTAL CONSEQUENCES

This section includes a discussion of impacts to non-aquatic natural communities. Aquatic habitat types are discussed in Section 2.3.2. Non-habitat land cover types (i.e. high-density development, low-density development, major roads, and disturbed areas) are not included in this section as they provide limited habitat value for biological resources.

Build Alternative

Potential direct, permanent impacts to natural vegetation communities within the BSA include habitat destruction, loss, and/or conversion due to the construction of permanent facilities such as the expanded roadway, culverts, and retaining walls. Potential indirect, permanent impacts to natural vegetation communities within the BSA include increased runoff and increased risk of fire and litter from additional traffic on the expanded roadway.

Direct Impacts

The Project would cause permanent and temporary direct impacts to vegetative communities in the Project area, as shown in **Table 67**. The valley grassland, irrigated pasture-grassland, and cropland habitat types are not considered natural communities of special concern except in regard to habitat for special-status species. Permanent impacts to non-aquatic habitats include areas that will be permanently modified by implementation of the Build Alternative. This includes all areas within the outer boundary of proposed roadway fill slopes, detention basins, and other Project features. Long term land use within permanently impacted areas would change from a vegetated community to the major roads or disturbed land cover types. Temporary direct impacts include all areas that would be temporarily disturbed to facilitate construction of Build Alternative. This includes access roads, staging areas, and work areas. After construction, temporarily impacted areas would be allowed to return to pre-Project conditions.

Direct impacts (permanent and temporary) to the non-aquatic vegetation communities are summarized in **Table 67**. The table specifies the avoided acres (i.e., where no temporary or permanent impacts would occur) within each natural vegetation community in the BSA.

Implementation of the Project may result in the loss of trees or vegetation protected by the County or the City. Impacts to protected trees are discussed further in Section 2.3.3, "Plant Species." The removal of trees and vegetation in the Project area may cause impacts to natural communities through the loss of canopy cover, erosion control, or other beneficial ecological contributions that trees and vegetation provide the environment. The BSA contains large diameter trees meeting the City and County definition of a protected tree.

Table 67. Impacts to Non-Aquatic Vegetation Communities

Cover Type	Total Acres in the BSA	Avoided	Direct Impact (acres)
Valley grassland	224.60	187.84	36.76
Irrigated Pasture-Grassland	264.75	251.54	13.21
Cropland	659.81	609.14	50.67

In compliance within local regulations and the Connector JPA PEIR, measures **BIO-4**, **BIO-5**, and **BIO-6**, which provide avoidance and minimization requirements for tree species throughout the Project, as well as compensatory mitigation requirements for impacted trees, would be implemented in order to avoid and minimize impacts. These measures are listed in section 2.3.3 “Plant Species.”

The Connector JPA is a participant of the SSHCP and the Project occurs along the boundaries of the UDA and Preserve Planning Unit 6. The Final SSHCP was approved and is available at www.southsachcp.com. Habitat mapping and Project impacts have been developed to be consistent with the SSHCP. All Project impacts to covered species and habitat will be mitigated under the SSHCP. In addition, all avoidance, minimization and/or mitigation measures as stated in **BIO-1** through **BIO-40** in accordance with federal, state, local, and regulatory agency guidelines and permitting will be implemented.

Valley grassland, irrigated pasture-grassland, and cropland in the Project area provide suitable foraging habitat for a variety of wildlife species, including the state-threatened Swainson’s hawk (*Buteo Swainsoni*). The loss of Swainson’s hawk foraging habitat is protected under the SSHCP. Impacts to this habitat and other special-status species that may forage in vegetative communities in the Project area are discussed in Section 2.3.4 “Animal Species” and Section 2.3.5, “Threatened and Endangered Species.”

Indirect Impacts

Indirect impacts to the vegetative communities in the Project area may occur through habitat fragmentation and increased urban encroachment into wildlife habitats. Much of the agricultural and urban land has already been exposed to disturbance from agricultural activities and development. Vegetative and natural communities in the Project area may experience indirect impacts by the Project through changes in hydrology from the increase in impervious surfaces. Hydrologic flows may be altered as a result of the Project, which could impact adjacent properties. Indirect impacts to the wetlands and aquatic features in the Project area are addressed in more detail in Section 2.3.2, “Wetlands and Other Waters” and measures are presented which would minimize and mitigate for indirect impacts to aquatic features.

Construction Impacts

Under the Build Alternative, direct and indirect temporary impacts would occur to natural vegetation communities within the BSA. Potential direct, temporary impacts to natural vegetation communities within the BSA include removal of vegetation in temporarily affected areas.

Although not anticipated as part of the Project, other direct impacts could include spills of gasoline or other hazardous substances from vehicles and equipment use and potential spread of invasive

species from equipment and personnel movement within the BSA. However, standard specifications for the Project are included to minimize these risks, as discussed in Section 2.2.5, “Hazardous Waste/Materials” and Section 2.3.6, “Invasive Species”.

Potential direct temporary impacts to wildlife migration and movement within the BSA include ground disturbance and vegetation removal which could injure or kill wildlife, including nesting birds. However, standard specifications for the Project are included to minimize the risk associated with terrestrial wildlife and migratory birds, as discussed below in Section 2.3.4, “Animal Species.”

Potential indirect temporary impacts to natural vegetation communities include sedimentation within drainages and wetlands and increased erosion due to temporary ground disturbance. However, construction BMPs would be implemented to avoid and minimize impacts associated with sedimentation and increased erosion, as described in Section 2.2.2, “Water Quality and Stormwater Runoff.”

Potential indirect temporary impacts to wildlife migration and movement include increased noise, lighting, and dust from equipment and construction activities that can result in wildlife avoiding the construction site and adjacent habitat; removal of vegetation that provides cover for wildlife movement; and changes in hydrology and sedimentation that can affect the movement of aquatic and semi-aquatic wildlife.

South Sacramento Habitat Conservation Plan

The Project is listed as a covered activity under the SSHCP. **Table 68** details the Final SSHCP compensatory mitigation ratios for non-wetland and waters vegetation types that would be affected within the BSA. The table also shows the acres of mitigation that will be required under the SSHCP for the specified vegetation communities, which the Connector JPA is committed to meeting under CEQA.

Table 68. Vegetation Replacement Ratio per Final SSHCP

Vegetation Community Type	SSHCP Compensatory Ratio	Direct Impacts (Acres)	SSHCP Required Compensatory Mitigation for the Project (Acres)
Valley grassland	1:1 Preservation	36.76	36.76
Irrigated Pasture-Grassland	1:1 Preservation	13.21	13.21
Cropland	1:1 Preservation	50.67	50.67
Total Vegetation Communities Acreage	N/A	100.64	100.64

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and potential impacts to natural communities would not occur. As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved

growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aide in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

At a minimum, the Connector JPA PEIR requires avoidance, minimization, and/or mitigation measures for natural communities, as explicitly stated in the Connector JPA PEIR measures BIO-1, BIO-7, BIO-8a, and BIO-8b, which have been incorporated into the following Project specific measures. No riparian woodland communities are found within the Project area, and therefore, Connector JPA PEIR measures BIO-4a and BIO-4b, have not been incorporated. Project specific measures in compliance with regional plans, policies, and ordinances have also been incorporated for compliance with these identified requirements. The Project will fulfill the compensatory mitigation ratios required by the BO through purchase of mitigation credits at the SSCHP.

BIO-1: As part of project-level environmental review, implementing agencies will ensure that projects comply with the most recent general plans, policies, ordinances, and conservation plans (including any HCPs, NCCPs, and other local, regional, and state plans). Review of these documents and compliance with their requirements will be demonstrated in project-level environmental documentation. Implementing agencies will ensure that projects comply with all policies, ordinances, and plans that exist at the time of project-level review, regardless of whether they existed during the program-level analysis.

BIO-2: Before any work occurs in the Project area, the project biologist will conduct a mandatory environmental awareness training program for all construction personnel working on the Project. The training program will notify construction personnel of the sensitive biological resources occurring within the Project area, their legal status, and penalties for not complying with the conditions of any permits issued for the Project. The education program will emphasize the need to protect water quality, wetlands, and habitat for special-status species. As necessary, a biological monitor approved by the resource agencies will ensure that construction personnel adhere to the guidelines and restrictions of all approved environmental documents, permits, and other agreements.

BIO-3: The implementing agency will install orange construction barrier fencing to identify environmentally sensitive areas around sensitive natural communities, and where determined feasible, protected trees.

Before construction, a qualified biologist will work with the project engineer to identify the locations for the barrier fencing, and will place stakes around the sensitive resource sites to indicate these locations. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications:

The Contractor's attention is directed to the areas designated as "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the implementing agency. The Contractor will take measures to ensure that Contractor's forces do not

enter or disturb these areas, including giving written notice to employees and subcontractors.

Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing will be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing will be tightly strung on posts with a maximum 10-foot spacing.

BIO-4: If impacts to protected trees cannot be avoided, then the implementing agency will compensate for impacts on protected trees. For portions of the Project in the City of Elk Grove, the following policies from the City Tree Ordinance will be implemented.

Mitigation may take the form of on-site or off-site planting or payment of in-lieu fees. Mitigation planting should be of an equivalent size and species of those being removed. Trees that are of a 1- or 15-gallon container or seedling-sized trees account for 1-inch DBH removed and trees planted that are of 24-, 36-, 60- or 72-inch containers account for 2-inches DBH removed.

If tree replacement or transplantation is chosen as the project mitigation strategy, a five-year mitigation and monitoring plan should be prepared. The plan should include maintenance, watering, and monitoring schedules, success criteria, and reporting requirements. Mitigation trees must be monitored by an ISA-Certified Arborist for five years after planting.

In-lieu of planting, fees may be paid into the Tree Preservation Fund at a rate established under a Resolution by the City Council. As per a conversation with the City of Elk Grove Planning Department, the current mitigation fee is \$200 per inch of DBH removed.

The exact amount of mitigation required will depend on the final design of the project.

BIO-5: If impacts on protected trees cannot be avoided, then the implementing agency will compensate for impacts on protected trees. For portions of the project in Sacramento County, the following policies from the Sacramento County General Plan (2011) regarding landmark and heritage tree protections will be implemented:

- CO-138 – *Protect and preserve non-oak native trees along riparian areas if used by Swainson’s hawk, as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.*
- CO-139 – *Native trees other than oak, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.*
- CO-140 – *For projects involving native oak woodlands, oak savannah or mixed riparian areas, ensure mitigation through either of the following methods:*
 - *An adopted habitat conservation plan.*

- *Ensure no net loss of canopy area through a combination of the following: (1) preserving the main, central portions of consolidated and isolated groves constituting the existing canopy and (2) provide an area on-site to mitigate any canopy lost. Native oak mitigation area must be a contiguous area on-site which is equal to the size of canopy area lost and shall be adjacent to existing oak canopy to ensure opportunities for regeneration.*
- *Removal of native oaks shall be compensated with native oak species with a minimum of a one to one dbh replacement.*
- *A provision for a comparable on-site area for the propagation of oak trees may substitute for replacement tree planting requirements at the discretion of the County Tree Coordinator when removal of a mature oak tree is necessary.*
- *If the project site is not capable of supporting all the required replacement trees, a sum equivalent to the replacement cost of the number of trees than cannot be accommodated may be paid to the County's Tree Preservation Fund or another appropriate tree preservation fund.*
- *If on-site mitigation is not possible given site limitation, off-site mitigation may be considered. Such a mitigation area must meet all of the following criteria to preserve, enhance, and maintain a natural woodland habitat in perpetuity, preferably by transfer of title to an appropriate public entity. Protected woodland habitat could be use as a suitable site for replacement tree plantings required by ordinances or other mitigation.*
 - *Equal or greater in area to the total are that is included within a radius of 30 feet of the dripline of all trees to be removed;*
 - *Adjacent to protected stream corridor or other preserved natural area;*
 - *Supports a significant number of native broadleaf trees; and*
 - *Offers good potential for continued regeneration of an integrated woodland community.*
- *CO-141 – In 15 years the native oak canopy within on-site mitigation area shall be 50 percent canopy coverage for valley oak and 30 percent canopy coverage for blue oak and other native oaks.*

BIO-6: All exposed/ disturbed areas and access points left barren of vegetation as a result of construction activities will be restored using locally native grass seeds and locally native grass plugs,. Seeded areas will be covered with broadcast straw and/ or jute netting (monofilament erosion blankets are not permitted).

BIO-7: The implementing agency will provide compensatory mitigation as required by the SSHCP mitigation ratios for non-aquatic natural communities including, but not limited to, valley grassland, irrigated pasture-grassland, and cropland.

2.3.2 WETLANDS AND OTHER WATERS

REGULATORY SETTING

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. The lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high water mark (OHWM), in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the U.S. EPA.

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a "least environmentally damaging practicable alternative" (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11990 states that a federal agency, such as FHWA and/or the Department, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the Project includes all practicable measures to minimize harm. A Wetlands Only Practicable Finding must be made.

The Regional Water Quality Control Boards (RWQCBs) were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-

Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see Section 2.2.2 Water Quality for more details.

AFFECTED ENVIRONMENT

The information in this section is based on information provided in the NES and BA (MBI 2016a; 2016b), the BO (USFWS 2016), the NES Addendum (Dokken Engineering 2019c) and the updated preliminary jurisdictional delineation (PJD) (Dokken Engineering 2019d).

The Project area is generally located within the Sacramento Drainage Canal Watershed with a small portion located within the South Stone Lake-Snodgrass watershed. Both watersheds are part of the Upper Mokelumne watershed. Precipitation that falls in the Project area sheet flows into ditches and swales which flow east to west through intermittent drainages (Shed C channel) into Stone Lake. Stone lake flows south into Snodgrass Slough which eventually connects to the Sacramento River.

Data Collection/Agency Coordination

A delineation of wetlands and other Waters of the U.S. and State was conducted on April 16, May 15, May 21, June 13, and August 26, 2014. The delineation was conducted in accordance with the methodologies outlined in Part IV, Section D, of the USACE *Wetland Delineation Manual* (Corps Manual) (USACE 1987), the *Regional Supplement to the USACE Wetland Delineation Manual Arid West Region Version 2.0* (Supplement) (USACE 2008a), and the USACE *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b).

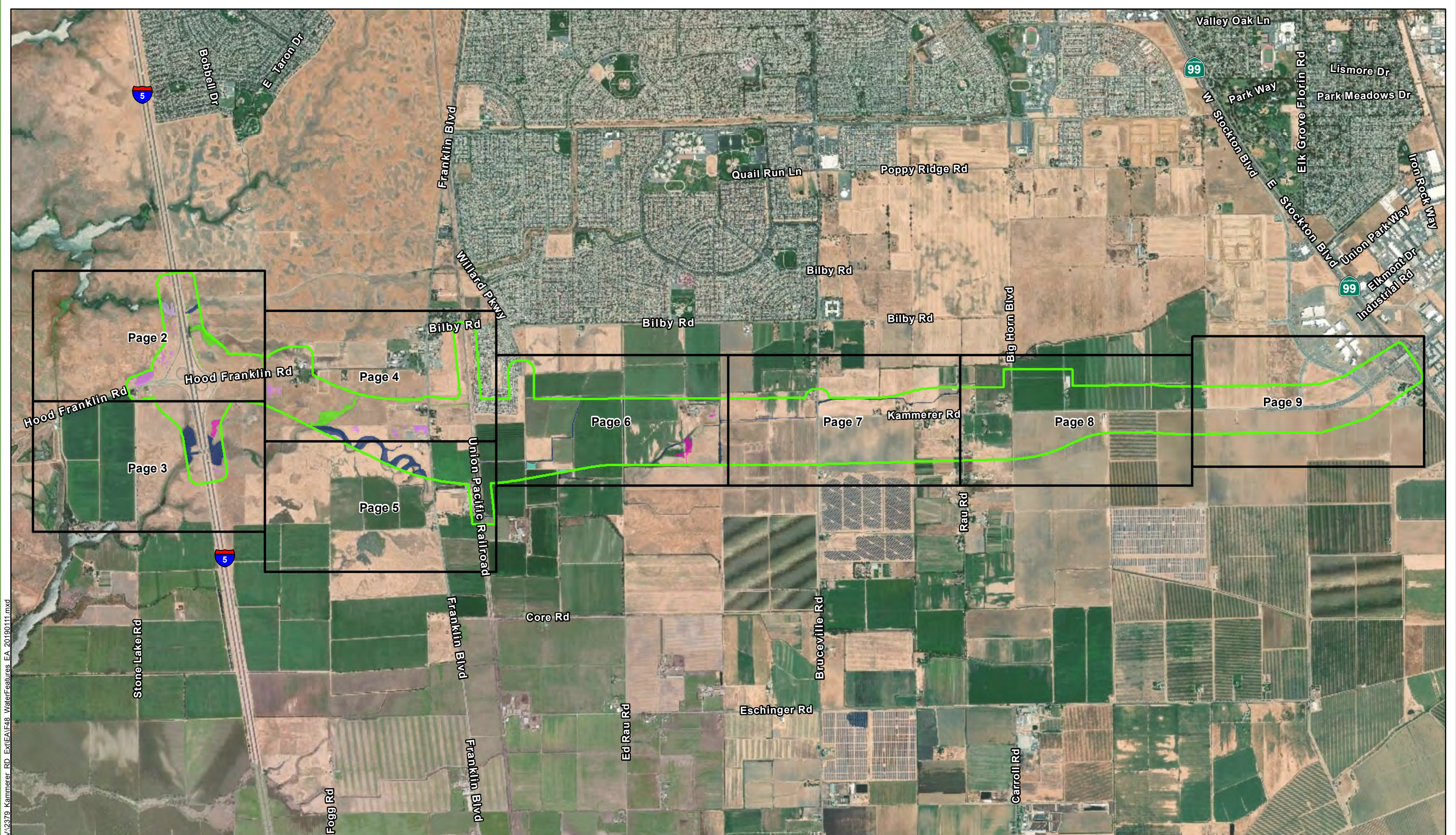
Due to changes in the Project alignment, subsequent literature research and field surveys were completed on October 26, 2017, and an Aquatic Resources Delineation Report was prepared in November 2017. The findings have been updated for the Project within the NES Addendum (Dokken Engineering, 2018). After coordination with USACE, a revised Aquatic Resources Delineation Report was prepared in March 2019. An updated Preliminary Jurisdictional Determination was submitted to the USACE and approved on June 4, 2019.

Delineated Wetlands and Waters of the U.S.

Results of the updated jurisdictional delineation identified approximately 64.41 acres of aquatic resources within the Project area. The Project area contains approximately 28.32 acres of streams/creeks, 2.40 acres of freshwater marsh, 4.18 acres of seasonal wetland, 11.14 acres of swale, 10.20 acres of vernal pools, and 7.30 acres of open water. **Figure 48** shows the aquatic features in the Project area.

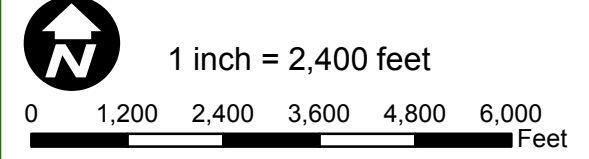
All the aquatic features listed within the Project area are considered jurisdictional under CWA Section 404 and will require a permit through the USACE for permanent and temporary impacts due to Project implementation. Impacts to all aquatic features will also require a Water Quality Certification through the RWQCB under CWA Section 401. Aquatic features in the Project area are also subject to regulation by the CDFW under Fish and Game Code Sections 1600-1602 and impacts to these features will require approval by CDFW through a SAA. Descriptions of aquatic

communities and species that may be found in these features are included in Section 2.3.1, "Natural Communities."



V:\2379_Kammerer_RD_Ext\EA\F48_WaterFeatures_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann



Biological Study Area	Swale (11.14 acres)	Freshwater Marsh (2.39 acres)
Wetland and Water Features	Open Water (0.88 acres)	Streams/Creeks (35.25 acres)
Open Water (0.37 acres)	Seasonal Wetland (4.18 acres)	Vernal Pool (10.20 acres)

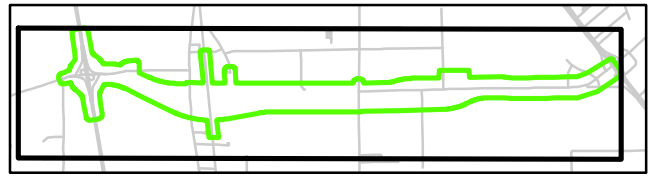
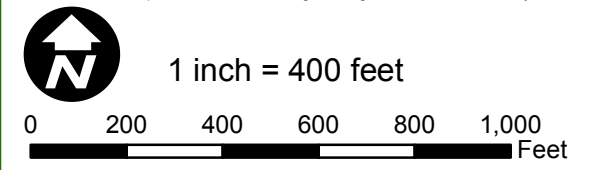
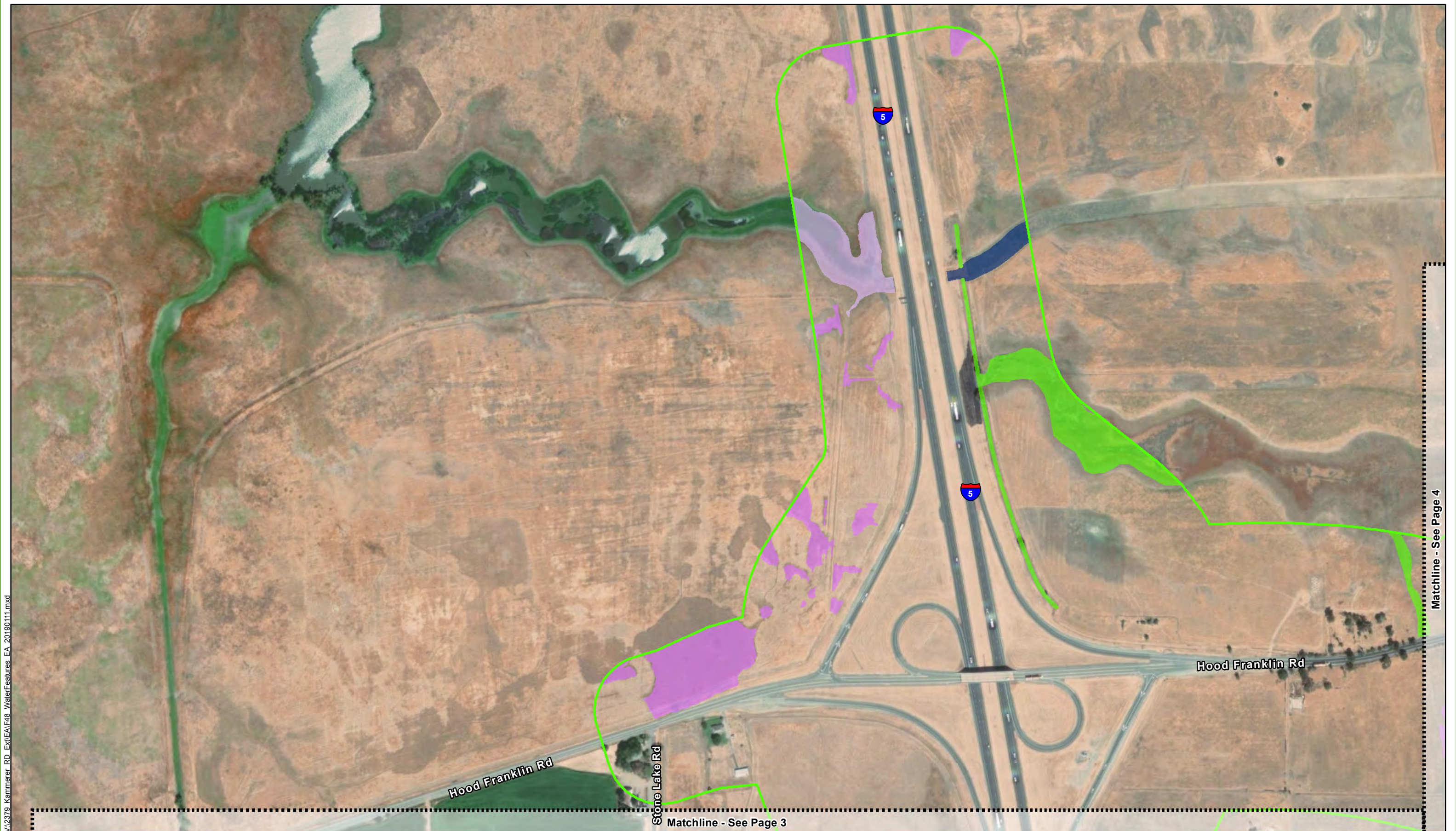


FIGURE 48
Wetland and Water Features
Page 1 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

V:\2379_Kammerer_RD_Ext\EA\F48_WaterFeatures_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann



Biological Study Area	Swale (11.14 acres)	Freshwater Marsh (2.39 acres)
Wetland and Water Features	Open Water (0.88 acres)	Streams/Creeks (35.25 acres)
Open Water (0.37 acres)	Seasonal Wetland (4.18 acres)	Vernal Pool (10.20 acres)

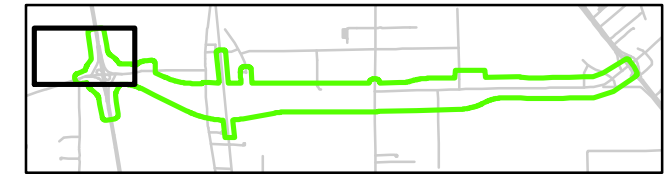


FIGURE 48
Wetland and Water Features
Page 2 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Matchline - See Page 2

Matchline - See Page 4

Matchline - See Page 5

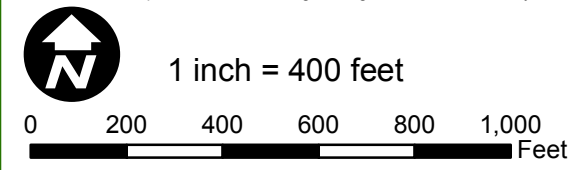
Hood Franklin Rd

Stone Lake Rd



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann



	Biological Study Area		Swale (11.14 acres)		Freshwater Marsh (2.39 acres)
	Open Water (0.37 acres)		Open Water (0.88 acres)		Streams/Creeks (35.25 acres)
	Seasonal Wetland (4.18 acres)		Vernal Pool (10.20 acres)		

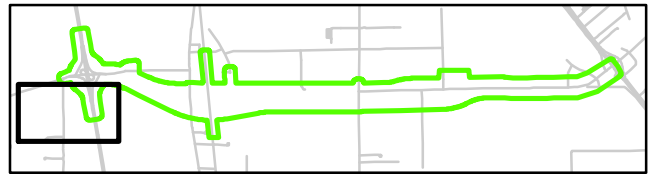
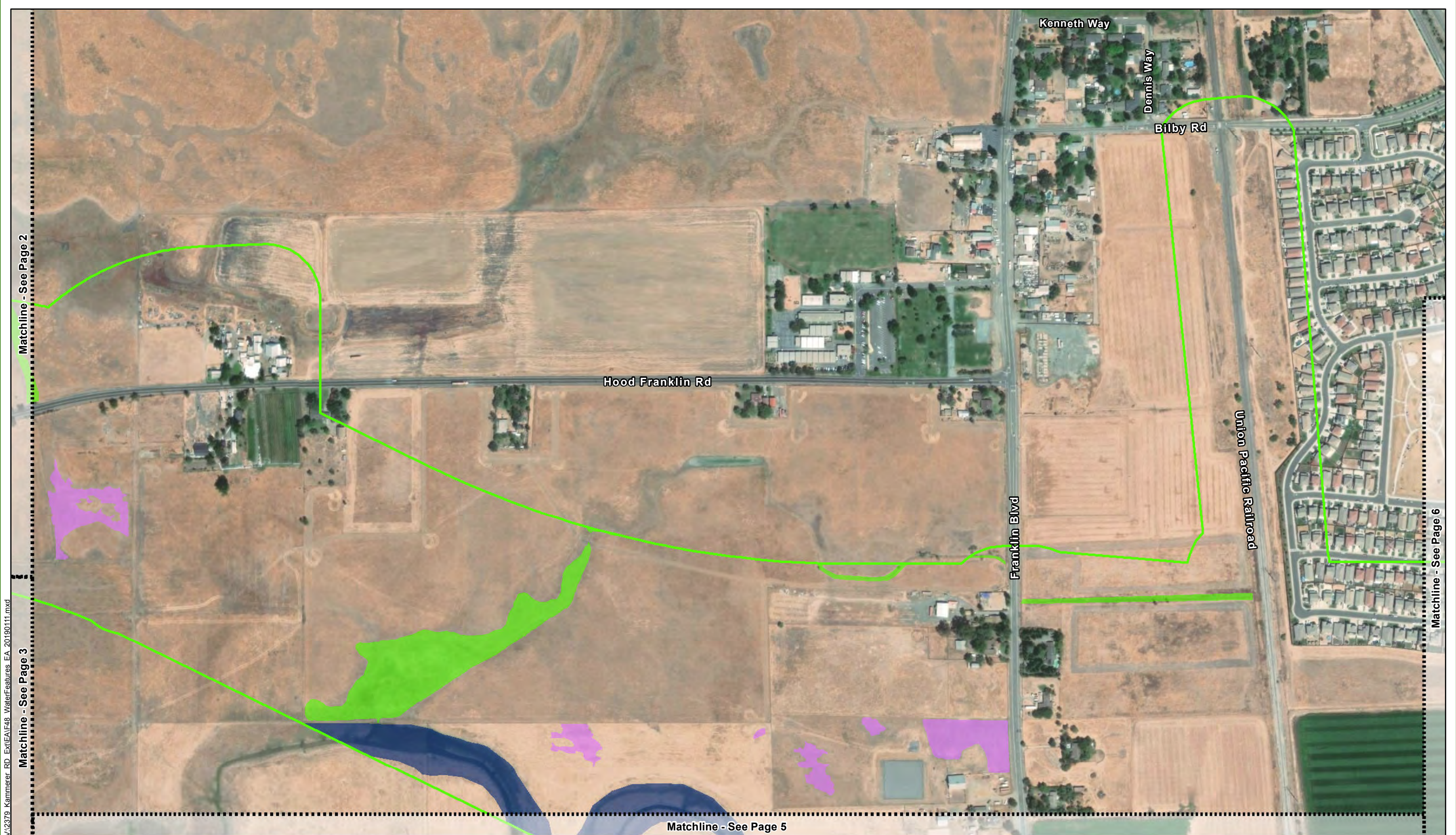
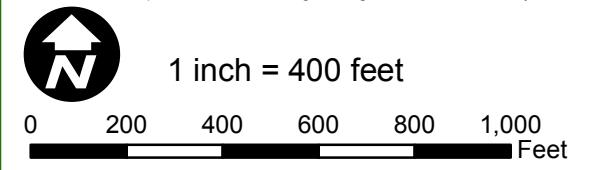


FIGURE 48
Wetland and Water Features
 Page 3 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



V:\2379_Kammerer_RD_Ext\EA\F48_WaterFeatures_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann



Biological Study Area	Swale (11.14 acres)	Freshwater Marsh (2.39 acres)
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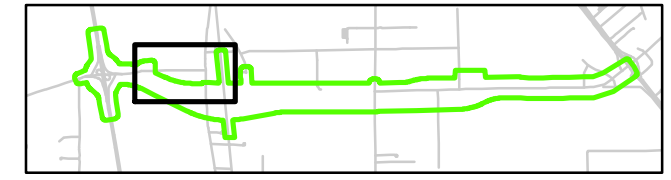
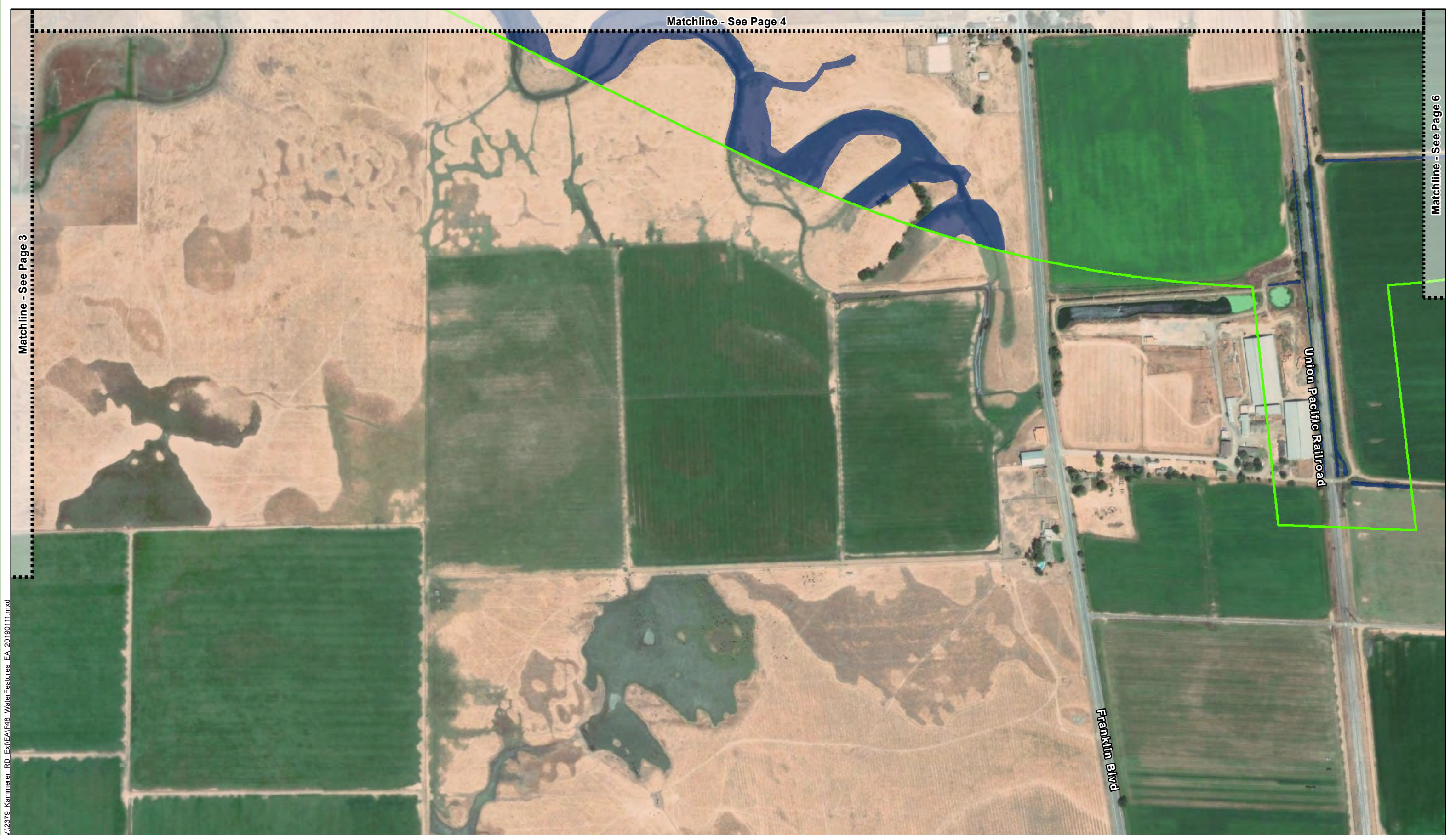
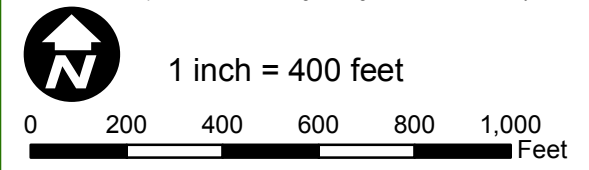


FIGURE 48
Wetland and Water Features
Page 4 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann



Biological Study Area	Swale (11.14 acres)	Freshwater Marsh (2.39 acres)
Wetland and Water Features	Open Water (0.88 acres)	Streams/Creeks (35.25 acres)
Open Water (0.37 acres)	Seasonal Wetland (4.18 acres)	Vernal Pool (10.20 acres)

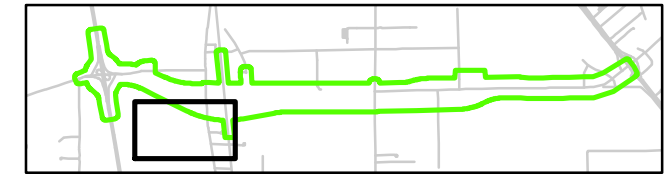


FIGURE 48
Wetland and Water Features
 Page 5 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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Matchline - See Page 4

Matchline - See Page 5

Matchline - See Page 7

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

1 inch = 400 feet

Biological Study Area	Swale (11.14 acres)	Freshwater Marsh (2.39 acres)
Wetland and Water Features	Open Water (0.88 acres)	Streams/Creeks (35.25 acres)
Open Water (0.37 acres)	Seasonal Wetland (4.18 acres)	Vernal Pool (10.20 acres)

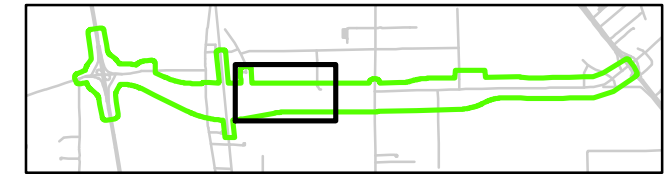
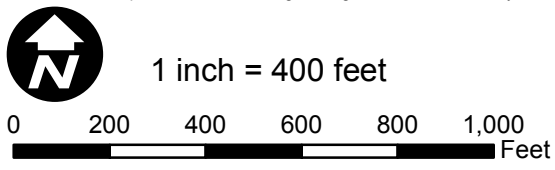


FIGURE 48
Wetland and Water Features
Page 6 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



V:\2379_Kammerer_RD_Ext\EA\F48_WaterFeatures_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann



Biological Study Area	Swale (11.14 acres)	Freshwater Marsh (2.39 acres)
Wetland and Water Features	Open Water (0.88 acres)	Streams/Creeks (35.25 acres)
Open Water (0.37 acres)	Seasonal Wetland (4.18 acres)	Vernal Pool (10.20 acres)

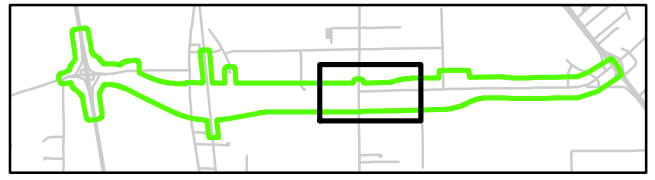
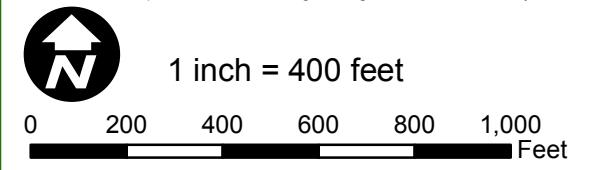


FIGURE 48
Wetland and Water Features
Page 7 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann



Biological Study Area	Swale (11.14 acres)	Freshwater Marsh (2.39 acres)
Wetland and Water Features	Open Water (0.88 acres)	Streams/Creeks (35.25 acres)
Open Water (0.37 acres)	Seasonal Wetland (4.18 acres)	Vernal Pool (10.20 acres)

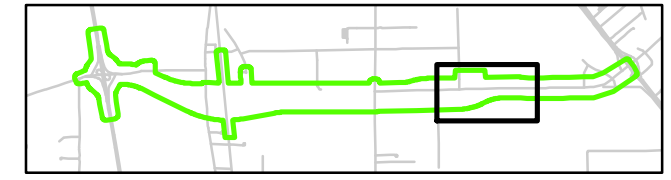


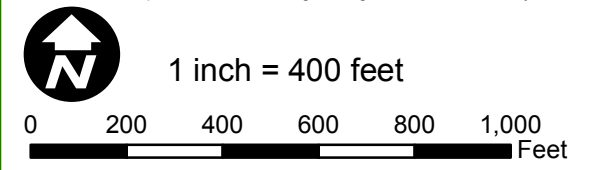
FIGURE 48
Wetland and Water Features
Page 8 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann



Biological Study Area	Swale (11.14 acres)	Freshwater Marsh (2.39 acres)
Wetland and Water Features	Open Water (0.88 acres)	Streams/Creeks (35.25 acres)
Open Water (0.37 acres)	Seasonal Wetland (4.18 acres)	Vernal Pool (10.20 acres)

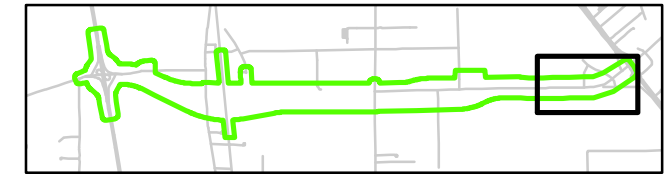
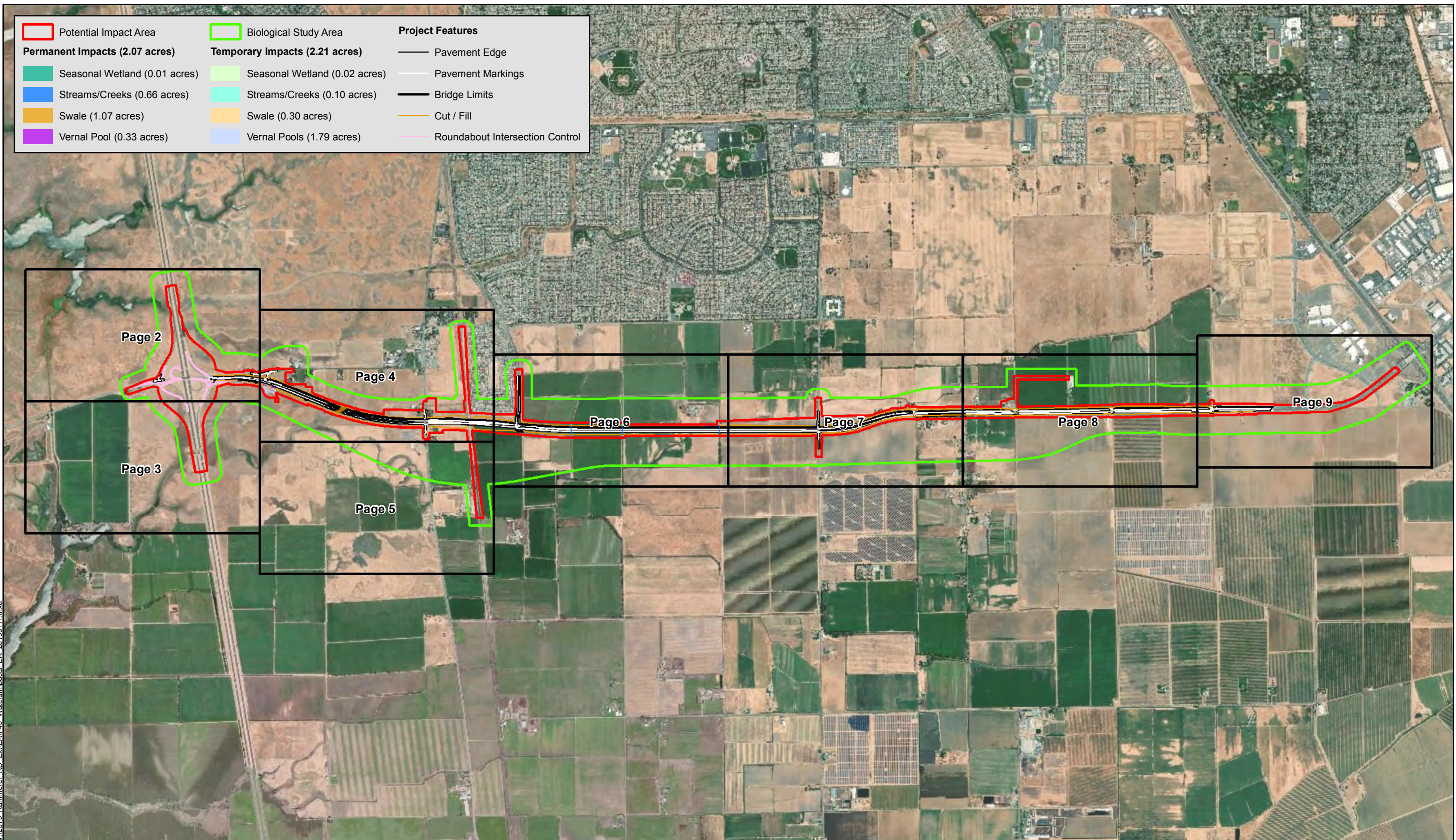


FIGURE 48
Wetland and Water Features
Page 9 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Potential Impact Area	Biological Study Area	Project Features
Permanent Impacts (2.07 acres)	Temporary Impacts (2.21 acres)	Pavement Edge
Seasonal Wetland (0.01 acres)	Seasonal Wetland (0.02 acres)	Pavement Markings
Streams/Creeks (0.66 acres)	Streams/Creeks (0.10 acres)	Bridge Limits
Swale (1.07 acres)	Swale (0.30 acres)	Cut / Fill
Vernal Pool (0.33 acres)	Vernal Pools (1.79 acres)	Roundabout Intersection Control



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

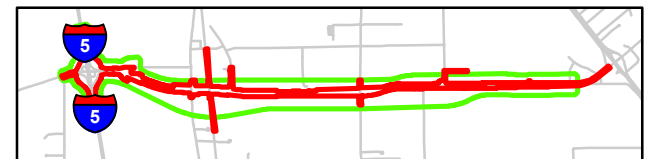
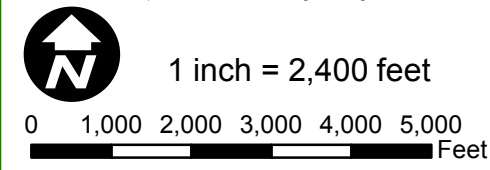


FIGURE 49
Project Impacts to Jurisdictional Features
1 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Potential Impact Area	Biological Study Area	Project Features
Permanent Impacts (2.07 acres)	Temporary Impacts (2.21 acres)	Pavement Edge
Seasonal Wetland (0.01 acres)	Seasonal Wetland (0.02 acres)	Pavement Markings
Streams/Creeks (0.66 acres)	Streams/Creeks (0.10 acres)	Bridge Limits
Swale (1.07 acres)	Swale (0.30 acres)	Cut / Fill
Vernal Pool (0.33 acres)	Vernal Pools (1.79 acres)	Roundabout Intersection Control



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

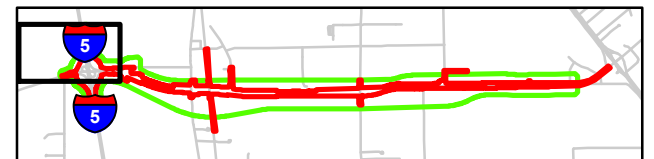
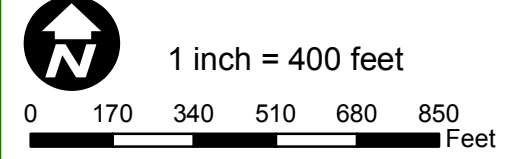


FIGURE 49
Project Impacts to Jurisdictional Features
2 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Potential Impact Area	Biological Study Area	Project Features
Permanent Impacts (2.07 acres)	Temporary Impacts (2.21 acres)	Pavement Edge
Seasonal Wetland (0.01 acres)	Seasonal Wetland (0.02 acres)	Pavement Markings
Streams/Creeks (0.66 acres)	Streams/Creeks (0.10 acres)	Bridge Limits
Swale (1.07 acres)	Swale (0.30 acres)	Cut / Fill
Vernal Pool (0.33 acres)	Vernal Pools (1.79 acres)	Roundabout Intersection Control



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

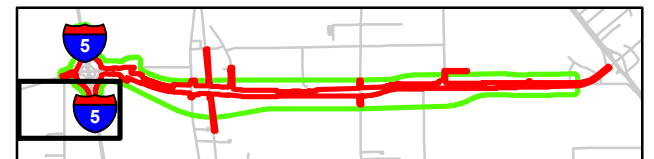
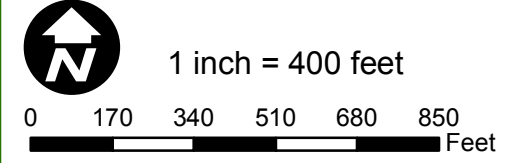
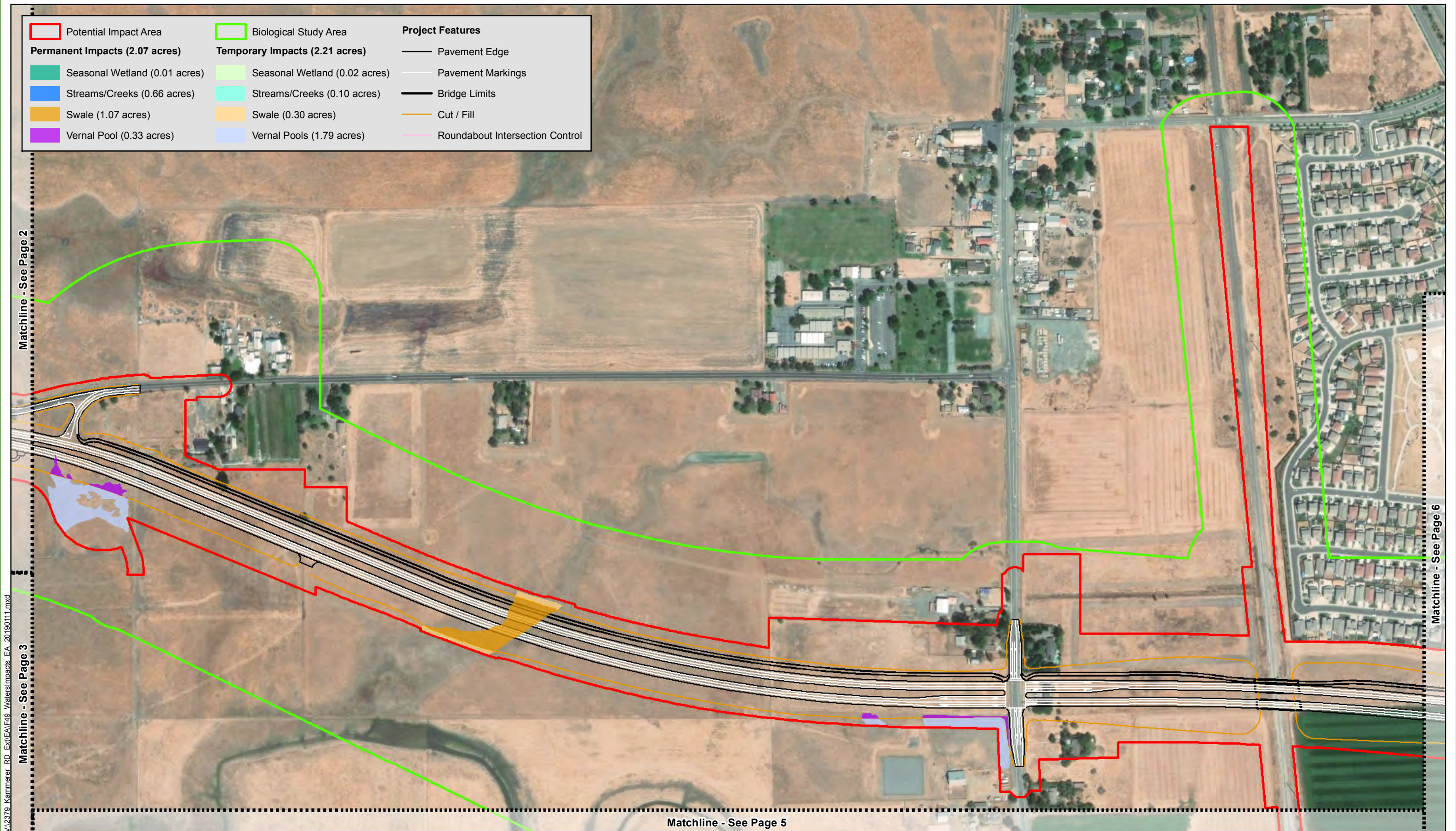


FIGURE 49
Project Impacts to Jurisdictional Features
3 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Potential Impact Area	Biological Study Area	Project Features
Permanent Impacts (2.07 acres)	Temporary Impacts (2.21 acres)	Pavement Edge
Seasonal Wetland (0.01 acres)	Seasonal Wetland (0.02 acres)	Pavement Markings
Streams/Creeks (0.66 acres)	Streams/Creeks (0.10 acres)	Bridge Limits
Swale (1.07 acres)	Swale (0.30 acres)	Cut / Fill
Vernal Pool (0.33 acres)	Vernal Pools (1.79 acres)	Roundabout Intersection Control



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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

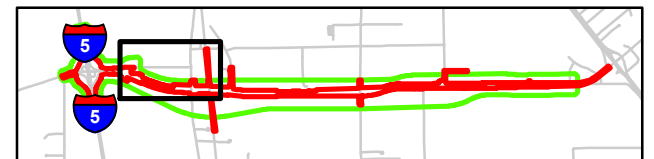
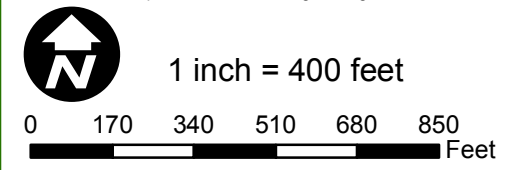


FIGURE 49
Project Impacts to Jurisdictional Features
4 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California



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Matchline - See Page 4

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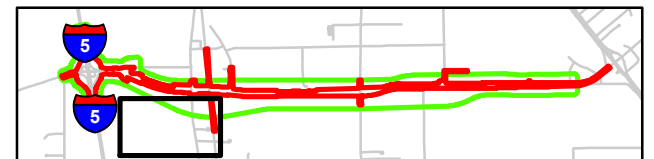
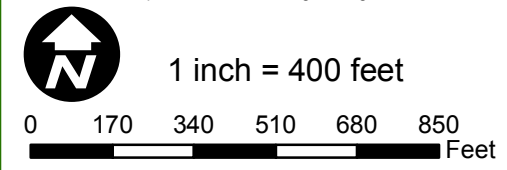
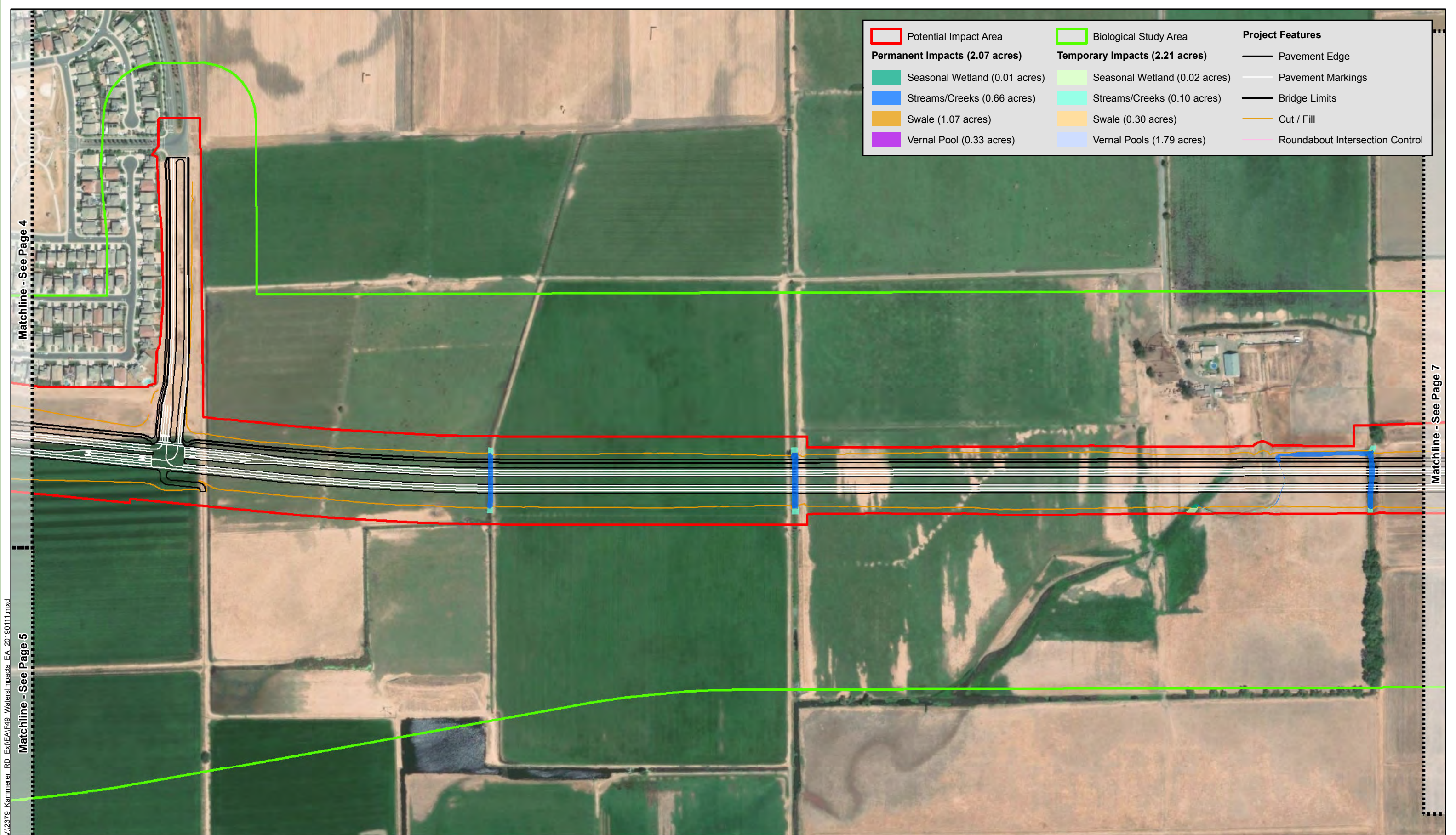


FIGURE 49
Project Impacts to Jurisdictional Features
5 of 9

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California



V:\2379_Kammerer_RD_Ext\EA\F49_WatersImpacts_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

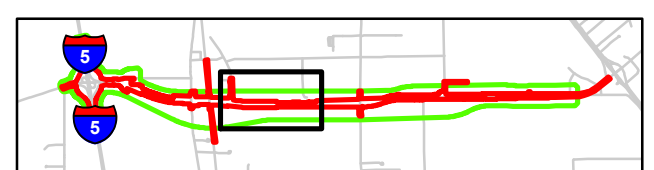
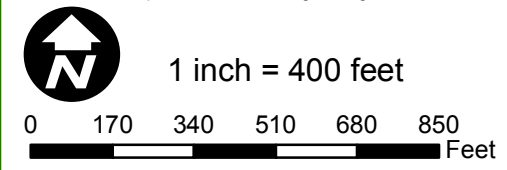
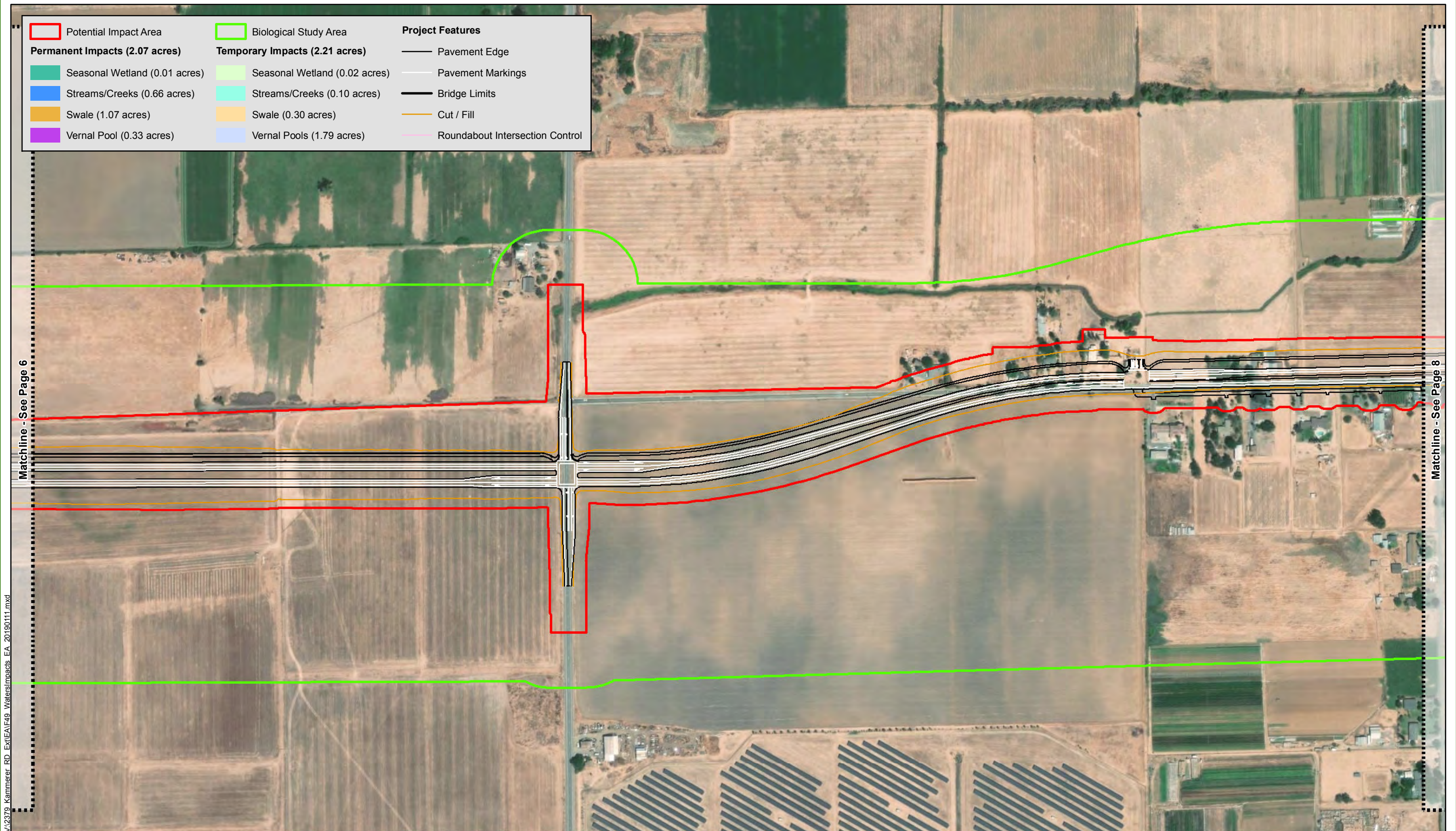


FIGURE 49
Project Impacts to Jurisdictional Features
6 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Potential Impact Area		Biological Study Area		Project Features	
Permanent Impacts (2.07 acres)		Temporary Impacts (2.21 acres)		—	Pavement Edge
	Seasonal Wetland (0.01 acres)		Seasonal Wetland (0.02 acres)	—	Pavement Markings
	Streams/Creeks (0.66 acres)		Streams/Creeks (0.10 acres)	—	Bridge Limits
	Swale (1.07 acres)		Swale (0.30 acres)	—	Cut / Fill
	Vernal Pool (0.33 acres)		Vernal Pools (1.79 acres)	—	Roundabout Intersection Control



V:\2379_Kammerer_RD_Ext\EA\F49_WatersImpacts_EA_20190111.mxd

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

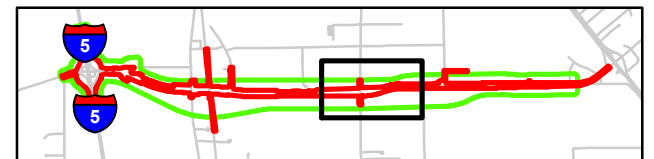
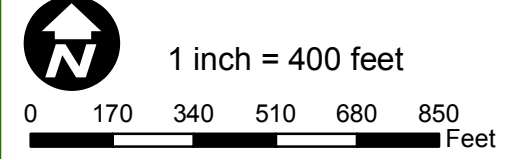
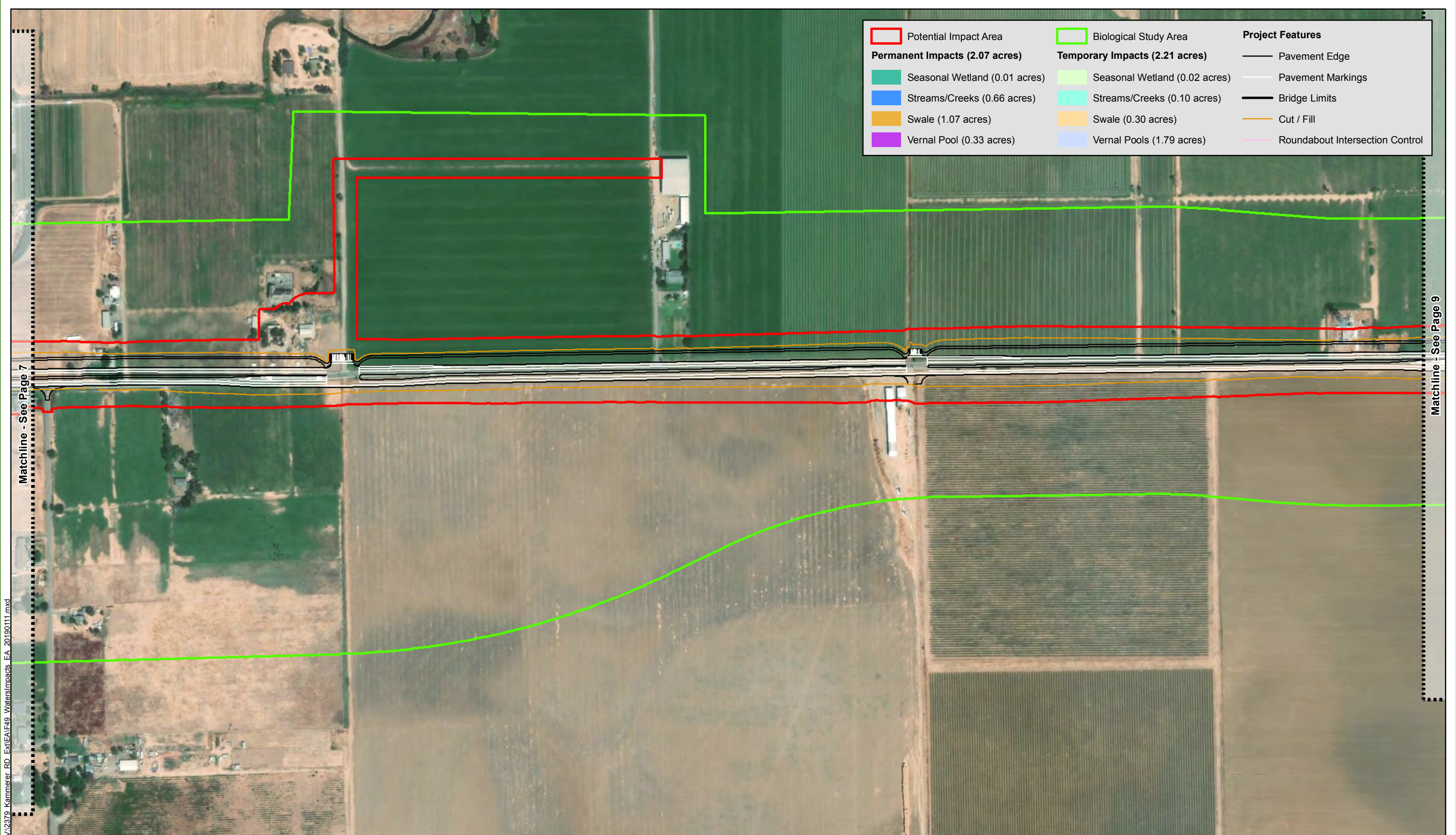


FIGURE 49
Project Impacts to Jurisdictional Features
7 of 9



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Matchline - See Page 9

Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

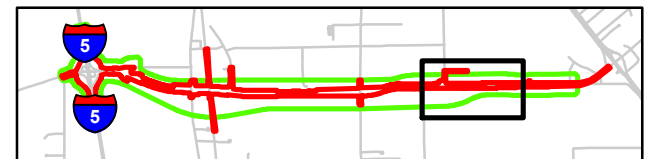
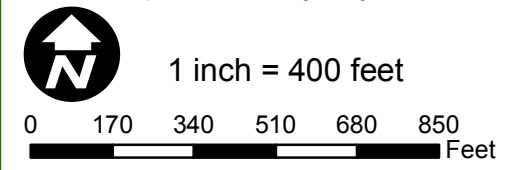
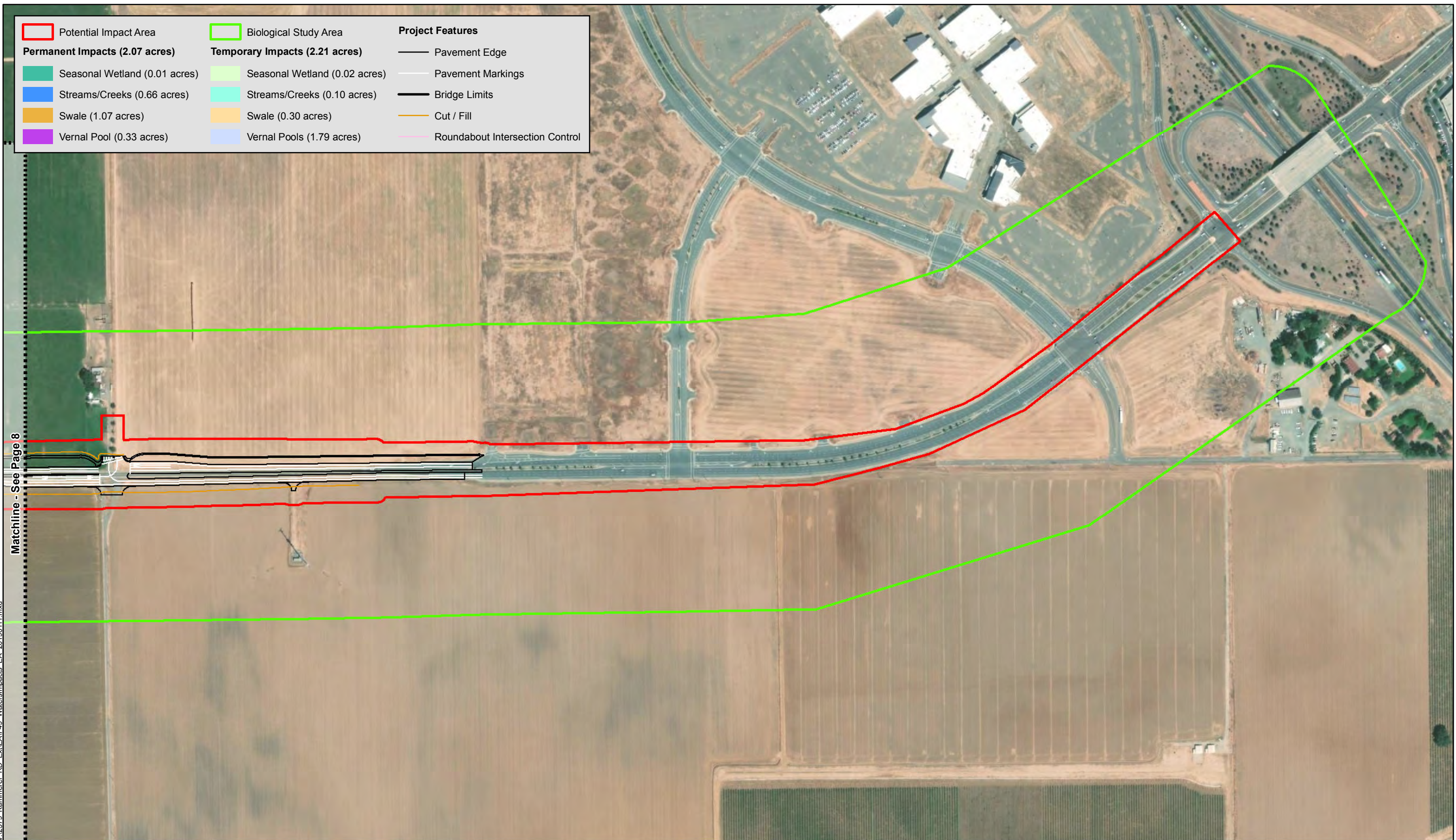


FIGURE 49
Project Impacts to Jurisdictional Features
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Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California

Potential Impact Area		Biological Study Area		Project Features	
Permanent Impacts (2.07 acres)		Temporary Impacts (2.21 acres)		—	Pavement Edge
Seasonal Wetland (0.01 acres)	Streams/Creeks (0.66 acres)	Seasonal Wetland (0.02 acres)	Streams/Creeks (0.10 acres)	—	Pavement Markings
Swale (1.07 acres)	Vernal Pool (0.33 acres)	Swale (0.30 acres)	Vernal Pools (1.79 acres)	—	Bridge Limits
				—	Cut / Fill
				—	Roundabout Intersection Control



Matchline - See Page 8

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Source: ESRI Maps Online; Dokken Engineering 1/22/2019; Created By: briann

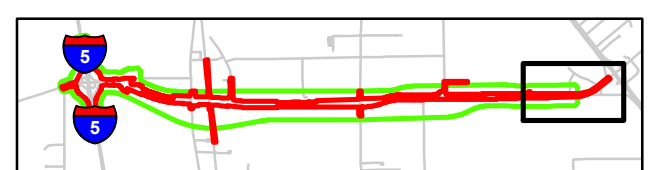
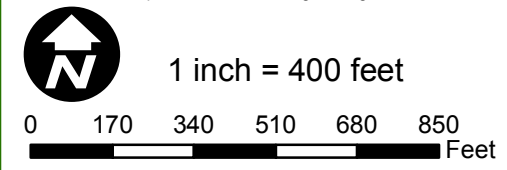


FIGURE 49
Project Impacts to Jurisdictional Features
9 of 9
 Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

ENVIRONMENTAL CONSEQUENCES

Build Alternative

The Project will result in permanent and temporary impacts to aquatic features in the Project area. These features are considered to be Waters of the U.S. and State. Permanent and temporary impacts to aquatic features resulting from the Project are shown in **Figure 49** above and **Table 69**. Calculations shown in **Figure 49** and **Table 69** provide permanent and temporary impacts for jurisdictional waters of the U.S. and are specifically calculated for the permitting process with USACE, RWQCB, and CDFW. Impact calculations for SSHCP consistency are discussed in the SSHCP subsection below.

Impacts to aquatic resources would be limited to the minimum area required to construct the Project. Regulatory permits from USACE, RWQCB, and CDFW will be required for impacts to jurisdictional waters pursuant to Section 404 and 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code.

Table 69. Impacts to Jurisdictional Waters

Jurisdictional Waters	Waters of the U.S.		Waters of the State	
	Permanent Impacts (Acres)	Temporary Impacts (Acres)	Permanent Impacts (Acres)	Temporary Impacts (Acres)
Freshwater Marsh	0	0	0	0
Seasonal Wetland	0.01	0.02	0.01	0.02
Swale	1.07	0.30	1.07	0.30
Streams/Creeks	0.66	0.10	0.66	0.10
Vernal Pool	0.33	1.79	0.33	1.79
Open Water	0	0	0	0
TOTAL	2.07	2.21	2.07	2.21

Freshwater Marsh

Freshwater marsh is present within the BSA; however, the Project alignment does not intersect this habitat type and no impacts are anticipated. Although the roadway is moving closer to this habitat type, no proximity impacts to freshwater marsh are anticipated.

Seasonal Wetland

Construction of the Project would result in permanent and temporary impacts to seasonal wetlands as shown in **Table 69** and **Figure 49, page 6**. Temporary impacts include areas in addition to permanent impacts that would be temporarily disturbed to facilitate construction such as staging areas and access routes. Permanent impacts would be limited to approximately 0.01

acres and temporary impacts would be limited to approximately 0.02 acres of seasonal wetland adjacent to the historic course of the Shed C Channel.

Swale

The construction of the Project would result in permanent and temporary impacts to swales, as shown in **Table 69** and **Figure 49, page 3**. Permanent impacts include areas that would be permanently modified by the construction of the Project and generally includes areas within the limits of pavement, structures, or material fill for the Project. Temporary impacts include areas in addition to permanent impacts that would be temporarily disturbed to facilitate construction such as staging areas and access routes. Project effects to swales would be limited to 1.07 acres of permanent impacts and 0.30 acres of temporary impact to a swale that drains into the Shed C Channel.

Streams/Creeks

The construction of the Project would result in permanent and temporary impacts to streams and creeks (which includes ditches), as shown in **Table 69** and **Figure 49, page 4 and 6**. Permanent impacts include areas that would be permanently modified by the construction of the Project and generally includes areas within the limits of pavement, structures, or material fill for the Project. Temporary impacts include areas in addition to permanent impacts that would be temporarily disturbed during construction to facilitate construction such as staging areas and access routes. The Project would affect a segment of the Shed C Channel and two historic tributaries to the Shed C Channel that were previously diverted into irrigation canals. A total of 0.66 acres of streams and creeks would be permanently impacted and an additional 0.10 acres would be temporarily disturbed.

Vernal Pools

The Project would permanently impact 0.33 acres of vernal pools as shown in **Table 69** and **Figure 49, page 2 and 4**. The Project would have approximately 1.79 acres of temporary impacts on vernal pools. Mitigation measures **BIO-10** and/or **BIO-11** would provide compensatory mitigation requirements for impacts to vernal pool habitat (and special-status vernal pool species).

Open Water

Open Water is present within the BSA; however, the Project alignment does not intersect this habitat type and no impacts are anticipated.

South Sacramento Habitat Conservation Plan (SSHCP)

During the development of the SSHCP, the impacts of future covered regional Projects were taken into consideration and evaluated to minimize adverse cumulative impacts to aquatic resources within the region. Under the SSHCP, the Project is a covered activity and Project's impacts to waters will have been factored into the SSHCP's vision for the region's balanced approach on resource protection. The Project will mitigate for waters at the ratios discussed in Section 5.4.3 of the SSHCP. Compensatory mitigation provided by the Project would ensure a no net loss in waters of the U.S. and State within the region; therefore, no cumulative impacts attributed to the Project are anticipated.

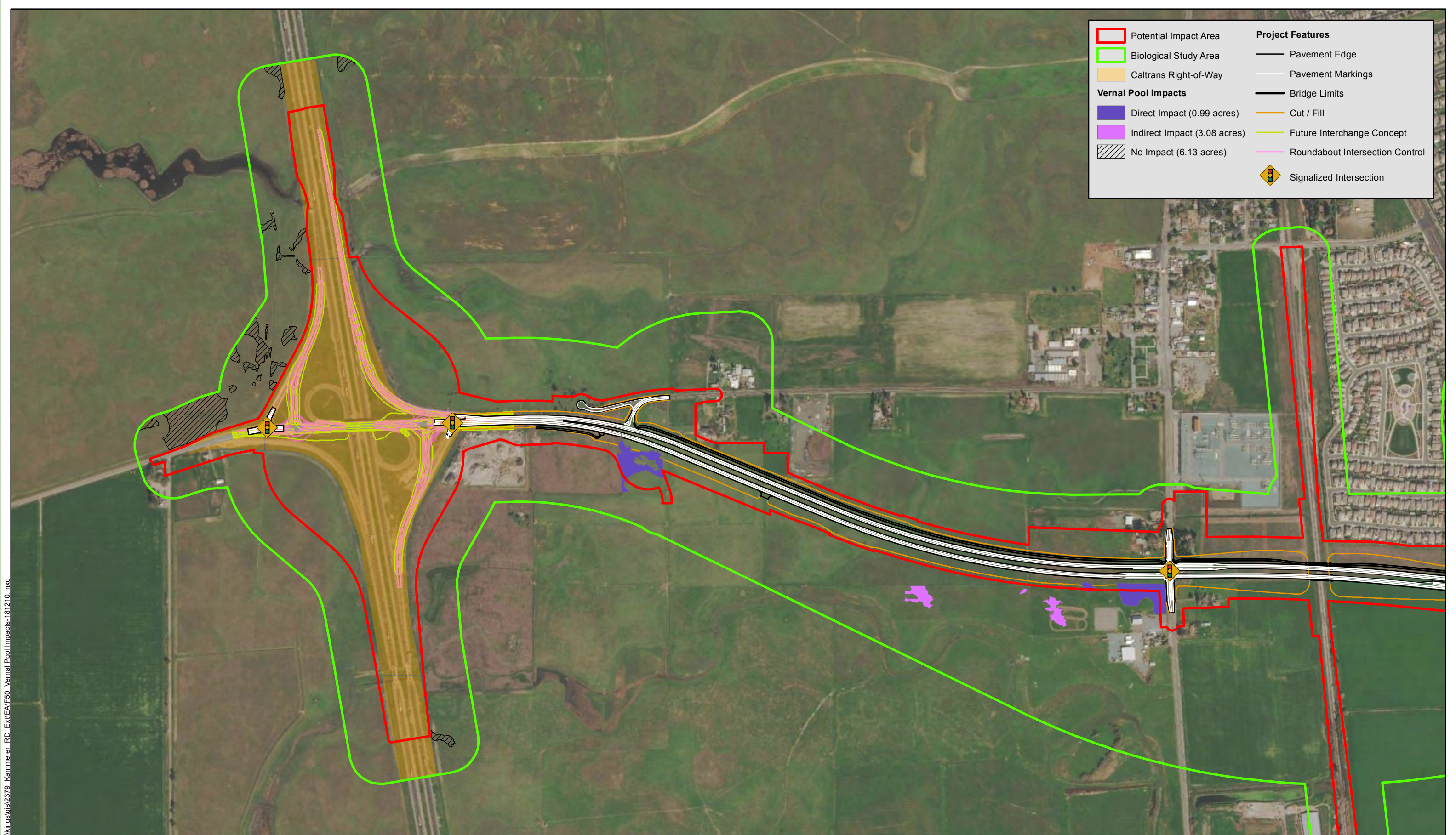
The Project has also calculated impacts to aquatic resources consistent with the Final SSHCP (County of Sacramento, et.al. 2018). Within the SSHCP, impacts to sensitive resources, including aquatic resources, are calculated in the terms of direct and indirect affects; conversely, to how the regulatory agencies (USACE, CDFW, and RWQCB) calculate impacts in terms of permanent and temporary impacts. The SSHCP considers permanent and temporary impacts caused by Project activities as “direct affects” and “indirect affects” are those that are caused by the proposed action and are later in time.

The Final SSHCP states that modifications to the micro-watershed surrounding vernal pools indirectly affects their long-term hydrology. After reviewing vernal pools present within the BSA, it was determined that construction of the new roadway could modify the hydrology of vernal pools outside of the Project’s direct impact area within the BSA. These vernal pools are located south of the Project alignment and east of I-5, resulting in approximately 0.99 acres of indirect impacts to vernal pool habitat (**Figure 50**. SSHCP Impacts to Vernal Pools). Direct and indirect impact calculations for vernal pools are consistent with the Project BO (USFWS 2016 [Appendix E]). **Table 70** below provides the calculated direct and indirect affects to aquatic resources associated with the Project.

Table 70. Aquatic Resources SSHCP Impact Calculations

Aquatic Resource	Type of Impact	
	Direct	Indirect
Freshwater Marsh	0	0
Seasonal Wetland	0.03	0
Seasonal Impoundment	0	0
Swale	1.37	0.30
Streams/Creeks	0.76	0.10
Vernal Pool	3.08	0.99
Open Water	0	0

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	Potential Impact Area	Project Features	
	Biological Study Area		Pavement Edge
	Caltrans Right-of-Way		Pavement Markings
Vernal Pool Impacts			Bridge Limits
	Direct Impact (0.99 acres)		Cut / Fill
	Indirect Impact (3.08 acres)		Future Interchange Concept
	No Impact (6.13 acres)		Roundabout Intersection Control
			Signalized Intersection

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Source: ESRI Maps Online; Dokken Engineering 7/27/2022; Created By: zachl

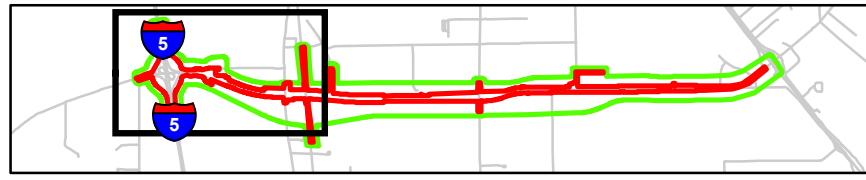
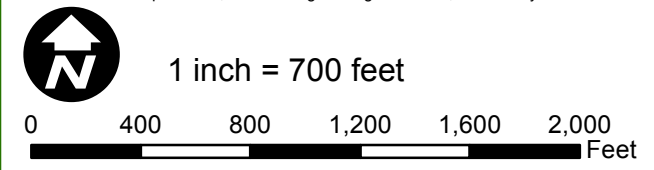


FIGURE 50
SSHCP Impacts to Vernal Pools

Joint Powers Authority Capital SouthEast Connector
A1/A2 Kammerer Road Project
City of Elk Grove and Sacramento County, California

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

At a minimum, the Connector JPA PEIR requires avoidance, minimization, and/or mitigation measures for wetlands and waters, as explicitly stated in the Connector JPA PEIR measures BIO-5a and BIO-5b which have been incorporated into the following Project specific measures. Project specific measures in compliance with regional plans, policies, and ordinances have also been incorporated for compliance with these identified requirements. With the implementation of the following measures Project impacts to wetlands and waters would be avoided and minimized to the greatest extent practicable and compensatory mitigation provided where necessary. In addition, measure HYD-1 through HYD-7 will provide further avoidance and minimization of impacts to wetlands and water resources. The Project will fulfill the compensatory mitigation ratios required by the BO through purchase of mitigation credits at the SSCHP.

BIO-8: Implementing agencies will avoid and minimize impacts on wetlands and other waters by implementing the following measures:

- Redesign or modify the project to avoid direct and indirect impacts on wetland habitats, including water quality run-off, if feasible.
- Protect wetland habitats that occur near the project site by installing ESA fencing at least 20 feet from the edge of the wetland where feasible. Depending on site-specific conditions and permit requirements, this buffer may be wider than 20 feet (e.g., 250 feet for seasonal wetlands and vernal pools that are considered special-status shrimp habitat). The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced ESA.
- Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, will be used.
- Where determined necessary by resource specialists, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation.
- Stabilize exposed slopes and streambanks immediately on completion of installation activities. Other waters of the United States and waters of the state will be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system.
- In highly erodible stream systems, stabilize banks using a nonvegetative material that will bind the soil initially and break down within a few years. If the project engineers determine that more aggressive erosion control treatments are needed, use geotextile mats, excelsior blankets, or other soil stabilization products.
- During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank.

These measures will be incorporated into contract specifications and implemented by the construction contractor. In addition, the implementing agency will ensure that the contractor incorporates all state and federal permit conditions into construction specifications.

BIO-9: Work will coincide to the driest time. If water is present at the time of construction, water will be diverted around the work area and work will resume after the site is dry. Flows will be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water will at all times be allowed to pass downstream. Any temporary dam or other artificial obstruction constructed will only be built from clean materials, such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation.

BIO-10: The implementing agency will compensate for the loss of wetland and waters to ensure there is no net loss of habitat functions and values. The implementing agency will prepare a comprehensive mitigation plan containing the following components: specifications for the conservation/preservation lands; the locations of the compensation lands, provisions for the management and maintenance of those lands in perpetuity by either the implementing agency or other entity, and the instruments by which long-term management and maintenance will be assured. As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan.

Impacts to waters will be mitigated at an on or off site, agency approved location or a combination of both. Exact mitigation ratios and locations will be determined during the environmental permitting processes.

BIO-11: The implementing agency will provide compensatory mitigation for listed aquatic features including wetlands, vernal pools, and other compliance with the Final SSHCP mitigation ratios for wetlands and other waters.

BIO-12: All temporarily disturbed water features will be re-contoured to natural contours and revegetation efforts would promote native herbaceous vegetation/grasses.

2.3.3 PLANT SPECIES

REGULATORY SETTING

The USFWS is responsible for the protection of federally listed special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. “Special status” is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the FESA. Please see the Threatened and Endangered Species section 2.3.5 in this document for detailed information about these species.

This section of the document discusses all federally protected special-status plant species, including USFWS candidate species.

The regulatory requirements for FESA can be found at 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402.

The County’s Tree Preservation Ordinance and General Plan Policies, CO 138-141 (Landmark and Heritage Tree Protection) and CO-145-146 (Urban Forest Management), are applicable to portions of the Project within the County’s jurisdiction (Sacramento County 2017b, 2016b).

These policies outlined in the County General Plan protects oak trees, including the valley oak, which would be affected by the Project (See Section 2.3.1). The County has a non-native tree canopy policy that requires the creation of equivalent tree canopy onsite or contributions to Greenprint funding (Sacramento County 2017b). Prior to acquiring a permit from the County to remove any covered trees, a report from an ISA-certified arborist must be prepared according to the County’s Arborist Report Submittal Requirements.

Additionally, the City has adopted regulations for the preservation and protection of the existing tree stock in the City. These regulations were first adopted by the County (prior to incorporation of the City) in 1981. In 2011, the City adopted a comprehensive update to these regulations (City of Elk Grove Municipal Code: Chapter 19.12 Tree Preservation and Protection).

The City’s adopted regulations apply to four types of trees as follows:

- Landmark trees, which are trees specifically identifies for protection by the City Council;
- Trees of local importance, which are trees of specific varieties greater than six inches in diameter;
- Secured trees, which are trees that were protected as part of the development process for residential subdivisions and commercial developments; and
- Trees on City property or in the public right-of-way.

Work on or removal of any of these four types of trees requires prior approval in the form of a Tree Permit from the City. The Project will also fulfill the compensatory mitigation ratios required by the BO.

AFFECTED ENVIRONMENT

In 2016, a NES (MBI 2016a) was prepared and approved for the Kammerer Road Extension Project. At that time, four alternatives were analyzed: North Overhead, North Underpass, South Overhead, and South Underpass. Since the 2016 NES approval, the Project has been modified and includes only two alternatives: the Build Alternative and the No-Build Alternative. A NES Addendum (Dokken Engineering 2019c) addressing the changes in the Project area and impacts to natural resources was prepared and submitted to the Department in February 2018. The information in this section is based on information provided in the NES and NES Addendum.

Field Surveys

During literature searches for the Project area, several parcels were identified with the potential to contain CNPS-listed special-status plants (**Table 71**). Rare plant surveys (PMC 2014) were conducted for these parcels to assess the vegetative communities on-site, identify biological resources which may be impacted by the Project, and evaluate the potential for special-status species to occur on-site. The rare plant surveys were conducted in accordance with the *General Rare Plant Guidelines* (USFWS 2002) and the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW 2009).

Table 71. Rare Plant Survey Dates and Associated Parcels

Date	APNs Surveyed	
May 5, 2013	132-0262-007	
July 23, 2013	132-0262-007	132-0262-003
April 16, 2014	Public right-of-way along Kammerer Road and Bruceville Road	
April 17, 2014	132-0131-027 132-0131-028	132-0100-069 132-0100-057
May 15, 2014	132-0132-037	
May 21, 2014	132-0131-027 132-0131-028	132-0100-069 132-0100-057
June 11, 2014	132-0262-007 132-0262-003 132-0300-039	132-0151-021 132-0151-020
	Public right-of-way along Hood Franklin Road and Franklin Boulevard	
August 26, 2014	132-0131-009	

Potentially Occurring Special-Status Plants within the BSA

Seven special-status plant species were identified as having potential of occurring within the BSA in the 2016 NES including bristly sedge (*Carex comosa*), dwarf downingia (*Downingia pusilla*), Boggs Lake hedge-hyssop (*Gratiola heterosepala*), legenere (*Legenere limosa*), Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*), Sanford's arrowhead (*Sagittaria sanfordii*), and saline clover (*Trifolium hydrophilum*). Only two of these species are federally listed and both have been presumed absent from the BSA. The original CNDDDB database search and USFWS IPaC Species List were updated on September 18, 2017 (see Appendix H). No new special status plant species were identified within the 9-quadrangle CNDDDB search area or by the USFWS IPaC Species List (**Table 72**).

Table 72. Special-Status Plant Species Potential within the Project Area

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Ahart's dwarf rush	<i>Juncus leiospermus</i> var. <i>ahartii</i>	Fed: -- State: -- CNPS: 1B.2	An annual herb inhabiting grassland swales, gopher mounds, and vernal pool margins of mesic valley and foothill grassland communities. Flowers March-May (100-750 feet).	HP	Presumed Absent: This species is covered under the SSHCP. There are no recent, local CNDDDB occurrences of this species in proximity to the BSA. The BSA includes grassland swale and vernal pool habitat; however, no individuals of this species were identified during rare plant surveys. Despite the presence of suitable habitat features, this species is presumed to be absent due to a lack of local occurrences.
Boggs Lake hedge-hyssop	<i>Gratiola heterosepala</i>	Fed: -- State: E CNPS: 1B.2	An annual herb inhabiting clay soils and shallow waters of marshes and swamps, lake margins, and vernal pools. Flowers April-August (33 - 7,792 feet).	HP	Low-Moderate Potential: This species is covered under the SSHCP. The BSA does contain suitable shallow freshwater wetland and vernal pool habitat for the species. The nearest extant occurrence (1991) of the species is approximately 4 miles north from the BSA. There is no hydrological connectivity of this area to the Project area or other wetland areas within the BSA so although habitat is present, there is a low to moderate potential for the species to occur.
Bolander's water-hemlock	<i>Cicuta maculata</i> var. <i>bolanderi</i>	Fed: -- State: -- CNPS: 2B.1	A perennial herb inhabiting coastal marshes and swamps with fresh or brackish water. Blooms July-September (6 - 660 feet).	A	Presumed Absent: The BSA lacks suitable swamp habitat for the species; only emergent habitat exists. While just out of the blooming season, the species would have been identifiable during survey efforts.

Bristly sedge	<i>Carex comosa</i>	Fed: -- State: -- CNPS: 2B.1	A perennial herb inhabiting coastal prairies, marshes and swamps along lake margins, and valley foothill grasslands communities. Blooms May-September (0 - 2,050 feet).	HP	Low-Moderate Potential: The BSA does contain suitable freshwater wetlands and valley grasslands communities for the species, but no sign of the species was observed during the biological surveys. The nearest occurrence of the species is approximately 1 miles from the BSA within Stone Lakes NWR.
Delta mudwort	<i>Limosella australis</i>	Fed: -- State: -- CNPS: 1B.2	A perennial stoloniferous herb inhabiting low elevation muddy banks of riparian scrub, freshwater or brackish marshes and swamps, and intertidal flats. Flowers May-August (0 – 32 feet).	A	Presumed Absent: The BSA does not contain delta intertidal flats habitat for the species. The nearest extant occurrence is approximately 12 miles from the BSA.
Delta tule pea	<i>Lathyrus jepsonii var jepsonii</i>	Fed: -- State: -- CNPS: 1B.2	A perennial herb inhabiting freshwater and brackish marshes of coastal and estuarine communities. Flowers May - August (0 - 98 feet).	A	Presumed Absent: The BSA does not contain coastal marshes or estuarine communities. The nearest occurrence of the species is approximately 11 miles from the BSA.
Dwarf downingia	<i>Downingia pusilla</i>	Fed: -- State: -- CNPS: 2B.2	An annual herb inhabiting vernal pools and mesic valley and foothill grassland communities. Flowers March-May (3 - 1,460 feet).	HP	Low-Moderate Potential: This species is covered under the SSHCP. The BSA does contain vernal pool and freshwater wetland habitat suitable for the species. The nearest occurrence of the species is within the BSA, but outside of the Project area, west of the I-5/Hood Franklin Road Interchange, within the Stone Lakes NWR.
Heckard's pepper-grass	<i>Lepidium latipes var. heckardii</i>	Fed: -- State: -- CNPS: 1B.2	An annual herb found in alkaline flats within valley or foothill grasslands. Flowers March-May (0 - 660 feet).	HP	Low-Moderate Potential: The BSA does contain suitable freshwater wetlands and valley grasslands communities for the species, but no sign of the species was observed during the biological surveys. The nearest occurrence of the species is approximately 1 miles from the BSA within Stone Lakes NWR.
Legenere	<i>Legenere limosa</i>	Fed: -- State: -- CNPS: 1B.1	An annual herb inhabiting wet areas, vernal pools, and ponds. Flowers May-June (0 - 2,887 feet).	HP	Low-Moderate Potential: This species is covered under the SSHCP. The BSA does contain vernal pool and freshwater wetland habitat suitable for the species. The nearest occurrence of the species is within the BSA, but outside of the Project area, west of the

						I-5/Hood Franklin Road Interchange within the Stone Lakes NWR.
Marsh skullcap	<i>Scutellaria galericulata</i>	Fed: -- State: -- CNPS: 2B.2	-- -- 2B.2	A perennial rhizomatous herb inhabiting wet sites and streambanks of lower montane coniferous forest, mesic meadows and seeps, and marsh and swamp communities. Flowers June-September (0 - 6,889 feet).	A	Presumed Absent: The BSA does not contain suitable mesic meadow or marsh/swamp communities. The nearest occurrence of the species is approximately 11 miles from the BSA.
Mason's lilaeopsis	<i>Lilaeopsis masonii</i>	Fed: -- State: -- CNPS: 1B.2	-- -- 1B.2	A perennial rhizomatous herb found exclusively in the Sacramento-San Joaquin River Delta and San Francisco Bay. Found in low elevation freshwater and brackish marshes adjacent to surface water. Flowers June - August (0 - 100 feet).	A	Presumed Absent: The BSA does not contain suitable brackish Delta marshes for the species. The nearest occurrence of the species is approximately 12 miles from the BSA.
Northern California black walnut	<i>Juglans hindsii</i>	Fed: -- State: -- CNPS: 1B.1	-- -- 1B.1	A deciduous tree inhabiting along streams and slopes within riparian forest and riparian woodland communities. Flowers April-May (0 - 1,444 feet).	A	Presumed Absent: The BSA does contain suitable stream habitat for the species, but not the requisite river riparian habitat. A black walnut was observed; however, the individual was young and believed to be an escaped agricultural varietal. No mature black walnut individuals were observed. The nearest known sensitive population of the species is approximately 9 miles west of the BSA and this population is listed as extirpated.
Peruvian dodder	<i>Cuscuta obtusiflora var. glandulosa</i>	Fed: -- State: -- CNPS: 2B.2	-- -- 2B.2	An annual parasitic vine inhabiting freshwater marsh communities on herbs such as <i>Alternanthera</i> sp., <i>Dalea</i> sp., <i>Lythrum</i> sp., <i>Polygonum</i> sp., and <i>Xanthium</i> sp. Flowers July - October (49 - 1,640 feet).	A	Presumed Absent: The BSA does contain suitable shallow water marsh habitat for the species; however, none of the host species were observed. In addition, the biological survey during the blooming season didn't observe the species. There is a historic (1995) occurrence of the species approximately 5 miles from the BSA.
Pincushion navarretia	<i>Navarretia myersii</i>	Fed: -- State: -- CNPS: 1B.1	-- -- 1B.1	An annual herb native to California inhabiting vernal pool communities, often in acidic soil conditions. Flowers April-May (65-1,080 feet).	HP	Presumed Absent: This species is covered under the SSHCP. There are no recent, local CNDDDB occurrences of this species in proximity to the BSA. The BSA includes grassland swale and vernal pool habitat; however, no individuals of this

						species were identified during rare plant surveys. Despite the presence of suitable habitat features, this species is presumed to be absent due to a lack of local occurrences.
Sacramento Orcutt grass	<i>Orcuttia viscida</i>	Fed: State: CNPS:	E -- 1B.2	An annual herb inhabiting vernal pools. Flowers April-July (98 - 328 feet).	A	Presumed Absent: This species is covered under the SSHCP. The BSA is outside the species lower elevation range. The nearest occurrence of the species is approximately 8 miles from the BSA.
Saline clover	<i>Trifolium hydrophilum</i>	Fed: State: CNPS:	-- -- 1B.2	An annual herb inhabiting mesic, alkaline soils of salt marsh, marshes and swamps, vernal pools, and valley and foothill grasslands. Flowers April-June (0 - 1,000 feet).	HP	Low-Moderate Potential: The BSA does contain suitable freshwater wetlands, vernal pools, and valley grasslands communities for the species, but no sign of the species was observed during the biological surveys. The nearest occurrence of the species is approximately 0.25 miles from the BSA within NWR.
Sanford's arrowhead	<i>Sagittaria sanfordii</i>	Fed: State: CNPS:	-- -- 1B.2	A perennial rhizomatous herb inhabiting freshwater marshes, swamps, ponds and ditches. Flowers May-October (0 - 2,132 feet).	HP	Low-Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does contain suitable freshwater marsh habitat for the species; however, no sign of the species was observed during the October 12, 2016 surveys. The nearest recent occurrence of the species is approximately less than 1 mile from the BSA.
Side-flowering skullcap	<i>Scutellaria lateriflora</i>	Fed: State: CNPS:	-- -- 2B.2	A perennial rhizomatous herb inhabiting mesic meadow and seeps and marsh and swamp communities. Known in California from only three occurrences in the Sacramento-San Joaquin Delta. Flowers July (0 - 1,640 feet).	A	Presumed Absent: The BSA does not contain suitable marsh and swamp communities. However, the BSA is outside of the known extant of the species range within the Sacramento-San Joaquin Delta, and the nearest occurrence is approximately 10 miles.
Slender Orcutt grass	<i>Orcuttia tenuis</i>	Fed: State: CNPS:	T E 1B.1	An annual herb inhabiting vernal pools, often within gravelly soils. Flowers May-October (115 - 5,774 feet).	HP	Presumed Absent: This species is covered under the SSHCP. The BSA does contain suitable vernal pool habitat for the species; however, the Project site is outside the elevational range of the species.

Succulent owl's clover	<i>Castilleja campestris</i> var. <i>succulenta</i>	Fed: State CNPS:	T E 1B.2	An annual hemiparasitic herb inhabiting vernal pool communities, often within acidic soils. Flowers April- May (150 - 2,640 feet).	HP	Presumed Absent: The BSA does contain suitable vernal pool habitat for the species. However, the species has not been recorded within the Sacramento region, and the BSA is below the low elevation range for the species. The nearest CNDDDB occurrence is approximately 12 miles from the BSA.
Suisun marsh aster	<i>Symphytotrchum</i> <i>lentum</i>	Fed: State CNPS:	-- -- 1B.2	A perennial rhizomatous herb inhabiting wetlands, freshwater marsh, and brackish-marsh communities. Flowers May-November (0 - 984 feet).	A	Presumed Absent: The BSA does not contain suitable marsh and swamp communities. The nearest know CNDDDB occurrence is approximately 9 miles from the Project BSA.
Watershield	<i>Brasenia schreberi</i>	Fed: State CNPS:	-- -- 2B.3	A perennial rhizomatous aquatic herb inhabiting ponds, slow streams and freshwater marsh and swamp communities. Flowers June-September (98 - 7,217 feet).	HP	Presumed Absent: The BSA does contain slow stream habitat suitable for the species. However, the BSA is below the species lower elevation range.
Woolly rose-mallow	<i>Hibiscus lasiocarpus</i> var. <i>occidentalis</i>	Fed: State CNPS:	-- -- 1B.2	A perennial rhizomatous herb inhabiting freshwater wetlands, wet banks, and marsh communities. Often found in-between riprap on levees. Flowers June-September (0 - 394 feet).	A	Presumed Absent: The BSA does contain suitable freshwater wetland habitat for the species; however, the species is associated with the delta watershed, which is not present within the BSA. The nearest extant occurrence is approximately 2 miles from the BSA within the Stone Lakes NWR within the Delta watershed.

<p>Federal Designations (Fed): (FESA, USFWS) E: Federally listed, endangered T: Federally listed, threatened CT: Federal candidate, threatened PT: Federally proposed, threatened</p>	<p>State Designations (CA): (CESA, CDFW) E: State-listed, endangered T: State-listed, threatened CT: State-candidate, threatened CE: State-candidate, endangered</p>
<p>California Native Plant Society (CNPS) Designations: *Note: according to CNPS (Skinner and Pavlik 1994), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions. 1A: Plants presumed extinct in California. 1B: Plants rare and endangered in California and throughout their range.</p>	

<p>2: Plants rare, threatened, or endangered in California but more common elsewhere in their range.</p> <p>3: Plants about which need more information; a review list.</p> <p>Plants 1B, 2, and 3 extension meanings:</p> <p>_1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)</p> <p>_2 Fairly endangered in California (20-80% occurrences threatened)</p> <p>_3 Not very endangered in California (<20% of occurrences threatened or no current threats known)</p>
<p>Habitat Potential</p> <p>Absent [A] - No habitat present and no further work needed.</p> <p>Habitat Present [HP] - Habitat is, or may be present. The species may be present.</p> <p>Critical Habitat [CH] – Project is within designated Critical Habitat.</p>
<p>Potential for Occurrence Criteria:</p> <p>Present: Species was observed on site during a site visit or focused survey.</p> <p>High: Habitat (including soils and elevation factors) for the species occurs on site and a known occurrence has been recorded within 5 miles of the site.</p> <p>Low-Moderate: Either low quality habitat (including soils and elevation factors) for the species occurs on site and a known occurrence exists within 5 miles of the site; or suitable habitat strongly associated with the species occurs on site, but no records were found within the database search.</p> <p>Presumed Absent: Focused surveys were conducted and the species was not found, or species was found within the database search but habitat (including soils and elevation factors) do not exist on site, or the known geographic range of the species does not include the survey area.</p>

The seven special status plant species identified as having a potential of occurring within the Project area are found within vernal pools and other seasonal wetland habitats. As stated in the 2016 NES, none of the species were identified during botanical surveys completed for the Project; however, all seven special status plant species are still considered to have potential of occurring within the BSA based on potentially suitable habitat and regional CNDDDB occurrences. Considering the implementation of Project minimization, avoidance, and mitigation measures for wetland habitats and pre-construction focused plant surveys, along with the use of Standard BMPs, the Project would not impact the viability of the special-status plant species.

Trees in the BSA

During the field survey conducted on April 1, 2016, trees and shrubs were identified within the BSA. Non-native horticultural trees and native tree species were identified. Currently, impacts to trees within the BSA cannot be identified as Project design is still being completed. Prior to construction a comprehensive tree survey will be completed to identify all tree species within the BSA that are anticipated to be impacted by the Project.

Trees in the BSA provide nesting habitat for several bird species protected by the Migratory Bird Treaty Act and the California Fish and Game Code, as well as special-status birds and bats, which have the potential to occur in the BSA.

ENVIRONMENTAL CONSEQUENCES

Build Alternative

Operational Impacts

No federal-listed plant species are expected to occur in the Project area. Although all seven CNPS-listed special-status plant species were identified with the potential to occur in the Project area, no specimen of any listed or non-listed species were discovered during any of the rare plant surveys. Therefore, the Project is not expected to impact any special-status plants.

If federally protected plants are found during preconstruction surveys, potential direct, permanent effects to those plants could occur, including habitat destruction, loss, and/or conversion due to the construction of the proposed permanent facilities. Potential indirect, permanent effects to special-status plant species include erosion resulting from the increased runoff from the expanded roadway, as well as water quality degradation due to increased litter and chemical roadway contaminants from additional traffic and other uses.

According to the County and City tree ordinances, the removal of trees is an adverse impact that must be mitigated. An arborist survey would be conducted prior to construction to identify trees that would need to be removed. While the Department is exempt from compliance with local regulations, it would comply with the County's and City's tree policies because bird species protected by the Migratory Bird Treaty Act occur within the BSA.

Potential indirect effects to trees include erosion resulting from the increased runoff from the expanded roadway, as well as water quality degradation due to increased litter and chemical roadway contaminants from additional traffic and other uses. However, the avoidance, minimization, and/or mitigation noted in Section 2.2.2, Water Quality and Stormwater Runoff, address these indirect effects.

Construction Impacts

If special-status plant species are found during preconstruction surveys, potential direct effects to special-status plants during construction include soil disturbance and compaction due to construction equipment, chemical spills from vehicle and equipment use, and potential spread of invasive species from equipment and personnel movement within the BSA. Potential indirect, temporary effects to special-status plant species include sedimentation within wetland habitats and increased erosion due to ground disturbance during construction.

However, if special-status plants were to occur in the Project area, they would be located within the wetlands and vernal pools of the Project area. A summary of the impacts to the wetland and vernal pool features in the Project area are discussed in Section 2.3.2, "Wetlands and Other Waters." Potential impacts to these features have avoidance, minimization, and mitigation measures which will also provide protections to special-status plant species in those habitats, should they occur. Additional measures are provided, which will further minimize potential impacts to protected plant species.

The Project may cause indirect impacts to plant species in the Project area as a result of habitat fragmentation or changes in hydrology. Hydrologic changes may indirectly affect water availability to certain areas and aquatic features in the Project area that provide habitat for potentially occurring special-status plants. Potential direct, temporary effects to trees include construction equipment and vehicles driving under and parking within driplines and chemical spills from vehicle and equipment use. Parking or spills in these areas can damage the roots of the tree.

South Sacramento Habitat Conservation Plan

During the development of the SSHCP, the impacts of future covered regional Projects were taken into consideration and evaluated to minimize adverse cumulative impacts to special-status plant species and their habitat resources within the region. Under the SSHCP, the Project is a covered activity and Project's potential impacts to special-status plant species and their habitats will have been factored into the SSHCP's vision for the region's balanced approach on resource protection. The Project will mitigate for impacts to special-status plant species and their habitat at the ratios described in the SSHCP. Avoidance, minimization, and compensatory mitigation provided by the Project would ensure a no net loss of special-status wildlife species habitat within the region; therefore, the Project is not anticipated to have any impacts to individuals or impacts to the viability of special-status plant species populations in the region.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and potential impacts to special-status plant species would not occur. As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aid in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

At a minimum, the Connector JPA PEIR requires avoidance, minimization, and/or mitigation measures for special status plant species, as explicitly stated in the Connector JPA PEIR measures BIO-2a, BIO-2b, and BIO-3, which have been incorporated into the following Project specific measures. Project specific measures in compliance with regional plans, policies, and ordinances have also been incorporated for compliance with these identified requirements. With the implementation of the following measures Project impacts to special-status plant species would be avoided and minimized to the greatest extent practicable and compensatory mitigation provided where necessary. The Project will fulfill the compensatory mitigation ratios required by the BO through purchase of mitigation credits at the SSCHP.

BIO-13: The implementing agency will avoid and minimize impacts to special status plant populations to the greatest extent practicable by implementing the following measures:

- Redesign or modify the project to avoid or minimize direct and indirect impacts on special-status plants.
- Avoid or minimize construction impacts on special-status plants near the project site by installing environmentally sensitive area fencing (orange construction barrier fencing) around special-status plant populations at least 20 feet from the edge of the population. Wider buffer zone widths set by site-specific conditions and permit requirements, such as those for seasonal wetlands and vernal pools that are considered special-status shrimp habitat, will take precedence over this requirement. The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

BIO-14: Prior to construction, the project biologist will conduct pre-construction blooming clearance surveys in areas of direct impacts for the following sensitive plant species in their respective wetland habitats:

- Boggs Lake hedge-hyssop: Surveys must be conducted between the months of April and August.
- Bristly sedge: Surveys must be conducted between the months of July and September.
- Dwarf downingia: Surveys must be conducted between the months of March and May.
- Heckard's pepper-grass: Surveys must be conducted between the months of March and May.
- Legenere: Surveys must be conducted between the months of May and June.
- Saline clover: Surveys must be conducted between the months of April and June.
- Sanford's arrowhead: Surveys must be conducted between the months of May and October.

BIO-15: If Boggs Lake hedge hyssop, Bristly sedge, dwarf downingia, Heckard's pepper-grass, legenere, saline clover, and Sanford's arrowhead cannot be avoided, the implementing agency will compensate for the loss of plants and their habitat by contributing to the conservation and recovery of the affected species. For each special-status plant occurrence impacted, one occurrence of the same species of a similar or greater size

will be preserved (to compensate for temporal habitat loss). For impacts on special-status plants, a mitigation and monitoring plan will be prepared that describes how the loss of special-status plant species will be compensated for. The mitigation and monitoring plan will be reviewed and approved by CDFW and USFWS. The plan shall contain, but is not limited to, the following performance standards:

- Habitat restoration or establishment, where appropriate and feasible, will be used in conjunction with translocating the affected population.
- As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan or areas specifically identified in the SSHCP, when adopted.
- Habitat will be restored or newly established (on or off site) at a minimum ratio of 1:1 (1 acre restored for each acre impacted). Within the Mather Core Recovery Area, habitat will be preserved at a minimum ratio of 2:1 from lands within the Core Recovery Area.
- The mitigation site will be monitored the first year after the mitigation is implemented and every 5 years thereafter, until the mitigation is considered to be successful. Mitigation will be considered successful if the translocated population is determined to be stable and contains at least 60% of the number of plants present in the original occurrence. If the population falls below 60% of the original number of plants, then remediation measures will be initiated.

Because special-status species in the project area are state or federally listed or occur in wetlands, the project will have to comply with state and federal laws and regulations governing these resources, and obtain the applicable take or fill permits. These permits may include specific requirements, including compensation measures and ratios, which will take precedence over the measures and ratios specified in the previous paragraph.

BIO-16: The project will implement the following measures into the project plans and specifications:

- Use certified, weed-free, imported erosion-control materials (or rice straw in upland areas).
- Coordinate with the applicable County Agricultural Commissioner and land management agencies to ensure that the appropriate best management practices (BMPs) are implemented.
- Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds.

BIO-17: Prior to arrival at the project site and prior to leaving the project site, the construction contractor must clean all construction equipment that may contain invasive plants and/or seeds to reduce the spreading of noxious weeds.

BIO-18: The implementing agency will provide compensatory mitigation as required by the approved SSHCP mitigation ratios for special status plant species modeled habitat.

2.3.4 ANIMAL SPECIES

REGULATORY SETTING

Many federal laws regulate impacts to wildlife. The USFWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in the Threatened and Endangered Species section 2.3.5 below. All other federally protected special-status animal species are discussed here, including USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- CESA
- CEQA
- CFG Code Sections 1600 – 1603 (SAA)
- CFG Code Section 4150 and 4152 (Nongame Mammals)
- CFG Code Sections 3503 and 3503.5 (Birds and Raptors)
- CFG Code Sections 3513 (Migratory Birds)
- Additional local regulations protecting wildlife are outlined in Section 2.3, "Biological Environment".

AFFECTED ENVIRONMENT

The information in this section is based on information provided in the NES (MBI 2016a) and the NES Addendum (Dokken Engineering 2019c) (reports bound separately).

Updated species lists were obtained from USFWS, CNDDDB, and NMFS on October 14, 2021 (see Appendix H). Since the approval of the 2016 NES, a new species occurrence of California black rail (*Laterallus jamaicensis coturniculus*) was recorded within the 9-Quad CNDDDB search area approximately 1 mile from the BSA within the Stone Lakes NWR.

California black rail is listed as Threatened under the CESA and is Fully Protected by Fish and Game Code Section 3511. California black rail is a rare yearlong resident of brackish, and fresh emergent wetlands in delta and coastal locations, and isolated population in the Sierra Foothills. The species occurs in tidal emergent wetlands dominated by pickleweed, in brackish marshes dominated by bulrushes with pickleweed and in freshwater wetlands dominated by bulrushes, cattails, and saltgrass and requires adequate vegetative cover for nesting. Eggs are laid March-July. The BSA does not contain large emergent wetlands with the type of dense vegetation required by the species. No suitable habitat for the species is present within the BSA and the species is presumed absent from the BSA. No other new animal species were identified by the September 2017 CNDDDB, NMFS, or USFWS database searches. Revised Project impact

discussions for species previously identified as having potential of occurring within the BSA are included below.

Field Surveys and Technical Reports

Prior to conducting the field habitat assessment, queries were conducted of the CNDDDB and USFWS databases to determine the special-status wildlife known to occur in the vicinity of the BSA or in similar environments elsewhere in the region, which resulted in a list of the 22 special-status species shown in **Table 73** (updated database search results are provided in the NES Addendum (Dokken Engineering 2019c).

Habitat and site assessments were conducted within the Project area on April 16, May 15, May 21, June 13, and August 26, 2014, to assess the vegetative communities on-site, identify biological resources which may be impacted by the Project, and evaluate the potential for special-status species to occur on-site.

Table 73 also provides a general habitat description for each of the 22 special-status species and a rationale as to why habitat was determined to be either present or absent from the BSA. Specifically, which special-status wildlife species have potential to occur or were observed during the field surveys.

Based on information from the database searches and site visits, 6 California SSC and 1 fully protected species have the potential to occur in the Project area. In addition, 4 threatened and/or endangered species were determined to have the potential to occur with the BSA. These species are discussed in Section 2.3.5. “Threatened and Endangered Species”.

Discussion of Special-Status Species

The following species were not observed during survey efforts but were determined to have a high, moderate, or low potential to occur within the Project area:

Nesting Birds and Raptors

Special-status birds and raptors such as the white-tailed kite, burrowing owl, Swainson’s hawk, song sparrow “Modesto population”, ferruginous hawk, greater sandhill crane, northern harrier, tricolored blackbird, and yellow-headed blackbird as shown in **Table 73**, could nest within and surrounding the BSA. The breeding season for most birds, including raptors, within the Project footprint is generally from February 1 to August 31. The occupied nests and eggs of these birds are protected by federal and state laws, including MBTA and California Fish and Game Code Sections 3503 and 3503.5.

Many other bird species protected by the MBTA were observed during the 2016 field surveys including western scrub jay, black phoebe, American robin, northern mockingbird, red-winged blackbird, red-tailed hawk, killdeer, mourning dove, and others. These and other species could potentially nest within the BSA.

Table 73. Special-Status Wildlife Species with Potential to Occur in the Project Vicinity

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Amphibian Species					
California red-legged frog	<i>Rana draytonii</i>	Fed: T State: -- CDFW: SSC	Inhabits lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development and must have access to estivation habitat; estivation occurs late summer-early winter. Breeds from March-July January-July Occurs from elevations near sea level to 5,200 feet.	A	Presumed Absent: The BSA does not have suitable permanent deep water habitat for the species. The nearest presumed extant occurrence of the species is approximately 30 miles from the BSA.
California tiger salamander	<i>Ambystoma californiense</i>	Fed: T State: T CDFW: SSC	Inhabits annual grasslands and the grassy understory of valley-foothill hardwood communities. Requires underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.	A	Presumed Absent: This species is covered under the SSHCP. The BSA does have suitable valley grassland habitat for the species. However, no recent or historical occurrences of the species are within the vicinity of the BSA. Additionally, the nearest presumed extant occurrence is approximately 13 miles from the BSA.
Foothill yellow-legged frog	<i>Rana boylei</i>	Fed: CT State: -- CDFW: SSC	Inhabits shallow streams and riffles with rocky substrate and open, sunny banks in a variety of habitats including chaparral and woodland forests. Tadpoles require water for at least three or four months to complete development. Breeds March - May and occurs from elevations near sea level to 6,700 feet.	A	Presumed Absent: The BSA does not contain suitable chaparral or woodland stream habitats. Additionally, no recent or historical occurrences of the species are within the vicinity of the BSA. The nearest presumed extant occurrence is approximately 40 miles from the BSA.
Western spadefoot	<i>Spea hammondi</i>	Fed: -- State: -- CDFW: SSC	Inhabits open areas with sandy or gravelly soils within mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Burrows	A	Presumed Absent: This species is covered under the SSHCP. Modeled habitat for this species is present within the BSA; however, there are no recent, local CNDDB occurrences of this species.

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
				underground from most of the year and is active above ground during rainfall. Requires vernal, shallow, temporary pools formed by heavy winter rains for reproduction. These pools must be free of bullfrogs, fish, and crayfish. Breeds from late winter to March.		Additionally, on-site biological investigations concluded that the BSA does not contain suitable breeding or burrowing habitat for this species. Grassland habitat is frequently disturbed and bullfrogs were identified on site.
Bird Species						
Burrowing owl	<i>Athene cunicularia</i>	Fed: State: CDFW:	BCC -- SSC	Species inhabits arid, open areas with sparse vegetation cover such as deserts, abandoned agricultural areas, grasslands, and disturbed open habitats. Requires friable soils for burrow construction (Below 5,300 feet).	HP	High Potential: This species is covered under the SSHCP. The BSA does contain potential suitable habitat for the species. The nearest recent (2010) occurrence is within the BSA. The species is considered to have a high potential of occurring within the BSA due to the presence of suitable habitat and recent local occurrences.

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
California black rail	<i>Laterallus jamaicensis coturniculus</i>	Fed: T State: -- CDFW: FP	A rare yearlong California resident of brackish, and fresh emergent wetlands in delta and coastal locations, including the San Francisco Bay area, Sacramento-San Joaquin Delta, Morro Bay, the Salton Sea, and lower Colorado River; extirpated from San Diego County and the majority of coastal southern California. Occurs in tidal emergent wetlands dominated by pickleweed, in brackish marshes dominated by bulrushes with pickleweed and in freshwater wetlands dominated by bulrushes, cattails, and saltgrass. Species prefers high wetland areas, away from areas experiencing fluctuating water levels. Requires vegetation providing adequate overhead cover for nesting. Eggs are laid March-June.	A	Presumed Absent: The BSA does contain potential suitable freshwater wetland habitat for the species; however, these wetland areas are generally small and within moderately disturbed agricultural areas. The species is generally found within large tracks of emergent wetland areas and prefer none disturbed habitats. The nearest recent (2015) occurrence is approximately 1 miles from the BSA; however, this occurrence is within a large emergent wetland area of the NWR, where none to low levels of disturbance occur. Due to the lack of specific habitat requirements and limited occurrence records, the species is presumed absent from the BSA.
Cooper's hawk	<i>Accipiter cooperii</i>	Fed: -- State: WL CDFW: --	Species most often occurs in open, interrupted or marginal woodlands throughout California. Nests in forest habitats, usually near open water in conifer or deciduous riparian areas. Most frequently uses dense stands of live oak, riparian deciduous, and other forest habitats. Breeds from March through August. Occurs from elevations near sea level to 9,000 feet.	A	Presumed Absent: This species is covered under the SSHCP. Modeled habitat for this species is present within the BSA; additionally, there is a local (2005) CNDDDB occurrence of the species located approximately 4.3 miles north of the BSA. Despite the local occurrence, the BSA does not include suitable woodland and/or riparian nesting habitat. The species is presumed to be absent due to a lack of suitable habitat features.

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Ferruginous hawk	<i>Buteo regalis</i>	Fed: BCC State: -- CDFW: --	Inhabit open areas such as grasslands, sagebrush, saltbush-greasewood shrublands, and edges of pinyon-juniper forests. Prefer to forage in grasslands with abundant small mammal populations. The species nests on lone trees, cliffs, utility structures, outcrops, boulders, shrubs, knolls, or haystacks. If they do ground nest, it will be on a slope or hill crest.	HP	High Potential: This species is covered under the SSHCP. Modeled habitat for this species is present within the BSA; in addition, there is a recent (2003) CNDDDB occurrence of this species located approximately 4.1 miles north of the BSA. Due to the presence of locally suitable habitat features as well as the recent local occurrence, the species is presumed to have a high potential to occur within the BSA.
Greater sandhill crane	<i>Grus canadensis tabida</i>	Fed: -- State: T CDFW: FP	The sandhill crane is one of the largest migratory cranes in North America and has a range that spans from Siberia and Alaska to California's Central Valley. Sandhill cranes are often found near large freshwater marshes and ponds during the summer and on grainfields or prairies during the winter. In non-migratory populations, they lay eggs anytime between December and August. In migratory populations, sandhill cranes usually lay their eggs in April and May. Once very common breeders, unregulated hunting and habitat loss has resulted in a drastic reduction in population. Wintering populations of sandhill cranes find their home in the agricultural fields and wetlands of California's Central Valley. Population levels remain low; however, local habitat restoration and farmland management may serve to benefit the species.	HP	Low to Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. There are no CNDDDB occurrences of this species within the vicinity of the BSA; however, the BSA includes suitable freshwater marsh and grassland habitat. Due to the presence of potentially suitable habitat for overwintering populations of this species, the species is presumed to have a low to moderate potential to occur within the Project area.

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Loggerhead shrike	<i>Lanius ludovicianus</i>	Fed: BCC State: -- CDFW: SSC	The species is associated with open canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Inhabits open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Rarely found in urbanized areas but will inhabit open cropland. Nests are built on stable branches in densely foliated shrubs or trees. Breeds from March through May.	A	Presumed Absent: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. There are no CNDDB occurrences of this species within the vicinity of the Project area; additionally, the BSA does not include suitable woodland and/or riparian nesting habitat. The species is presumed to be absent due to a lack of suitable nesting habitat features.
Northern harrier	<i>Circus cyaneus</i>	Fed: -- State: -- CDFW: SSC	Species occurs in flat, or hummocky, open areas of tall, dense grasses and moist or dry shrubs. Inhabits meadows, grasslands, open rangelands, desert sinks, and fresh or saltwater emergent wetland communities. Nesting occurs on the ground within grasslands, grain fields, sagebrush or other shrubby vegetation. Nest sites are often chosen at marsh edges or in proximity to water. Breeds April through September (0-5,700 feet).	HP	Low to Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. There are no CNDDB occurrences of this species within the vicinity of the Project area; However, due to the presence of grassland habitat and freshwater marsh habitat, the species is presumed to have a low to moderate potential to occur within the BSA.
Song sparrow ("Modesto" population)	<i>Melospiza melodia</i>	Fed: -- State: -- CDFW: SSC	An endemic bird found exclusively in the north-central portion of the Central Valley, with highest densities in the Butte Sink and Sacramento-San Joaquin River Delta. The species is usually found in open brushy habitats, along the borders of ponds or streams, abandoned pastures, desert washes, thickets, or woodland edges. In addition, there is a strong affinity for emergent freshwater marshes dominated by tules and cattails, riparian willow thickets, and valley oak forests with a blackberry understory. Breeds from March through August. Nest	HP	Low-Moderate Potential: The BSA does contain potential suitable habitat for the species, including fresh emergent wetland areas along the agricultural drainage ditches. These habitats are moderately dense and are dominated by tules and cattails, which the species is known to inhabit for nesting and foraging. The nearest recent (2009) occurrence is approximately 1 mile from the BSA. The species is considered to have a low to

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
			found in base of shrubs or clumps of grass.		moderate potential to occur due to the presence of suitable habitat.
Swainson's hawk	<i>Buteo swainsoni</i>	Fed: State: CDFW:	BCC T --	Inhabits grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, alfalfa or grain fields that support a stable rodent prey base. Breeds March to late August.	HP High Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does have potential suitable foraging habitat for the species. There are multiple (20+) recent occurrences within the area, with the nearest occurrence within the BSA just west of Bruceville Road. The species is considered to have a high potential to occur within the BSA.
Tricolored blackbird	<i>Agelaius tricolor</i>	Fed: State: CDFW:	BCC T SSC	Inhabits freshwater marsh, swamp and wetland communities, but may utilize agricultural or upland habitats that can support large colonies, often in the Central Valley area. Requires dense nesting habitat that is protected from predators, is within 3-5 miles from a suitable foraging area containing insect prey and is within 0.3 miles of open water. Suitable foraging includes wetland, pastureland, rangeland, at dairy farms, and some irrigated croplands (silage, alfalfa, etc.). Nests mid-march – early August, but may extend until October/November in the Sacramento Valley region.	HP Low-Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does have suitable foraging and nesting habitat for the species. The nearest recent (2015) CNDDDB occurrence of the species is approximately 1 mile from the BSA. Due to the presence of suitable habitat and recent occurrences within the vicinity, the species is considered to have a low to moderate potential of occurring within the BSA.
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Fed: State: CDFW:	T E --	Species inhabits riparian forests, along broad, lower flood bottoms of larger river systems. Nests in large blocks of riparian jungles often mixed with cottonwoods. Nesting appears to be preferred in riparian forest habitats with a dense	A Presumed Absent: The BSA does not have suitable dense riparian forest habitat for the species. The nearest CNDDDB occurrence is approximately 8 miles from the BSA. Due to the lack of suitable habitat

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
			understory; requires water near nesting site. Breeds June- August.		within the BSA, the species is presumed absent.
White-tailed kite	<i>Elanus leucurus</i>	Fed: -- State: -- CDFW: FP	Inhabits rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Prefers open grasslands, meadows or marshes for foraging close to isolated, dense-topped trees for nesting and perching. Breeds February- October.	HP	Low-Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA contains suitable open grassland foraging habitat and potential scattered nesting trees are present. The nearest occurrence (2017) is approximately 2 miles from the BSA. Due to the presence of suitable habitat and the recent close proximity occurrence the species is considered to have a low to moderate potential to occur within the BSA.
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	Fed: -- State: -- CDFW: SSC	Occurs primarily as a migrant and summer resident from April to early October. The species almost exclusively nests in marshes with dense tall emergent vegetation such as tules (<i>Scirpus</i> sp.) or cattails (<i>Typha</i> sp.), in open areas and edges over water at depths typically ranging from 1-4 feet deep. Frequently breeds within marshes, edges of lakes, reservoirs, or larger ponds. Breeds from April-July.	HP	Low-Moderate Potential: : The BSA does contain suitable foraging habitat of emergent wetland areas with tules and cattails, but this vegetation is not as dense or in as large of patches as they typically prefer. The most recent occurrence is approximately 3 miles from eastern terminus of the BSA within the Consumes River Preserve (ebird.com 2017). Additionally, there are scattered occurrences to the south and west of the BSA, within the Stone Lakes NWR. Due to the presence of suitable habitat and the multiple occurrences surrounding the BSA, the species is considered to have a low to moderate potential to occur within the BSA.
Fish Species					

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Central Valley Steelhead	<i>Oncorhynchus mykiss irideus</i>	Fed: T State: -- CDFW: --	Spawning occurs in small tributaries on coarse gravel beds in riffle areas. Central Valley steelhead are found in the Sacramento River system; the principal remaining wild populations spawn annually in Deer and Mill Creeks in Tehama County, in the lower Yuba River, a small population in the lower Stanislaus River.	A	Presumed Absent: The BSA does not contain suitable habitat for the species. The species does not populate the Shed C Channel or other streams or creeks within the BSA.
Delta smelt	<i>Hypomesus tanspacificus</i>	Fed: T State: -- CDFW: --	Occurs within the Sacramento-San Joaquin Delta and seasonally within the Suisun Bay, Carquinez Strait and San Pablo Bay. Most often occurs in partially saline waters.	A	Presumed Absent: The BSA does not contain suitable saline waters for the species, and it was confirmed through CNDDB that the BSA is outside the range of the species.
Longfin smelt	<i>Spirinchus thaleichthys</i>	Fed: C State: T CDFW: SSC	Within California, occurs slightly upstream from Rio Vista (on the Sacramento River in the Delta) including the Cache Slough region and Medford Island (on the San Joaquin River in the Delta) through Suisun Bay and Suisun Marsh, the San Pablo Bay, the main San Francisco Bay, South San Francisco Bay, the Gulf of the Farallones, Humboldt Bay, Eel river estuary, and local coastal areas. Primarily an anadromous estuarine species that can tolerate salinities ranging from freshwater to nearly pure seawater. Prefers temperatures in the range of 16-18°C and salinities ranging from 15-30 ppt. Their spatial distribution within a bay or estuary is seasonally variable. Longfin smelt may also make daily migrations; remaining deep during the day and rising to the surface at night.	A	Presumed Absent: The BSA does not contain suitable saline waters for the species, and it was confirmed through CNDDB that the BSA is outside the range of the species.

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale	
Sacramento splittail	<i>Pogonichthys macrolepidotus</i>	Fed: -- State: -- CDFW: --	SSC	Historically inhabited low moving rivers, sloughs, and alkaline lakes of the Central Valley; now restricted to the Delta, Suisun Bay and associated marshes. Species is adapted to fluctuating environments with tolerance to water salinities from 10-18 ppt., low oxygen levels (< 1.0 mg/L) and temperatures of 41-75°F. Spawns late February- early July, with a peak in March-April; requires flooded vegetation for spawning activity and protective cover for young.	A	Presumed Absent: The BSA does not contain suitable habitat for the species. The species is known to occur within the Sacramento River. The BSA does not contain any areas with connection to the Sacramento River. Section 7 consultation was conducted and a Biological Opinion was issued in December 2016.
Invertebrate Species						
Valley elderberry longhorn beetle	<i>Desmocerus californicus dimorphus</i>	Fed: -- State: -- CDFW: --	T	Species requires elderberry shrubs as host plants. Typically occurs in moist valley oak woodlands associated with riparian corridors in the lower Sacramento River and upper San Joaquin River drainages. (Sea level-3,000ft)	HP	Low-Moderate Potential: This species is covered under the SSHCP. A single elderberry shrub was identified within the BSA; no exit holes were observed. No suitable habitat other than the one elderberry shrub was observed within the BSA. No known metapopulations are within the Project vicinity, and the nearest recent extant occurrence is approximately 12.5 miles north of the BSA. Approved in November 2016, the USFWS has published the <i>Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle</i> (USFWS 2017d). In accordance with the new Framework, the single elderberry shrub is not considered to be VELB habitat and VELB is presumed to have a low to moderate potential of occurring within the BSA. Section 7 consultation was conducted and a

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
					Biological Opinion was issued in December 2016.
Midvalley fairy shrimp	<i>Branchinecta mesovallensis</i>	Fed: -- State: -- CDFW: --	The species is found at relatively low elevations throughout the middle of the Central Valley. Habitat includes grasslands with shallow, ephemeral pools that result from rainwater during the winter/spring. Unlike other branchiopods, the midvalley fairy shrimp tolerates warmer water temperatures and can develop rapidly in short-lived seasonal depressions. Cysts of this species travel through flood waters as well as through the digestive tract of other animals, where they can be deposited into a new pool.	HP	Low-Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species is present within the BSA. There are no recent, local CNDDDB occurrences of this species; however, due to the presence of locally suitable vernal pool habitat, the species is presumed to have a low to moderate potential to occur within the BSA
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	Fed: T State: -- CDFW: --	In California, species inhabits portions of Tehama county, south through the Central Valley, and scattered locations in Riverside County and the Coast Ranges. Species is associated with smaller and shallower cool-water vernal pools approximately 6 inches deep and short periods of inundation. In the southernmost extremes of the range, the species occurs in large, deep cool-water pools. Inhabited pools have low to moderate levels of alkalinity and total dissolved solids. The shrimp are temperature sensitive, requiring pools below 50 F to hatch and dying within pools reaching 75 F. Young emerge during cold-weather winter storms.	HP	Low-Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does contain vernal pool habitat. The nearest occurrence of the species is a 1997 record in the NWR easement, approximately 0.5 mile north of Hood Franklin Road, east of I-5. Due to the presence of suitable habitat and the close proximity of the occurrence, the species is considered to have a low to moderate potential of occurring within the BSA.
Vernal pool tadpole shrimp	<i>Lepidurus packardii</i>	Fed: E State: -- CDFW: --	Inhabits vernal pools and swales containing clear to highly turbid waters such as pools located in grass bottomed swales of unplowed grasslands, old alluvial soils underlain by hardpan, and	HP	Low-Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does contain vernal pool

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
			mud-bottomed pools with highly turbid water.		habitat. The nearest occurrence of the species is a 2003 record in the NWR easement, approximately 0.5 mile north of Hood Franklin Road, east of I-5. Due to the presence of suitable habitat and the close proximity of the occurrence, the species is considered to have a low to moderate potential of occurring within the BSA.
Mammal Species					
American badger	<i>Taxidea taxus</i>	Fed: -- State: -- CDFW: SSC	Prefers treeless, dry, open stages of most shrub and herbaceous habitats with friable soils and a supply of rodent prey. Species also inhabits forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows. Species maintains burrows within home ranges estimated between 338-1,700 acres, dependent on seasonal activity. Burrows are frequently re-used, but new burrows may be created nightly. Young are born in March and April within burrows dug in relatively dry, often sandy, soil, usually in areas with sparse overstory cover. Species is somewhat tolerant of human activity, but is sensitive to automobile mortality, trapping, and persistent poisons (up to 12,000 feet).	HP	Presumed Absent: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does contain suitable grassland habitat for the species, however the BSA is dominated by agricultural activities where persistent poisoning has historically take place. The nearest presumed extant occurrence is approximately 11 miles from the BSA, and the home range for the species is estimated between 338-1,700 acres. Due to the location of the BSA within highly agricultural lands and the distant to the nearest extant occurrence, the species is presumed absent from the BSA.
Western red bat	<i>Lasiurus blossevillii</i>	Fed: -- State: -- CDFW: SSC	Species roosts primarily in trees (2-40ft) protected from above with open areas below for foraging and near edge habitats adjacent to streams, fields or urban areas.	HP	Low-Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does contain potentially suitable roosting habitat. The nearest occurrence (1999) of the species is approximately 13 miles

Common Name	Species Name	Status		General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
						from the BSA. Due to the presence of suitable habitat, and the distance to the nearest occurrence, the species is considered to have a low to moderate potential of occurring.
Reptile Species						
Giant garter snake	<i>Thamnophis gigas</i>	Fed: State: CDFW:	T T --	Inhabits marsh, swamp, wetland (including agricultural wetlands), sloughs, ponds, rice fields, low gradient streams and irrigation/drainage canals adjacent to uplands. Species requires adequate water during the active season (April-November), emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat and mammal burrows estivation. Requires grassy banks and openings in waterside vegetation for basking and higher elevation uplands for cover and refuge from flood waters during winter dormant season.	HP	Low-Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does contain potentially suitable wetland and upland habitat. The nearest occurrence (2002) of the species is approximately 1.5 miles from the BSA, as well as multiple historic occurrences within the NWR. Due to the presence of suitable habitat, along with recent and historic occurrences in the Project vicinity, the species is considered to have a low to moderate potential to occur. Section 7 consultation was conducted and a Biological Opinion was issued in December 2016.

Common Name	Species Name	Status	General Habitat Description	Habitat Present	Potential for Occurrence and Rationale
Western pond turtle	<i>Emys marmorata</i>	Fed: -- State: -- CDFW: SSC	A fully aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat (sandy banks or grassy open field) for reproduction (sea level to 4,690 feet).	HP	Low-Moderate Potential: This species is covered under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does contain suitable irrigation and stream habitat with aquatic vegetation for the species. The nearest occurrence (2003) of the species is approximately 1.5 miles from the BSA within the NWR. Due to the presence of suitable habitat and the close proximity of the recent occurrence, the species is considered to have a low to moderate potential to occur within the BSA.

<p>Federal Designations (Fed): (FESA, USFWS) E: Federally listed, endangered T: Federally listed, threatened CT: Federal candidate, threatened PT: Federally proposed, threatened BCC: Bird of Conservation Concern</p>	<p>State Designations (CA): (CESA, CDFW) E: State-listed, endangered T: State-listed, threatened CT: State-candidate, threatened CE: State-candidate, endangered</p>
<p>Other Designations CDFW_SSC: CDFW Species of Special Concern CDFW_FP: CDFW Fully Protected California Native Plant Society (CNPS) Designations: <i>*Note: according to CNPS (Skinner and Pavlik 1994), plants on Lists 1B and 2 meet definitions for listing as threatened or endangered under Section 1901, Chapter 10 of the California Fish and Game Code. This interpretation is inconsistent with other definitions.</i> 1A: Plants presumed extinct in California. 1B: Plants rare and endangered in California and throughout their range. 2: Plants rare, threatened, or endangered in California but more common elsewhere in their range. 3: Plants about which need more information; a review list. Plants 1B, 2, and 3 extension meanings: _1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) _2 Fairly endangered in California (20-80% occurrences threatened) _3 Not very endangered in California (<20% of occurrences threatened or no current threats known)</p>	
<p>Habitat Potential Absent [A] - No habitat present and no further work needed. Habitat Present [HP] - Habitat is, or may be present. The species may be present. Critical Habitat [CH] – Project is within designated Critical Habitat.</p>	
<p>Potential for Occurrence Criteria: Present: Species was observed on site during a site visit or focused survey. High: Habitat (including soils and elevation factors) for the species occurs on site and a known occurrence has been recorded within 5 miles of the site. Low-Moderate: Either low quality habitat (including soils and elevation factors) for the species occurs on site and a known occurrence exists within 5 miles of the site; or suitable habitat strongly associated with the species occurs on site, but no records were found within the database search. Presumed Absent: Focused surveys were conducted and the species was not found, or species was found within the database search but habitat (including soils and elevation factors) do not exist on site, or the known geographic range of the species does not include the survey area.</p>	
<p>Sources: Barry 1995, Bennett 2005, CDFG 1994, [CDFW 2019a, 2019b, 2009, 1994], CNDDDB 2019, CNPS 2019, England et al. 1997, Keiller 2011, Mayer 1988, Meese 2008, Miller et al. 1999, [NMFS 2005, 2018a 2018b], NRCS 2017, Shuford & Gardali 2008, Tesky 1994, [USFWS 1994, 1996, 2002, 2007a, 2007b, 2005, 2009, 2016], Wang 2010, Zeiner 1988-1990</p>	

Burrowing Owl

The burrowing owl is not a state or federally listed species, but is a CDFW Species of Special Concern and is a Covered Species under the SSHCP, as specified in the approved Final SSHCP (Sacramento County et. al 2018). Modeled habitat for this species occurs within the BSA. The BSA does contain potential suitable habitat for the species. The nearest recent (2010) occurrence is within the BSA. The species is considered to have a high potential of occurring within the BSA due to the presence of suitable habitat and recent local occurrences.

Ferruginous Hawk

The ferruginous hawk is a Covered Species under the SSHCP. Modeled habitat for this species occurs within the BSA. There is a recent (2003) CNDDDB occurrence of this species located approximately 4.1 miles north of the BSA. Due to the presence of locally suitable habitat features as well as the recent local occurrence, the species is presumed to have a high potential to occur within the BSA.

Greater Sandhill Crane

The greater sandhill crane is a Covered Species under the SSHCP. Modeled habitat for this species occurs within the BSA. There are no CNDDDB occurrences of this species within the vicinity of the BSA; however, the BSA includes suitable freshwater marsh and grassland habitat. Due to the presence of potentially suitable habitat for overwintering populations of this species, the species is presumed to have a low to moderate potential to occur within the BSA.

Northern Harrier

The northern harrier is a Covered Species under the SSHCP. Modeled habitat for this species occurs within the BSA. There are no CNDDDB occurrences of this species within the vicinity of the Project area; However, due to the presence of grassland habitat and freshwater marsh habitat, the species is presumed to have a low to moderate potential to occur within the BSA.

Song sparrow “Modesto population”

The song sparrow is not a state or federally listed species, but is a CDFW Species of Special Concern. The BSA does contain potential suitable habitat for the species, including fresh emergent wetland areas along the agricultural drainage ditches. These habitats are moderately dense and are dominated by tules and cattails, which the species is known to inhabit for nesting and foraging. The nearest recent (2009) occurrence is approximately 1 mile from the BSA. The species is considered to have a low to moderate potential to occur due to the presence of suitable habitat.

Swainson’s Hawk

Swainson’s hawk is state-listed as threatened and is a Covered Species under the approved Final SSHCP (Sacramento County et. al 2018). Modeled habitat for this species occurs within the BSA. The preferred breeding habitat of this raptor consists of large trees, which serve as nesting sites, proximate to extensive areas of grassland and/or open fields, which serve as foraging habitat. Swainson’s hawks begin to arrive in the Central Valley from South America in March to breed and raise their young. They typically nest in large, mature trees such as valley oak, cottonwood, willow, and native black walnut. Swainson’s hawks forage in open grasslands, agricultural fields, and pastures, with alfalfa, row crops, grain fields, and irrigated pastures as preferred foraging habitats.

The BSA does have potential suitable foraging and nesting habitat for the species. The various trees throughout the Project area provide suitable nesting habitat for this species. The irrigated row and field crops, irrigated hayfields, and valley grassland within and adjacent to the Project area represent suitable foraging habitat for Swainson’s hawks. Swainson’s hawk or their nests

were not observed within the BSA during focused wildlife surveys. The species is considered to have a high potential of occurring within the BSA due to the presence of suitable habitat and multiple (20+) recent occurrences in close proximity to the BSA (0-3 miles). Swainson's hawk is a covered species under the SSHCP.

Tricolored Blackbird

The tricolored blackbird is not a federally listed species but is listed as a CDFW threatened Species, and is a Covered Species under the approved Final SSHCP (Sacramento County et. al 2018, CNDDDB 2017). Modeled habitat for this species occurs within the BSA. Projects are expected to consider candidate species as if they are listed (as endangered in this case). The BSA does have suitable foraging and nesting habitat for the species. The nearest recent (2015) CNDDDB occurrence of the species is approximately 1 mile from the BSA. Due to the presence of suitable habitat and recent occurrences within the vicinity, the species is considered to have a low to moderate potential of occurring within the BSA.

White-tailed kite

White-tailed kite is a fully protected species under CFG Code Section 3511 and is a Covered Species under the approved Final SSHCP (Sacramento County et. al 2018). Modeled habitat for this species occurs within the BSA. The BSA contains suitable open grassland foraging habitat and potential scattered nesting trees are present. The nearest occurrence (2017) is approximately 2 miles from the BSA. Due to the presence of suitable habitat and the recent close proximity occurrence the species is considered to have a low to moderate potential to occur within the BSA.

Yellow-headed Blackbird

The yellow-headed blackbird is not a federal or state listed species, but is a CDFW Species of Special Concern. The BSA does contain suitable foraging habitat of emergent wetland area with tules and cattails, but this vegetation is not as dense or in as large of patches as they typically prefer. The most recent occurrence is approximately 3 miles from eastern terminus of the BSA within the Consumes River Preserve (ebird.com 2017). Additionally, there are scattered occurrences to the south and west of the BSA, within the Stone Lakes NWR. Due to the presence of suitable habitat and the multiple occurrences surrounding the BSA, the species is considered to have a low to moderate potential to occur within the BSA.

Special-Status Reptile Species

Western pond turtle

The western pond turtle is not a State or Federally listed species, but is a CDFW Species of Special Concern and is considered a Covered Species under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does contain suitable irrigation and stream habitat with aquatic vegetation for the species. The nearest occurrence (2003) of the species is approximately 1.5 miles from the BSA within the Stone Lakes NWR. Due to the presence of suitable habitat and the close proximity of the recent occurrence, the species is considered to have a low to moderate potential to occur within the BSA.

Special-Status Mammal Species

Western red bat

The western red bat is not a federally listed species, but is listed as a CDFW Species of Special Concern and is considered a Covered Species under the SSHCP. Modeled habitat for this species occurs within the BSA. The BSA does contain potentially suitable roosting habitat (trees, buildings, etc.). The nearest occurrence (1999) of the species is approximately 13 miles from the

BSA. Due to the presence of suitable habitat, and the distance to the nearest occurrence, the species is considered to have a low to moderate potential of occurring.

Special-Status Invertebrate Species

Midvalley Fairy Shrimp

The midvalley fairy shrimp is a Covered Species under the SSHCP. Modeled habitat for this species occurs within the BSA. There are no recent, local CNDDDB occurrences of this species; however, due to the presence of locally suitable vernal pool habitat, the species is presumed to have a low to moderate potential to occur within the BSA.

ENVIRONMENTAL CONSEQUENCES

This section evaluates potential effects to sensitive wildlife species described above under both the Build Alternative and the No-Build Alternative.

Build Alternative

Nesting Birds and Raptors

Burrowing Owl

Although burrowing owl was not observed during the biological surveys, the species could occur within the BSA. The Project is anticipated to impact potentially suitable foraging habitat for the species. Permanent and temporary impacts to burrowing owl nesting and foraging valley grassland habitat are anticipated for the Project. The Project's proposed pre-construction nesting bird surveys and burrowing owl protocol level habitat assessment would avoid and minimize impacts to burrowing owl to the greatest extent practicable. Considering the implementation of the Project avoidance and minimization measures, use of Standard BMPs, and mitigation for impacts to potentially suitable valley grassland foraging habitat, the Project would not impact the viability of the burrowing owl population.

Ferruginous Hawk

The ferruginous hawk is a Covered Species under the SSHCP. There is a recent (2003) CNDDDB occurrence of this species located approximately 4.1 miles north of the BSA. Due to the presence of locally suitable habitat features as well as the recent local occurrence, the species is presumed to have a high potential to occur within the BSA. Suitable grassland foraging habitat would be permanently altered by the Project. All associated impacts to grassland habitats would correspond with all habitat impacts to the ferruginous hawk. Considering the implementation of Project avoidance and minimization measures, compensatory mitigation for Swainson's hawk foraging habitat, pre-construction nesting surveys, and the use of Standard BMPs, the Project is not anticipated to have any impacts to individuals or impacts to the viability of local ferruginous hawk populations.

Greater Sandhill Crane

The greater sandhill crane is a Covered Species under the SSHCP. There are no CNDDDB occurrences of this species within the vicinity of the BSA; however, the BSA includes suitable freshwater marsh and grassland habitat. Due to the presence of potentially suitable habitat for overwintering populations of this species, the species is presumed to have a low to moderate potential to occur within the Project area. Suitable fresh water wetland/marsh foraging habitat and grassland nesting habitat would be permanently altered by the Project. All associated impacts to

wetland habitats and grassland habitats would correspond with all habitat impacts to the greater sandhill crane. Considering the implementation of Project minimization, avoidance, and mitigation measures for wetland habitats, compensatory mitigation for Swainson’s hawk foraging habitat, pre-construction nesting surveys, and the use of Standard BMPs, the Project is not anticipated to have any impacts to individuals or impacts to the viability of local sandhill crane populations.

Northern Harrier

The northern harrier is a Covered Species under the SSHCP. There are no CNDDDB occurrences of this species within the vicinity of the Project area; However, due to the presence of grassland habitat and freshwater marsh habitat, the species is presumed to have a low to moderate potential to occur within the BSA. Suitable fresh water wetland/marsh foraging habitat and grassland nesting habitat would be permanently altered by the Project. All associated impacts to wetland habitats and grassland habitats would correspond with all habitat impacts to the northern harrier. Considering the implementation of Project minimization, avoidance, and mitigation measures for wetland habitats, compensatory mitigation for Swainson’s hawk foraging habitat, pre-construction nesting surveys, and the use of Standard BMPs, the Project is not anticipated to have any impacts to individuals or impacts to the viability of the northern harrier.

Song sparrow “Modesto population”

Although the song sparrow was not observed during the biological surveys, the species does have the potential to occur within the BSA. Suitable fresh water wetland/marsh foraging habitat, portions of which may also provide low quality nesting habitat, would be permanently altered by the Project. All associated impacts to wetland habitats would correspond with all habitat impacts to the song sparrow “Modesto population”. Considering the implementation of Project minimization, avoidance, and mitigation measures for wetland habitats and pre-construction nesting surveys, along with the use of Standard BMPs, the Project is not anticipated to have any impacts to individuals or impacts to the viability of the song sparrow “Modesto population” population.

Swainson’s Hawk

Direct impacts to Swainson’s hawk could occur as a result of reduced foraging habitat. Project is anticipated to permanently remove approximately 100.64 acres of Swainson’s hawk foraging habitat. According to the SSHCP, Swainson’s hawk use multiple types of foraging habitat that occur throughout the BSA (valley grassland, irrigated pasture-grassland, and cropland). **Figure 50** and **Table 74** display the detailed impact acreages for each of the Swainson’s hawk foraging habitats. In addition to impacts to foraging habitat, the Project anticipates the removal of potential nesting trees. However, no trees with current or historic nesting Swainson’s hawk nesting sites were observed during the surveys and only a limited amount of large diameter trees could be potentially suitable for Swainson’s hawk nesting within the Project area. Temporary impacts to foraging habitat may be caused by construction activities and equipment staging in the Project area. Indirect impacts to Swainson’s hawks may be caused by habitat degradation and increased human presence.

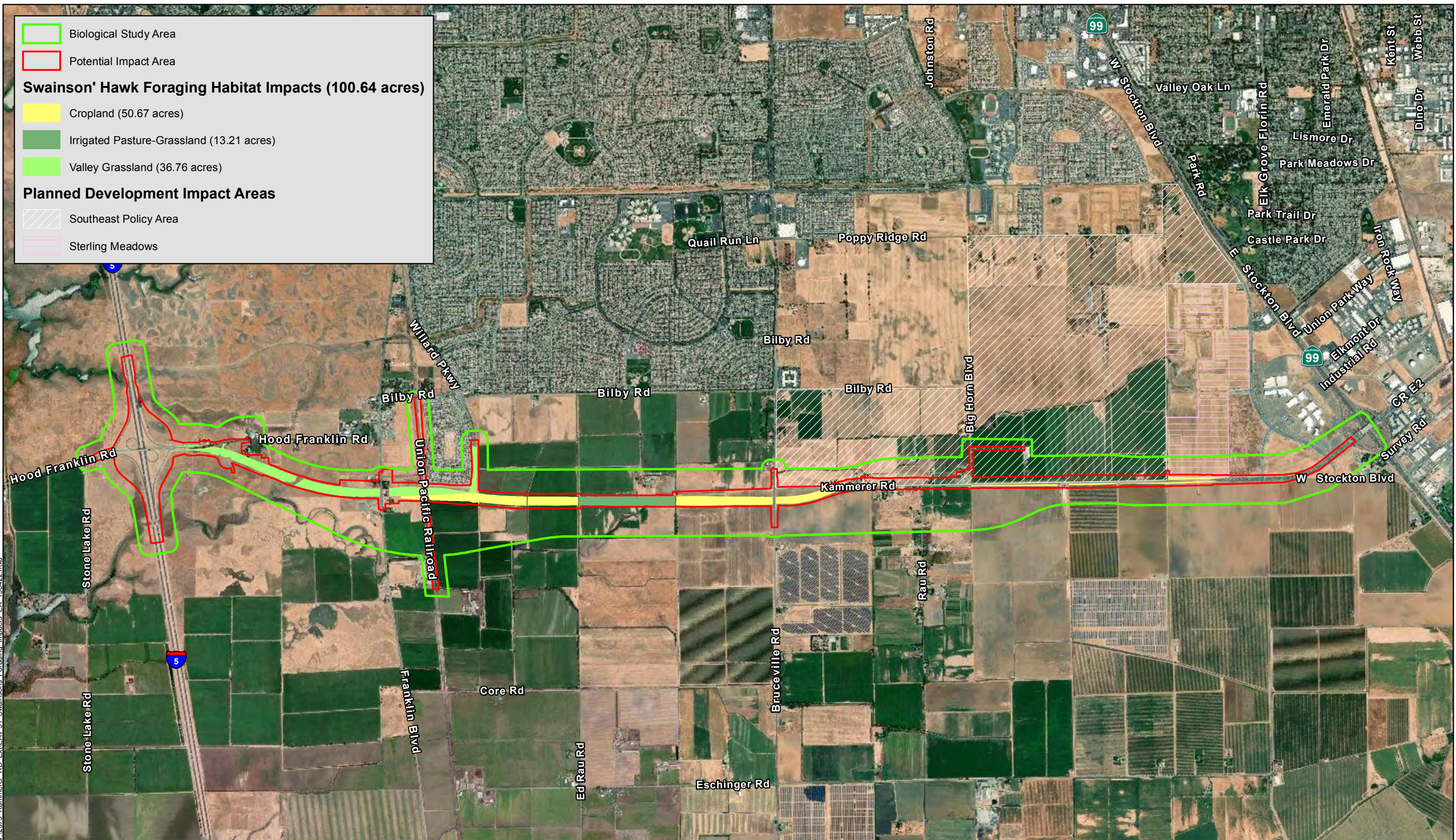
Table 74. Impacts to Swainson’s Hawk Foraging Habitat

Project Alternatives	Valley grassland (acres)	Cropland (acres)	Irrigated Pasture-Grassland (acres)	TOTAL (acres)
	Permanent	Permanent	Permanent	Permanent
Build Alternative	36.67	50.67	13.21	100.64

The Project's proposed pre-construction nesting surveys would ensure no active Swainson's hawk nesting trees would be removed during construction; therefore, no impacts to nesting Swainson's hawk are anticipated. If nesting Swainson's hawk are identified during pre-construction surveys, the Project biologist will coordinate with CDFW to determine appropriate buffers. With the implementation of Project minimization and avoidance measures, use of Standard BMPs, and proposed compensatory mitigation for Swainson's hawk foraging habitat, the Project would not result in take of Swainson's hawk. With the avoidance of take, the Project does not anticipate that a CDFW Section 2081 Incidental Take Permit for Swainson's hawk will be necessary.

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Biological Study Area
 Potential Impact Area
Swainson' Hawk Foraging Habitat Impacts (100.64 acres)
 Cropland (50.67 acres)
 Irrigated Pasture-Grassland (13.21 acres)
 Valley Grassland (36.76 acres)
Planned Development Impact Areas
 Southeast Policy Area
 Sterling Meadows



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Source: ESRI Maps Online; Dokken Engineering 4/22/2019; Created By: adellas

1 inch = 2,400 feet
 0 1,000 2,000 3,000 4,000 5,000 Feet

FIGURE 51
Impacts to Swainson's Hawk Foraging Habitat

Joint Powers Authority Capital SouthEast Connector
 A1/A2 Kammerer Road Project
 City of Elk Grove and Sacramento County, California

Tricolored Blackbird

Although the tricolored blackbird was not observed during the biological surveys, the species does have the potential to occur within the BSA. Suitable fresh water wetland/marsh foraging habitat, portions of which may also provide low quality nesting habitat, would be permanently altered by the Project. All associated impacts to wetland habitats in Section 2.3.2 would correspond with all habitat impacts to the tricolored blackbird. Considering the implementation of Project minimization and avoidance measures for wetland habitats and pre-construction nesting surveys, along with the use of Standard BMPs, and participation as a covered project under the SSHCP, the Project is not anticipated to have any impacts to individuals, or impacts to the viability of the tricolored blackbird.

White-tailed Kite

Although the white-tailed kite was not observed during the biological surveys, the species does have the potential to occur within the BSA for foraging and potential nesting in scattered trees within the BSA. Although the Project would have permanent and temporary impacts to potentially suitable foraging habitat for the species, the Project will be mitigating for any impacts through ratios according to the SSHCP. The Project is anticipated to require tree removal along the new roadway corridor; however, the Project's proposed pre-construction nesting bird surveys would avoid any take of white-tailed hawk nesting within the BSA. Implementation of pre-construction nesting surveys, participation as a covered project under the SSHCP, use of Standard BMPs, and mitigation for impacts to valley grassland foraging habitat, no impacts or take is anticipated for white-tailed hawk.

Yellow-headed blackbird

Although the yellow-headed blackbird was not observed during the biological surveys, the species does have the potential to occur within the BSA. Suitable fresh water wetland/marsh foraging habitat, portions of which may also provide low quality nesting habitat, would be permanently altered by the Project. All associated impacts to wetland habitats in Section 2.3.2 would correspond with all habitat impacts to the yellow-headed blackbird. Considering the implementation of Project minimization and avoidance measures for wetland habitats and pre-construction nesting surveys, along with the use of Standard BMPs, and participation as a covered project under the SSHCP, the Project is not anticipated to have any impacts to individuals, or impacts to the viability of the yellow-headed blackbird.

Special-Status Reptile Species

Western Pond Turtle

Although no western pond turtle was observed during the biological surveys, the species does have the potential to use the suitable aquatic habitats within the Project area which includes streams/creeks above sea level, freshwater marsh, and open water along with the upland areas of valley grassland within a distance of 0.25 mile from suitable aquatic habitat. The Project would result in permanent and temporary impacts to aquatic habitat as discussed in Section 2.3.2. The Project's avoidance, minimization, and mitigation measures would ensure the Project does not have impacts that could affect the viability of the western pond turtle population.

Special-Status Mammal Species

Western Red Bat

Although no western red bat were observed during the biological, potential roosting and foraging habitat does occur within the BSA. Habitat for bat species consists of foraging habitat, night-roosting cover, maternity roost sites, and winter hibernacula. Western red bats may forage in a

variety of habitats within the BSA including: vernal pools, seasonal wetlands, freshwater marshes, and streams/creeks. However, the CDFW is most concerned about the loss of maternity roosting sites which could include trees and man-made structures. Suitable roosting sites within these habitats include tree bark, and snags. Potential maternity and night-roosting sites occur in snags, under bark, and in human structures (i.e., bridges, building, etc.) in the BSA.

If maternity roost sites are located within the Project area during construction activities, the Project has the potential to directly impact special-status bat species. Bats are at their most vulnerable in buildings or other roost sites during the summer, when large numbers may be gathered together and young bats, unable to fly, may be present. Removal of maternity roost sites may cause direct mortality of bats.

While precise occurrence information for western red bat is lacking within the BSA, direct impact estimates for western red bats can be made on projected loss of land cover types that provide suitable habitat. Associated impacts to wetland and water features with potential foraging habitat for bats are discussed in Section 2.3.2, and potential impacts to structures are discussed in Section 2.1.7, "Relocations and Real Property Acquisition". Avoidance and minimization measures listed below would further minimize any impacts to potential roosting habitat within trees that are anticipated to be removed during construction of the Project. Considering the implementation of Project minimization and avoidance measures, and use of Standard BMPs, and participation as a covered project under the SSHCP, the Project is not anticipated to have impacts to individuals and would not impact the viability of bat species populations within the BSA.

Special-Status Invertebrate Species

Midvalley Fairy Shrimp

The midvalley fairy shrimp is considered a Covered Species under the SSHCP. Although no fairy shrimp were observed within the BSA during biological investigations, this species is presumed to have a low to moderate potential of occurring due to the presence of potentially suitable vernal pool habitat within the BSA. There are approximately 10.22 acres of vernal pools within the BSA.

All associated impacts to vernal pool habitats in Section 2.3.2 would correspond with all habitat impacts to the midvalley fairy shrimp. Permanent direct impacts would occur due to direct removal of vernal pool habitat. No temporary impacts are anticipated; however, indirect impacts to vernal pool crustaceans occurs when disturbance activities occur within 250 feet of occupied vernal pool crustacean habitat. Changes to hydrology due to the increase in impervious surfaces may have indirect impacts to the habitat quality in the vernal pools. Refer to section 2.3.5 for a detailed discussion on impacts to vernal pool habitat.

The Project's avoidance, minimization, and mitigation measures would ensure the Project does not have impacts that could affect the viability of local midvalley fairy shrimp populations. Additionally, mitigation measures for vernal pool fairy shrimp and vernal pool tadpole shrimp will be incorporated into the Project and will serve to avoid additional impacts to this species.

South Sacramento Habitat Conservation Plan

During the development of the SSHCP, the impacts of future covered regional Projects were taken into consideration and evaluated to minimize adverse cumulative impacts to special-status wildlife species and their habitat resources within the region. Under the SSHCP, the Project is a covered activity and Project's potential impacts to special-status wildlife species and their habitats will have been factored into the SSHCP's vision for the region's balanced approach on resource

protection. The Project will mitigate for impacts to special-status wildlife species and their habitat at the ratios discussed in Section 5.4.3 of the SSHCP. Avoidance, minimization, and compensatory mitigation provided by the Project would ensure a no net loss of special-status wildlife species habitat within the region; therefore, the Project is not anticipated to have any impacts to individuals or impacts to the viability of special-status wildlife species populations in the region.

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and potential impacts to special-status animal species would not occur. As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aid in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

At a minimum, the Connector JPA PEIR requires avoidance, minimization, and/or mitigation measures for special status wildlife, as explicitly stated in the Connector JPA PEIR measures BIO-6a and BIO-6b, which have been incorporated into the following Project specific measures. Project specific measures in compliance with regional plans, policies, and ordinances have also been incorporated for compliance with these identified requirements. With the implementation of the following measures Project impacts to special-status wildlife species would be avoided and minimized to the greatest extent practicable and compensatory mitigation provided where necessary. The Project will fulfill the compensatory mitigation ratios required by the BO through purchase of mitigation credits at the SSCHP.

BIO-19: The implementing agencies will implement a combination of the following mitigation measures to avoid and minimize significant impacts on special-status wildlife and their habitats:

- Redesign or modify the project to avoid direct and indirect impacts on special-status wildlife or their habitats, including interruption of migration corridors, if feasible.
- Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as vernal pools, seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking will be installed at a minimum distance from the edge of the resource as determined through coordination with state and federal agency biologists (USFWS and CDFW). The location of the fencing will be marked in the field with stakes and flagging and shown in construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.

- When feasible restrict construction-related activities near sensitive resources to the nonbreeding season or other periods of activity for special-status wildlife species that could occur in the project area. Typical timing restrictions include, but are not limited to:
 - Valley elderberry long horn beetle – February 15 to November 1 (time period where shrub transplanting can't occur).
 - Giant garter snake inactive period – October 1 to May 1
 - Swainson's hawk nesting season – generally February 1 to August 31
 - Burrowing owl nesting – generally February 1 to August 31
- As necessary, conduct biological construction monitoring of Project areas where work occurs in proximity to sensitive wildlife or their habitat. The implementing agency will hire a qualified wildlife biologist approved by USFWS and CDFW to monitor construction activities to ensure that no wildlife is harmed during construction and no wildlife habitat outside of the Project area is unintentionally affected by Project construction.

BIO-20: If all or portions of Mitigation Measure **BIO-19** are not feasible and site-specific construction activities would result in significant impacts on special-status wildlife species, compensation for the loss of habitat will be implemented to reduce the impact to a less-than-significant level. Impacted habitat will be mitigated off site at an agency approved mitigation bank. The minimum replacement ratios for wildlife habitat would be determined through consultation with local, state, and federal agencies. As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan.

BIO-21: The implementing agency will provide compensatory mitigation for impacted special status wildlife species and/or their habitats with the corresponding SSHCP mitigation ratios, as described in the approved SSHCP.

BIO-22: The contractor must not apply rodenticides or herbicides in the Project area during construction activities.

BIO-23: The contractor must dispose of all food-related trash in closed containers, and shall remove it from the Project area each day during the construction period. Construction personnel must not feed or otherwise attract wildlife to the Project area.

BIO-24: If any wildlife is encountered during the course of construction, said wildlife will be allowed to leave the construction area unharmed. In the unlikely event a worker inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped, the worker will immediately report the incident to the Project biologist.

Special Status Birds

- BIO-25:** Vegetation removal and earthwork should be timed outside of the nesting season (February 1st – August 31st). If vegetation removal is required during the nesting season, a pre-construction nesting bird survey must be conducted within 7 days prior to vegetation removal. Within 2 weeks of the nesting bird survey, all vegetation cleared by the biologist would be removed by the contractor.
- BIO-26:** If an active nest (excluding western burrowing owl) is located during preconstruction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is deemed inactive by a qualified biologist. Restrictions shall include establishment of exclusion zones (no ingress of personnel or equipment) at a minimum radius of 500 feet around an active Swainson's hawk nest, 100 feet around an active raptor nest, and 50 feet around an active migratory bird nest. Activities permitted within exclusion zones and the size of the exclusion zone may be adjusted through consultation with the CDFW.
- BIO-27:** Trees containing active migratory bird and/or raptor (excluding Swainson's hawk) nests that must be removed as a result of Project implementation shall be removed during the nonbreeding season (September 1st – January 31st). Swainson's hawks are a state listed threatened species; therefore, impacts to active Swainson's hawk nest trees require regulatory authorization from the CDFW prior to removal.
- BIO-28:** If no burrowing owls are detected during the pre-construction surveys, no further mitigation is required. If active burrowing owls are detected, the implementing agency shall implement the avoidance, minimization, and mitigation methodologies outlined in CDFW's (2012) *Staff Report on Burrowing Owl Mitigation* prior to initiating Project-related activities that may impact burrowing owls.

Swainson's Hawk

Additional measures that will be implemented to avoid and minimize impacts to Swainson's hawk:

- BIO-29:** Should work occur within the Swainson's hawk nesting season (February 1st – August 31st), the Project biologist must conduct a pre-construction nesting survey consistent with survey methods recommended by the Swainson's Hawk Technical Advisory Committee within ¼ mile of the Project and two weeks prior to construction clearing and grubbing activities. Should a nesting Swainson's hawk pair be found within ¼ mile of the Project, the Project biologist will coordinate with the wildlife agencies for appropriate buffers. The contractor will not work within the ¼ mile nesting area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by the Project biologist and in coordination with wildlife agencies) in the buffer area until the Project biologist determines the young have fledged.
- BIO-30:** If an active nest (excluding western burrowing owl) is located during preconstruction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is deemed inactive by a qualified biologist. Restrictions shall include establishment of exclusion zones (no ingress of personnel or equipment) at a minimum radius of 500 feet around an active Swainson's hawk nest, 100 feet around an active raptor nest, and 50 feet around an active migratory bird nest. Activities permitted within exclusion zones and the size may be adjusted through consultation with the California Department of Fish and Wildlife and/or the City of Elk Grove.

BIO-31: Valley grasslands in the Project area are considered Swainson's hawk foraging habitat and are protected under Chapter 16.130 of the City Municipal Code, Swainson's Hawk Impact Mitigation Fees. The implementing agency will provide compensatory mitigation as required by the approved SSHCP mitigation ratios for Swainson's Hawk foraging habitat.

Western Pond Turtle

Additional measures that will be implemented to avoid and minimize impacts to western pond turtle:

BIO-32: A preconstruction survey for western pond turtle shall be conducted within 24 hours of the onset of construction activities in or adjacent to suitable upland and/or aquatic habitat. The survey area shall include a 100-foot buffer of the area to be affected. If juvenile or adult turtles are found within the survey area, the individuals should be moved at least 500 feet downstream to suitable habitat. If a turtle nest is found within the survey area, construction activities should not take place within 100 feet of the nest until the turtles have hatched, or the eggs have been moved to an appropriate location.

Special-Status Bats

Additional measures that will be implemented to avoid and minimize impacts to bat species:

BIO-33: Prior to the removal of any oak trees or buildings, a bat survey shall be performed by a qualified biologist between March 1 and July 31. If bat roosts are identified, the implementing agency shall require that the bats be safely flushed from the sites where roosting habitat is planned to be removed prior to roosting season (typically May to September) and prior to the onset of construction activities. If maternity roosts are identified during the maternity roosting season (typically May to September) they must remain undisturbed until a qualified biologist has determined the young bats are no longer roosting. If roosting is found to occur onsite, replacement roost habitat (e.g., bat boxes) shall be provided to offset roosting sites that are permanently removed. If no bat roosts are detected, then no further action is required if the trees and buildings are removed prior to the next breeding season. If removal is delayed, then an additional survey shall be conducted 30 days prior to removal to ensure that a new colony has not established itself.

BIO-34: If a female or maternity colony of bats are found on the Project site, and the Project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in a large oak tree not planned for removal), a qualified biologist, in coordination with CDFW, shall determine what buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 200 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (after August 30 and before March 1).

BIO-35: If an active nursery roost is documented onsite and the Project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after August 30 and before March 1 to prevent the formation of maternity colonies. Nonbreeding bats shall be safely evicted, under the direction of a bat specialist.

2.3.5 THREATENED AND ENDANGERED SPECIES

REGULATORY SETTING

The primary federal law protecting threatened and endangered species is the FESA: 16 United States Code (USC) Section 1531, et seq. See also 50 CFR Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the FHWA (and the Department, as assigned), are required to consult with the USFWS and the NOAA to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take statement or a Letter of Concurrence. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

AFFECTED ENVIRONMENT

The information in this section is based on information provided in the NES and BA (MBI 2016a; 2016b), and the NES Addendum (Dokken Engineering 2019c) (reports bound separately).

The previously presented **Table 73** is a compilation of special-status species queried from the CNPS, CNDDDB, NMFS, and USFWS database searches (Appendix H).

Based on the information obtained from the literature review, field surveys, and habitat assessments, 3 federally listed threatened or endangered animal species have the potential to occur in the vicinity of the Project area: giant garter snake, vernal pool fairy shrimp, and vernal pool tadpole shrimp. A discussion on valley elderberry longhorn beetle (VELB) is included to clarify the changes that have occurred to the Project, and levels of protection in accordance with the USFWS 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle*.

USFWS Consultation

The USFWS database search was conducted on September 18, 2017, and results are provided in updated NES Addendum (Dokken Engineering 2019c). On March 7, 2016, the Department submitted a BA and letter to USFWS requesting initiation of formal consultation. On March 23, 2016, USFWS requested additional information for consultation to begin, and on November 25, 2016 the Department submitted the revised BA to USFWS. USFWS concluded formal consultation for vernal pool fairy shrimp, vernal pool tadpole shrimp, VELB and GGS with the issuance of the Biological Opinion on December 16, 2016. The Connector JPA has held a meeting with USFWS to discuss the implications and timing of the SSHCP on the mitigation and permitting

process. The USFWS confirmed that the evaluation of direct and indirect effects and mitigation measures would be aligned with the requirements set forth in the SSHCP.

Description of Threatened and Endangered Species with Potential to Occur within the BSA

Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus); FT, CH

VELB is a federally threatened species that is considered a Covered Species under the SSHCP. A single elderberry shrub was identified within the BSA during field surveys conducted for the 2016 NES. The elderberry shrub is located within the existing I-5/Hood Franklin Road Interchange and is not located near any riparian habitat. Exit holes were not observed. As discussed in the 2016 NES, interchange improvements would require the removal of the elderberry shrub. The 2016 NES proposed to mitigate for the removal of this shrub at a 1:1 ratio by purchasing mitigation credits at a USFWS approved mitigation bank.

Interchange improvements specified in the updated Project description would still require the removal of the single elderberry shrub; however, since the NES was approved in November 2016, the USFWS has published the *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS 2017d). Under Section 4.0 of the new Framework, in the absence of exit holes, potential non-riparian VELB habitat the Project area should be evaluated using the following two criteria:

1. Is there a riparian area, elderberry shrubs, or known VELB record within 800 meters of the project?
2. Was the site continuous with a historical riparian corridor?

A review of topographic maps, current and historical aerial images, and CNDDDB occurrence data indicates that the BSA is not located within or adjacent to any existing or historical riparian corridor or documented VELB occurrence (NETR 2019; CNDDDB 2017). The nearest riparian corridors to the BSA are at North Stone Lake within the Stone Lakes National Wildlife Refuge approximately 1.4 miles northwest of the BSA and the Cosumnes River Corridor approximately 2 miles southeast of the BSA. The nearest occurrences of VELB are located along the Cosumnes River approximately 5 miles southeast of the BSA. Based on the isolated nature of the elderberry shrub, lack of exit holes, distance to riparian habitats, distance to documented VELB occurrences, and lack of historic habitat connectivity, it is highly unlikely that the elderberry shrub is occupied by VELB or will become colonized by VELB in the future. According to the USFWS, as stated in the Biological Opinion issued on December 16, 2016, the proposed Project is not likely to jeopardize the continued existence of the beetle. In addition, measure **BIO-45** will be implemented to offset impacts to the elderberry shrub.

Critical Habitat for VELB was designated in August 1980 by USFWS (1980). There is no proposed or designated critical habitat for VELB within the BSA.

Giant Garter Snake (Thamnophis gigas); FT

Giant garter snake is federally and state-listed as threatened and is a Covered Species under the SSHCP (Sacramento County et. al 2018, CNDDDB 2017). Modeled habitat for this species occurs within the BSA. The giant garter snake inhabits marshes, sloughs, ponds, small lakes, low gradient streams, other waterways, agricultural wetlands, such as irrigation and drainage canals and rice fields, and the adjacent uplands (USFWS 2017e). Essential habitat components consist of:

- adequate water during the snake's active period (i.e., early spring through mid-fall) to provide a prey base and cover;
- emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat;
- upland habitat for basking, cover, and retreat sites; and,
- higher elevation uplands for cover and refuge from floodwaters.

The Project Area is located within the Cosumnes-Mokelumne Watershed, identified as a "Recovery Unit" in the *Recovery Plan for the Giant Garter Snake* (USFWS 2017e). An intermittent drainage (the Shed C Channel) in the southwestern portion of the Project Area provides potential habitat for the snake; however, the drainage does not provide water throughout the snake's active season. Also, the last verified observation of snakes downstream occurred in 1976, and they were not detected during surveys conducted in 1987 (CNDDDB 2019).

A habitat assessment was conducted for a project located directly north of the Project; a portion of the adjacent project overlaps with the Project. The purpose of the assessment was to determine the potential presence of giant garter snake in the intermittent drainage located in the eastern portion of the Action Area. More specifically, the habitat assessment was conducted to determine the connection between the intermittent drainage channel onsite and more permanent aquatic features, particularly Stone Lakes Wildlife Refuge. Therefore, the habitat assessment, while conducted for an adjacent project, surveyed for giant garter snake habitat and connectivity for areas included in the Action Area. This habitat assessment determined that, although there are segments of suitable habitat, giant garter snakes are not expected to occur in the Action Area or vicinity due to lack of aquatic connectivity to any extant populations.

Vernal Pool Fairy Shrimp (Branchinecta lynchi); FT, CH

Vernal pool fairy shrimp is a federal-listed threatened species that is considered a Covered Species under the SSHCP. Modeled habitat for this species occurs within the BSA. This species occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, and alkaline grassland valley floor pools. The vernal pool fairy shrimp is found in disjunct, fragmented habitats distributed across the Central Valley from Shasta County to Tulare County and across the central and southern Coast Ranges from northern Solano County to Ventura County (USFWS 2005). The BSA does contain suitable vernal pool habitat for the species. The nearest occurrence of the species is a 1997 record in the NWR easement, approximately 0.5 mile north of Hood Franklin Road, east of I-5. Due to the presence of suitable habitat and the close proximity of the occurrence, the species is considered to have a low to moderate potential of occurring within the BSA.

Although protocol surveys for federal-listed large branchiopods, including vernal pool fairy shrimp, have not been conducted for the Project, there are multiple records for this species that occur within the vicinity of the BSA, and based on occurrences of vernal pool fairy shrimp in the area, this species is assumed to be present in the BSA.

Critical Habitat for vernal pool species, including vernal pool fairy shrimp, was designated in August 2003 by USFWS in 2003 and revised in 2005 and 2006 (USFWS 2006). There is no proposed or designated critical habitat for vernal pool fairy shrimp within the BSA. The nearest Critical Habitat subunit for vernal pool fairy shrimp is approximately 11 miles northeast of the BSA.

Vernal Pool Tadpole Shrimp (Lepidurus packardii); FE, CH

Vernal pool tadpole shrimp is a federal-listed endangered species that is considered a Covered Species under the SSHCP. Modeled habitat for this species occurs within the BSA. This species inhabits a variety of vernal pools or other seasonally ponded habitats and emerges soon after these habitats become inundated, typically after the first several storm events of the fall/winter season. The shrimp feeds on microscopic organisms and detritus, reaches maturity, and lays eggs for the next wet season. Vernal pool tadpole shrimp are found in the Central Valley from Shasta County to northern Tulare County, and in the central Coast Range from Solano County to Alameda County (USFWS 2005). The BSA does contain vernal pool habitat. The nearest occurrence of the species is a 2003 record in the NWR easement, approximately 0.5 mile north of Hood Franklin Road, east of I-5. Due to the presence of suitable habitat and the close proximity of the occurrence, the species is considered to have a low to moderate potential of occurring within the BSA.

Although protocol surveys for federal-listed large branchiopods, including vernal pool tadpole shrimp, have not been conducted for the Project, there are multiple records for this species that occur within the vicinity of the BSA, and based on occurrences of vernal pool fairy shrimp in the area, this species is assumed to be present in the BSA.

Critical Habitat for vernal pool species, including vernal pool tadpole shrimp, was designated in August 2003 by USFWS in 2003 and revised in 2005 and 2006 (USFWS 2006). There is no proposed or designated critical habitat for this species within the BSA. The nearest Critical Habitat subunit for vernal pool tadpole shrimp is approximately 11 miles northeast of the BSA.

ENVIRONMENTAL CONSEQUENCES

This section evaluates potential effects to threatened or endangered plant and wildlife species that may occur in the BSA under the No-build Alternative and the Build Alternative.

Build Alternative*Operational Impacts*Giant Garter Snake

Although the GGS was not observed during the biological surveys, the species does have the potential to occur within the BSA. The Project area is located within the Consumes-Mokelumne Watershed, identified as a "Recovery Unit" in the *Recovery Plan for the Giant Garter Snake* (USFWS 2017e). In accordance with the avoidance and minimization measures stated within the Biological Opinion (BO) issued by USFWS on December 16, 2016, the USFWS concurred with the Department's determination that the Project is not likely to adversely affect GGS. The measures as stated within the BO will be incorporated into the Project.

The Project would not cause temporary impacts to the giant garter snake. The habitat assessment (MBI 2015b) determined that giant garter snakes are not expected to occur in the Project area. Avoidance and minimization measures are proposed to further ensure that there are no impacts to giant garter snakes.

Potentially suitable habitat is present in the Project area, which includes intermittent drainage channels and freshwater emergent wetlands along with the upland components to these features. **Table 75** presents acreages of permanent and temporary impacts to potentially suitable upland and aquatic habitat for giant garter snakes. Temporary impacts to giant garter snake habitat may result from construction activities and equipment staging in the temporary construction zone (TCZ).

Table 75. Impacts to Giant Garter Snake Habitat

Habitat	Impact Type	Habitat Impacts (acres)	
		No-Build Alternative	Build Alternative
Upland Habitat	Permanent	0	31.50
	Temporary	0	7.14
Aquatic Habitat	Permanent	0	0.41
	Temporary	0	0.36

Vernal Pool Crustaceans

The vernal pool fairy shrimp and vernal pool tadpole shrimp have been grouped together for the purpose of this impact analysis. There are 23 vernal pools in the Project area, totaling 10.22 acres. Due to documented occurrences of these species in the vicinity, presence of this species is inferred.

Although no crustaceans were identified during the biological surveys, the species does have the potential to occur within the BSA. There are approximately 10.22 acres of vernal pools within the BSA. All associated impacts to vernal pool habitats in Section 2.3.2 would correspond with all habitat impacts to the vernal pool fairy shrimp. Permanent direct impacts would occur due to direct removal of vernal pool habitat. No temporary impacts are anticipated; however, indirect impacts to vernal pool crustaceans occurs when disturbance activities occur within 250 feet of occupied vernal pool crustacean habitat. Changes to hydrology due to the increase in impervious surfaces may have indirect impacts to the habitat quality in the vernal pools. **Table 76** provides a summary of impacts to vernal pool habitat.

Table 76. Summary of Impacts to Vernal Pool Habitat

Impact Type	Habitat Impacts (acres)	
	No-Build Alternative	Build Alternative
Direct	0	3.08
Indirect	0	0.99

In accordance with the avoidance and minimization measures as stated within the BO issued by USFWS on December 16, 2016, the USFWS concurred that the Project and its cumulative effects is not likely to jeopardize the continued existence of the species. However, the Project may affect, and is likely to adversely affect, vernal pool fairy shrimp and vernal pool tadpole shrimp. Mitigation measures as stated within the BO, will be incorporated into the Project.

SSHCP Vernal Pool Habitat Impacts

According to the SSHCP, permanent direct and indirect effects from covered activities, which includes the Project, on the vernal pool ecosystem, include direct removal of Vernal Pool

Ecosystem land cover types (vernal pool, swale, and Stream/Creek vernal pool invertebrate habitat (VPIH), and edge effects on vernal pool micro-watersheds in removal of part or all of the perched aquifer, existing hydrology and ecosystem that supports Vernal Pool, Swale, and Stream/Creek (VPIH) habitat. Over time, effects on the micro-watersheds will indirectly change the timing, duration, and depth of vernal pool filling; alter the chemistry of the vernal pool; and reduce the frequency of flows between swales and vernal pools and connectivity between the pools. Collectively, these effects will result in the affected aquatic habitat becoming unsuitable for vernal pool fairy shrimp (and vernal pool tadpole shrimp). These indirect effects on Vernal Pool, Swale, and Stream/Creek (VPIH) habitat are included in all permanent effects acreages presented in the SSHCP for covered projects. In total, approximately 17,259 acres, or 17 percent, of the 103,210 acres of the vernal pool ecosystem in the Plan Area would be affected directly or indirectly affected over the proposed 50-year permit term; direct effects would account for 17,117 acres of the total effect, whereas, indirect effects would account for 142 acres of the total effect acreage. This includes the following effects to the vernal pool ecosystem: removal of 16,795 acres (64 percent) and indirect effects to 132 acres (0.50 percent) of the 26,048 acres present inside the Urban Development Area; and removal of 322 acres (0.40 percent) and indirect effects to 10 acres (0.01 percent) of 77,162 acres present outside the Urban Development Area (SSHCP 2018).

Under the SSHCP, vernal pool invertebrates have multiple habitat types. These include vernal pools, swales, and certain types of streams and creeks. Due to these designations the SSHCP, if implemented prior to Project construction, would have a different calculation of impacts for vernal pool shrimp and vernal pool tadpole shrimp habitat. According to the biological studies and delineation of waters within the Project BSA, the impacts to swales would be included in the vernal pool invertebrate habitat, whereas, the associated Project impacts to streams/creeks would not. Using the criteria set forth in the SSHCP, the Project would result in approximately 4.45 acres of direct effects to vernal pool fairy shrimp and vernal pool tadpole shrimp habitat. These effects include 1.37 acres of direct effects to swale habitat, 3.08 acres of direct effects to vernal pools, and 0.99 acres of indirect impacts to vernal pools. **Table 77** lists the potential direct and indirect effects to vernal pool invertebrate habitat according to the SSHCP criteria.

Table 77. SSHCP Impacts to Vernal Pool Shrimp Habitat

Type	Direct Effects (acres)	Indirect Effects (acres)
<i>Seasonal Wetland Swale</i>	1.37	0
<i>Vernal Pool</i>	3.08	0.99
<i>Total Effects</i>	4.45	0.99

Construction Impacts

Giant Garter Snake

Temporary construction impacts to GGS include a temporary increase in noise, human presence, ground vibrations, and the potential temporary sedimentation and turbidity of waters within the Project area. Establishment of ESA fencing would separate construction activities from any live channels and would minimize sediments from entering waters within the Project area. BMPs incorporated into the Project plans will further minimize turbidity effects. These effects would be temporary and limited to the duration of construction activities. However, since GGS is not

anticipated to occur within the BSA, and mitigation measures in accordance to the USFWS BO, no direct impacts to GGS individuals or take is anticipated.

Vernal Pool Crustaceans

Construction is likely to result in direct and indirect temporary effects that have the potential to affect vernal pool fairy shrimp and vernal pool tadpole shrimp within the BSA. Potential direct, temporary effects to vernal pool fairy shrimp within the BSA in the form of soil disturbance and removal of vegetation, but direct effect may also include chemical spills from vehicle and equipment use. Potential indirect, temporary effects to vernal pool tadpole shrimp include sedimentation within wetland habitat and increased erosion due to temporary ground disturbance.

Valley Elderberry Longhorn Beetle

Construction would result in direct impacts to on elderberry shrub. Direct impacts were calculated by identifying all elderberry shrubs within the limits of construction and a 20-foot buffer of the limits of construction. No indirect effects to elderberry shrubs would occur as a result of the proposed Project. Mitigation Measure **BIO-45** would be implemented to offset the impact to the elderberry shrub.

Summary of Effect Findings

Table 78 provides a summary of the FESA effect findings for the threatened and endangered species discussed above and found within the December 2016 BO (Appendix I).

Table 78. FESA Effect Findings

Common Name	Scientific Name	Status	Effect Finding	Effect Finding for Critical Habitat (if applicable).
Invertebrates				
Valley Elderberry Longhorn Beetle	<i>Desmocerus californicus dimorphus</i>	FT	May Affect, Likely to Adversely Affect	N/A
Vernal Pool Fairy Shrimp	<i>Branchinecta lynchi</i>	FT	May Affect, Likely to Adversely Affect	N/A
Vernal Pool Tadpole Shrimp	<i>Branchinecta conservatio</i>	FE	May Affect, Likely to Adversely Affect	N/A
Monarch Butterfly	<i>Danaus plexippus</i>	C	No Effect	N/A
Reptiles				
Giant Garter Snake	<i>Thamnophis gigas</i>	FT	May Affect, Not Likely to Adversely Affect	N/A
Birds				
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	FT	No Effect	N/A
Amphibians				
California Red-legged Frog	<i>Rana draytonii</i>	FT	No Effect	N/A

Common Name	Scientific Name	Status	Effect Finding	Effect Finding for Critical Habitat (if applicable).
California Tiger Salamander	<i>Ambystoma californiense</i>	FT	No Effect	N/A
Fishes				
Delta Smelt	<i>Hypomesus transpacificus</i>	FT	No Effect	N/A
Green Sturgeon	<i>Acispenser medirostris</i>	FT	No Effect	N/A
River Lamprey	<i>Lampetra ayressi</i>		No Effect	N/A
Hardhead	<i>Mylopharodon conocephalus</i>		No Effect	N/A
Chum Salmon	<i>Oncorhynchus keta</i>	FT	No Effect	N/A
Central Valley Steelhead	<i>Oncorhynchus mykiss</i>	FT	No Effect	N/A
Central Valley spring-run Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	FT	No Effect	N/A
Sacramento River winter run Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	FE	No Effect	N/A
Sacramento Splittail	<i>Pogonichthys macrolepidotus</i>		No Effect	N/A
Longfin Smelt	<i>Spirinchus thaleichthys</i>		No Effect	N/A
Plants				
Fleshy Owl's clover	<i>Castilleja campestris</i> ssp. <i>succulenta</i>	FT	No Effect	N/A

*Federal Endangered (FE); Federal Threatened (FT); Federal Proposed (FP, FPE, FPT), Candidate (C).

No-Build Alternative

Under the No-Build Alternative, Kammerer Road would not be extended between Bruceville Road and the I-5/Hood Franklin Road Interchange and would not be replaced with a four-lane thoroughfare between Bruceville Road and SR-99. The Project area would remain in the current condition, the Project would not be built, and potential impacts to federal listed threatened or endangered wildlife species would not occur. As a result of the No-Build Alternative, the goals of the Project would not be met and existing roadways in the corridor would be unable to accommodate the planned and approved growth of the area, including a deteriorating LOS. By not improving the link to I-5, the No-Build Alternative would fail to aide in the economic viability of the residential areas and employment centers planned and approved in the Project vicinity. In addition, the Kammerer Road facility would remain insufficient for pedestrian and bicycle traffic mobility and safety. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

At a minimum, the Connector JPA PEIR requires avoidance, minimization, and/or mitigation measures for threatened and endangered wildlife, as explicitly stated in the Connector JPA PEIR measures BIO-6a and BIO-6b, which have been incorporated into measures BIO-18 and BIO-19. Project specific measures in compliance with regional plans, policies, and ordinances have also been incorporated for compliance with these identified requirements. With the implementation of the following measures, Project impacts to threatened and endangered species would be avoided and minimized to the greatest extent practicable and where required, compensatory mitigation would be in accordance with the Project's BO issued by USFWS (USFWS 2016). The Project will fulfill the compensatory mitigation ratios required by the BO through purchase of mitigation credits at the SSCHP.

BIO-36: The implementing agency will provide compensatory mitigation for impacted threatened and endangered wildlife species and/or their habitats with the corresponding SSHCP mitigation ratios, as determined by the approved Final SSHCP.

Vernal Pool Crustaceans

The proposed mitigation strategy is in accordance with the USFWS Corps of Engineers Vernal Pool Programmatic Consultation (USFWS 1996). The Project will result in direct and indirect impacts to Vernal Pool Crustaceans. However, the impacts as a result of the Project are not substantial in comparison to the number of vernal pools present in the area. To compensate for any potential impacts to Vernal Pool Crustaceans, **BIO-38** and **BIO-39** will be implemented to establish mitigation ratios for the Project. Although additional vernal pools are located within the action area, adjacent to the interchange, these pools will not be impacted. The only work to occur within 250 feet of the additional vernal pools will be within already developed roadway. In addition, **BIO-40** through **BIO-42** would further minimize any potential impacts to Vernal Pool Crustaceans during construction. Additional measures that will be implemented to mitigate for vernal pool crustaceans can be found below:

BIO-6: All exposed/ disturbed areas and access points left barren of vegetation as a result of construction activities will be restored using locally native grass seeds, locally native grass plugs, and/ or a mix of quick-growing sterile non-native grass with locally native grass seeds. Seeded areas will be covered with broadcast straw and/ or jute netting (monofilament erosion blankets are not permitted).

BIO-37: Protective silt fencing will be installed between the adjacent vernal pool habitats and the construction area limits to prevent accidental disturbance during construction and to protect water quality in the aquatic habitats during construction.

BIO-38: For every acre of vernal pool habitat directly or indirectly affected, two tadpole shrimp and fairy shrimp habitat preservation credits will be dedicated within a Service-approved conservation bank with a service area covering the proposed Project.

BIO-39: For every acre of vernal pool habitat directly affected, one vernal pool habitat creation credit will be dedicated within a Service-approved conservation bank with a service area covering the proposed Project.

- BIO-40:** Construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas and all operations will be confined to the minimal area necessary.
- BIO-41:** Standard staging area practices for sediment-tracking reduction will be implemented where necessary and may include vehicle washing and street sweeping.
- BIO-42:** A Worker Environmental Awareness Program (WEAP) will be implemented to educate construction workers about the presence of sensitive habitat near the Project area and to instruct them on proper avoidance measures.

Giant Garter Snake

The proposed mitigation strategy is in accordance with the USFWS BO issued for the Project on December 16, 2016. Although this species is not expected to be in the action area due to the lack of connectivity to extant populations and patchiness of marginally suitable habitat, the Project will implement measures to avoid and minimize impacts to giant garter snake. **BIO-6** and **BIO-9** will help minimize impacts to suitable Giant Garter Snake Habitat by restoring any areas with locally native grass seeds and by conducting work when the site is dry. Additional measures that will be implemented for Giant Garter Snake can be found below:

- BIO-6:** All exposed/ disturbed areas and access points left barren of vegetation as a result of construction activities will be restored using locally native grass seeds, locally native grass plugs, and/ or a mix of quick-growing sterile non-native grass with locally native grass seeds. Seeded areas will be covered with broadcast straw and/ or jute netting (monofilament erosion blankets are not permitted).
- BIO-9:** Work will coincide to the driest time. If water is present at the time of construction, water will be diverted around the work area and work will resume after the site is dry. Flows will be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water will at all times be allowed to pass downstream. Any temporary dam or other artificial obstruction constructed will only be built from clean materials, such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation.
- BIO-40:** Construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas and all operations will be confined to the minimal area necessary.
- BIO-41:** Standard staging area practices for sediment-tracking reduction will be implemented where necessary and may include vehicle washing and street sweeping.
- BIO-42:** A Worker Environmental Awareness Program (WEAP) will be implemented to educate construction workers about the presence of sensitive habitat near the Project area and to instruct them on proper avoidance measures.
- BIO-43:** Twenty-four hours prior to the commencement of construction activities, the Project area shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide the US Fish and Wildlife Service with a written report that adequately

documents these monitoring efforts within 24 hours of commencement of construction activities. The Project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.

BIO-44: Project-related vehicles will observe a 20 mile per hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.

Valley Elderberry Longhorn Beetle

The following compensatory mitigation is proposed to offset impacts to one elderberry shrub:

BIO-45: Replace the loss of 35 elderberry plant stems between 1 and 3 inches in diameter at a 1:1 ratio through the dedication of beetle conservation credits within a Service-approved conservation bank with a service area covering the proposed Project. The seven beetle conservation credits will result in the planting of 35 elderberry seedlings and 35 associated native plantings ($[35 \text{ elderberry seedlings} + 35 \text{ associated natives}] / 10 = 7 \text{ credits}$).

2.3.6 INVASIVE SPECIES

REGULATORY SETTING

On February 3, 1999, President William J. Clinton signed Executive Order (EO) 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration (FHWA) guidance issued August 10, 1999 directs the use of the State’s invasive species list, maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project..

AFFECTED ENVIRONMENT

The information in this section is based on information provided in the NES (MBI 2016a) and the NES Addendum (Dokken Engineering 2019c) (reports bound separately).

Invasive Plant Species Observed within the BSA

The following species were observed during biological surveys and are designated with a moderate to high invasive rating in the Great Valley and/or Sierra Nevada Provinces, based on the California Invasive Plant Council (Cal-IPC) Inventory Database: Italian rye grass (*Festuca perennis*), ripgut brome (*Bromus diandrus*), yellow star thistle (*Centaurea solstitialis*), and Himalayan blackberry (*Rubus armeniacus*). These species are generally found in wetlands, ditches, annual grasslands, agricultural ponds, and along the roadside.

In addition, the County Agricultural Commission’s Sacramento Weed Management Strategic Plan designates yellow star thistle and stinkwort a “High Priority” invasive species (Sacramento County Department of Agriculture 2010). Further, the California Department of Food and Agriculture (CDFA) designate yellow star thistle and Italian thistle as a list C pest rating (CDFA 2017, CDFA 2010). Invasive species identified within the BSA are listed in **Table 79**.

Table 79. Invasive Plant Species Located within the BSA

Common Name	Scientific Name	Native (N)/ Non-native (X)
black mustard	<i>Brassica nigra</i>	X (Invasive) ¹
bullthistle	<i>Cirsium vulgare</i>	X (Invasive) ¹
Chinese Tallow	<i>Triadica sebifera</i>	X (Invasive) ¹
common stork's-bill	<i>Erodium cicutarium</i>	X (Limited)
curled dock	<i>Rumex crispus</i>	X (Limited)
cut-leaved crane's-bill	<i>Geranium dissectum</i>	X (Limited)
English plantain	<i>Plantago lanceolata</i>	X (Limited)
fountain grass	<i>Pennisetum setaceum</i>	X (Invasive) ¹
foxtail Barley	<i>Hordeum murinum</i>	X (Invasive) ¹
Himalayan Blackberry	<i>Rubus armeniacus</i>	X (Invasive) ¹
Italian Ryegrass	<i>Lolium multiflorum</i>	X (Invasive) ¹

Common Name	Scientific Name	Native (N)/ Non-native (X)
Italian thistle	<i>Carduus pycnocephalus</i>	X (Invasive) ^{1,3}
jointed charlock	<i>Raphanus sativus</i>	X (Limited)
Mediterranean barley	<i>Hordeum marinum gussoneanum</i>	X (Invasive) ¹
medusa head	<i>Taeniatherum caput-medusae</i>	X (Invasive) ^{1,2,3}
Mexican Fan Palm	<i>washingtonia robusta</i>	X (Invasive) ¹
milk thistle	<i>Silybum marianum</i>	X (Invasive) ¹
pennyroyal	<i>Mentha pulegium</i>	X (Invasive) ¹
ripgut brome	<i>Bromus diandrus</i>	X (Invasive) ^{1,3}
Rose Clover	<i>Trifolium hirtum</i>	X (Limited)
soft chess brome	<i>Bromus hordeaceus</i>	X (Limited)
sweet fennel	<i>Foeniculum vulgare</i>	X (Invasive) ¹
Tasmanian blue gum	<i>Eucalyptus globulus</i>	X (Limited)
tumbleweed	<i>Salsola tragus</i>	X (Limited)
wildoats	<i>Avena fatua</i>	X (Invasive) ¹
yellow starthistle	<i>Centaurea solstitialis</i>	X (Invasive) ^{1,2,3}

¹ California Invasive Plant Council (Cal-IPC) Moderate or High invasive rating

² Sacramento County Agricultural Commission High or Watch list rating

³ California Department of Food and Agriculture (CDFA) List C rating

Invasive Animals Observed within the BSA

Invasive animal species are identified by the California Invasive Species Advisory Committee (CISAC) as being invasive species that threaten California in various ways including ecological, agricultural, infrastructure, cultural, and health. Four invasive animal species are known to occur within the BSA. These species are identified on the 2010 list (CISAC 2010). The list is based on evaluation criteria (i.e., effect and ability to respond). Each species is assigned a number ranging from 0 to 40 for effect, with a higher score corresponding to greater effect. They are also assigned a second number ranging from 0 to 25 for ability to respond, with a higher score corresponding to a greater ability to respond. For the species evaluated in California, the highest score for effect was 27 (high level of effect) and the highest score for ability to respond was 23 (meaning we are well equipped to respond). Invasive animals observed within the BSA are presented in **Table 80**.

Table 80. Invasive Animal Species Identified within the BSA

Scientific Name	Common Name	Scores from CISAC 2010 List ^a
<i>Lithobates catesbeiana</i>	Bullfrog	12, 8
<i>Molothrus ater</i>	Brown-headed Cowbird	17, 11
<i>Streptopelia decaocto</i>	Eurasian Collared-Dove	13, 7
<i>Sturnus vulgaris</i>	European Starling	23, 7

^a The first number is effect score and can range from 0-27, with 27 being a high level of effect; the second number is the ability to respond score and can range from 0-23, with 23 meaning we are well equipped to respond to the threat (CISAC 2010).

ENVIRONMENTAL CONSEQUENCES

This section evaluates potential effects to resources described above under both the No-Build Alternative and the Build Alternative.

Build Alternative

Operational Impacts

The Project could result in the potential spread and establishment of invasive plant species within the BSA through the removal of natural communities for the widening and extension of Kammerer Road. Imported soil and rock for borrow and fill could harbor invasive species. Invasive species could be present in landscaping seed mixtures and mulch used in erosion control and roadside landscaping; however, in compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the FHWA, the landscaping and erosion control included in the Project will not use species listed as invasive. None of the species on the California list of invasive species is used by The Department for erosion control or landscaping for the Project. All equipment and materials will be inspected for the presence of invasive species and cleaned if necessary. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

The Project would not exacerbate the distribution or abundance of the four invasive animal species known to occur in the BSA: bullfrog, brown-headed cowbird, Eurasian collared-dove, and European starling. These invasive animal species are already common in the County and California and the Project would not enable the continued spreading of these existing populations.

Construction Impacts

Potential direct, temporary effects from invasive species within the BSA include removal of vegetation in staging areas or disturbed soils allowing for the potential spread of invasive species from equipment and personnel movement within the BSA. All equipment and materials, however, would be inspected for the presence of invasive species prior to entering the Project site. In general, ground disturbance from construction activities favors invasive plant species establishment, but temporarily disturbed areas would be restored using seed mixes that do not include seeds from plant species on the California list of invasive plant species. Onsite monitoring for invasive plant species would occur for a period of 1-year following completion of construction to avoid the spread of invasive plant species, as described below.

AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Implementation of **BIO-16** and **BIO-17** would reduce and minimize the spread of invasive species. In compliance with EO 13112 Invasive Species and FHWA guidance, the landscaping and erosion control included in the Project will not use species listed as invasive. Management measures will be implemented to prevent the spread of weeds during construction and disturbed areas will be revegetated with native species appropriate to the area.

2.4 Cumulative Impacts

REGULATORY SETTING

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the Project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the Project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the Project, such as changes in community character, traffic patterns, housing availability, and employment.

A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations (CFR) Section 1508.7.

Cumulative Analysis

Table 81 lists the resource areas evaluated in the Environmental Assessment, as well as the resource study area that corresponds to each.

Table 81. Resource Study Area by Resource

Resource Area	Resource Study Area
Land Use	City of Elk Grove and Sacramento County
Parks and Recreational Facilities	0.5-mile radius from Project site
Growth	City of Elk Grove and Sacramento County
Farmlands	Sacramento County and California
Community Impacts	City of Elk Grove and Sacramento County
Utilities and Emergency Services	1-mile area surrounding the Project area
Traffic and Transportation / Pedestrian and Bicycle Facilities	City of Elk Grove and Sacramento County
Visual	0.5-mile radius from Project site
Cultural Resources	APEs
Hydrology and Floodplain	1-mile area surrounding the Project area
Water Quality and Stormwater Runoff	Sacramento River hydrologic region
Paleontology	APE

Resource Area	Resource Study Area
Hazardous Waste and Materials	1-mile area surrounding the Project area
Air Quality	Sacramento Valley Air Basin
Noise	1-mile area surrounding the Project area
Biological Environment (natural communities, wetlands and other waters, plant, animal, threatened and endangered and invasive species)	BSA

Past, Present, and Reasonably Foreseeable Actions

The City limits occur on the northern portion of the Project area and extend west along the existing Kammerer Road, Bilby Road, and end at the Union Pacific Railroad. A majority of the Project area lies within the unincorporated portion of the County and the northern portions of the Project area fall within the City limits. The City identifies existing land uses around the Project area, including agricultural, residential, commercial, and recreational reserve (Stone Lakes NWR). The County identifies most of the Project area as agricultural. A small portion of land near the I-5/Hood Franklin Road Interchange as commercial office and residential.

Table 82 lists the current and planned land uses within and around the Project area. Urban development is anticipated north of existing Kammerer Road. A majority of planned development in the area around the Project would occur under from the City. Development within the unincorporated portion of the County is limited to areas within the USB and services are only provided to areas within the UPA. While a majority of the Project area is within the unincorporated County, only a minimal amount of land near the Project area is within the USB outside of the City limits. Therefore, limited growth is anticipated within the unincorporated portion of the County in this area.

Planned developments within the City limits include the SEPA, Sterling Meadows, Lent Ranch Marketplace SPA, Laguna Ridge Specific Plan, Souza Dairy, Elk Grove Promenade Project, and Wilton Rancheria, north and east of existing Kammerer Road in the City (see **Table 3**).

A Final EIR was prepared for SEPA in June 2014. In July 2014, the SEPA Plan was approved by Elk Grove City Council. SEPA covers approximately 1,200 acres in the City and will include office, commercial, light industrial/flex, village center, mixed-use residential, mixed-use village core, residential/neighborhood, estate residential, low-density residential, medium-density residential, high-density residential, public/semi-public, school, and parks/open space land uses. Within SEPA, approximately 4,800 dwelling units will be constructed for an estimated population of approximately 17,000 residents (City of Elk Grove 2014a).

Table 82. Current and Planned Land Use

Location	Current Land Use	Current Zoning	Future Land Use
North of proposed Kammerer Road – between I-5 and Bruceville Road	Predominantly rural agricultural. The Town of Franklin is north of the Project area and contains a cemetery, elementary school, and local businesses. There is one residential subdivision south of Bilby Road north of the proposed alignments.	<u>Unincorporated Sacramento County</u> : Agricultural, Agricultural-Residential, Residential Single Family, General Commercial, Recreation Reserve. <u>Within City limits</u> : Residential, Office, Agricultural.	<u>Sacramento County General Plan</u> : Agricultural Cropland, Agricultural Cropland/Recreation, Agricultural Residential, Low Density Residential, Commercial/Office, Natural Preserve (to 2030). <u>City of Elk Grove General Plan</u> : Estate Residential, Public Open Space/Recreation, Low Density Residential, Public Schools, Public Park (to 2023).
North of existing Kammerer Road – between Bruceville Road and SR-99	Agricultural, agricultural residential, and residential. North of Kammerer Road there is vacant land between SR-99 and Promenade Parkway for planned commercial use.	<u>City of Elk Grove General Plan</u> : Agricultural, Residential, Office, Lent Ranch Marketplace SPA	<u>City of Elk Grove General Plan</u> : SEPA, Low Density Residential, Medium Density Residential, High Density Residential, Public Space/Recreation, Commercial, Commercial/Office/Multi-Family, Commercial/Office, Light Industry (to 2023).
South of proposed and existing Kammerer Road – between I-5 and SR-99	Agricultural and agricultural residential. Several agricultural and residential structures present.	Unincorporated Sacramento County: Agricultural	<u>Sacramento County General Plan</u> : Agricultural Cropland, Agricultural Cropland/Recreation, Natural Preserve (to 2030).

A Final EIR was prepared for the Sterling Meadows Project in April 2008; and approved by the City on May 28, 2008. The Sterling Meadows Project includes approximately 200 acres of residential and recreational uses. Specifically, land uses include 132 acres of single-family residential, 10 acres of multi-family residential, 18.5 acres of recreational parks, a fire station, 11 acres of landscape corridor/paseos, a 15-acre drainage detention, and 12.5 acres of roadways. This development would construct approximately 984 single-family residential units and 200 multi-family units (City of Elk Grove 2008).

Other planned projects within 1 mile of the Project area include the Laguna Ridge Specific Plan, Souza Diary, and the Wilton Rancheria. Improvements to Franklin Boulevard, Bruceville Road, and Big Horn Boulevard are planned to enhance the circulation system in the area with approved growth.

Additionally, this Project is a component of the Capital SouthEast Connector, a 35-mile-long multi-modal transportation facility including a four-to six-lane segments of expressway and thoroughfare along with future grade separated interchanges at major cross streets to link communities in Sacramento and El Dorado Counties, including Elk Grove, Rancho Cordova, Folsom, and El Dorado Hills. The project limits extend from the I-5/Hood Franklin Road interchange in southwest Sacramento County to approximately 35 miles northeastward, terminating at US 50 in the community of El Dorado Hills, near Silva Valley Parkway approximately 3 miles east of the Sacramento County/El Dorado County line. The PEIR was approved in 2012 for the Capital SouthEast Connector.

As discussed in Section 2.1.2, "Consistency with State, Regional, and Local Plans and Programs," the Project is consistent with several regional and local plans, including the City General Plan.

Identified below is a compilation of the cumulative impacts that would result from the implementation of the Project and future development in the vicinity. Cumulative impacts are two or more effects, that, when combined, are considerable or compound other environmental effects. The cumulative impact discussion for each issue area is provided below.

2.4.1 LAND USE

Cumulative Condition

Existing land uses in the Project vicinity include agricultural, residential, open space/recreation, and industrial. Within one-half mile of the Project area, the surrounding area is rural and composed of agricultural, residential, and undeveloped/vacant parcels of land. Outside of one-half mile of the Project area are residential developments and various community facilities, including churches, schools, and parks.

As discussed in Section 2.1.1, "Existing and Future Land Use," the Project is identified in regional and local planning documents and is consistent with regional and local land use plans. The Project would not divide an established community, nor would it conflict with an applicable land use plan, policy, regulation, or applicable habitat conservation plan. While land use within and to the north of the Project area will change and convert rural lands, these developments are identified under regional and local land use plans, including the Project.

Build Alternative

The Project would not contribute to cumulative impacts to land use changes or result in inconsistencies in planned land use patterns in and around the City. The Project would service planned developments by improving circulation in the area and create a missing link in the transportation infrastructure for the area.

No-Build Alternative

The No-Build Alternative would not involve construction of the Project, and therefore would not directly result in any cumulative land use impacts. However, without the Project, planned development in areas north of Kammerer Road would be constrained. Nearby community and roadway developments would create increases in vehicle use, stormwater runoff, and potential indirect impacts to sensitive biological resources in the Project area, which would not be analyzed and addressed under the No-Build Alternative. If the Project is not constructed, Kammerer Road and designated land use for the area would not be consistent with regional and local plans. Therefore, cumulative indirect effects to land use are possible under the No-Build Alternative.

If the Project is not built, Kammerer Road would not be consistent with the SACOG 2020 MTP/SCS, the City General Plan, or the County General Plan. Under the No-Build Alternative, Kammerer Road would not be extended, widened, or improved and acceptable LOS standards would not be maintained at multiple intersections and roadway segments (refer to Section 2.1.10, "Traffic and Transportation/Pedestrian and Bicycle Facilities"). The No-Build Alternative does not accomplish the goals and policies included in the SACOG 2020 MTP/SCS or the City's or County's General Plans.

2.4.2 FARMLANDS

Cumulative Conditions

Important farmland is categorized in the State based on its value at a local and/or regional level and may have special protections or easements. Farmland may be classified as Prime Farmland, Farmland of Statewide or Local Importance, or Unique Farmland. To be included into these categories, farmland must meet physical and chemical criteria for soil and land use quality. Farmlands under Williamson Act contracts are given long-term use restrictions with protections and tax benefits. The FMMP provides data on the status, trends, and planning for California's agricultural productivity and farmland conversion. Within and adjacent to the Project area there is land classified by the FMMP as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance.

Construction of the Project would include direct and indirect impacts to farmland of importance within and adjacent to the Project area. As discussed in Section 2.1.4, "Farmlands/Timberlands," there will be acreages of direct conversion of farmland located within the Project footprint; however, this amount is minimal in comparison with the availability of important farmland in the region and the State. Several parcels may be bisected by the Project, which may leave remaining portions of the parcel unfarmable through removal of accessibility.

The A1/A2 Kammerer Road Project is identified in the City and the County General Plans as well as SACOG's 2020 MTP/SCS and 2021/2024 MTIP. The City General Plan includes

planned developments north of the Project area and the County General Plan identifies developments to the south and west of the Project area. These developments would create urbanized areas for residential communities, mixed commercial, and light industrial uses which would result in the conversion of farmland to nonagricultural land.

Build Alternative

The potential cumulative impacts to farmlands would result from direct conversion of farmlands to nonagricultural uses or impacts to adjacent farmlands which would render them unfarmable. The Project would directly convert relatively minor amounts of important farmland when compared to the availability of farmland in the County and the State of California. As discussed in Section 2.1.4, "Farmlands/Timberlands," the amount of important farmland converted as a result of the Project would account for less than 0.01 percent of available important farmland in the County and less than 0.01 percent of available important farmland in the State.

The City and County General Plans identify developments north of the area which would convert more farmland. The planned projects would convert farmland to residential, commercial, and public uses, which in turn would result in a cumulative impact to farmlands. These impacts shall be addressed for cumulative effects through the General Plans and project-level analysis; however, the Project would not contribute to a cumulative impact to farmlands. With the inclusion of Mitigation Measures **AG-1** and **AG-2**, impacts to farmlands would be minimized.

No-Build Alternative

Under the No-Build Alternative, the Project would not be constructed and therefore would not result in any impacts to farmlands.

2.4.3 GROWTH

Cumulative Conditions

The Project area is located in a rural setting that consists of agricultural, residential, and special planning area land with some vacant and undeveloped parcels.

The Project is identified in regional and local planning and transportation plans. It is listed in SACOG's 2021/2024 MTIP and is identified in the 2020 MTP/SCS, County General Plan, and the City General Plan. These regional and local plans incorporate potential cumulative growth impacts for projects identified in the plans and are given conformity analysis by state and federal agencies. The Project would not induce growth or adversely impact anticipated growth conditions in the area.

Build Alternative

Implementation of the Project would support planned growth in the area by the City General Plan and would not result in a change in the location, rate, type, or amount of growth planned for under regional and local plans. The Project, itself, is not anticipated to substantially influence the overall amount or type of regional growth, as it is necessary under existing conditions to provide a missing link in the infrastructure that serves the City and County. All growth, development, and associated services near the Project area has been previously

forecasted, as shown in the City's General Plan and County's General Plan. Due to the planned developments which would add new residential, commercial, and public uses near the Project, there would be a cumulative impact to growth as a result. However, SEPA and other planned growth near the Project area would receive benefits and infrastructure support from the Project through improved circulation and access for the increased residents and employment opportunities in the area.

Based on the information above, the Project would not contribute to cumulative growth inducement impacts other than what is currently planned by regional and local plans.

No-Build Alternative

Under the No-Build Alternative, no cumulative growth impacts would occur because the Project would not be constructed. However, potential effects to planned communities and services in the area could occur under the No-Build Alternative. Based on growth trends in the local and regional area, the City anticipates urban growth and development to expand south and east of current City boundaries, which will surround the Project area. Growth from planned developments in SEPA and other areas of the City and the County is expected to occur even without the improvement of Kammerer Road. Without construction of the Project, planned development of SEPA could be slowed or delayed and intersections in and around the Project area would decrease LOS and result in traffic congestion. Traffic congestion and poor circulation efficiency could result in the Project area being considered a less desirable location for growth and cause impacts to air quality and other environmental resources. These conditions under the No-Build Alternative would likely result in the displacement of anticipated growth in the Project area, and/or would slow the growth rate in the Project area and increase the growth rate in other areas of the Sacramento region.

2.4.4 COMMUNITY CHARACTER AND COHESION

The resource study area for the Project contains several community facilities and structures in the nearby Town of Franklin. Community cohesion tends to increase with higher instances of attached housing units, prevalence of nearby religious institution and community centers and facilities, and/or large and concentrated minority, elderly, or low-income populations. Based on housing, income, and population statistics provided in the 2020 and 2010 Census data and given that the immediate resource study area is largely undeveloped, there is little evidence of community cohesion in the vicinity of the Project area. Within one-half mile of the Project site, there are three churches: Southside Missionary Baptist Church located at 4417 Bilby Road, Harvest Church located at 10385 East Stockton Boulevard, and the World of Truth Church located at 10481 Grant Line Road. Franklin Elementary School, located on Gilliam Drive and Dorsey Drive, approximately one-half mile from the Project, is the only school in the resource study area.

The Kammerer Road extension will close a critical gap in the infrastructure network that serves the City and south County. It will also provide access between the I-5/Hood Franklin Road Interchange and areas south of existing Kammerer Road, where there is not public access under existing conditions. Because the presence of community facilities in and around the Project area is relatively small under existing conditions, the construction of the Project will not create a substantial separation of residences from community facilities and will increase access to planned development, including various community facilities in SEPA north of existing Kammerer Road. The Project is not expected to damage or disrupt community cohesion under either build option. Under the Project, the widened portion of

Kammerer Road from the Kammerer Road/Lent Ranch Parkway intersection to Bruceville Road would not physically divide an established neighborhood or community. The Kammerer Road extension from Bruceville Road to the I-5/Hood Franklin Road Interchange would not divide a neighborhood.

Planned developments in the resource study area are shown in Table 3. These developments would create residential, commercial, and industrial land uses near the Project area. No community facilities which would increase community character and cohesion are currently planned for these developments. Community cohesion tends to increase with higher instances of attached housing units, prevalence of nearby religious institution and community centers and facilities, and/or large and concentrated minority, elderly, or low-income populations. The planned developments surrounding the Project area may increase residential housing units; however, the lack of community facilities nearby would likely not lead to an increase in community character or cohesion.

Build Alternative

The Project Build Alternative and interchange design options, along with the planned developments surrounding the Project area would not lead to a cumulative impact to community character and cohesion. The planned developments surrounding the Project area are not expected to increase community character, and the Project would benefit these communities by providing a critical link in the missing infrastructure network for the area.

No-Build Alternative

Under the No-Build Alternative, there would not be any cumulative community character/cohesion impacts because the Project would not be constructed.

2.4.5 RELOCATIONS AND REAL PROPERTY ACQUISITIONS

Cumulative Conditions

The Project area occurs in both the City limits and in an unincorporated area of the County. The area around the Project is largely rural and includes mostly agricultural land. There are also undeveloped lands, agricultural facilities, and several residences within the area.

The area immediately north of the existing Kammerer Road is in SEPA. SEPA encompasses approximately 1,200 acres and the development plan includes commercial, light industrial, and residential land uses. The Lent Ranch Marketplace SPA is a planned development that includes an anticipated casino in addition to the planned commercial development. The area south of Kammerer Road is in the unincorporated area of the County and includes agricultural land uses and the small Town of Franklin, an unincorporated community in the County (western portion of the Project area). Franklin contains residences, businesses, and a cemetery. Community facilities in the Project area include the Southside Missionary Baptist Church. There are several residential structures in the Project area along Kammerer Road, Bruceville Road, Franklin Boulevard, and side streets. Residential structures within proposed right-of-way acquisition areas include single-family residences and mobile homes/travel trailers. There is one business structure within the proposed right-of-way containing cell tower equipment.

Build Alternative

The Project is anticipated to require the relocation of 4 properties, which includes 3 single-family units, and 1 utility structure property. There are sufficient resources and locations to accommodate relocation of all affected individuals. There are not anticipated to be any elderly, disabled, or minority persons among the displaced residents. The Project does not anticipate any agricultural-related displacements. Project design has identified some access concerns when the Project bisects agricultural lands, and may provide at-grade crossings for farm equipment. If access cannot feasibly be provided, the remainder may be considered an uneconomic remnant. These remaining portions would be purchased by the Project's implementing agency.

The Project would require the relocation of an active AT&T cell tower and the building which stores the cell tower equipment. (APN# 132-0320-002). No employees will be impacted by the relocation of the cell tower or building.

Relocations and property acquisition for the Project would not adversely affect local housing stock for the community. Relocations are not expected to adversely affect elderly, disabled, or minority persons. The displacement areas for relocated residents are comparable to the conditions in the Project area and contain ample availability for displaced residents. The planned developments surrounding the Project area would create additional residences and commercial opportunities. SEPA is expected to include 4,790 dwellings and the Sterling Meadows Project is anticipated to create 1,180 residential units.

The developments planned around the Project area, in addition to the structure and right-of-way requirements of the Project, would not lead to a cumulative impact to relocations. The few residential structure relocations required by the Project would not impact displacement areas or the local housing stock. In addition, the inclusion of Mitigation Measure **COM-1** would minimize and impacts from property acquisition.

No-Build Alternative

Under the No-Build Alternative, there would not be any cumulative relocation impacts because the Project would not be constructed.

2.4.6 ENVIRONMENTAL JUSTICE

Most of the parcels in the Project area are undeveloped, vacant, or agricultural with very low-density housing. The Town of Franklin is an unincorporated community in the County and contains the only community facilities within a half-mile of the Project area. Data from the US Census 2010 shows the total population in the Project area to be approximately 364 persons. According to the CIA prepared for the Project, the population of the City is approximately 167,965 and roughly 1,495,297 for the County as of January 2016 (CDOF 2017). The largest minority group in the Project area is Hispanic; 2010 Census statistics show slightly higher Hispanic populations in the Project area (25%) than in the City (18%) and the County (22%). Refer to Table 10 and Table 12, in Section 2.1.8, "Environmental Justice," for a more details on the racial composition and income in the resource study area, Elk Grove, and the County. According to the 2010 Census data, there are no disproportionate numbers or percentages of these social groups in the Project area compared to the City or the County. The proportion of the population in the Project area considered senior citizens (65 and older) is approximately 12 percent, as compared to the City (8%) and the County (11%). Household and family incomes in the Project area exceed

the Department of Health and Human Services poverty guidelines and are slightly higher than for the City and the County.

Planned developments surround the Project area include SEPA, Sterling Meadows, and the Lent Ranch Marketplace. These developments would increase residential units, both single-family and multi-family, and commercial opportunities in the area.

The Project area contains median household incomes and family incomes that are slightly above those for the City and the County. The race statistics on the population in the Project area shows that the population is primarily white, and minority populations are comparable to those for the City and the County. As discussed in the previous section for relocations, there are not expected to be any disproportionate impacts to elderly, minority, or low-income populations under the Project, or any of the interchange design options. Therefore, the Project is not subject to the provisions of EO 12898.

Build Alternative

The Project would provide a critical missing gap in the infrastructure network for the Project area and surrounding communities. The planned developments would benefit from the Project by improving the transportation system in the area and providing a connection from SR-99 to I-5. The relocations discussed previously would not disproportionately impact low-income or minority populations. Therefore, the Project would not cause any cumulative impacts to environmental justice.

No-Build Alternative

Under the No-Build Alternative, no cumulative impacts to environmental justice would occur because the Project would not be implemented.

2.4.7 UTILITIES/EMERGENCY SERVICES

Cumulative Conditions

Underground and overhead public utilities that conflict with the proposed roadway improvements would be relocated either before or during Project construction.

As discussed in Section 2.1.9, "Utilities/Emergency Services," relatively small amounts of electricity would be required for the Project to power streetlights and traffic signals, which could be supplied without compromising service to existing and future customers. Additional electrical conduits along the roadway alignments would be required. The Project would also require a relatively small volume of water for landscape irrigation which would be provided by the SCWA. The SCWA has demonstrated that it would have sufficient supplies to serve the Project in addition to its existing commitments. Furthermore, no new water transmission facilities would be required. The Project would require the extension of existing stormwater drainage facilities within the existing section of Kammerer Road but would not compromise current drainage facilities or system capacity. The City is coordinating with all utility providers in the Project area to avoid or minimize service disruptions during construction.

Build Alternative

During construction, temporary lane closures and detours may be necessary; however, the City and County will require the contractor to coordinate with the fire and police departments prior to lane closures and detours to ensure that emergency services access to and through the Project area is maintained. Operation of the Project would result in improved traffic operations and access for emergency service vehicles to and through the Project area.

Infrastructure and utility improvements are anticipated in the areas surrounding the Project from the planned developments identified in the City General Plan and the County General Plan.

Cumulative growth surrounding the Project area would substantially increase demand for electricity requiring the construction of new facilities such as substations as well as the upsizing of existing facilities. However, the Project would require a relatively small amount of electricity to power streetlights and traffic signals and would not trigger the need for new infrastructure beyond the extension of electrical conduits from existing meters. Therefore, the Project would not cumulatively impact electricity service.

Cumulative growth around the Project area would increase demand for water supplies from the SCWA. However, as demonstrated in SCWA's 2010 Urban Water Management Plan, the water agency would have sufficient supplies to meet the demands of anticipated growth within Zone 41 with additional surplus supply remaining even under multiple dry-year conditions. Therefore, there would not be any cumulative impacts related to water supply.

Cumulative growth around the Project area would increase impervious surfaces, and thus stormwater runoff requiring the construction of new drainage facilities as well as the upsizing of existing facilities. However, the Project would detain runoff on-site and would not require any new or upsized facilities. Therefore, the Project would not cumulatively impact stormwater conveyance.

Construction activities associated with planned development projects around the Project area could interfere with emergency response as a result of slow-moving equipment on roadways, detours, and lane closures. However, such impacts would be temporary and contractors would be required to coordinate with emergency service providers to ensure that construction does not impede emergency response. In addition, Mitigation Measures **UTL-1** through **UTL-4** would be included to minimize impacts to utilities/emergency services. Therefore, there would not be any cumulative impacts related to emergency services.

No-Build Alternative

Under the No-Build Alternative, there would be no cumulative impacts related to utilities and emergency services as the Project would not be constructed. Several utilities in the Project area may still be relocated even under the No-Build Alternative. SEPA would require relocation of several utilities north of the Project area. However, there would not be any cumulative impacts to utilities as a result of the No-Build Alternative. Last of all, the No-Build Alternative would not succeed in the goal of creating an east-west evacuation route that is higher than the 100-year flood elevation for the area.

2.4.8 TRAFFIC AND TRANSPORTATION AND BICYCLE FACILITIES

Cumulative Conditions

The existing roadway transportation systems within the Project vicinity are currently acceptable except for a few intersections below City and County LOS standards. However, cumulative conditions with planned growth and development within the Project vicinity have been analyzed and will cause multiple intersections to fall below City and County LOS standards by 2044. These intersections and design year conditions are described in section 2.1.6 “Traffic, Transportation and Bicycle Facilities.” Analysis of the interim 2-lane Project plus ten years (2034) was also completed and found that a 2-lane facility would be adequate up to 2034, where acceptable LOS would be maintained for most intersections in the Project vicinity. In addition, a multi-use path adjacent to the west-bound travel lane, as well as a Class II Bicycle Lane along both travel directions between SR-99 and Bruceville Road would be constructed. This would improve circulation for alternative forms of transportation. The Project is consistent with the City’s Bicycle, Pedestrian, and Trails Master Plan.

Build Alternative

The Build Alternative (2-lane interim and 4-lane full build project) would maintain acceptable City and County LOS standards in the Project vicinity. The Build Alternative would meet the purpose and need of the Project, as well as the provide a facility consistent with the regional and local planning and transportation plans such as SACOG’s 2021/2024 MTIP 2020 MTP/SCS, County General Plan, and the City General Plan. Potential temporary impacts from lane closures would be intermittent, temporary, and a traffic management plan (as stated in **TRF-1**) would be used during construction of the facility to avoid and minimize any potential adverse traffic effects. The increase in traffic in the region as a result of the planned developments, in combination with the Project, would result in a cumulative impact to Traffic, Transportation, and Bicycle Facilities.

No-Build Alternative

Under the No-Build Alternative, the Project would not be constructed, and traffic, transportation and bicycle impacts associated with the construction and operation of the Project would not occur.

2.4.9 VISUAL/AESTHETICS

Cumulative Conditions

Cumulative impacts are those resulting from past, present, and reasonably foreseeable future actions, combined with the potential visual impacts of the Project. For this Project, it has been determined that the following cumulative visual impacts may occur. Cumulative impacts can be defined as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. These individual effects may entail changes resulting from a single project or from a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the Project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects occurring over a period of time.

The following analysis is limited to the Project viewshed. That is, only projects within the Project viewshed would potentially contribute to associated visual quality/aesthetic cumulative impacts.

The City General Plan (2021) identifies SEPA as a future development project located directly north of existing Kammerer Road. SEPA is planned to cover approximately 1,200 acres including approximately 495 acres of mixed residential densities, 305 acres of office and commercial uses, 110 acres of light industrial use, 50 acres for schools and parks, and 35 acres of mixed use. The SEPA plan was adopted by the Elk Grove City Council on July 9, 2014.

Build Alternative

Considered cumulatively, the Kammerer Road Project, along with SEPA and other planned developments, would change the visual appearance of the Project viewshed, particularly north and west of existing Kammerer Road. Cumulative impacts to visual resources that may be attributed to the Build Alternative can be reduced through the adoption of mitigation measures **VIS-1** through **VIS-4**. Furthermore, the Project is identified as part of the City General Plan and the County General Plan (2011a). The Project is consistent with the City General Plan and County General Plan.

The direct and indirect impacts of the Project are summarized in Section 2.1.11, "Visual/Aesthetics." This section shows the visual ratings at each key viewpoint in the resource study area under the Project and South Alignment Build Alternative. Mitigation measures **VIS-1** through **VIS-4** are provided to address impacts related to temporary construction activities, the proposed roadway improvements, and light and glare.

The City General Plan (2021) identifies SEPA as a future development project located directly north of existing Kammerer Road. SEPA is planned to cover approximately 1,200 acres, including approximately 495 acres of mixed residential densities, 305 acres of office and commercial uses, 110 acres of light industrial use, 50 acres for schools and parks, and 35 acres of mixed use. SEPA was adopted by the Elk Grove City Council on July 9, 2014.

Considered cumulatively, the Project, along with SEPA and other planned developments, will significantly change the visual appearance of the Project viewshed, particularly north and west of existing Kammerer Road. Cumulative impacts to visual resources that may be attributed to the Kammerer Road Extension Project can be reduced through the adoption of mitigation measures **VIS-1** through **VIS-4**. Furthermore, the Project is identified as part of, and is consistent with, the City General Plan and the County General Plan.

No-Build Alternative

Under the No-Build Alternative, the Project would not be constructed and visual impacts associated with the construction and operation of the Project would not occur.

2.4.10 CULTURAL RESOURCES

Cumulative Conditions

14 built environment resources were determined not eligible for inclusion in the National Register or California Register, either individually or as contributors to a historic district, due to a lack of integrity or association with a historic context. As such, none of these resources are considered historical resources for the purposes of CEQA. The SHPO concurred with these determinations.

The mapped location of the previously recorded Native American cultural resource identified by the NCIC was visually inspected in 2016 to identify the presence of any artifacts, features, or other indicators that a surface or subsurface component of the resource was still present. One possible feature and two possible artifacts were noted; however, restricted property access prevented additional identification efforts which would have definitively determined the presence and extent of the resource. As restricted property access is not expected until right-of-way is acquired, this resource is being assumed eligible for listing in the National Register and California Register, for the purposes of this Project only; therefore, this resource is considered a historical resource under CEQA, for the purposes of this Project only.

Build Alternative

Due to the restricted property access, a phased approach is needed to complete cultural resource identification efforts, evaluation of potential historic properties/historical resources, application of the NHPA of Adverse Effect, and Adverse Effect resolution. The phased approach would be initiated upon acquiring access to properties required to construct the Project. Stipulations and procedures detailing the necessary actions of the phased approach are detailed in the *Programmatic Agreement Between the California Department of Transportation and the State Historic Preservation Officer Regarding the Capital SouthEast Connector A1/A2 Kammerer Road Project* (Kammerer Programmatic Agreement). The SHPO, The Department, City, County, Connector JPA, and the Wilton Rancheria will consult on the stipulations outlined in the Kammerer Programmatic Agreement to ensure that all potential Project impacts to the Native American cultural resource identified in the APE shall be mitigated to a less than significant level, should the additional identification and evaluation efforts detailed in the Kammerer Programmatic Agreement confirm the resource is eligible for listing on the National Register and/or California Register.

Additionally, a Memorandum of Understanding for the treatment of Native American human remains, should any be discovered as a result of earthmoving activities, is being prepared. The Department, the City, the County, the Connector JPA, and the Wilton Rancheria will consult on the stipulations outlined in the Memorandum of Understanding, to ensure that impacts to the Native American human remains, should any be identified in the APE shall be mitigated to a less than significant level. Should the Native American Heritage Commission identified a Most Likely Descendant other than the Wilton Rancher, the implementing agency will initiate consultation with the designated MLD.

Cumulative effects cannot be analyzed until significance and context are determined.

No-Build Alternative

Under the No-Build Alternative, the Project would not be constructed and impacts to cultural resources associated with the construction and operation of the Project would not occur.

2.4.11 HYDROLOGY AND FLOODPLAIN

The Project area contains a series of roadside ditches and agricultural drainages which convey surface water, from rainfall runoff and agricultural practices, into Stone Lake. Wetlands, vernal pools, and agricultural ponds also exist within the Project area which hold water year-round or fill and drain seasonally.

The main watershed in the Project area is the Shed C watershed which covers approximately 7,900 acres from Highway 99 to I-5. The groundwater in the City (and Project area) is underlain by the Sacramento Valley aquifer system. Groundwater monitoring wells within SEPA identified groundwater levels ranging from 20 feet below mean sea level to 60 feet below mean sea level (West Yost Associates 2014).

Surface waters in the Project area flow into the Shed C channel and eventually west into Stone Lake. Waters from Stone Lake enter Sacramento River – Delta Waters to the south. Franklin Creek and Cosumnes River occur within the watershed; however, they are not hydrologically connected to the Project.

Build Alternative

Under the proposed Build Alternative, the Project would not result in any impacts to surface hydrology in the Project area. Agricultural and roadway drainage and ditches would still convey surface flow into the Shed C channel, which would drain into Stone Lake. If additional crossings are required to prevent flooding north of Kammerer Road, culverts would be installed with the appropriate dimensions to allow for 10-year and 100-year flood events.

Anticipated development within the resource study area in addition to the Project would increase impervious surface area and associated stormwater runoff rates and volumes if not properly mitigated. In addition, future development could alter existing drainage patterns and encroach on flood hazard zones. However, the drainage plan for the Project was developed in coordination with plans for SEPA (approved by City Council July 2014) and would not substantially alter the surface hydrology, groundwater recharge, or flooding in the Project area. The planned developments could have a cumulative impact on water features near the Project area. However, the Project itself would not have a cumulative impact.

No-Build Alternative

Under the No-Build Alternative, the Project would not be constructed and no changes to the Shed C channel would occur. However, planned development in the area would still occur, which would create impervious surfaces and changes to hydrology in the area.

2.4.12 WATER QUALITY AND STORMWATER

Cumulative Conditions

The City contains natural and constructed water features (such as channels, creeks, and ditches) that convey stormwater and roadway drainage. The area topography is relatively flat. Surface features surrounding the Project area include the Sacramento River, Cosumnes River, Stone Lake, Franklin Creek, and Shed C channel. Stormwater and agricultural runoff

in the Project area flows into the Shed C channel and eventually west into Stone Lake. Waters from Stone Lake enter Sacramento River – Delta Waters to the south. Franklin Creek and Cosumnes Rivers occur within the watershed; however, they are not hydrologically connected to the Project. Aquatic features in the Project area include ditches, swales, agricultural ponds, freshwater emergent wetlands, seasonal wetlands, and vernal pools. Some of these features receive stormwater from the Project area and may also provide beneficial water uses for wildlife habitat. The Shed C channel is a man-made (or non-natural) ditch and is used for agricultural and stormwater runoff. Wetland features in the Project area include the seasonal wetlands, swales, and vernal pools.

Temporary impacts to water quality may occur through construction activities. Temporary grading activities may cause minor increases in siltation, erosion, debris, and equipment-related pollutants. Operational impacts to stormwater quality would include an increase in impervious surfaces and minor increases in vehicle-related pollutants and debris. Mitigation measures for construction-related water quality impacts are presented in Section 2.2.2, “Water Quality and Stormwater Runoff.”

A summary of planned developments in the area identified in the County and City General Plans are shown in **Table 3**. SEPA is a planned development north of the Project area which would create improvements to the Shed C channel as well as increase the impervious surfaces in the area.

The Project would not cause any cumulative impacts to water quality and stormwater runoff. Minor increases in pollutants and runoff would occur as a result of the new roadway; however, stormwater facilities and water filtration measures are proposed to treat and convey stormwater. The planned developments surrounding the Project area would increase impervious surfaces and stormwater runoff in the area. Improvements to the Shed C channel under the Project would allow increased conveyance of stormwater and allow the Shed C channel to accommodate 100- and 500-year flood events. The planned developments could have a cumulative impact on water features near the Project area. However, the Project itself would not lead to cumulative impacts to stormwater runoff or water quality. In addition, Mitigation Measures **HYD-1** through **HYD-7** would be included to minimize any impacts to Water Quality and Stormwater.

No-Build Alternative

Under the No-Build Alternative, the Project would not be built and the Shed C channel would not be modified. Increased stormwater conveyance through the Shed C channel in its current configuration may lead to cumulative impacts to water quality and stormwater runoff downstream of SEPA and other developments into the Project area.

2.4.13 GEOLOGY/SOILS/SESIMIC/TOPOGRAPHY

Soils in the Project area are part of the Lower Riverbank Formation which contain silt, clay alluvium, gravel, and sand. These are the major soil types generally found in the Project area as a result of the area’s historic alluvial plain. The area topography is dictated by these historical geologic formations and is relatively flat, ranging in elevation from roughly 5 to 40 feet above mean sea level. The County is generally less affected by seismic events and other geologic hazards than other portions of the State. Occasional seismic events have occurred in the area; however, they are relatively scarce and the potential for seismic activity is low to moderate, as there are no earthquake faults near the Project area.

The presence of soils in the Project area with moderate to high shrink-swell potential could pose a potential impact to structures by soil settlement. Expansive soils could cause damage to structures in the Project area during a seismic event. Mitigation measures identified in Section 2.2.3, “Geology/Soils/Seismic/Topography,” would ensure that soils are tested and secured such that structures are not at risk during seismic events.

Cumulative impacts to soils could occur from other planned developments within the Project vicinity. A summary of planned developments in the area identified in the County and City General Plans are shown in **Table 3**.

Build Alternative

All soil construction activities will contain measures to reduce impacts to water quality and soil erosion. Potential damage to structures from expansive soils in the area will be reduced through implementation of soil testing and securing measures to ensure structural safety. These potential impacts are localized and site-specific and would not permanently affect other areas or future development.

Based on the information above, the Project would not contribute to cumulative impacts to geology and soils. The planned developments near the Project area could have a cumulative impact to geology and soils, due to the construction of residential, commercial, and other public use areas. In addition, Mitigation Measures **GEO-1** and **GEO-2** would be included to minimize any impacts to Geology and Soils.

No-Build Alternative

Under the No-Build Alternative there would not be any cumulative geologic or soil impacts because the Project would not be constructed.

2.4.14 PALEONTOLOGY

Cumulative Conditions

The following information is a summary of the Paleontology Identification and Evaluation Report prepared for the Project in 2022. A literature review, assessment of published geologic maps, querying the online repository list of University of California Museum of Paleontology, a search of the Paleontological Collections at the California Academy of Sciences, and a review of published manuscripts and resource reports was performed to determine sensitivity and any previously identified paleontological resources in the County and the City.

A search of the University of California Museum of Paleontology (UCMP) collections database identified six localities in the County where paleontological resources have been identified. These fossil remains were encountered during excavation activities in the County within Pleistocene aged formations, and all were within the Riverbank formation.

The City General Plan states that a GeoRef database covering the years 1785 to present and a road reconnaissance-level field survey of the City were conducted to identify potential outcrops of fossiliferous geological formations. Neither the database search nor field survey identified officially reported fossils in the City; however, there have been information finds, including a 1959 discovery of a Pleistocene bone bed within the Riverbank Formation along the west side of Deer Creek. A geologist from California State University, Sacramento, reportedly examined the fossils found by a local farmer; however, the find was never published (City of Elk Grove 2003).

A review of the Geologic Map of the Sacramento Quadrangle prepared by the California Geological Survey (CDOC 1981) shows the Project APE is within the Riverbank Formation. While a locality search did not identify any occurrences of paleontological resources within the Project's APE, literature research revealed that a fossilized mammoth was found in the City, within the Rancho Verde residential housing development, in 2006. The Rancho Verde housing development is directly adjacent to the Project APE. Due to the proximity of the Project to the known paleontological site, and the Project APE being identified within the

Riverbank formation, the Project would have a moderate potential for paleontological resources to occur. Based on the background research presented above, the surface and subsurface of the entire APE is considered sensitive for paleontological resources to an unknown depth.

Build Alternative

Paleontological resources would be potentially affected by direct and indirect impacts resulting from earthmoving activities associated with implementation of the Project. The loss of some fossil remains, currently unrecorded fossil sites, associated specimen data and site data, or fossil-bearing strata might result from earthmoving activities (e.g., excavation for foundations, basement structures, subterranean parking, or other structures, and trenching for pipelines) in previously undisturbed strata. Direct impacts might also be caused by any earthmoving activity that buried previously undisturbed strata, thereby rendering the strata and associated paleontological resources unavailable for future scientific investigation. Indirect impacts might result from easier access to fresh exposures of fossiliferous strata and the accompanying potential for unauthorized fossil collecting. The regional or statewide significance of a given paleontological resource would be based on the quality and integrity of the resource, remaining supply, feasibility of recovery, or scientific and public importance.

The majority of the Project area is of High Potential as it involves disturbance of the Pleistocene lower Riverbank Formation which is known to contain diverse Ice Age fossil resources. The Holocene basal sediments in the west are too young to contain fossil resources or Low Potential. Any areas previously disturbed, including disturbed sediments or artificial fill used for earlier projects, would be considered Low Potential as any fossil remains would be out of context. A Paleontology Mitigation Plan (PMP) would be prepared to avoid, minimize, and if necessary, mitigate for any effects to paleontological resources. Mitigation Measures **PAL-1** through **PAL-5** would be included to further minimize impacts to Paleontological Resources.

Based on the information above, the Project would not contribute to cumulative impacts to paleontological resources.

No-Build Alternative

Under the No-Build Alternative, the Project would not be constructed and no direct or indirect impacts to paleontological resources would occur.

2.4.15 HAZARDOUS WASTE/MATERIALS

Cumulative Conditions

The majority of the Project area contains agricultural land uses. Historical agricultural use in the area creates a potential for hazardous waste/materials to be present in the soils. Buried cementitious pipes used for water conveyance may contain asbestos, and soils may contain pesticides and/or other chemicals. Wells and storage tanks associated with agricultural use may contain fuels and other chemicals. The UPRR passes through the Project area and has potential hydrocarbons, herbicides, and other chemicals in the adjacent soils. Several residential and agricultural structures occur in the Project area which may contain potentially hazardous materials including lead-based paint and asbestos. The Project area contains several old roadways, including Kammerer Road and Bruceville Road.

These have the potential to contain ADL and have yellow paint striping which contains hazardous levels of lead chromate. Pole-mounted transformers in the Project area may contain creosote and/or other chemicals.

Build Alternative

Potential impacts to resources for the Project are associated with construction activities involving worker exposure to hazardous materials. Contact with the hazardous materials mentioned above may expose workers and the environment to hazardous materials. Storage tanks or other containers are to be disturbed or removed for the Project. During demolition, removal, construction, and grading activities, the disturbance of soils adjacent to Project area roadways may expose persons to airborne lead material. Removal of yellow traffic markings along these roadways may cause exposure of chromate to construction workers and lead to adverse health effects to humans and the environment. Demolition or removal of buildings in the Project area could result in exposure to harmful levels of lead which could lead to adverse health effects to humans and the environment. Removal or disturbance of pole-mounted transformers during construction could result in exposure to creosote or other chemicals. Disturbance of soils adjacent to the UPRR during construction activities could result in exposure to hazardous materials. If unknown contaminated soil is disturbed by construction activities, it could expose workers and the environment to hazardous materials. Potential exposure to these materials is addressed in Section 2.2.5, "Hazardous Waste/Materials" and mitigation measures are included to protect workers and the environment.

Planned developments in the area around the Project are identified in the County and the City General Plans. The measures outlined in this document to reduce impacts associated with hazardous materials help to identify the locations of hazardous materials and methods to protect exposed workers and the environment. This information may provide protections to nearby developments. The identified developments are not expected to cause an associated substantial increase in hazardous materials or exposure of such to people or the environment; therefore, cumulative impacts as a result of the planned developments are not anticipated.

No substantial cumulative impacts from hazardous materials are anticipated from operation of the Project. Mitigation Measures **HAZ-1** through **HAZ-16** shall be implemented to protect workers and the environment potentially exposed to hazardous materials. These impacts would be temporary and would only occur during construction. No operational impacts from hazardous materials is expected to occur as a result of the Project.

Based on the information above, the Project would not contribute to cumulative impacts from hazardous waste/materials.

No-Build Alternative

Under the No-Build Alternative, the Project would not be constructed and no hazardous waste/material impacts would occur. However, hazardous waste/materials would remain in the Project area and nearby planned developments may be affected. Under the No-Build Alternative, these materials would not be addressed and measures for potential impacts from contact with hazardous waste/materials would not be implemented.

2.4.16 AIR QUALITY

Cumulative Conditions

There are no operational impacts associated with the Project. The function of the Project, as discussed in Section 1.2, “Purpose and Need,” identifies the Project as a critical missing infrastructure gap in the area. The Project would improve circulation and reduce traffic congestion in the area under cumulative conditions. **Table 17** through **Table 24** show the overall effect on vehicle miles traveled for the Project in cumulative and existing conditions.

Planned developments in the area are identified in several land use and transportation plans including the County General Plan, SACOG’s 2020 MTP/SCS, and SACOG’s 2021/2024 MTIP. These regional plans identify the Project as part of regional planned developments. Planned developments in the region which are included in these regional plans are analyzed by agencies for conformity.

Build Alternative

Construction-related temporary impacts to air quality would occur under the Project. Construction activities would temporarily emit fugitive dust, CO, nitrogen oxides (NO_x), SO₂, volatile organic compounds (VOCs), directly emitted particulate matter (PM₁₀ and PM_{2.5}), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_x and VOCs in the presence of sunlight and heat. The construction emissions for the Project design option are shown in **Table 37**. Section 2.2.6 describes the minimization and mitigation measures which will reduce and compensate for the NO_x emissions produced for the Project.

Air quality and GHG impacts were previously evaluated under prior sections by comparing the Project’s direct and indirect emissions to the SMAQMD thresholds of significance. While these thresholds are applied to the Project’s emissions alone, they may also be regarded as thresholds for potentially adverse contributions to cumulative impacts. For example, a construction project with mitigated emissions of less than 85 pounds per day of NO_x and less than 15 acres of disturbed land area would not create a measurable change in the region’s ambient air quality when considered in combination with all other regional construction projects with similarly low NO_x emissions or disturbed land areas.

Projects not exceeding the applicable project-level thresholds of significance for ozone precursor and particulate matter emissions are not cumulative. However, the combined impacts of all sources emitting criteria pollutants at these levels throughout the SVAB and beyond can potentially create a measurable difference. The geographic extent of these cumulative impacts would entail the entire SVAB and could include neighboring air basins that impact or are impacted by the SVAB through transport phenomena. The number of past, present, and reasonably foreseeable sources operating (or planned to operate) in this geographic area is quite large. A list of such projects would include all SMAQMD “major” or “Title V” stationary sources; many SMAQMD “minor” stationary sources with indirect emissions; retail, commercial, educational, and institutional sources with indirect emissions; agricultural projects; and transportation projects consisting of freeways, local roadways, marine ports, and airports. Regional transportation plans identifying the Project are analyzed by the FHWA and the FTA. SACOG’s 2020 MTP/SCS was found to conform by SACOG on November 18, 2019, and FHWA and FTA made a regional conformity determination finding on April 16, 2021. The SACOG 2017/2020 MTIP was determined to conform by FHWA and

FTA on April 16, 2021. These conformities show that the Project, along with development projects identified in these plans are compliant with regional air quality plans and the Clean Air Act. In addition, Mitigation Measures **AQ-1** through **AQ-5** would be included to minimize impacts to Air Quality. The Project would not cumulatively impact air quality.

No-Build Alternative

Under the No-Build Alternative, the Project would not be built and there would be no construction-related emissions. However, as stated previously, the Project is intended to fill a critical missing gap in the infrastructure network for the area. The Project would provide a necessary link between SR-99 and I-5 and improve circulation and transportation for the area. Planned developments in the area would increase the use of the existing infrastructure network. As stated in Section 2.1.10, "Traffic and Transportation and Bicycle Facilities," the LOS of some of the existing intersections and roadway segments would worsen under the No-Build Alternative under cumulative conditions. Under the No-Build Alternative, there would be a cumulative impact to air quality.

2.4.17 NOISE

Cumulative Conditions

Planned developments in the area would create residential, light industrial, commercial, and recreational land uses. Some of these developments would create additional noise levels in the area and others, such as residential developments, would be sensitive to increases in noise levels. Noise measurements conducted within the resource study area and the results of noise levels from 54 locations. Overall noise levels are expected to increase in the resource study area under cumulative conditions.

Build Alternative

The Project would create increased noise in the resource study area as a result of construction activities and vehicle traffic on the proposed roadway. During construction of the Project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. Construction equipment is expected to generate noise levels ranging from 70 to 90 dB at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dB per doubling of distance. Abatement measures for these activities are detailed in Section 2.2.7, "Noise". Implementation of the Project would result in noise impacts to several sensitive receptors. Noise abatement measures, such as the construction of noise barriers, are included in Section 2.2.7 to reduce these impacts. In addition to the impacts associated with the Project, ambient noise would increase in the area resulting from the planned development near the Project area.

Several noise receptor locations would be impacted under the Project. However, Mitigation Measures **NOI-1** and **NOI-2** are presented in Section 2.2.7 would reduce these effects to receptors. Noise levels are expected to increase in the resource study area due to urban growth and planned developments. With the implementation of the prescribed mitigation measures and the increases in noise levels in the area, the Project would not result in any cumulative impacts to noise in the resource study area.

The increase in traffic as a result of the planned developments would result in a cumulative noise impact to receptors located near the Project area.

No-Build Alternative

Under the No-Build Alternative, the Project would not be built and there would be no construction-related or long-term noise impacts. However, noise levels are expected to increase under cumulative conditions with future development identified in the City and County General Plans. However, these are not considered to be cumulative impacts.

2.4.18 BIOLOGICAL ENVIRONMENT

Cumulative Conditions

The biological resources analyzed in this Project which occur within the resource study area include natural communities, wetlands, plants, animals, threatened and endangered species, and invasive species. Many of the natural communities, wetlands, and habitats where threatened species occur are located within private or restricted land in the resource study area.

Based on the information obtained from the site visits, there are no federal-listed plant species that have the potential to occur in the Project area. However, seven CNPS listed special-status plant species have the potential to occur in the vicinity of the Project area. Several trees protected under the City Municipal Code 19.12 (Tree Preservation and Protection) may occur within the resource study area.

Planned development within and surrounding the resource study area may remove vegetative communities, plant species, habitat for wildlife, impact wetland or other waters of the U.S., and potentially impact special-status or threatened species. These and other planned developments identified in the City and the County General Plans would potentially remove these biological resources. Within and around the resource study area, several specific plans and developments have adopted by the City, and have Final EIRs evaluating their potential impacts to biological resources.

Build Alternative

There would not be any potential cumulative impacts to natural communities under the Project. The vegetative communities impacted by the Project are not considered natural communities of concern and the relatively minimal amount of habitat removed would not be cumulative.

Implementation of the Project is not expected to contribute to cumulative impacts to wetlands in the Project area. Many of the wetland features which will be permanently impacted already show signs of degradation due to agricultural activities, existing urban land uses such as roads, and development. Impacts to wetlands will be reduced and compensated for through implementation of **BIO-1** through **BIO-4** from Section 2.3.2.

The Project is not expected to contribute to cumulative considerable impacts to plant species in the resource study area. Potential cumulative impacts to plant communities may result if development throughout the region removes significant portions of suitable habitat. Avoidance, minimization, and mitigation measures **BIO-5** and **BIO-6** in Section 2.3.3 will

ensure that any potential impacts to special status plants are reduced or compensated for and would not result in cumulative impacts to plants.

Special-status and common animal species in the resource study area may be impacted by the Project. Avoidance, minimization, and mitigation measures **BIO-9** through **BIO-16** in Section 2.3.4 will ensure that any potential impacts to special status plants are reduced or compensated for and would not result in cumulative impacts to plants. Planned developments surrounding the resource study area and in the County and the City remove habitat for wildlife and increase human presence. The relatively minor removal of wildlife habitat and potential species impacts from the Project would not be a cumulative impact.

The Project is not expected to contribute to cumulative impacts to threatened and endangered species in the resource study area. Planned developments identified in the County and the City General Plans would increase human presence in the area and would directly remove vegetative communities which provide habitat for these species. Avoidance, minimization, and mitigation measures **BIO-17** through **BIO-21** in Section 2.3.5 will ensure that any potential impacts to protected species are reduced or compensated for and would not result in cumulative impacts to threatened and endangered species.

The Project would not cause a cumulative increase in invasive species. Avoidance, minimization, and mitigation measures **BIO-22** in Section 2.3.6 would effectively prevent the spread and growth of invasive species in the resource study area. There would not be any cumulative impacts resulting from increased invasive species.

The planned developments would result in adverse cumulative impacts to biological resources due to the construction of residential, commercial, and other public use areas.

No-Build Alternative

Under the No-Build Alternative, the Project would not be constructed and no impacts to biological resources would occur. There would not be any cumulative impacts to biological resources under the No-Build Alternative

3.0 COMMENTS AND COORDINATION

3.1 Introduction

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency and tribal consultation and public participation for this Project have been accomplished through a variety of formal and informal methods, including interagency coordination meetings, public meetings, public notices, Project Development Team (PDT) meetings, etc. This chapter summarizes the Department's and the Connector JPA's efforts to identify, address and resolve Project-related issues through early and continuing coordination.

3.2 Scoping Process

The approved Capital SouthEast Connector Project Volume 2 of the Final PEIR document (2012) provided basis for determining potential environmental constraints within the Capital SouthEast Connector – A1/A2 Kammerer Road Project area.

The public scoping process for this Capital SouthEast Connector began in February 2010 with the initiation of the PEIR for the Capital SouthEast Connector and the formal notification of the publication of the Notice of Intent. A public scoping meeting was held on Wednesday, February 24, 2010, from 6:00 p.m. to 8:00 p.m., in the American River Room at the Rancho Cordova City Hall, 2729 Prospect Park Drive, Rancho Cordova. The meeting was conducted to discuss the Project purpose and need, the range of alternatives, and potential impacts to the natural and built environment. There were no comments received at this scoping meeting. The public did provide input at the public review of the PEIR in March of 2012, which covered the Kammerer Road Project as well as the other segments of the Capital SouthEast Connector Project.

With input from the public during scoping, the scope of the A1/A2 Kammerer Road Project is built on the agency comments received on the Capital SouthEast Connector PEIR as pertinent to the portion of the Project between I-5 and SR-99.

3.3 Consultation and Coordination

3.3.1 Federal and Native American Agency Consultation

Specific federal agencies and Native American Tribes received letters offering consultation and requesting jurisdictional review of Project impact assessments, as follows:

- **U.S. Army Corps of Engineers:** On October 31, 2014, a request was for a preliminary jurisdictional delineation was sent to the USACE in accordance with Regulatory Guidance Letter (RGL) 08-02 for the Project. On November 17, 2014, USACE concurred with the amount and location of wetland and other water bodies on the site, as depicted on the Delineation of Wetlands and Water of Kammerer Road, Elk Grove, prepared by PMC (2014).

- **U.S. Fish and Wildlife Service:** On March 3, 2016, a request for initiation of formal consultation with the USFWS was sent by the Department. The request was received on March 7, 2016; however, complete information was not received until November 25, 2016. On December 16, 2016 take authorization from USFWS through FESA Section 7 was concurred with the issuance of a Biological Opinion (08ESMF00-2015-F-0252-2).

USFWS was also contacted via email on July 21, 2017 regarding Stone Lakes NWR Project Boundary and Section 4(f) resource requirements.

- **Wilton Rancheria of Wilton, California:** Consultation with the Tribe began on July 19, 2016 with a phone call introducing the Project and offering an opportunity for formal consultation. During the call the Tribe requested consultation on the Project, and a copy of the consultation letter. Consultation efforts have continued via email (July 27, 2016, January 25, 2017, October 8, 2018, and December 26-27, 2018), letters (July 6, 2017 and April 25, 2018) and meetings (March 1, 2017, March 28, 2017, and June 19, 2018). The implementing public agencies and the Department will continue to coordinate with the Tribe throughout the NEPA process.
- **United Auburn Indian Community (UAIC):** Consultation with the Tribe began on July 14, 2016 with a letter mailed introducing the Project and offering an opportunity for formal consultation. On June 10, 2016, the Tribe requested consultation on the Project via email. Consultation efforts have continued via email (July 27, 2016, September 8, 2016, October 7, 2016 and October 9, 2018), and letters (January 25, 2017 and April 25, 2018). The implementing public agencies and the Department will continue to coordinate with the Tribe throughout the NEPA process.
- **Ione Band of Miwok Indians (UAIC):** Consultation with the Tribe began on July 19, 2016 with a phone call introducing the Project and offering an opportunity for formal consultation. During the call the Tribe requested consultation on the Project, and a copy of the consultation letter. Consultation efforts have continued via email (July 26, 2016, January 25, 2017, and October 9, 2018). The implementing public agencies and the Department will continue to coordinate with the Tribe throughout the NEPA process.

3.3.2 State and Local Agencies Consultation

State Agencies

State Historic Preservation Office

On February 27, 2017, the Department initiated consultation with the SHPO on Section 106 by providing Cultural Technical Reports. The Department seeks concurrence with the Area of Potential Effect, the determination of eligibility and the determination of effects. On March 14, 2017, the SHPO office sent their review and concurrence.

California Department of Fish and Wildlife

Throughout the Project planning and preliminary design process, the Connector JPA has made continuous efforts to maintain up-to-date CNDDDB queries for special status plants and wildlife. These queries required regular updates to the Project's CNDDDB species lists. Queries through the CNDDDB were generated on September 18, 2017 and December 11, 2018.

Local Agencies

In addition to providing routine updates to Connector JPA Board members, the Connector JPA is engaging with state and local agencies in the planning, development, and ongoing coordination of the Project. Specifically, these agencies include the Department, the City, and the County. The City has also conducted outreach to the local community regarding the Project including the community apprised of Project development

This Project is identified in SACOG's 2021/2024 MTIP as project numbers SAC24114 (Kammerer Road Widening (Connector Segment)) and SAC24094 (Kammerer Rd Extension (Connector Segment A)) and SAC25262 (Kammerer Rd. Reconstruction (Connector Segment A)).

The FHWA assigned the Department as the Lead Agency under NEPA. The implementing public agencies coordinate with the Department through periodic Project Development Team meetings. These meetings were established to coordinate on the environmental process and other Project development activities and have occurred through the preliminary engineering and environmental document phase of the Project. In addition, regular coordination with the Department design teams for aspects of the Project associated with the I-5 Interchange and the required Project Report for the I-5 Interchange footprint have occurred.

The implementing public agencies has coordinated routinely with the affected jurisdiction agencies (i.e., the Connector JPA, the City of Elk Grove, and Sacramento County) to provide up-to-date information about progress and decisions, and to forward draft studies for review and input.

Additional coordination with the following agencies was initiated for the Project:

- Friends of Stone Lakes National Wildlife Refuge
- Friends of the Swainson's Hawk
- Sierra Club, Mother Lode Chapter and Sacramento Group

3.4 Public Outreach

The Capital SouthEast Connector Project has a long history of public participation going back to the conceptual planning phase of the 34-mile-long project. A Stakeholder Advisory Committee (SAC) and Technical Advisory Committee (TAC) met regularly to develop the elements of the Project's objectives and purpose and need, which were presented to a Policy Advisory Committee that included representatives from each of the five affected jurisdictions. During this pre-environmental studies phase, these committees continued to meet regularly. Community residents and other members of the public attended these meetings as well as the six public information sessions held during the course of the study. Oral and written comments were received from committee members, local residents, community representatives, and other interested parties. The Connector JPA held additional public workshops in communities along the Capital SouthEast Connector Project to solicit comments. These comments were used as preliminary scoping input to the Connector JPA for the formal environmental process.

In February 2010, the formal environmental process was initiated with a PEIR. Public scoping meetings during this process were held in communities along the Capital SouthEast Connector Project. As noted above in Section 3.2, the public scoping meeting for the D2 Expressway Project component (Segment D2) was held on February 24, 2010, and no comments were recorded during this meeting. Additional public participation activities including newsletters, website updates, and subsequent public meetings satisfied the requirements to complete the PEIR for the entire 34-mile facility.

Following the completion of the PEIR, dated February 2012, the Connector JPA initiated the development of Design Guidelines that established corridor-wide criteria and standards for the Capital SouthEast Connector Project segments to follow as each segment progresses through project development. In order to inform the Design Guidelines and reflect the individual needs and concerns of the affected communities, the Connector JPA formulated a SAC that included community members and stakeholders representing all segments of the full corridor. The SAC met three times to receive information regarding the goals and objectives of the Project and to express any issues or concerns they had concerning the Project. Specifically, the SAC provided input on access needs for motorized and non-motorized traffic and on aesthetic elements for the theme of the corridor.

The Connector JPA also initiated a Sustainability Concept Committee consisting of business/industry, agency, and advocacy representatives with focused interest and expertise in sustainability. The Sustainability Concept Committee completed a full assessment of applicable solutions to achieve sustainability in the implementation of this new facility and recommended approximately 90 solutions to be considered.

Further public review and comment was conducted during the circulation of the CEQA Draft Capital SouthEast Connector – A1/A2 Kammerer Road Project Initial Study with Mitigated Negative Declaration (February 28, 2018 – April 2, 2108), and a public meeting during the circulation period on March 6, 2018. Public comments were taken into consideration for the Final CEQA IS/MND and have been incorporated where necessary in the Build Alternative for this NEPA EA.

3.5 Comments and Responding to Comments

The issuance of this Draft EA will provide an opportunity for the public and affected agencies to review the Project goals, objectives, purpose and need, the Project design, and the environmental findings.

The public comment period for the Project provides the opportunity for public comment and participation. All substantive comments in response to the public comment period, and responses to those substantive comments will be included in the Final EA. Substantive comments are those comments that are related to the facts of the Project, environmental document, or studies – comments that are purely just expressing support or opposition to the Project without any factual substantiation were not provided with a response.

If no significant issues are identified during the comment period, the implementing public agencies recommend that the Department adopt a Finding of No Significant Impacts, otherwise, a notice of intent will be published announcing the development of an Environmental Impact Statement.

4.0 LIST OF PREPARERS

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5.0 DISTRIBUTION LIST

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7.0 APPENDICES

Appendix A: Section 4(f) Evaluation

Resources Evaluated Relative to the Requirements of Section 4(f): No-Use Determination(s)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

This section of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or next to the project area that do not trigger Section 4(f) protection because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, or 4) the project does not permanently use the property and does not hinder the preservation of the property.

Section 4(f) Resources

Stone Lakes National Wildlife Refuge

Of the 18,000-acre approved Stone Lakes NWR, approximately 17,641 acres are designated within the Refuge Project Area, a 4(f) resource, while the remaining 359 acres are situated within the Refuge Project Boundary. The Refuge Project Boundary is only a designated area where the USFWS may consider opportunities to work with willing private and public landowners on establishing easements, leases, transfers or acquisitions. The Refuge Project Boundary is essentially just an area of opportunity. Only those lands that are owned or leased by the USFWS are part of the Refuge Project Area are 4(f) resources, and subject to any of the management actions or protections. The Project is anticipated to consult with USFWS regarding potential easement, lease, or acquisition of a portion within the Refuge Project Boundary in the vicinity of the I-5/Hood Franklin Road Interchange, when determined if necessary at the time of final design. No protected lands within the Refuge Project Area would be impacted by the Project.

The property is a Section 4(f) property, but no “use” will occur. Therefore, the provisions of Section 4(f) do not apply.

Appendix B: Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-6130
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TTY 711
www.dot.ca.gov



*Making Conservation
a California Way of Life.*

April 2018

**NON-DISCRIMINATION
POLICY STATEMENT**

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures *"No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."*

Related federal statutes and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, please visit the following web page:
http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone (916) 324-8379, TTY 711, email Title.VI@dot.ca.gov, or visit the website www.dot.ca.gov.

A handwritten signature in blue ink, appearing to read "Laurie Berman".

LAURIE BERMAN
Director

Appendix C: Summary of Relocation Benefits

California Department of Transportation Relocation Assistance Program

DECLARATION OF POLICY

“The purpose of this title is to establish a **uniform policy for fair and equitable treatment** of persons displaced as a result of federal and federally assisted programs in order that such persons **shall not suffer disproportionate injuries** as a result of programs designed for the benefit of the public as a whole.”

The Fifth Amendment to the U.S. Constitution states, “No Person shall... be deprived of life, liberty, or property, without due process of law, nor shall private property be taken for public use without just compensation.” The Uniform Act sets forth in statute the due process that must be followed in Real Property acquisitions involving federal funds. Supplementing the Uniform Act is the government-wide single rule for all agencies to follow, set forth in 49 Code of Federal Regulations (CFR) Part 24. Displaced individuals, families, businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments, as discussed below.

FAIR HOUSING

The Fair Housing Law (Title VIII of the Civil Rights Act of 1968) sets forth the policy of the United States to provide, within constitutional limitations, for fair housing. This act, and as amended, makes discriminatory practices in the purchase and rental of most residential units illegal. Whenever possible, minority persons shall be given reasonable opportunities to relocate to any available housing regardless of neighborhood, as long as the replacement dwellings are decent, safe, and sanitary and are within their financial means. This policy, however, does not require the Department to provide a person a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling.

Any persons to be displaced will be assigned to a relocation advisor, who will work closely with each displacee in order to see that all payments and benefits are fully utilized and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments. At the time of the initiation of negotiations (usually the first written offer to purchase), owner-occupants are given a detailed explanation of the state’s relocation services. Tenant occupants of properties to be acquired are contacted soon after the initiation of negotiations and also are given a detailed explanation of the Caltrans Relocation Assistance Program. To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Department relocation advisor.

RELOCATION ASSISTANCE ADVISORY SERVICES

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, the Department will provide relocation advisory assistance to any person, business, farm or nonprofit organization displaced as a result of the acquisition of real property for public use, so long as they are legally present in the United States. The Department will assist eligible displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are “decent, safe, and sanitary.” Nonresidential displacees will receive information on comparable properties for lease or purchase (for business, farm, and nonprofit organization relocation services, see below).

Residential replacement dwellings will be in a location generally not less desirable than the displacement neighborhood at prices or rents within the financial ability of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings will be offered to displacees that are open to all persons regardless of race, color, religion, sex, national origin, and consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include the supplying of information concerning Federal and State assisted housing programs and any other known services being offered by public and private agencies in the area.

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without first being given at least 90 days written notice. Residential occupants eligible for relocation payment(s) will not be required to move unless at least one comparable “decent, safe, and sanitary” replacement dwelling, available on the market, is offered to them by the Department.

RESIDENTIAL RELOCATION PAYMENTS

The Relocation Assistance Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of a replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Assistance Program can be summarized as follows:

Moving Costs

Any displaced person, who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles, or a fixed payment based on a fixed moving cost schedule. Lawful occupants who move into the displacement property after the initiation of negotiations must wait until the Department obtains control of the property in order to be eligible for relocation payments.

Purchase Differential

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 90 days or more prior to the date of the initiation of negotiations (usually the first written offer to purchase the property), may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate.

Rent Differential

Tenants and certain owner-occupants (based on length of ownership) who have occupied the property to be acquired by the Department prior to the date of the initiation of negotiations may qualify to receive a rent differential payment. This payment is made when the Department determines that the cost to rent a comparable “decent, safe, and sanitary” replacement dwelling will be more than the present rent of the displacement dwelling. As

an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitations noted under the *Down Payment* section below.

To receive any relocation benefits, the displaced person must buy or rent and occupy a “decent, safe and sanitary” replacement dwelling within one year from the date the Department takes legal possession of the property, or from the date the displacee vacates the displacement property, whichever is later.

Down Payment

The down payment option has been designed to aid owner-occupants of less than 90 days and tenants in legal occupancy prior to the Department’s initiation of negotiations. The one-year eligibility period in which to purchase and occupy a “decent, safe and sanitary” replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 CFR 24) contain the policy and procedure for implementing the Last Resort Housing Program on Federal-aid projects. Last Resort Housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard residential relocation as explained above. Last Resort Housing has been designed primarily to cover situations where a displacee cannot be relocated because of lack of available comparable replacement housing, or when the anticipated replacement housing payments exceed the limits of the standard relocation procedure, because either the displacee lacks the financial ability or other valid circumstances.

After the initiation of negotiations, the Department will within a reasonable length of time, personally contact the displacees to gather important information, including the following:

- Number of people to be displaced.
- Specific arrangements needed to accommodate any family member(s) with special needs.
- Financial ability to relocate into comparable replacement dwelling which will adequately house all members of the family.
- Preferences in area of relocation.
- Location of employment or school.

NONRESIDENTIAL RELOCATION ASSISTANCE

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms and nonprofit organizations in locating suitable replacement property, and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent, suitable for a particular business’s specific relocation needs. The types of payments available to eligible businesses, farms, and nonprofit organizations are: searching and moving expenses, and possibly reestablishment expenses; or a fixed in lieu payment instead of any moving, searching and reestablishment expenses. The payment types can be summarized as follows:

Moving Expenses

Moving expenses may include the following actual, reasonable costs:

- The moving of inventory, machinery, equipment and similar business-related property, including: dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property. Items acquired in the right-of-way contract may not be moved under the Relocation Assistance Program. If the displacee buys an Item Pertaining to the Realty back at salvage value, the cost to move that item is borne by the displacee.
- Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move.
- Expenses related to searching for a new business site, up to \$2,500, for reasonable expenses actually incurred.

Reestablishment Expenses

Reestablishment expenses related to the operation of the business at the new location, up to \$25,000 for reasonable expenses actually incurred.

Fixed In Lieu Payment

A fixed payment in lieu of moving, searching, and reestablishment payments may be available to businesses that meet certain eligibility requirements. This payment is an amount equal to half the average annual net earnings for the last two taxable years prior to the relocation and may not be less than \$1,000 nor more than \$40,000.

ADDITIONAL INFORMATION

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954, or for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act, or any other law, *except* for any federal law providing local "Section 8" Housing Programs.

Any person, business, farm or nonprofit organization that has been refused a relocation payment by the Department relocation advisor or believes that the payment(s) offered by the agency are inadequate may appeal for a special hearing of the complaint. No legal assistance is required. Information about the appeal procedure is available from the relocation advisor.

California law allows for the payment for lost goodwill that arises from the displacement for a public project. A list of ineligible expenses can be obtained from the Department's Division of Right of Way and Land Surveys. California's law and the federal regulations covering relocation assistance provide that no payment shall be duplicated by other payments being made by the displacing agency.

For more information, please visit the Division of Right of Way's Relocation Assistance Program at: <http://www.dot.ca.gov/hq/row/rap/index.htm>

Appendix D: Avoidance, Minimization, and/or Mitigation Summary

ENVIRONMENTAL COMMITMENT RECORD

CAPITAL SOUTHEAST CONNECTOR – A1/A2 KAMMERER ROAD PROJECT

Last updated July 27, 2022

Capital SouthEast Connector –A1/A2 Kammerer Road Extension Project

EP:

PA&ED

RE:

In order to be sure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated on the proposed Environmental Commitments Record [ECR] which follows) would be implemented. During project design, avoidance, minimization, and /or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in this ECR are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. As the following ECR is a draft, some fields have not been completed, and will be filled out as each of the measures is implemented. Note: Some measures may apply to more than one resource area. Duplicative or redundant measures have not been included in this ECR.

Avoidance, Minimization and/or Mitigation					
Task and Brief Description	Timing	Responsible Party	Task Completed	Initials	Remarks/Due Date
Farmlands/Timberlands					
AG-1: The proposed Project shall be designed to avoid or minimize the direct conversion of important farmland to nonagricultural uses and indirect conversion of farmland through severance or fragmentation. During future design phases, the implementing agency will locate the proposed Project to avoid or minimize loss of agricultural lands and the potential for fragmenting agricultural lands or production in a manner that would make them uneconomical to farm, to the extent that doing so would not compromise safety or standard design criteria for a road of this type.	During PS&E/Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
AG-2: For important farmland (prime, statewide, unique, and local) converted by the project, either directly or indirectly as described above, important farmland of the same category will be permanently protected from development at a minimum ratio of 1:1. Productive offsite agricultural land subject to conversion will be protected through the purchase or transfer of its development rights and establishment of a farmland conservation easement over the	During PS&E/Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	

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agricultural land pursuant to California Civil Code Section 815, et seq. or other statute providing for its conservation in perpetuity for agricultural use. The Connector JPA will provide funds to an agricultural land trust or similar nongovernmental entity for the purchase of agricultural land or development rights on agricultural and establishment of a farmland conservation easement. The Connector JPA shall fund only a land trust or nongovernmental entity with an established record of responsible agricultural land stewardship.					
Community					
<p>COM-1: Before proceeding with final design, the implementing agency will develop and implement a relocation plan consistent with California Code of Regulations, Title 25, Section 6038 to ensure that eligible residential, commercial, and industrial uses are compensated for moving and residential/business replacement costs. Eligibility of specific residences or businesses for compensation will be determined after evaluation of the impact on the specific use(s) to be relocated, but would include both full and partial property/parcel acquisitions.</p> <p>The implementing agency will use applicable relocation assistance programs (including those administered by local, state and federal governments) to compensate owners and tenants for the relocation costs of residential, commercial, and industrial uses displaced by the project components.</p>	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	
Utilities/Emergency Services					
UTL-1: To minimize interruptions of service to utility customers, a series of coordination letters shall be sent to all impacted utility	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	

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companies to identify utilities within the proposed Project. Letters will indicate where utility relocations are to be performed and the required time to relocate them. Design plans will be sent to involved utility owners during the project development phase.					
UTL-2: The implementing agency will ensure that the project design will employ LID techniques and features to maintain the site's predevelopment runoff rates and volumes to the extent feasible. The objective of the LID design is to mimic the site's predevelopment hydrology by including project features and techniques that infiltrate, filter, store, evaporate, and detain stormwater runoff close to the source. LID design features and techniques can incorporate (but are not limited to) minimizing impermeable surfaces where practical; inclusion of bioretention facilities or rain gardens; preserving natural drainages, vegetation, and buffer zones; inclusion of grass swales and channels to direct storm drainage; construction of cisterns to collect water for later use in irrigation; inclusion of vegetated filter strips; and use of permeable pavements.	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	
UTL-3: The implementing agency will ensure that the design of the project will include a landscaping and irrigation plan that is based on the use of drought-resistant landscaping materials. This includes the use of suitable drought-resistant native plants, where feasible, and nonnative plants that are suitable to the site, such as grasses. Suitable plants are those matched to the climate, soils, and the Sacramento region. No invasive, nonnative plants (as inventoried by the California Invasive Plant Council) or noxious weeds (as listed by the California Department of Food and Agriculture) will be used in the landscaping plan. The irrigation system design will rely on recycled water or non-potable water (including water from LID	Prior to and During Construction	Implementing Agency And Contractor	<input type="checkbox"/>	_____	

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cisterns) whenever available, consistent with quality and health standards. The irrigation system design will include the use of smart irrigation controllers to minimize the amount of supplemental water required to maintain the landscaping.					
<p>UTL-4: The implementing agency will require that the contractor will employ one of the following options for recycling construction and demolition debris:</p> <p>1. If there is room at the construction site for multiple sorting bins, construction and demolition debris will be sorted and dropped off at recycling facilities. Currently, the following facilities accept sorted construction and demolition waste:</p> <ul style="list-style-type: none"> • Kiefer Landfill • Crete Crush, LLC, which accepts brick, gravel, sand, asphalt, concrete, and soil • Elder Creek Recovery & Transfer Station BFI • EBI Aggregates, which accepts concrete and asphalt • Vulcan Materials, which accepts concrete and asphalt • Sims Metal Management • Granite Construction Company, which accepts only clean, separated concrete and asphalt • Bell Marine Company, Inc., which accepts concrete and asphalt • L and D Landfill Company • Sacramento Recycling & Transfer Station • Sacramento Habitat for Humanity, which accepts tax deductible donations of clean wood and various building materials 	During Construction	Contractor	<input type="checkbox"/>	_____	

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<ul style="list-style-type: none"> Second Cycle, Inc. <p>2. If the construction site is crowded, or mixed recycling is preferable for another reason, the Sacramento Regional Solid Waste Authority provides a list of certified construction and demolition debris sorting facilities.</p> <ul style="list-style-type: none"> Allied Waste/Elder Creek Transfer and Recovery L and D Landfill Company Waste Management/K&M Recycle America Florin-Perkins Public Disposal <p>If a waste type produced by project construction is a type not accepted by regional landfills, the project engineer(s) will ensure that the waste is disposed of in accordance with all federal, state, and local statues and regulations related to solid waste.</p>					
Traffic and Transportation and Bicycle Facilities					
<p>TRF-1: The implementing agency, as applicable, will require that the contractor(s) prepare a traffic management plan (TMP) during the final stage of project design to ensure there is no interference with emergency vehicles/services or response/evacuation plans. The plan will list procedures, specific emergency response, and evacuation measures to be followed during emergencies. The contractor will prepare this manual, subject to review and approval by the implementing agency, and distribute the approved plan to contract workers involved in the proposed project before construction and during operation of the project. Implementation of the approved plan will be a requirement of the construction contract.</p>	<p>Prior to and During Construction</p>	<p>Implementing Agency And Contractor</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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<p>The implementing agency will provide project maps to emergency personnel (e.g., fire protection agencies, police and sheriff departments, California Highway Patrol) that describe construction activities as well as access roads to ensure proper emergency response to all parts of the proposed project.</p> <p>Standards found in Caltrans' TMP guidelines (2009) outline the basic requirements for such plans. The Connector JPA or local agencies will require the following measures to be implemented as part of project construction.</p> <ul style="list-style-type: none"> • The contractor will be required to prepare and implement a TMP that identifies the locations of temporary detours and signage to facilitate local traffic/truck patterns and through-traffic requirements. • The contractor will provide emergency service providers (i.e., law enforcement, fire protection, and ambulance services) adequate notice of any street closures during the construction phases of the proposed project. • Construction activities will be coordinated to avoid blocking or limiting auto, truck, bike, and pedestrian access to homes and businesses to the extent possible. Residents will be notified in advance about potential access or parking effects before construction activities begin. Facilities such as traffic lights, turn pockets, or common driveway access will be provided continued access. Alternative methods of providing access could also be provided, such as relocation of existing access driveways and sidewalks, provision of frontage roads, 					

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<p>construction of joint parking areas and pedestrian access from parking areas.</p> <ul style="list-style-type: none"> A comprehensive marketing campaign throughout the larger market area will be provided to ensure that customers know that businesses are operating during construction, and how to reach them. This would include signage posted well outside the impacted area, on routes leading into the construction area. Any interchange, ramp, or road closures required during construction will, to the extent possible, be limited to nighttime hours to reduce effects on businesses within or adjacent to the project limits. Construction activities will be coordinated to avoid blocking or limiting access to businesses in or adjacent to the project area during business hours. Businesses will be notified in advance concerning construction activities before construction begins near businesses. The TMP will be prepared to address short-term disruptions in existing circulation patterns during construction. For example, the TMP will identify the locations of temporary detours or temporary roads to facilitate local traffic circulation and through-traffic requirements. 					
Visual/Aesthetics					
<p>VIS-1: To minimize visual impacts of staged construction equipment, adherence of Caltrans Standard Specification for Construction would occur. Construction materials and debris shall be stored away from highly visible areas, which shall include, but not be limited to, residences along Kammerer Road, Bruceville Road, Franklin Boulevard, and the Rancho Verde residential development.</p>	During Construction	Contractor	<input type="checkbox"/>	_____	

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<p>VIS-2: To minimize visual impacts to the Rancho Verde residential development, design and construction of the overhead grade separation structure would incorporate design features to minimize the appearance of the structure. These design features may include vegetative cover and the use of cut and fill around the structure so it appears to grow out of and blend in with the surrounding landscape. Any hydroseed or vegetation cover would be composed of native species.</p>	During Construction	Contractor	<input type="checkbox"/>	_____	
<p>VIS-3: During the final design of the Project, the implementing agency will prepare and implement a plan for construction lighting that minimizes the release of light and glare either upward or toward properties and residences adjoining the construction site. At a minimum, the plan will contain the following elements:</p> <ul style="list-style-type: none"> To minimize trespass lighting to the skies, use full cutoff luminaires. Full cutoff luminaires are designed to not emit any light above 90 degrees, thereby reducing sky glow. Use internal or external shields when necessary to minimize light trespass onto neighboring properties. 	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	
<p>VIS-4: Operational lighting of the Project will be designed for safety and will include features that minimize the release of light and glare either upward or toward properties and residences adjoining the Project corridor. The lighting design will conform to all applicable City, County, State, Federal and public safety standards, as appropriate. Features could include shielding lighting elements, using lower voltage lighting, incorporating downward casting lighting, using lighting features that conform to the visual character of the area, and similar design measures as listed below:</p>	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	

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<ul style="list-style-type: none"> Consider the least intrusive lighting when improvements are made at an intersection, when lighting is needed for safety reason, or when a new intersection is constructed. Minimize continuous roadway lighting, Calculate the optimum location, height and spacing for alternative lighting solutions at each intersection using computer software. Do not permit the use of high pressure sodium lamps. Metal halide is preferred because of the more natural color rendition and pure white light. Minimize trespass lighting to the skies by using full cutoff luminaires. Full cutoff luminaires are designed to not emit any light above 90 degrees, thereby reducing sky glow. Reduce the amount of light required for an intersection by using Caltrans, Sacramento County, and City of Elk Grove Department of Transportation minimum requirements as appropriate. Use internal or external shields when necessary to minimize light trespass onto neighboring properties. 					
Cultural Resources					
<p>CR-1: The Kammerer Programmatic Agreement shall be executed between the SHPO and Caltrans and shall detail the remaining actions needed to complete cultural resource identification efforts, evaluation of potential historic properties, assess the potential for substantial adverse changes, and potential mitigation of substantial adverse changes for the project. All stipulations of the Kammerer Programmatic Agreement shall be implemented by the responsible agency as applicable prior to construction, during construction, and post construction activities.</p>	<p>Prior to Construction</p>	<p>Implementing Agency</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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Although the Kammerer Programmatic Agreement will specifically discuss compliance with Section 106 of the National Historic Preservation Act, the stipulations therein will also ensure that any previously unidentified resources will be treated appropriately in accordance with CEQA.					
CR-2: Should cultural resources be identified during construction, the actions outlined in the Kammerer Programmatic Agreement regarding cultural resource discovery during construction shall be implemented, including implementation of ESA fencing, evaluation for listing on the NRHP if it cannot be protected in place, and appropriate curation or repatriation.	During Construction	Implementing Agency	<input type="checkbox"/>	_____	
CR-3: Should human remains be discovered during implementation of the project, they will be treated in accordance with the requirements of Section 7050.5(b) of the California Health and Safety Code. If, pursuant to Section 7050(c) of the California Health and Safety Code, the county coroner/medical examiner determines that the human remains are or may be of Native American origin, then the discovery shall be treated in accordance with the provisions of Section 5097.98(a)-(d) of the California Public Resources Code.	During Construction	Implementing Agency	<input type="checkbox"/>	_____	
CR-4: If Native American human remains are discovered and the Wilton Rancheria is identified as a Most Likely Descendant by the Native American Heritage Commission, the <i>Memorandum of Understanding between the Capital SouthEast Connector Joint Powers Authority, the City of Elk Grove, the Sacramento County, the California Department of Transportation, and the Wilton Rancheria Regarding the Treatment and Disposition of Native American Human Remains Encountered during the Capital SouthEast Connector A1/A2 Kammerer Road Project</i> (Kammerer	During Construction	Implementing Agency	<input type="checkbox"/>	_____	

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MOU) will become effective. The Kammerer MOU identifies the appropriate human remains treatment, recovery methodology, documentation, disposition, and information dissemination. Should the Native American Heritage Commission identify a Most Likely Descendant other than the Wilton Rancheria, the responsible agency will initiate consultation with the designated MLD.					
<p>CR-5: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.</p> <p>If human remains are discovered, California Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Laura Loeffler, Department District 3 Environmental Branch Manager, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.</p>	During Construction	Implementing Agency	<input type="checkbox"/>	_____	
Hydrology and Floodplain - Water Quality and Stormwater Runoff					
<p>HYD-1: The implementing agency will implement the following actions either directly or through contract specifications:</p> <p>1. During the design of individual projects, in consultation with the applicable regulatory agencies, develop specific design and</p>	Prior to and During Construction	Implementing Agency And	<input type="checkbox"/>	_____	

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<p>construction standards for stream crossings, including, but not limited to, maintaining open surface (bridged versus closed culvert) crossings, infrastructure setbacks, erosion control measures, sediment controlling excavation/fill practices, and other BMPs as described in item 3 below.</p> <p>2. The implementing agency will obtain the required permits from the appropriate agencies for impacts to waters.</p> <p>3. During and after construction activities, monitor and ensure compliance with water quality objectives outlined in the Central Valley RWQCB Basin Plan.</p> <p>4. Minimize sediment transport caused by construction by following BMPs undertaken as part of National Pollutant Discharge Elimination System (NPDES) Permit and Storm Water Pollution Prevention Plan (SWPPP) requirements that will be included in construction permits. The BMPs will be designed so that, when employed in concert, they will meet the requirement of the NPDES permit and avoid the transport of sediment from the project site. BMPs may include, but are not limited to, measures such as the following:</p> <ul style="list-style-type: none"> a. providing permeable surfaces where feasible and where this would not result in erosion or the release of sediment; b. retaining and treating stormwater on site using catch basins and filtering wet basins; c. minimizing the contact of construction materials, equipment, and maintenance supplies with stormwater; d. reducing erosion through soil stabilization, watering for dust control, installing perimeter silt fences, placing rice straw bales, and installing sediment basins; and 		Contractor			

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<p>e. maintaining water quality by using infiltration systems, detention systems, retention systems, constructed wetland systems, filtration systems, biofiltration/bioretention systems, grass buffer strips, ponding areas, organic mulch layers, planting soil beds, sand beds, and vegetated systems such as swales and grass filter strips that are designed to convey and treat either fallow flow (swales) or sheet flow (filter strips) runoff.</p> <p>5. Develop and implement a procedure for spill prevention and control to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during all construction activities. If a spill should occur during construction that causes a release of a hazardous material, including oil and radioactive materials, the proper agencies will be notified, and an Emergency Release Follow-up Notice Reporting Form will be submitted no more than 30 days following the release.</p> <p>6. Use methods such as habitat restoration, reconstruction of [habitat] on site, and habitat replacement off site to minimize surface water quality impacts.</p> <p>7. Comply with conditions included in permits issued under Sections 404 and 401 of the federal CWA.</p> <p>8. Comply with requirements of Section 10 of the federal Rivers and Harbors Act for work required around a water body designated as navigable (and applicable permit requirements).</p> <p>9. Comply with the requirements of a state Streambed Alteration Agreement for work along the banks of various surface water bodies.</p>					

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10. Where feasible, avoid significant development of facilities in areas that may have substantial erosion risk, including areas with erosive soils or steep slopes.					
<p>HYD-2: The implementing agency will require the following actions as part of construction contract specifications.</p> <p>Before discharging any dewatered effluent to surface water the contractor will determine whether the volume of water from the dewatering operation is covered under the NPDES Construction General Permit. If it is deemed that the volume is greater than the Construction General Permit allows, the contractor will obtain coverage under an NPDES Low Threat Discharge and Dewatering Permit from the Central Valley RWQCB. The NPDES Low Threat Discharge and Dewatering Permit will require the water from the dewatering operation to be treated prior to discharge to any local water way.</p>	During Construction	Contractor	<input type="checkbox"/>	_____	
<p>HYD-3: Final design will include, and the implementing agency will implement, either directly or through contract specifications, source and treatment control measures contained in Central Valley Region Phase I MS4 NPDES Permit. General site housekeeping and design control measures incorporated into the project design can include, but are not limited to, conserving natural areas, protecting slopes and channels, and minimizing impervious areas. Treatment control measures may include use of vegetated swales and buffers, detention basins, wet ponds, or constructed wetlands, infiltration basins, and other measures. LID approaches will be incorporated into site design and stormwater management to maintain the site's predevelopment runoff rates and volumes. Examples of such measures include, but are not limited to, sidewalk storage,</p>	During Construction	Contractor	<input type="checkbox"/>	_____	

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<p>vegetated swales, landscaped buffers and strips, tree preservation, permeable pavers, and impervious surface reduction and disconnection. The Connector JPA or local agency will select and implement specific LID measures and techniques depending on project size and stormwater treatment needs.</p>					
<p>HYD-4: The implementing agency will conduct drainage studies for later projects on a site-specific basis. The results of the studies will be integrated into the design of the later project's drainage systems. The studies will address county and City drainage study requirements that typically include the following topics:</p> <ul style="list-style-type: none"> • A calculation of predevelopment runoff conditions and post-development runoff scenarios using appropriate engineering methods. This analysis will evaluate potential changes to runoff through specific design criteria and account for increased surface runoff. • An assessment of existing drainage facilities within the project area and an inventory of necessary upgrades, replacements, redesigns, or rehabilitation, including the sizing of onsite stormwater detention features and pump stations. • A description of the proposed maintenance program for the onsite drainage system. • Standards for drainage systems to be installed on a project-/parcel-specific basis. • Design measures to ensure structures will not impact 100-year floodplain areas. <p>Drainage systems for the individual project will be designed in accordance with the findings of the studies, the requirements of the</p>	<p>Prior to Construction</p>	<p>Implementing Agency</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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applicable local flood control agencies, and flood control design criteria established under applicable local ordinances. As a performance standard, the systems will provide for no net increase in peak stormwater discharge relative to current conditions to ensure that 100-year flooding and its potential impacts are maintained at or below current levels and that people and structures are not exposed to additional flood risk.					
HYD-5: The implementing agency will include infiltration systems, where feasible. Infiltration devices will be installed to replace the natural recharge rate of the soil to be paved over, reduce stormwater peak discharges and volumes to downstream catchments, and improve the quality of stormwater discharged to water bodies. Examples of infiltration devices include, but are not limited to, infiltration basins, pervious concrete, retention trenches, and bioretention measures. As discussed in HYD-3, LID techniques will be implemented to increase soil infiltration. Much of the proposed project is located within areas with Hydrologic Soil Group (HSG) D soils where certain infiltration devices do not work well. In these cases, other measures such as detention basins or vegetative barriers that will help retain waters.	Prior to and During Construction	Implementing Agency And Contractor	<input type="checkbox"/>	_____	
HYD-6: Potential impacts of flooding that could result from the proposed Project would be alleviated through the FEMA Letter of Map Revision (LOMR) approval process, as well as the requirements of the Central Valley Flood Protection Board, when applicable. The design of the project will proceed in accordance with the best available mapping from DWR, FEMA, and USACE. The project design will comply with the requirements of the applicable local flood control agencies, and flood control design criteria established under applicable local ordinances. If unavoidable	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	

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construction would occur within a 100-year floodplain, the implementing agency will prepare a letter of map amendments and submit to FEMA before construction of the project. The LOMR will include revised local base flood elevations for projects constructed within flood-prone areas. If the LOMR is approved, the design will reflect its provisions.					
HYD-7: During the design of individual projects, the implementing agency will consult with the applicable flood control agencies to ensure that the flooding risks of pre-project conditions will not increase as a result of construction of the individual projects. If a project has the potential to impede or redirect flows from a levee or dam failure, such that there would be less than a 1% chance that flooding would extend to areas not previously mapped as inundation areas, the project will be redesigned to the maximum extent practicable so that the project would not expand the area subject to pre-project inundation conditions. This may be achieved through incorporation of culverts or bridges into the project design.	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	
Geology and Soils					
GEO-1: Prior to construction, the implementing agency will ensure that the project is designed and constructed in compliance with the latest California Building Standards Code, Caltrans seismic design criteria, and County and City General Plans seismic standards to ensure that all project components can withstand moderate to strong earthquake-shaking.	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	
GEO-2: Prior to construction, the implementing agency will prepare project-specific geotechnical investigations to guide the design of earthworks and foundations for proposed structures. Based on the subsurface conditions expressed through geotechnical	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	

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<p>investigation, the implementing agency, in conjunction with soil scientists or engineers, will ensure that specific project elements are designed to accommodate the effects of liquefaction of expansive soils. For roadways and bridges, subsurface borings at regular intervals along proposed roadways and in the vicinity of proposed bridges are recommended as part of the geotechnical evaluations. If the site specific geotechnical investigations find that liquefiable soils, soils susceptible to seismically induced settlement, or expansive soils are present at any location where project activities would occur, corrective actions will be taken. These actions may include, depending on the extent and depth of susceptible soils and findings of the geotechnical evaluations, removal and replacement of soils; on site densification; grouting; and design of special foundations or other similar measures. All of these measures reduce pore water pressure during ground shaking by making the soil denser or improving its drainage capacity. The implementing agency will ensure that their contractors implement one or more of these measures in consultation with a qualified engineer prior to beginning and during construction. The implementing agency will ensure, as a contract specification, that their contractors implement the recommendations of site specific geotechnical reports pertaining to site clearing and preparation, organic removal, engineered fill placement, trench backfilling, foundation design, soundwall systems, exterior flatwork, pavement design, and site drainage to minimize any adverse effects associated with runoff, erosion, and sedimentation.</p>					
Paleontology					
<p>PAL-1: The implementing agency shall retain a qualified paleontologist to develop an acceptable monitoring and fossil</p>	<p>Prior to Construction</p>	<p>Implementing Agency</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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<p>remains treatment plan or Paleontological Mitigation Plan (PMP) for construction-related activities that could disturb potential unique paleontological resources within the Project area. This plan shall be implemented and enforced by the implementing agency during the full phase of construction, and will include:</p> <ul style="list-style-type: none"> • Paleontological late discovery plan; • Specifications for paleontological spot-check monitoring; and • Guidelines for recordation, evaluation, recovery, and treatment of resources as required by state and local governmental guidelines. 					
<p>PAL-2: Due to the continual potential for discovery of subsurface fossil deposits, a qualified paleontological monitor will be present for activities in sensitive areas defined in the PMP. The monitor may recommend decreasing the amount of monitoring and recommend spot-check monitoring.</p>	During Construction	Implementing Agency	<input type="checkbox"/>	_____	
<p>PAL-3: Prior to the start of construction, all construction personnel would receive a paleontological sensitivity training, detailing the types of paleontological resources that may be encountered and procedures to follow if a find should occur.</p>	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	
<p>PAL-4: If paleontological resources (i.e., fossils) are discovered during ground-disturbing activities, the implementing agency will immediately be notified, and will ensure that their contractors shall stop work in that area and within 100 feet of the find until a qualified paleontologist can assess the significance of the find and develop appropriate treatment measures. Treatment measures will be made in consultation with the implementing agency, and would be included in the PMP.</p>	During Construction	Implementing Agency And Contractor	<input type="checkbox"/>	_____	

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PAL-5: Grading plan notes will state that there is a potential for paleontological resources to be discovered during ground disturbance, and procedures to follow if a find should occur.	During Construction	Implementing Agency	<input type="checkbox"/>	_____	
Hazardous Waste/Materials					
HAZ-1: Prior to construction, a visual survey of those areas not accessed at the time of the field reconnaissance visits should be performed. If spills, leaks, or stains from equipment, ASTs, or other containers are observed, soil sampling should be performed to assess the presence of hazardous materials that may pose a potential hazardous waste to the proposed roadway alignment areas.	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
HAZ-2: The potential exists for herbicides, petroleum hydrocarbons and metals to be present in shallow soil in the vicinity of the UPRR right-of-way. The Project proposes to construct a bridge over the railroad. Prior to construction, soil samples should be collected within the UPRR right-of-way and analyzed for chlorinated herbicides, petroleum hydrocarbons, and metals using US EPA Methods 8151, 8260B, and 6010/7471A, respectively.	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
HAZ-3: PG&E and SMUD should be contacted to assess the locations of their pipelines prior to construction of the proposed bridge over the UPRR tracks.	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
HAZ-4: The potential exists for persistent pesticides to be present in soil as a result of historical agricultural use of the area. Additionally, the potential exists for buried asbestos-containing cementitious pipe (“transite”), which was commonly used for water transportation as part of historical agricultural practices, to be present within the Project area. To assess the presence of persistent pesticides and/or asbestos in soil, sampling and analysis	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	

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is recommended. Soil samples should be analyzed for OCPs using US EPA Method 8081. Additionally, if signs of transite piping are observed during construction activity, sampling and analysis should be conducted at that time.					
HAZ-5: Elevated concentrations of lead (from use of leaded gasoline) and other metals are sometimes associated with older roadways. Based on a review of historical sources, a roadway at the location of Kammerer Road was present from SR-99 west to Bruceville Road since at least 1937. Roads were also present at the locations of Franklin Road and Bruceville Road as early as 1894. In addition, I-5 was present since the mid- to late-1970s. Sampling for ADL in unpaved areas along the existing roadways where soil will be disturbed as part of the proposed Project improvement areas is recommended.	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
HAZ-6: Comply with Caltrans' Standard Special Provision 14-11.12 "Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue" regarding yellow striping and pavement marking materials to avoid impacts from the removal of pavement striping during construction.	During construction	Contractor	<input type="checkbox"/>	_____	
HAZ-7: Although not anticipated, should impacted soil (as evidenced by staining and/or odors) be encountered during construction activities, it is recommended that the Caltrans Unknown Hazard Procedures be implemented during construction activities. The resident engineer overseeing construction should have available field monitoring equipment (e.g., PID) to facilitate timely detection of potentially hazardous conditions in the field.	During construction	Contractor	<input type="checkbox"/>	_____	
HAZ-8: Groundwater is anticipated to be encountered at depths greater than 50 feet bgs. Should groundwater be encountered during construction/excavation activities and dewatering become	During construction	Contractor	<input type="checkbox"/>	_____	

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necessary, regulatory compliance and permitting consistent with the CVRWQCB and NPDES requirements should be adhered to, and groundwater sampling should be conducted.					
HAZ-9: Should domestic or agricultural water wells be affected by the proposed roadway alignment, they should be abandoned or relocated in accordance with local and state guidelines/regulations.	During construction	Implementing Agency And Contractor	<input type="checkbox"/>	_____	
HAZ-10: Many of the observed pole-mounted transformers are unlikely to be impacted by the Project. Should transformer removal be required, the utility company be contacted prior to handling or removing of electrical transformers. Should wooden utility poles require removal, it is recommended that additional sampling and analysis be conducted to assess the presence of creosote (often associated with the preservation of wooden utility poles) and resultant waste managed appropriately.	Prior to and During construction	Implementing Agency	<input type="checkbox"/>	_____	
HAZ-11: Should the Project require the demolition of building structures, a survey and sampling for ACMs and LBP should be performed of these building structures after property acquisition and prior to demolition. The surveys should be performed in conformance with the US EPA NESHAPs 40 CFR and Sacramento Metropolitan Air Quality Management District guidelines.	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
HAZ-12: If access to conduct the Phase II PSI is not granted prior, testing would occur during the appraisal of the property, prior to ROW acquisition, so that special handling, treatment, or disposal provisions associated with hazardous wastes can be included in construction documents.	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	

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HAZ-13: Prior to the issuance of demolition permits for existing onsite structures, asbestos material sampling shall be conducted to determine if materials are present. Any identified asbestos containing building materials present in each of the structures to be dismantled shall be removed under acceptable engineering methods and work practices by a licensed asbestos abatement contractor prior to removal. These practices include, but are not limited to: containment of the area by plastic, negative air filtration, wet removal techniques and personal respiratory protection and decontamination. The process shall be designed and monitored by a California Certified Asbestos Consultant. The abatement and monitoring plan shall be developed and submitted for review and approval by the appropriate regulatory agency (the Sacramento Metropolitan Air Pollution Management District).	Prior to construction	Contractor	<input type="checkbox"/>	_____	
HAZ-14: Prior to the issuance of demolition permits for existing onsite structures, all loose and peeling paint shall be removed and disposed of by a licensed and certified lead paint removal contractor. in accordance with local, state, and federal regulations.	Prior to construction	Contractor	<input type="checkbox"/>	_____	
HAZ-15: For any parcels determined to be contaminated during Phase II testing and anticipated to be relinquished to Caltrans, and acquisition of these sites is unavoidable, then the Request for Acquisition of Contaminated Properties (RACP) shall be in compliance with the approval process defined in Caltrans Project Delivery Directive 02.	Prior to construction	Contractor	<input type="checkbox"/>	_____	
HAZ-16: For any parcels determined to be contaminated during Phase II testing the project design will be modified to avoid the contaminated parcel or portion of the parcel, if feasible by the implementing agency	Prior to construction	Contractor	<input type="checkbox"/>	_____	

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Air Quality					
<p>AQ-1: Implement SMAQMD Basic and Enhanced Construction Emission Control Practices to Reduce Fugitive Dust, where feasible and applicable to the Project.</p> <p>The implementing agency will require, as a standard or specification of their contract, the construction contractor(s) to implement basic and enhanced control measures to reduce construction-related fugitive dust. Although the following measures are outlined in the SMAQMD’s CEQA guidelines, they are required for the entirety of the construction area. The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.</p> <ul style="list-style-type: none"> • Water all exposed surfaces two times daily. Exposed surfaces include (but are not limited to) soil piles, graded areas, unpaved parking areas, staging areas, and access roads. • Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered. • Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited. • Limit vehicle speeds on unpaved roads to 15 miles per hour. • All roadway, driveway, sidewalk, and parking lot paving should be completed as soon as possible. In addition, building pads 	<p>Prior to construction</p>	<p>Implementing Agency</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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<p>should be laid as soon as possible after grading unless seeding or soil binders are used.</p> <p>Enhanced Control Measures – Disturbance Areas</p> <ul style="list-style-type: none"> Water exposed soil with adequate frequency for continued moist soil. However, do not overwater to the extent that sediment flows off the site. Suspend excavation, grading, and/or demolition activity when wind speeds exceed 20 mph. Install wind breaks (e.g., plant trees, solid fencing) on windward side(s) of construction areas. Plant vegetative ground cover (fast-germinating native grass seed) in disturbed areas as soon as possible. Water appropriately until vegetation is established. <p>Enhanced Control Measures – Unpaved Roads (Entrained Road Dust)</p> <ul style="list-style-type: none"> Install wheel washers for all exiting trucks, or wash off all trucks and "equipment leaving the site. Treat site accesses to a distance of 100 feet from the paved road with a 6 to 12-inch layer of wood chips, mulch, or gravel to reduce generation of road dust and road dust carryout onto public roads. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 					

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<p>hours. The phone number of the District shall also be visible to ensure compliance.</p> <p>Additional Control Measures – Off-Site Mitigation Fees Payable to the SMAQMD</p> <ul style="list-style-type: none"> In the event that the SMAQMD basic and enhanced construction mitigation measures are not sufficient to reduce NOx emissions below the SMAQMD's construction NOx threshold, the remaining NOx emissions in excess of the SMAQMD's threshold would be offset by the Connector JPA through a fee paid to the SMAQMD who will fund cost-effective Projects that reduce NOx, in the Project area, to the extent possible, and otherwise within the Sacramento air basin. The fee will be calculated using the SMAQMD's current rate of NOx per ton at the time of construction in addition to SMAQMD administration fees. Currently, the SMAQMD's off-site mitigation fee is \$16,400 per ton of NOx, in addition to a 5% administration fee. 					
<p>AQ-2: Implement SMAQMD Basic Construction Emission Control Practices to Reduce NOx</p> <p>The implementing agency will require, as a standard or specification of their contract, that the construction contractor(s) implement basic control measures to reduce NOx emissions from diesel-powered construction equipment. Although the following measures are outlined in SMAQMD's CEQA guidelines, they will be required by the SMAQMD for the entirety of the construction area. The implementing agency will ensure through contract provisions and</p>	<p>Prior to construction</p>	<p>Implementing Agency</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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<p>specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.</p> <ul style="list-style-type: none"> Minimize idling time either by shutting equipment off when not in use or "limiting the time of idling to 3 minutes (5 minutes required by 13 CCR 2449[d] [3], 2485). Provide clear signage that posts this requirement for workers at the entrances to the site. Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated. The Connector JPA will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures. 					
<p>AQ-3: Implement SMAQMD Enhanced Construction Emission Control Practices to Reduce NOx</p> <p>The implementing agency will require, as a standard or specification of their contract, that the construction contractor(s) implement enhanced control measures to reduce NOx emissions from diesel-powered construction equipment. The following measures are outlined in SMAQMD's CEQA guidelines and are required for the entirety of the construction area. The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during</p>	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	

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<p>construction and documents compliance with the adopted mitigation measures.</p> <ul style="list-style-type: none"> Provide a plan for approval by the SMAQMD demonstrating that the heavy-duty (50-horsepower or more) off-road vehicles to be used in the construction Project, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet-average 20% NOx reduction and 45% PM exhaust reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions may include use of late-model engines, low-emission diesel products, alternative fuels, engine-retrofit technology, after-treatment products, or other options as they become available. Ensure that emissions from all off-road diesel-powered equipment used on the Project site do not exceed 40% opacity for more than 3 minutes in any 1 hour. Any equipment found to exceed 40% opacity (or Ringelmann 2.03) will be repaired immediately. Non-compliant equipment will be documented and a summary provided periodically to the lead agency and air district. A visual survey of all in-operation equipment will be made at least periodically by the proponent agency(s), and a periodic summary of the visual survey results will be submitted throughout the duration of the proposed Project, except that the summary will not be required for any 30-day period in which no construction activity occurs. The summary will include the quantity and type of vehicles surveyed, as well as the dates of each survey. The air districts or other officials may conduct periodic site inspections to determine compliance. Nothing in 					

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<p>this measure will supersede other air district or state rules or regulations.</p> <p>The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the mitigation measures before and during construction and documents compliance with the adopted mitigation measures.</p>					
<p>AQ-4: Implement Additional Exposure Reduction Strategies to Further Minimize Potential Health Risks.</p> <p>The implementing agency will implement strategies to reduce the potential for sensitive receptors along the Project corridor to be exposed to DPM. Potential strategies include (but are not limited to) creating a buffer zone of at least 50 feet between the roadway and sensitive land uses (e.g., residences, parks, churches, and medical facilities), as well as planting additional vegetation along the Project corridor (A laboratory study indicates that all forms of vegetation are effective in removing PM10, although the greatest removal rates are achieved with redwood and deodar cedar –[Sacramento Metropolitan Air Quality Management District 2010]). These strategies should be focused in areas where sensitive receptors are directly adjacent to the roadway. Selection of these species should be maximized to the extent feasible.</p> <ul style="list-style-type: none"> A landscape plan shall include a vegetation barrier consistent with the Sacramento Metropolitan Air Quality Management District's Landscaping Guidance for Improving Air Quality near Roadways. The landscape plan shall include individual plant locations, species, approved alternate species for substitutions, 	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	

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plant material size and plant material source. Landscape plans shall be approved by the Connector JPA prior to site preparation and installation activities.					
<p>AQ-5: Conduct a Geological Investigation for Naturally Occurring Asbestos and Implement an Asbestos Dust Mitigation Plan if Naturally Occurring Asbestos Is Found in the Project Area.</p> <p>The implementing agency will conduct a site-specific geological investigation for all construction areas with known potential to contain NOA. According to the CGS, this includes all portions of the construction area east of Folsom (California Geological Survey 2006). If NOA is identified in the project area, the implementing agency will submit an asbestos dust mitigation plan to the SMAQMD pursuant to the State of California’s Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. This plan shall be prepared prior to ground breaking by the implementing agency.</p>	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
NOISE					
<p>NOI-1: Based on the studies completed to date, the Department intends to incorporate noise abatement in the form of a barrier (SW-W3 v2) at: receptors R-32 through R-50 with respective lengths and average heights of 1,467 feet by 10-feet. Calculations based on preliminary design data show that the barrier will reduce noise levels by 7 dBA for 18 residences at a cost of \$960,000. If during final design conditions have substantially changed, noise abatement may not be necessary. The final decision on noise abatement will be made upon completion of the Project design.</p>	During to Construction	Implementing Agency	<input type="checkbox"/>	_____	

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<p>NOI-2: The implementing agency will ensure through contract provisions and specifications that the contractor adheres to the following mitigation measures that will be implemented to reduce the effects of construction noise and vibration. Additional measures may be developed once project design has developed sufficiently to identify site-specific impacts.</p> <ul style="list-style-type: none"> Comply with all local sound control and noise level rules, regulations, and ordinances of the pertinent City, county, or both. Limit the hours of noise-generating construction and related activity such as deliveries and staging activities to between 6 a.m. and 8 p.m. on Monday through Friday and between 7 a.m. and 8 p.m. on weekends, or as required by local noise ordinances in effect for site-specific projects. Require that equipment and trucks used for project construction use noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) as necessary to limit noise to compliance levels. Locate stationary noise sources such as generators or pumps as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors will be adequately muffled or an acoustic barrier will be installed to reduce their noise levels to comply with applicable local requirements. Designate a complaint coordinator at the implementing agency to be responsible for responding to noise complaints received during the construction phase. The name and phone number of the complaint coordinator will be conspicuously posted at construction areas and on all advanced notifications. This person will be responsible for taking steps required to resolve complaints, 	<p>During to Construction</p>	<p>Implementing Agency</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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<p>including periodic noise monitoring and changes to construction activities, if necessary to meet the required mitigation.</p> <ul style="list-style-type: none"> • Mitigate noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence by strategic placement of material stockpiles between the operation and the affected dwelling or by other means such as temporary noise barriers approved by the local jurisdiction. • Require contractors to implement appropriate additional noise mitigation measures including (but not limited to) shutting off equipment (including trucks transporting aggregate or other construction materials) so that idling time does not exceed 3 minutes, and notifying adjacent residents by mail not less than 1 week in advance of construction work. • Prohibit pile-driving or blasting operations within 3,000 feet of an occupied residence on Sundays, legal holidays, and between 9 p.m. and 6 a.m. on other days, or as governed by local noise ordinances at site-specific locations. • Use sonic or vibratory pile drivers instead of impact pile drivers (sonic pile drivers are only effective in some soils). If sonic or vibratory pile drivers are not feasible, install acoustical enclosures as necessary to ensure that pile-driving noise does not exceed applicable local noise standards at the closest sensitive receptor. • Limit pile driving in residential areas to between 8 a.m. and 5 p.m. • Use engine and pneumatic exhaust controls on pile drivers as necessary to ensure that exhaust noise from pile driver engines is minimized to the extent feasible. 					

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<ul style="list-style-type: none"> Where feasible, pre-drill pile holes to reduce potential noise and vibration impacts. 					
Biological Resources					
<p>BIO-1: As part of project-level environmental review, implementing agencies will ensure that projects comply with the most recent general plans, policies, ordinances, and conservation plans (including any HCPs, NCCPs, and other local, regional, and state plans). Review of these documents and compliance with their requirements will be demonstrated in project-level environmental documentation. Implementing agencies will ensure that projects comply with all policies, ordinances, and plans that exist at the time of project-level review, regardless of whether they existed during the program-level analysis.</p>	Prior to Construction	Implementing Agency	<input type="checkbox"/>	_____	
<p>BIO-2: Before any work occurs in the Project area, the project biologist will conduct a mandatory environmental awareness training program for all construction personnel working on the Project. The training program will notify construction personnel of the sensitive biological resources occurring within the Project area, their legal status, and penalties for not complying with the conditions of any permits issued for the Project. The education program will emphasize the need to protect water quality, wetlands, and habitat for special-status species. As necessary, a biological monitor approved by the resource agencies will ensure that construction personnel adhere to the guidelines and restrictions of all approved environmental documents, permits, and other agreements.</p>	Prior to and During Construction	Contractor	<input type="checkbox"/>	_____	
<p>BIO-3: The implementing agency will install orange construction barrier fencing to identify environmentally sensitive areas around</p>	Post Construction	Contractor	<input type="checkbox"/>	_____	

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<p>sensitive natural communities, and where determined feasible, protected trees.</p> <p>Before construction, a qualified biologist will work with the project engineer to identify the locations for the barrier fencing, and will place stakes around the sensitive resource sites to indicate these locations. The fencing will be installed before construction activities are initiated and will be maintained throughout the construction period. The following paragraph will be included in the construction specifications:</p> <p>The Contractor's attention is directed to the areas designated as "environmentally sensitive areas." These areas are protected, and no entry by the Contractor for any purpose will be allowed unless specifically authorized in writing by the implementing agency. The Contractor will take measures to ensure that Contractor's forces do not enter or disturb these areas, including giving written notice to employees and subcontractors.</p> <p>Temporary fences around the environmentally sensitive areas will be installed as the first order of work. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer. The fencing will be commercial-quality woven polypropylene, orange in color, and at least 4 feet high (Tensor Polygrid or equivalent). The fencing will be tightly strung on posts with a maximum 10-foot spacing.</p>					

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Capital SouthEast Connector –A1/A2 Kammerer Road Extension Project

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Task and Brief Description	Timing	Responsible Party	Task Completed	Initials	Remarks/Due Date
<p>BIO-4: If impacts to protected trees cannot be avoided, then the implementing agency will compensate for impacts on protected trees. For portions of the Project in the City of Elk Grove, the following policies from the City Tree Ordinance will be implemented.</p> <p>Mitigation may take the form of on-site or off-site planting or payment of in-lieu fees. Mitigation planting should be of an equivalent size and species of those being removed. Trees that are of a 1- or 15-gallon container or seedling-sized trees account for 1-inch DBH removed and trees planted that are of 24-, 36-, 60- or 72-inch containers account for 2-inches DBH removed.</p> <p>If tree replacement or transplantation is chosen as the project mitigation strategy, a five-year mitigation and monitoring plan should be prepared. The plan should include maintenance, watering, and monitoring schedules, success criteria, and reporting requirements. Mitigation trees must be monitored by an ISA-Certified Arborist for five years after planting.</p> <p>In-lieu of planting, fees may be paid into the Tree Preservation Fund at a rate established under a Resolution by the City Council. As per a conversation with the City of Elk Grove Planning Department, the current mitigation fee is \$200 per inch of DBH removed.</p> <p>The exact amount of mitigation required will depend on the final design of the project.</p>	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
<p>BIO-5: If impacts on protected trees cannot be avoided, then the implementing agency will compensate for impacts on protected trees. For portions of the project in Sacramento County, the</p>	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	

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<p>following policies from the Sacramento County General Plan (2011) regarding landmark and heritage tree protections will be implemented:</p> <ul style="list-style-type: none"> • CO-138 – <i>Protect and preserve non-oak native trees along riparian areas if used by Swainson’s hawk, as well as landmark and native oak trees measuring a minimum of 6 inches in diameter or 10 inches aggregate for multi-trunk trees at 4.5 feet above ground.</i> • CO-139 – <i>Native trees other than oak, which cannot be protected through development, shall be replaced with in-kind species in accordance with established tree planting specifications, the combined diameter of which shall equal the combined diameter of the trees removed.</i> • CO-140 – <i>For projects involving native oak woodlands, oak savannah or mixed riparian areas, ensure mitigation through either of the following methods:</i> <ul style="list-style-type: none"> ○ <i>An adopted habitat conservation plan.</i> ○ <i>Ensure not net loss of canopy area through a combination of the following: (1) preserving the main, central portions of consolidated and isolated groves constituting the existing canopy and (2) provide an area on-site to mitigate any canopy lost. Native oak mitigation area must be a contiguous area on-site which is equal to the size of canopy area lost and shall be adjacent to existing oak canopy to ensure opportunities for regeneration.</i> 					

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<ul style="list-style-type: none"> ○ <i>Removal of native oaks shall be compensated with native oak species with a minimum of a one to one dbh replacement.</i> ○ <i>A provision for a comparable on-site area for the propagation of oak trees may substitute for replacement tree planting requirements at the discretion of the County Tree Coordinator when removal of a mature oak tree is necessary.</i> ○ <i>If the project site is not capable of supporting all the required replacement trees, a sum equivalent to the replacement cost of the number of trees that cannot be accommodated may be paid to the County's Tree Preservation Fund or another appropriate tree preservation fund.</i> ○ <i>If on-site mitigation is not possible given site limitation, off-site mitigation may be considered. Such a mitigation area must meet all of the following criteria to preserve, enhance, and maintain a natural woodland habitat in perpetuity, preferably by transfer of title to an appropriate public entity. Protected woodland habitat could be use as a suitable site for replacement tree plantings required by ordinances or other mitigation.</i> <ul style="list-style-type: none"> ▪ <i>Equal or greater in area to the total are that is included within a radius of 30 feet of the dripline of all trees to be removed;</i> ▪ <i>Adjacent to protected stream corridor or other preserved natural area;</i> ▪ <i>Supports a significant number of native broadleaf trees; and</i> 					

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<ul style="list-style-type: none"> ▪ <i>Offers good potential for continued regeneration of an integrated woodland community.</i> • CO-141 – <i>In 15 years the native oak canopy within on-site mitigation area shall be 50 percent canopy coverage for valley oak and 30 percent canopy coverage for blue oak and other native oaks.</i> 					
<p>BIO-6: All exposed/ disturbed areas and access points left barren of vegetation as a result of construction activities will be restored using locally native grass seeds, locally native grass plugs, and/ or a mix of quick-growing sterile non-native grass with locally native grass seeds. Seeded areas will be covered with broadcast straw and/ or jute netting (monofilament erosion blankets are not permitted).</p>	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
<p>BIO-7: The implementing agency will provide compensatory mitigation as required by the SSHCP mitigation ratios for non-aquatic natural communities including, but not limited to, valley grassland, irrigated pasture-grassland, and cropland.</p>	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
<p>BIO-8: Implementing agencies will avoid and minimize impacts on wetlands and other waters by implementing the following measures:</p> <ul style="list-style-type: none"> • Redesign or modify the project to avoid direct and indirect impacts on wetland habitats, including water quality run-off, if feasible. • Protect wetland habitats that occur near the project site by installing ESA fencing at least 20 feet from the edge of the wetland where feasible. Depending on site-specific conditions 	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	

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<p>and permit requirements, this buffer may be wider than 20 feet (e.g., 250 feet for seasonal wetlands and vernal pools that are considered special-status shrimp habitat). The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced ESA.</p> <ul style="list-style-type: none"> • Avoid installation activities in saturated or ponded wetlands during the wet season (spring and winter) to the maximum extent possible. Where such activities are unavoidable, protective practices, such as use of padding or vehicles with balloon tires, will be used. • Where determined necessary by resource specialists, use geotextile cushions and other materials (e.g., timber pads, prefabricated equipment pads, or geotextile fabric) in saturated conditions to minimize damage to the substrate and vegetation. • Stabilize exposed slopes and streambanks immediately on completion of installation activities. Other waters of the United States and waters of the state will be restored in a manner that encourages vegetation to reestablish to its pre-project condition and reduces the effects of erosion on the drainage system. • In highly erodible stream systems, stabilize banks using a nonvegetative material that will bind the soil initially and break down within a few years. If the project engineers determine that more aggressive erosion control treatments are needed, use geotextile mats, excelsior blankets, or other soil stabilization products. 					

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<ul style="list-style-type: none"> During construction, remove trees, shrubs, debris, or soils that are inadvertently deposited below the ordinary high-water mark of drainages in a manner that minimizes disturbance of the drainage bed and bank. <p>These measures will be incorporated into contract specifications and implemented by the construction contractor. In addition, the implementing agency will ensure that the contractor incorporates all state and federal permit conditions into construction specifications.</p>					
<p>BIO-9: Work will coincide to the driest time. If water is present at the time of construction, water will be diverted around the work area and work will resume after the site is dry. Flows will be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water will at all times be allowed to pass downstream. Any temporary dam or other artificial obstruction constructed will only be built from clean materials, such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation.</p>	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	
<p>BIO-10: The implementing agency will provide compensatory mitigation as required by the SSHCP mitigation ratios for the loss of wetland and waters to ensure there is no net loss of habitat functions and values. The implementing agency will prepare a comprehensive mitigation plan containing the following components: specifications for the conservation/preservation lands; the locations of the compensation lands, provisions for the management and maintenance of those lands in perpetuity by either</p>	Prior to construction	Contractor	<input type="checkbox"/>	_____	

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<p>the implementing agency or other entity, and the instruments by which long-term management and maintenance will be assured. As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan.</p> <p>Impacts to waters will be mitigated at an on or off site, agency approved location or a combination of both. Exact mitigation ratios and locations will be determined during the environmental permitting processes.</p>					
<p>BIO-11: The implementing agency will provide compensatory mitigation for listed aquatic features including wetlands, vernal pools, and other compliance with the Final SSHCP mitigation ratios for wetlands and other waters.</p>	Prior to construction	Contractor	<input type="checkbox"/>	_____	
<p>BIO-12: All temporarily disturbed water features will be re-contoured to natural contours and revegetation efforts would promote native herbaceous vegetation/grasses.</p>	Prior to construction	Contractor	<input type="checkbox"/>	_____	
<p>BIO-13:The implementing agency will avoid and minimize impacts to special status plant populations to the greatest extent practicable by implementing the following measures:</p> <ul style="list-style-type: none"> Redesign or modify the project to avoid or minimize direct and indirect impacts on special-status plants. 	Prior to construction	Implementing Agency And Contractor	<input type="checkbox"/>	_____	

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<ul style="list-style-type: none"> Avoid or minimize construction impacts on special-status plants near the project site by installing environmentally sensitive area fencing (orange construction barrier fencing) around special-status plant populations at least 20 feet from the edge of the population. Wider buffer zone widths set by site-specific conditions and permit requirements, such as those for seasonal wetlands and vernal pools that are considered special-status shrimp habitat, will take precedence over this requirement. The location of the fencing will be marked in the field with stakes and flagging and shown on construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area. 					
<p>BIO-14: Prior to construction, the project biologist will conduct pre-construction blooming clearance surveys in areas of direct impacts for the following sensitive plant species in their respective wetland habitats:</p> <ul style="list-style-type: none"> Boggs Lake hedge-hyssop: Surveys must be conducted between the months of April and August. Bristly sedge: Surveys must be conducted between the months of July and September. Dwarf downingia: Surveys must be conducted between the months of March and May. Heckard's pepper-grass: Surveys must be conducted between the months of March and May. 	<p>Prior to construction</p>	<p>Implementing Agency</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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<ul style="list-style-type: none"> Legenere: Surveys must be conducted between the months of May and June. Saline clover: Surveys must be conducted between the months of April and June. Sanford's arrowhead: Surveys must be conducted between the months of May and October. 					
<p>BIO-15: If Boggs Lake hedge hyssop, Bristly sedge, dwarf downingia, Heckard's pepper-grass, legenere, saline clover, and Sanford's arrowhead cannot be avoided, the implementing agency will compensate for the loss of plants and their habitat by contributing to the conservation and recovery of the affected species. For each special-status plant occurrence impacted, one occurrence of the same species of a similar or greater size will be preserved (to compensate for temporal habitat loss). For impacts on special-status plants, a mitigation and monitoring plan will be prepared that describes how the loss of special-status plant species will be compensated for. The mitigation and monitoring plan will be reviewed and approved by CDFW and USFWS. The plan shall contain, but is not limited to, the following performance standards:</p> <ul style="list-style-type: none"> Habitat restoration or establishment, where appropriate and feasible, will be used in conjunction with translocating the affected population. As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps 	<p>Prior to construction</p>	<p>Implementing Agency</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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<p>identified in the Open Space Element of the Plan or areas specifically identified in the SSHCP, when adopted.</p> <ul style="list-style-type: none"> Habitat will be restored or newly established (on or off site) at a minimum ratio of 1:1 (1 acre restored for each acre impacted). Within the Mather Core Recovery Area, habitat will be preserved at a minimum ratio of 2:1 from lands within the Core Recovery Area. The mitigation site will be monitored the first year after the mitigation is implemented and every 5 years thereafter, until the mitigation is considered to be successful. Mitigation will be considered successful if the translocated population is determined to be stable and contains at least 60% of the number of plants present in the original occurrence. If the population falls below 60% of the original number of plants, then remediation measures will be initiated. <p>Because special-status species in the project area are state or federally listed or occur in wetlands, the Project will have to comply with state and federal laws and regulations governing these resources, and obtain the applicable take or fill permits. These permits may include specific requirements, including compensation measures and ratios, which will take precedence over the measures and ratios specified in the previous paragraph.</p>					
<p>BIO-16:The project will implement the following measures into the project plans and specifications:</p> <ul style="list-style-type: none"> Use certified, weed-free, imported erosion-control materials (or rice straw in upland areas). 	<p>Prior to construction</p>	<p>Implementing Agency</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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<ul style="list-style-type: none"> Coordinate with the applicable County Agricultural Commissioner and land management agencies to ensure that the appropriate best management practices (BMPs) are implemented. Educate construction supervisors and managers on weed identification and the importance of controlling and preventing the spread of noxious weeds. 					
BIO-17: Prior to arrival at the project site and prior to leaving the project site, the construction contractor must clean all construction equipment that may contain invasive plants and/or seeds to reduce the spreading of noxious weeds.	During construction	Contractor	<input type="checkbox"/>	_____	
BIO-18: The implementing agency will provide compensatory mitigation as required by the approved SSHCP mitigation ratios for special status plant species modeled habitat.	During construction	Contractor	<input type="checkbox"/>	_____	
<p>BIO-19: The implementing agencies will implement a combination of the following mitigation measures to avoid and minimize significant impacts on special-status wildlife and their habitats:</p> <ul style="list-style-type: none"> Redesign or modify the project to avoid direct and indirect impacts on special-status wildlife or their habitats, including interruption of migration corridors, if feasible. Protect special-status wildlife and their habitat near the project site by installing environmentally sensitive area fencing around habitat features, such as vernal pools, seasonal wetlands, burrows, and nest trees. The environmentally sensitive area fencing or staking will be installed at a minimum distance from 	Prior to Construction	Implementing Agency And Contractor	<input type="checkbox"/>	_____	

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<p>the edge of the resource as determined through coordination with state and federal agency biologists (USFWS and CDFW). The location of the fencing will be marked in the field with stakes and flagging and shown in construction drawings. Construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within the fenced environmentally sensitive area.</p> <ul style="list-style-type: none"> • When feasible restrict construction-related activities near sensitive resources to the nonbreeding season or other periods of activity for special-status wildlife species that could occur in the project area. Typical timing restrictions include, but are not limited to: <ul style="list-style-type: none"> o Valley elderberry long horn beetle – February 15 to November 1 (time period where shrub transplanting can't occur). o Giant garter snake inactive period – October 1 to May 1 o Swainson's hawk nesting season – generally February 1 to August 31 o Burrowing owl nesting – generally February 1 to August 31 • As necessary, conduct biological construction monitoring of project areas where work occurs in proximity to sensitive wildlife or their habitat. The implementing agency will hire a qualified wildlife biologist approved by USFWS and CDFW to monitor construction activities to ensure that no wildlife is harmed during 					

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construction and no wildlife habitat outside of the project area is unintentionally affected by project construction.					
BIO-20: If all or portions of Mitigation Measure BIO-19 are not feasible and site-specific construction activities would result in significant impacts on special-status wildlife species, compensation for the loss of habitat will be implemented to reduce the impact to a less-than-significant level. Impacted habitat will be mitigated off site at an agency approved mitigation bank. The minimum replacement ratios for wildlife habitat would be determined through consultation with local, state, and federal agencies. As directed by Policy CO-60 in the Sacramento County General Plan (2011), for segments of the Connector in Sacramento County, mitigation will be directed to lands identified on the Open Space Vision Diagram and associated component maps identified in the Open Space Element of the Plan.	During Construction	Contractor	<input type="checkbox"/>	_____	
BIO-21: The implementing agency will provide compensatory mitigation for impacted special status wildlife species and/or their habitats with the corresponding SSHCP mitigation ratios, as described in the approved SSHCP.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
BIO-22: The contractor must not apply rodenticides or herbicides in the Project area during construction activities.	During Construction	Contractor	<input type="checkbox"/>	_____	
BIO-23: The contractor must dispose of all food-related trash in closed containers, and shall remove it from the Project area each day during the construction period. Construction personnel must not feed or otherwise attract wildlife to the Project area.	During Construction	Contractor	<input type="checkbox"/>	_____	

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BIO-24: If any wildlife is encountered during the course of construction, said wildlife will be allowed to leave the construction area unharmed. In the unlikely event a worker inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped, the worker will immediately report the incident to the Project biologist.	During Construction	Contractor	<input type="checkbox"/>	_____	
BIO-25: Vegetation removal and earthwork should be timed outside of the nesting season (February 1st – August 31st). If vegetation removal is required during the nesting season, a pre-construction nesting bird survey must be conducted no more than 7 days prior to vegetation removal. Within 2 weeks of the nesting bird survey, all vegetation cleared by the biologist would be removed by the contractor.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
BIO-26: If an active nest (excluding western burrowing owl) is located during preconstruction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is deemed inactive by a qualified biologist. Restrictions shall include establishment of exclusion zones (no ingress of personnel or equipment) at a minimum radius of 500 feet around an active Swainson's hawk nest, 100 feet around an active raptor nest, and 50 feet around an active migratory bird nest. Activities permitted within exclusion zones and the size of the exclusion zone may be adjusted through consultation with the CDFW.	Prior to and During Construction	Contractor	<input type="checkbox"/>	_____	
BIO-27: Trees containing active migratory bird and/or raptor (excluding Swainson's hawk) nests that must be removed as a result of Project implementation shall be removed during the	Prior to and During Construction	Contractor	<input type="checkbox"/>	_____	

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nonbreeding season (September 1st – February 1st). Swainson’s hawks are a state listed threatened species; therefore, impacts to active Swainson’s hawk nest trees require regulatory authorization from the CDFW prior to removal.					
BIO-28: If no burrowing owls are detected, no further mitigation is required. If active burrowing owls are detected, the implementing agency shall implement the avoidance, minimization, and mitigation methodologies outlined in CDFW’s (2012) Staff Report on Burrowing Owl Mitigation prior to initiating Project-related activities that may impact burrowing owls.	Prior to and During Construction	Contractor	<input type="checkbox"/>	_____	

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<p>BIO-29: Should work occur within the Swainson’s hawk nesting season (February 1st – August 31st), the Project biologist must conduct a pre-construction nesting survey consistent with survey methods recommended by the Swainson’s Hawk Technical Advisory Committee within ¼ mile of the Project and two weeks prior to construction clearing and grubbing activities. Should a nesting Swainson’s hawk pair be found within ¼ mile of the Project, the Project biologist will coordinate with the wildlife agencies for appropriate buffers. The contractor will not work within the ¼ mile nesting area until the appropriate buffer is established and is prohibited from conducting work that could disturb the birds (as determined by the Project biologist and in coordination with wildlife agencies) in the buffer area until the Project biologist determines the young have fledged.</p>	<p>Prior to and During Construction</p>	<p>Contractor</p>	<p><input type="checkbox"/></p>	<p>_____</p>	
<p>BIO-30: If an active nest (excluding western burrowing owl) is located during preconstruction surveys, construction activities shall be restricted as necessary to avoid disturbance of the nest until it is deemed inactive by a qualified biologist. Restrictions shall include establishment of exclusion zones (no ingress of personnel or equipment) at a minimum radius of 500 feet around an active Swainson’s hawk nest, 100 feet around an active raptor nest, and 50 feet around an active migratory bird nest. Activities permitted within exclusion zones and the size may be adjusted through consultation with the California Department of Fish and Wildlife and/or the City of Elk Grove.</p>	<p>Prior to and During Construction</p>	<p>Contractor</p>	<p><input type="checkbox"/></p>	<p>_____</p>	

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BIO-31: Valley grasslands in the Project area are considered Swainson’s hawk foraging habitat and are protected under Chapter 16.130 of the City Municipal Code, Swainson’s Hawk Impact Mitigation Fees. The implementing agency will provide compensatory mitigation as required by the approved SSHCP mitigation ratios for Swainson’s Hawk foraging habitat.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
BIO-32: A preconstruction survey for western pond turtle shall be conducted within 24 hours of the onset of construction activities in or adjacent to suitable upland and/or aquatic habitat. The survey area shall include a 100-foot buffer of the area to be affected. If juvenile or adult turtles are found within the survey area, the individuals should be moved at least 500 feet downstream to suitable habitat by the approved biologist. If a turtle nest is found within the survey area, construction activities should not take place within 100 feet of the nest until the turtles have hatched, or the eggs have been moved by an approved biologist to an appropriate location in coordination with CDFW.	Prior to and During Construction	Contractor	<input type="checkbox"/>	_____	

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Task and Brief Description	Timing	Responsible Party	Task Completed	Initials	Remarks/Due Date
<p>BIO-33: Prior to the removal of any oak trees or buildings, a bat survey shall be performed by a qualified biologist between March 1 and July 31. If bat roosts are identified, the implementing agency shall require that the bats be safely flushed from the sites where roosting habitat is planned to be removed prior to roosting season (typically May to September) and prior to the onset of construction activities. If maternity roosts are identified during the maternity roosting season (typically May to September) they must remain undisturbed until a qualified biologist has determined the young bats are no longer roosting. If roosting is found to occur onsite, replacement roost habitat (e.g., bat boxes) shall be provided to offset roosting sites that are permanently removed. If no bat roosts are detected, then no further action is required if the trees and buildings are removed prior to the next breeding season. If removal is delayed, then an additional survey shall be conducted 30 days prior to removal to ensure that a new colony has not established itself.</p>	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
<p>BIO-34: If a female or maternity colony of bats are found on the Project site, and the Project can be constructed without the elimination or disturbance of the roosting colony (e.g., if the colony roosts in a large oak tree not planned for removal), a qualified biologist shall determine what buffer zones shall be employed to ensure the continued success of the colony. Such buffer zones may include a construction-free barrier of 200 feet from the roost and/or the timing of the construction activities outside of the maternity roost season (after August 30 and before March 1).</p>	Prior to Construction	Contractor	<input type="checkbox"/>	_____	

ENVIRONMENTAL COMMITMENT RECORD

CAPITAL SOUTHEAST CONNECTOR – A1/A2 KAMMERER ROAD PROJECT

Last updated July 27, 2022

Capital SouthEast Connector –A1/A2 Kammerer Road Extension Project

EP:

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Avoidance, Minimization and/or Mitigation

Task and Brief Description	Timing	Responsible Party	Task Completed	Initials	Remarks/Due Date
BIO-35: If an active nursery roost is documented onsite and the Project cannot be conducted outside of the maternity roosting season, bats shall be excluded from the site after August 30 and before March 1 to prevent the formation of maternity colonies. Nonbreeding bats shall be safely evicted, under the direction of a bat specialist.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
BIO-36: The implementing agency will provide compensatory mitigation for impacted threatened and endangered wildlife species and/or their habitats with the corresponding SSHCP mitigation ratios, as determined by the approved Final SSHCP.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
BIO-37: Protective silt fencing will be installed between the adjacent vernal pool habitats and the construction area limits to prevent accidental disturbance during construction and to protect water quality in the aquatic habitats during construction.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
BIO-38: For every acre of vernal pool habitat directly or indirectly affected, two tadpole shrimp and fairy shrimp habitat preservation credits will be dedicated within a Service-approved conservation bank with a service area covering the proposed Project.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
BIO-39: For every acre of vernal pool habitat directly affected, one vernal pool habitat creation credit will be dedicated within a Service-approved conservation bank with a service area covering the proposed Project.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	

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CAPITAL SOUTHEAST CONNECTOR – A1/A2 KAMMERER ROAD PROJECT

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Task and Brief Description	Timing	Responsible Party	Task Completed	Initials	Remarks/Due Date
BIO-40: Construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas and all operations will be confined to the minimal area necessary.	During Construction	Contractor	<input type="checkbox"/>	_____	
BIO-41: Standard staging area practices for sediment-tracking reduction will be implemented where necessary and may include vehicle washing and street sweeping.	During Construction	Contractor	<input type="checkbox"/>	_____	
BIO-42: A Worker Environmental Awareness Program (WEAP) will be implemented to educate construction workers about the presence of sensitive habitat near the Project area and to instruct them on proper avoidance measures.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
BIO-43: Twenty-four hours prior to the commencement of construction activities, the Project area shall be surveyed for giant garter snakes by a qualified biologist. The biologist will provide the US Fish and Wildlife Service with a written report that adequately documents these monitoring efforts within 24 hours of commencement of construction activities. The Project area shall be re-inspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred.	Prior to Construction	Contractor	<input type="checkbox"/>	_____	
BIO-44: Project-related vehicles will observe a 20 mile per hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.	During Construction	Contractor	<input type="checkbox"/>	_____	
BIO-45: Replace the loss of 35 elderberry plant stems between 1 and 3 inches in diameter at a 1:1 ratio through the dedication of beetle conservation credits within a Service-approved conservation	Prior to construction	Implementing Agency	<input type="checkbox"/>	_____	

ENVIORNMENTAL COMMITMENT RECORD

CAPITAL SOUTHEAST CONNECTOR – A1/A2 KAMMERER ROAD PROJECT

Last updated July 27, 2022

Capital SouthEast Connector –A1/A2 Kammerer Road Extension Project

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Task and Brief Description	Timing	Responsible Party	Task Completed	Initials	Remarks/Due Date
bank with a service area covering the proposed Project. The seven beetle conservation credits will result in the planting of 35 elderberry seedlings and 35 associated native plantings ([35 elderberry seedlings+ 35 associated natives] / 10 = 7 credits).					

Appendix E: List of Acronyms and Abbreviations

List of Abbreviations

AB	Assembly Bill
ADT	Average Daily Traffic
APE	Area of Potential Effects
AST	Above Ground Storage Tank
AUL	Activity and Use Limitations
BA	Biological Assessment
Blueprint	SACOG's Preferred Blueprint Scenario
BMPs	Best Management Practices
BO	Biological Opinion
BPTMP	Bicycle, Pedestrian, and Trails Master Plan
BSA	Biological Study Area
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal-CAA	California Clean Air Act
Cal EPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plant Council
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CBSC	California Building Standards Code
CCP	Comprehensive Conservation Plan
CCSD	Cosumnes Community Services District
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation

CDWR	California Department of Water Resources
Central Valley RWQCB	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG	California Fish and Game
CH₄	methane
City	City of Elk Grove
CMP	construction management plan
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO₂	carbon dioxide
Connector JPA	Capital SouthEast Connector Joint Powers Authority
County	Sacramento County
CT-EMFAC	Caltrans Emission Factors Model
CWA	Clean Water Act
dBA	decibel A-weighted
dbh	diameter at breast height
Department	California Department of Transportation
DLAE	District Local Assistance Engineer
DPR	California Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
ECA	Essential Connectivity Area
EDR	Environmental Data Resources

EIR	Environmental Impact Report
EIS	Environmental Impact Statement
E.O.	Executive Order
ESA	Environmentally Sensitive Area
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
GHG	greenhouse gases
GIS	Geographic Information Systems
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HFC	hydrofluorocarbons
HOV	high-occupancy vehicles
HUC	Hydrologic Unit Code
H₂S	hydrogen sulfide
IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ISA	Initial Site Assessment
ITS	Intelligent Transportation System
I-5	Interstate 5
Lb	pound
Ldn	day-night average sound level
Leq	equivalent continuous sound level
LID	low impact development

Lmax	maximum sound level
MLD	Most Likely Descendent
MLRA	Major Land Resource Area
LOS	level of service
LRU	Land Resource Unit
LRSP	Laguna Ridge Specific Plan
MBTA	Migratory Bird Treaty Act
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
Mph	miles per hour
MRZ	Mineral Resource Zone
MSL	mean sea level
MTIP	Metropolitan Transportation Improvement Program
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NCIC	North Central Information Center
NES	Natural Environment Study
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NOA	Naturally Occurring Asbestos
NO₂	nitrogen dioxide
N₂O	nitrous oxide

NOX	nitrogen oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
O₃	ozone
OPR	Office of Planning and Research
PeMS	California Freeway Performance Measure System
PG&E	Pacific Gas and Electric Company
Pb	lead
PEIR	Program Environmental Impact Report
PM	particulate matter
PRC	Public Resources Code
Project	Capital SouthEast Connector A1/A2 Kammerer Road Project
PS&E	Plans Specifications and Estimates
RECs	Recognized Environmental Conditions
ROG	reactive organic compounds
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SACSIM	Sacramento Activity-Based Travel Simulation Model
SCBMP	Sacramento County Bicycle Master Plan
SCS	Sustainable Communities Strategy
SCWA	Sacramento County Water Agency
SEPA	Southeast Policy Area
SF₆	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan

SMARA	Surface Mining and Reclamation Act
SMUD	Sacramento Municipal Utilities District
SO₂	sulfur dioxide
SOIA	Sphere of Influence Amendment
SPA	Special Planning Area
SR	State Route
SRCSD	Sacramento Regional County Sanitation District
SSHCP	South Sacramento Habitat Conservation Plan
SSQP	Sacramento Stormwater Quality Partnership
Stone Lakes NWR	Stone Lakes National Wildlife Refuge
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	Sacramento Water Resources Control Board
TCMs	Transportation Control Measures
TCR	Tribal Cultural Resource
TDM	Transportation Demand Management
TIA	Transportation Impact Analysis
TMDL	Total Maximum Daily Load
TMP	Traffic Management Plan
TSM	Transportation System Management
UBC	Uniform Building Code
UPA	Urban Policy Area
UPRR	Union Pacific Railroad
USACE	United States Army Corps of Engineers
USB	Urban Service Boundary
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation

U.S. EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VELB	Valley Elderberry Longhorn Beetle
VHT	vehicle hours traveled
VIA	Visual Impact Assessment
VOC	volatile organic compounds
VMT	vehicle miles traveled
WDRs	Water Discharge Requirements

Appendix F: Air Modeling Results and POAQC Concurrence

Parameter	Value
Created by	EMFAC2017 v1.0.3
Season/Month	Annual
SB375 Run	Off

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EMFAC2017 Scenario Analysis Template Inputs

Sub-Area	GAI	Sub-Area	Cal_Year	New Total VMT	Scenario/Analysis Years
Sacramento (SV)	31	Sacramento (SV)	2017	141,636.0	Baseline (Existing Conditions) 2017
Sacramento (SV)	31	Sacramento (SV)	2034	171,879.0	No Build Interim (2034)
Sacramento (SV)	31	Sacramento (SV)	2034	171,996.0	Interim + Project (2034)
Sacramento (SV)	31	Sacramento (SV)	2040	182,575.0	No Build Horizon Year (2040)
Sacramento (SV)	31	Sacramento (SV)	2040	182,711.0	Horizon Year (2040)
Sacramento (SV)	31	Sacramento (SV)	2044	189,705.0	No Build Future (2044)
Sacramento (SV)	31	Sacramento (SV)	2044	189,856.0	Future + Project (2044)

EMFAC2017 Results - Baseline (Existing Conditions) 2017

Area	Sub-Area	Cal. Year	Season	Veh_Tech	EMFAC2007 Category	Population	VMT	Trips	TOG_TOTAL	ROG_TOTAL	CO_TOTEX	NOx_TOTEX	CO2_TOTEX	PM10_TOTAL	PM2_5_TOTAL	SOx_TOTEX	Fuel_GAS	Fuel_DSL
Sub-Areas	Sacramento (SV)	2017	Annual	All Vehicles	All Vehicles	3,968.4	141,636.0	19,875.2	0.0458	0.0406	0.3234	0.0832	66.4	0.0092	0.0044	0.0007	5.95	1.01
Sub-Areas	Sacramento (SV)	2017	Annual	ALL OTHER BUSES - DSL	OBUS - DSL	1.92	96.4	16.1	0.0001	0.0001	0.0002	0.0009	0.1317	0.0001	0.0000	0.0000		0.0119
Sub-Areas	Sacramento (SV)	2017	Annual	LDA - DSL	LDA - DSL	13.5	491.5	61.9	0.0000	0.0000	0.0002	0.0002	0.1239	0.0000	0.0000	0.0000		0.0112
Sub-Areas	Sacramento (SV)	2017	Annual	LDA - GAS	LDA - GAS	2,018.5	74,053.3	9,360.2	0.0157	0.0143	0.1317	0.0109	24.9	0.0038	0.0016	0.0003	2.68	
Sub-Areas	Sacramento (SV)	2017	Annual	LDT1 - DSL	LDT1 - DSL	1.18	25.5	4.57	0.0000	0.0000	0.0000	0.0000	0.0132	0.0000	0.0000	0.0000		0.0012
Sub-Areas	Sacramento (SV)	2017	Annual	LDT1 - GAS	LDT1 - GAS	231.4	7,784.8	1,038.4	0.0038	0.0035	0.0235	0.0023	3.03	0.0004	0.0002	0.0000	0.3268	
Sub-Areas	Sacramento (SV)	2017	Annual	LDT2 - DSL	LDT2 - DSL	1.99	87.7	9.79	0.0000	0.0000	0.0000	0.0000	0.0301	0.0000	0.0000	0.0000		0.0027
Sub-Areas	Sacramento (SV)	2017	Annual	LDT2 - GAS	LDT2 - GAS	732.7	26,451.8	3,387.4	0.0073	0.0067	0.0589	0.0068	11.6	0.0014	0.0006	0.0001	1.25	
Sub-Areas	Sacramento (SV)	2017	Annual	LHD1 - DSL	LHDT1 - DSL	56.4	2,103.8	710.0	0.0006	0.0005	0.0023	0.0092	1.36	0.0003	0.0002	0.0000		0.1227
Sub-Areas	Sacramento (SV)	2017	Annual	LHD1 - GAS	LHDT1 - GAS	74.7	2,679.9	1,112.9	0.0024	0.0022	0.0092	0.0020	3.10	0.0003	0.0001	0.0000	0.3313	
Sub-Areas	Sacramento (SV)	2017	Annual	LHD2 - DSL	LHDT2 - DSL	17.1	656.2	215.1	0.0002	0.0001	0.0006	0.0024	0.4779	0.0001	0.0001	0.0000		0.0430
Sub-Areas	Sacramento (SV)	2017	Annual	LHD2 - GAS	LHDT2 - GAS	9.37	335.6	139.6	0.0003	0.0002	0.0010	0.0002	0.4452	0.0000	0.0000	0.0000	0.0476	
Sub-Areas	Sacramento (SV)	2017	Annual	MCY - GAS	MCY - GAS	105.2	800.2	210.4	0.0045	0.0041	0.0223	0.0011	0.1565	0.0000	0.0000	0.0000	0.0214	
Sub-Areas	Sacramento (SV)	2017	Annual	MDV - DSL	MDV - DSL	6.75	288.1	33.0	0.0000	0.0000	0.0001	0.0000	0.1301	0.0000	0.0000	0.0000		0.0117
Sub-Areas	Sacramento (SV)	2017	Annual	MDV - GAS	MDV - GAS	576.7	19,696.3	2,634.1	0.0069	0.0063	0.0531	0.0064	10.4	0.0010	0.0004	0.0001	1.12	
Sub-Areas	Sacramento (SV)	2017	Annual	MH - DSL	MH - DSL	3.86	36.9	0.3864	0.0000	0.0000	0.0000	0.0003	0.0433	0.0000	0.0000	0.0000		0.0039
Sub-Areas	Sacramento (SV)	2017	Annual	MH - GAS	MH - GAS	14.5	125.8	1.45	0.0000	0.0000	0.0006	0.0001	0.2566	0.0000	0.0000	0.0000	0.0274	
Sub-Areas	Sacramento (SV)	2017	Annual	MOTOR COACH - DSL	OBUS - DSL	0.3791	47.2	5.54	0.0000	0.0000	0.0001	0.0004	0.0884	0.0000	0.0000	0.0000		0.0080
Sub-Areas	Sacramento (SV)	2017	Annual	OBUS - GAS	OBUS - GAS	2.61	137.3	52.2	0.0001	0.0001	0.0007	0.0002	0.2830	0.0000	0.0000	0.0000	0.0303	
Sub-Areas	Sacramento (SV)	2017	Annual	PTO - DSL	HHDT - DSL		53.9		0.0001	0.0000	0.0001	0.0006	0.1266	0.0000	0.0000	0.0000		0.0114
Sub-Areas	Sacramento (SV)	2017	Annual	SBUS - DSL	SBUS - DSL	4.13	130.8	47.7	0.0000	0.0000	0.0001	0.0015	0.1866	0.0001	0.0001	0.0000		0.0168
Sub-Areas	Sacramento (SV)	2017	Annual	SBUS - GAS	SBUS - GAS	0.3088	15.9	1.24	0.0000	0.0000	0.0002	0.0000	0.0162	0.0000	0.0000	0.0000	0.0018	
Sub-Areas	Sacramento (SV)	2017	Annual	T6 AG - DSL	MHDT - DSL	0.0718	1.46	0.3160	0.0000	0.0000	0.0000	0.0000	0.0018	0.0000	0.0000	0.0000		0.0002
Sub-Areas	Sacramento (SV)	2017	Annual	T6 CAIRP HEAVY - DSL	MHDT - DSL	0.3622	73.3	5.29	0.0000	0.0000	0.0000	0.0002	0.0795	0.0000	0.0000	0.0000		0.0072
Sub-Areas	Sacramento (SV)	2017	Annual	T6 CAIRP SMALL - DSL	MHDT - DSL	0.1910	10.2	2.79	0.0000	0.0000	0.0000	0.0000	0.0117	0.0000	0.0000	0.0000		0.0011
Sub-Areas	Sacramento (SV)	2017	Annual	T6 INSTATE CONSTRUCTION HEAVY - DSL	MHDT - DSL	0.5396	35.3	2.44	0.0000	0.0000	0.0001	0.0003	0.0507	0.0000	0.0000	0.0000		0.0046
Sub-Areas	Sacramento (SV)	2017	Annual	T6 INSTATE CONSTRUCTION SMALL - DSL	MHDT - DSL	5.30	259.1	24.0	0.0002	0.0002	0.0004	0.0018	0.3720	0.0001	0.0001	0.0000		0.0335
Sub-Areas	Sacramento (SV)	2017	Annual	T6 INSTATE HEAVY - DSL	MHDT - DSL	4.66	628.8	53.8	0.0003	0.0003	0.0007	0.0037	0.7664	0.0002	0.0002	0.0000		0.0690
Sub-Areas	Sacramento (SV)	2017	Annual	T6 INSTATE SMALL - DSL	MHDT - DSL	19.7	946.1	227.9	0.0005	0.0005	0.0013	0.0058	1.20	0.0004	0.0003	0.0000		0.1079
Sub-Areas	Sacramento (SV)	2017	Annual	T6 OOS HEAVY - DSL	MHDT - DSL	0.2057	41.9	3.00	0.0000	0.0000	0.0000	0.0001	0.0454	0.0000	0.0000	0.0000		0.0041
Sub-Areas	Sacramento (SV)	2017	Annual	T6 OOS SMALL - DSL	MHDT - DSL	0.1089	5.83	1.59	0.0000	0.0000	0.0000	0.0000	0.0067	0.0000	0.0000	0.0000		0.0006
Sub-Areas	Sacramento (SV)	2017	Annual	T6 PUBLIC - DSL	MHDT - DSL	17.5	261.2	53.0	0.0000	0.0000	0.0002	0.0036	0.4274	0.0001	0.0000	0.0000		0.0385
Sub-Areas	Sacramento (SV)	2017	Annual	T6 UTILITY - DSL	MHDT - DSL	0.6342	10.6	7.29	0.0000	0.0000	0.0000	0.0001	0.0144	0.0000	0.0000	0.0000		0.0013
Sub-Areas	Sacramento (SV)	2017	Annual	T6TS - GAS	MHDT - GAS	9.73	475.0	194.7	0.0005	0.0004	0.0043	0.0007	0.9773	0.0001	0.0000	0.0000	0.1049	
Sub-Areas	Sacramento (SV)	2017	Annual	T7 AG - DSL	HHDT - DSL	0.0437	0.9714	0.1921	0.0000	0.0000	0.0000	0.0000	0.0019	0.0000	0.0000	0.0000		0.0002
Sub-Areas	Sacramento (SV)	2017	Annual	T7 CAIRP - DSL	HHDT - DSL	2.58	517.3	37.6	0.0001	0.0001	0.0006	0.0030	0.9172	0.0001	0.0001	0.0000		0.0825
Sub-Areas	Sacramento (SV)	2017	Annual	T7 CAIRP CONSTRUCTION - DSL	HHDT - DSL	0.1261	25.4	0.5703	0.0000	0.0000	0.0000	0.0002	0.0531	0.0000	0.0000	0.0000		0.0048
Sub-Areas	Sacramento (SV)	2017	Annual	T7 NNOOS - DSL	HHDT - DSL	3.02	630.7	44.1	0.0002	0.0001	0.0009	0.0031	1.09	0.0001	0.0001	0.0000		0.0980
Sub-Areas	Sacramento (SV)	2017	Annual	T7 NOOS - DSL	HHDT - DSL	1.01	203.2	14.8	0.0001	0.0001	0.0003	0.0012	0.3675	0.0000	0.0000	0.0000		0.0331
Sub-Areas	Sacramento (SV)	2017	Annual	T7 OTHER PORT - DSL	HHDT - DSL	0.0337	5.52	0.2562	0.0000	0.0000	0.0000	0.0000	0.0117	0.0000	0.0000	0.0000		0.0010
Sub-Areas	Sacramento (SV)	2017	Annual	T7 POAK - DSL	HHDT - DSL	0.1477	15.4	1.12	0.0000	0.0000	0.0000	0.0001	0.0337	0.0000	0.0000	0.0000		0.0030
Sub-Areas	Sacramento (SV)	2017	Annual	T7 POLA - DSL	HHDT - DSL	0.0000	0.0000	0.0000	0	0	0	0	0.0000	0	0	0		0
Sub-Areas	Sacramento (SV)	2017	Annual	T7 PUBLIC - DSL	HHDT - DSL	15.7	315.0	47.7	0.0001	0.0001	0.0003	0.0049	0.7079	0.0001	0.0000	0.0000		0.0637
Sub-Areas	Sacramento (SV)	2017	Annual	T7 SINGLE - DSL	HHDT - DSL	3.99	271.7	46.0	0.0002	0.0002	0.0006	0.0026	0.5108	0.0001	0.0001	0.0000		0.0460
Sub-Areas	Sacramento (SV)	2017	Annual	T7 SINGLE CONSTRUCTION - DSL	HHDT - DSL	0.9390	62.9	4.25	0.0001	0.0001	0.0002	0.0008	0.1370	0.0000	0.0000	0.0000		0.0123
Sub-Areas	Sacramento (SV)	2017	Annual	T7 SWCV - DSL	HHDT - DSL	3.09	125.6	12.0	0.0002	0.0000	0.0004	0.0016	0.5598	0.0000	0.0000	0.0000		0.0544
Sub-Areas	Sacramento (SV)	2017	Annual	T7 TRACTOR - DSL	HHDT - DSL	2.69	386.8	34.2	0.0002	0.0001	0.0005	0.0030	0.6390	0.0001	0.0001	0.0000		0.0575
Sub-Areas	Sacramento (SV)	2017	Annual	T7 TRACTOR CONSTRUCTION - DSL	HHDT - DSL	0.7436	51.9	3.36	0.0001	0.0001	0.0001	0.0006	0.1140	0.0000	0.0000	0.0000		0.0103
Sub-Areas	Sacramento (SV)	2017	Annual	T7 UTILITY - DSL	HHDT - DSL	0.0898	1.82	1.03	0.0000	0.0000	0.0000	0.0000	0.0037	0.0000	0.0000	0.0000		0.0003
Sub-Areas	Sacramento (SV)	2017	Annual	T7IS - GAS	HHDT - GAS	0.1121	2.38	2.24	0.0000	0.0000	0.0006	0.0000	0.0061	0.0000	0.0000	0.0000	0.0008	
Sub-Areas	Sacramento (SV)	2017	Annual	UBUS - DSL	UBUS - DSL	1.31	125.4	5.25	0.0010	0.0000	0.0067	0.0001	0.2630	0.0000	0.0000	0.0000		0.0323
Sub-Areas	Sacramento (SV)	2017	Annual	UBUS - GAS	UBUS - GAS	0.6133	46.3	2.45	0.0000	0.0000	0.0000	0.0000	0.1188	0.0000	0.0000	0.0000	0.0127	

EMFAC2017 Results - No-Build Interim (2034)

Area	Sub-Area	Cal. Year	Season	Veh_Tech	EMFAC2007 Category	Population	VMT	Trips	TOG_TOTAL	ROG_TOTAL	CO_TOTEX	NOx_TOTEX	CO2_TOTEX	PM10_TOTAL	PM2_5_TOTAL	SOx_TOTEX	Fuel_GAS	Fuel_DSL
Sub-Areas	Sacramento (SV)	2034	Annual	All Vehicles	All Vehicles	5,474.4	171,879.0	26,690.3	0.0226	0.0194	0.1659	0.0339	51.9	0.0098	0.0041	0.0005	4.35	1.04
Sub-Areas	Sacramento (SV)	2034	Annual	ALL OTHER BUSES - DSL	OBUS - DSL	1.70	80.1	14.3	0.0000	0.0000	0.0000	0.0002	0.0868	0.0000	0.0000	0.0000		0.0078
Sub-Areas	Sacramento (SV)	2034	Annual	LDA - DSL	LDA - DSL	34.2	1,130.3	161.4	0.0000	0.0000	0.0002	0.0000	0.1950	0.0001	0.0000	0.0000		0.0176
Sub-Areas	Sacramento (SV)	2034	Annual	LDA - GAS	LDA - GAS	3,077.2	98,801.3	14,344.2	0.0070	0.0067	0.0697	0.0039	21.3	0.0050	0.0020	0.0002	2.28	
Sub-Areas	Sacramento (SV)	2034	Annual	LDT1 - DSL	LDT1 - DSL	0.1609	2.56	0.5793	0.0000	0.0000	0.0000	0.0000	0.0011	0.0000	0.0000	0.0000		0.0001
Sub-Areas	Sacramento (SV)	2034	Annual	LDT1 - GAS	LDT1 - GAS	306.1	9,337.5	1,401.6	0.0011	0.0011	0.0075	0.0005	2.43	0.0005	0.0002	0.0000	0.2599	
Sub-Areas	Sacramento (SV)	2034	Annual	LDT2 - DSL	LDT2 - DSL	8.79	287.2	41.4	0.0000	0.0000	0.0000	0.0000	0.0666	0.0000	0.0000	0.0000		0.0060
Sub-Areas	Sacramento (SV)	2034	Annual	LDT2 - GAS	LDT2 - GAS	982.6	30,023.2	4,525.6	0.0035	0.0034	0.0275	0.0015	7.89	0.0015	0.0006	0.0001	0.8453	
Sub-Areas	Sacramento (SV)	2034	Annual	LHD1 - DSL	LHDT1 - DSL	52.4	1,669.1	658.8	0.0003	0.0003	0.0012	0.0013	0.8686	0.0002	0.0001	0.0000		0.0782
Sub-Areas	Sacramento (SV)	2034	Annual	LHD1 - GAS	LHDT1 - GAS	53.4	1,674.5	795.9	0.0009	0.0009	0.0022	0.0005	1.62	0.0002	0.0001	0.0000	0.1727	
Sub-Areas	Sacramento (SV)	2034	Annual	LHD2 - DSL	LHDT2 - DSL	20.5	641.5	257.9	0.0001	0.0001	0.0005	0.0005	0.3756	0.0001	0.0000	0.0000		0.0338
Sub-Areas	Sacramento (SV)	2034	Annual	LHD2 - GAS	LHDT2 - GAS	7.99	252.4	119.1	0.0001	0.0001	0.0003	0.0001	0.2786	0.0000	0.0000	0.0000	0.0297	
Sub-Areas	Sacramento (SV)	2034	Annual	MCY - GAS	MCY - GAS	132.1	791.2	264.2	0.0042	0.0037	0.0180	0.0011	0.1618	0.0000	0.0000	0.0000	0.0212	
Sub-Areas	Sacramento (SV)	2034	Annual	MDV - DSL	MDV - DSL	19.6	619.2	91.7	0.0000	0.0000	0.0001	0.0000	0.1879	0.0000	0.0000	0.0000		0.0169
Sub-Areas	Sacramento (SV)	2034	Annual	MDV - GAS	MDV - GAS	630.3	18,443.0	2,871.1	0.0028	0.0027	0.0181	0.0011	5.91	0.0009	0.0004	0.0001	0.6330	
Sub-Areas	Sacramento (SV)	2034	Annual	MH - DSL	MH - DSL	4.32	35.1	0.4318	0.0000	0.0000	0.0000	0.0001	0.0347	0.0000	0.0000	0.0000		0.0031
Sub-Areas	Sacramento (SV)	2034	Annual	MH - GAS	MH - GAS	8.68	79.0	0.8685	0.0000	0.0000	0.0000	0.0000	0.1306	0.0000	0.0000	0.0000	0.0139	
Sub-Areas	Sacramento (SV)	2034	Annual	MOTOR COACH - DSL	OBUS - DSL	0.5261	62.3	7.68	0.0000	0.0000	0.0000	0.0002	0.0909	0.0000	0.0000	0.0000		0.0082
Sub-Areas	Sacramento (SV)	2034	Annual	OBUS - GAS	OBUS - GAS	1.77	67.0	35.4	0.0000	0.0000	0.0002	0.0000	0.1120	0.0000	0.0000	0.0000	0.0120	
Sub-Areas	Sacramento (SV)	2034	Annual	PTO - DSL	HHDT - DSL		135.7		0.0000	0.0000	0.0001	0.0007	0.2432	0.0000	0.0000	0.0000		0.0219
Sub-Areas	Sacramento (SV)	2034	Annual	SBUS - DSL	SBUS - DSL	3.25	102.1	37.5	0.0000	0.0000	0.0001	0.0006	0.1243	0.0001	0.0000	0.0000		0.0112
Sub-Areas	Sacramento (SV)	2034	Annual	SBUS - GAS	SBUS - GAS	0.8953	39.4	3.58	0.0000	0.0000	0.0001	0.0000	0.0346	0.0000	0.0000	0.0000	0.0037	
Sub-Areas	Sacramento (SV)	2034	Annual	T6 AG - DSL	MHDT - DSL	0.0421	0.1392	0.1850	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2034	Annual	T6 CAIRP HEAVY - DSL	MHDT - DSL	0.5629	97.0	8.22	0.0000	0.0000	0.0000	0.0001	0.0742	0.0000	0.0000	0.0000		0.0067
Sub-Areas	Sacramento (SV)	2034	Annual	T6 CAIRP SMALL - DSL	MHDT - DSL	0.3221	14.4	4.70	0.0000	0.0000	0.0000	0.0000	0.0123	0.0000	0.0000	0.0000		0.0011
Sub-Areas	Sacramento (SV)	2034	Annual	T6 INSTATE CONSTRUCTION HEAVY - DSL	MHDT - DSL	1.25	78.6	5.67	0.0000	0.0000	0.0000	0.0002	0.0948	0.0000	0.0000	0.0000		0.0085
Sub-Areas	Sacramento (SV)	2034	Annual	T6 INSTATE CONSTRUCTION SMALL - DSL	MHDT - DSL	11.6	576.5	52.5	0.0000	0.0000	0.0001	0.0015	0.6339	0.0001	0.0000	0.0000		0.0570
Sub-Areas	Sacramento (SV)	2034	Annual	T6 INSTATE HEAVY - DSL	MHDT - DSL	8.26	835.5	95.3	0.0000	0.0000	0.0001	0.0017	0.7574	0.0001	0.0001	0.0000		0.0682
Sub-Areas	Sacramento (SV)	2034	Annual	T6 INSTATE SMALL - DSL	MHDT - DSL	24.0	1,066.5	276.9	0.0000	0.0000	0.0002	0.0025	1.01	0.0002	0.0001	0.0000		0.0906
Sub-Areas	Sacramento (SV)	2034	Annual	T6 OOS HEAVY - DSL	MHDT - DSL	0.3110	53.9	4.54	0.0000	0.0000	0.0000	0.0001	0.0412	0.0000	0.0000	0.0000		0.0037
Sub-Areas	Sacramento (SV)	2034	Annual	T6 OOS SMALL - DSL	MHDT - DSL	0.1710	7.59	2.50	0.0000	0.0000	0.0000	0.0000	0.0065	0.0000	0.0000	0.0000		0.0006
Sub-Areas	Sacramento (SV)	2034	Annual	T6 PUBLIC - DSL	MHDT - DSL	18.3	285.5	55.6	0.0000	0.0000	0.0002	0.0012	0.3529	0.0000	0.0000	0.0000		0.0318
Sub-Areas	Sacramento (SV)	2034	Annual	T6 UTILITY - DSL	MHDT - DSL	0.7355	12.3	8.46	0.0000	0.0000	0.0000	0.0000	0.0120	0.0000	0.0000	0.0000		0.0011
Sub-Areas	Sacramento (SV)	2034	Annual	T6TS - GAS	MHDT - GAS	6.88	311.4	137.6	0.0001	0.0001	0.0007	0.0001	0.5156	0.0000	0.0000	0.0000	0.0550	
Sub-Areas	Sacramento (SV)	2034	Annual	T7 AG - DSL	HHDT - DSL	0.0462	0.1093	0.2032	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2034	Annual	T7 CAIRP - DSL	HHDT - DSL	3.25	683.7	47.4	0.0001	0.0001	0.0007	0.0021	0.8131	0.0001	0.0000	0.0000		0.0732
Sub-Areas	Sacramento (SV)	2034	Annual	T7 CAIRP CONSTRUCTION - DSL	HHDT - DSL	0.3073	56.4	1.39	0.0000	0.0000	0.0000	0.0003	0.0829	0.0000	0.0000	0.0000		0.0075
Sub-Areas	Sacramento (SV)	2034	Annual	T7 NNOOS - DSL	HHDT - DSL	4.81	833.6	70.2	0.0001	0.0001	0.0012	0.0027	1.02	0.0001	0.0001	0.0000		0.0914
Sub-Areas	Sacramento (SV)	2034	Annual	T7 NOOS - DSL	HHDT - DSL	1.29	268.7	18.9	0.0000	0.0000	0.0003	0.0009	0.3276	0.0000	0.0000	0.0000		0.0295
Sub-Areas	Sacramento (SV)	2034	Annual	T7 OTHER PORT - DSL	HHDT - DSL	0.0505	8.32	0.3836	0.0000	0.0000	0.0000	0.0000	0.0114	0.0000	0.0000	0.0000		0.0010
Sub-Areas	Sacramento (SV)	2034	Annual	T7 POAK - DSL	HHDT - DSL	0.2222	34.4	1.69	0.0000	0.0000	0.0000	0.0002	0.0483	0.0000	0.0000	0.0000		0.0043
Sub-Areas	Sacramento (SV)	2034	Annual	T7 POLA - DSL	HHDT - DSL	0.0000	0.0000	0.0000	0	0	0	0	0.0000	0	0	0		0.0000
Sub-Areas	Sacramento (SV)	2034	Annual	T7 PUBLIC - DSL	HHDT - DSL	21.8	441.0	66.1	0.0001	0.0001	0.0005	0.0026	0.7355	0.0001	0.0000	0.0000		0.0662
Sub-Areas	Sacramento (SV)	2034	Annual	T7 SINGLE - DSL	HHDT - DSL	8.51	683.5	98.2	0.0000	0.0000	0.0005	0.0022	0.9517	0.0001	0.0000	0.0000		0.0857
Sub-Areas	Sacramento (SV)	2034	Annual	T7 SINGLE CONSTRUCTION - DSL	HHDT - DSL	1.89	140.0	8.57	0.0000	0.0000	0.0001	0.0006	0.2374	0.0000	0.0000	0.0000		0.0214
Sub-Areas	Sacramento (SV)	2034	Annual	T7 SWCV - DSL	HHDT - DSL	3.48	142.0	13.6	0.0002	0.0000	0.0008	0.0005	0.4657	0.0000	0.0000	0.0000		0.0476
Sub-Areas	Sacramento (SV)	2034	Annual	T7 TRACTOR - DSL	HHDT - DSL	4.29	512.7	54.4	0.0000	0.0000	0.0002	0.0013	0.5957	0.0001	0.0000	0.0000		0.0536
Sub-Areas	Sacramento (SV)	2034	Annual	T7 TRACTOR CONSTRUCTION - DSL	HHDT - DSL	1.57	115.5	7.11	0.0000	0.0000	0.0001	0.0006	0.1942	0.0000	0.0000	0.0000		0.0175
Sub-Areas	Sacramento (SV)	2034	Annual	T7 UTILITY - DSL	HHDT - DSL	0.1026	2.08	1.18	0.0000	0.0000	0.0000	0.0000	0.0032	0.0000	0.0000	0.0000		0.0003
Sub-Areas	Sacramento (SV)	2034	Annual	T7IS - GAS	HHDT - GAS	0.0203	2.60	0.4069	0.0000	0.0000	0.0001	0.0000	0.0044	0.0000	0.0000	0.0000	0.0005	
Sub-Areas	Sacramento (SV)	2034	Annual	UBUS - DSL	UBUS - DSL	2.61	249.3	10.4	0.0018	0.0000	0.0139	0.0001	0.5247	0.0000	0.0000	0		0.0645
Sub-Areas	Sacramento (SV)	2034	Annual	UBUS - GAS	UBUS - GAS	1.22	92.1	4.88	0.0000	0.0000	0.0001	0.0000	0.1752	0.0000	0.0000	0.0000	0.0187	

EMFAC2017 Results - Interim + Project (2034)

Area	Sub-Area	Cal. Year	Season	Veh_Tech	EMFAC2007 Category	Population	VMT	Trips	TOG_TOTAL	ROG_TOTAL	CO_TOTEX	NOx_TOTEX	CO2_TOTEX	PM10_TOTAL	PM2_5_TOTAL	SOx_TOTEX	Fuel_GAS	Fuel_DSL
Sub-Areas	Sacramento (SV)	2034	Annual	All Vehicles	All Vehicles	5,478.2	171,996.0	26,708.5	0.0226	0.0194	0.1660	0.0339	51.9	0.0098	0.0041	0.0005	4.35	1.04
Sub-Areas	Sacramento (SV)	2034	Annual	ALL OTHER BUSES - DSL	OBUS - DSL	1.70	80.1	14.3	0.0000	0.0000	0.0000	0.0002	0.0868	0.0000	0.0000	0.0000		0.0078
Sub-Areas	Sacramento (SV)	2034	Annual	LDA - DSL	LDA - DSL	34.3	1,131.1	161.5	0.0000	0.0000	0.0002	0.0000	0.1951	0.0001	0.0000	0.0000		0.0176
Sub-Areas	Sacramento (SV)	2034	Annual	LDA - GAS	LDA - GAS	3,079.2	98,868.6	14,353.9	0.0070	0.0067	0.0698	0.0039	21.3	0.0050	0.0020	0.0002	2.28	
Sub-Areas	Sacramento (SV)	2034	Annual	LDT1 - DSL	LDT1 - DSL	0.1610	2.56	0.5797	0.0000	0.0000	0.0000	0.0000	0.0011	0.0000	0.0000	0.0000		0.0001
Sub-Areas	Sacramento (SV)	2034	Annual	LDT1 - GAS	LDT1 - GAS	306.3	9,343.8	1,402.6	0.0011	0.0011	0.0075	0.0005	2.43	0.0005	0.0002	0.0000	0.2601	
Sub-Areas	Sacramento (SV)	2034	Annual	LDT2 - DSL	LDT2 - DSL	8.79	287.4	41.4	0.0000	0.0000	0.0000	0.0000	0.0666	0.0000	0.0000	0.0000		0.0060
Sub-Areas	Sacramento (SV)	2034	Annual	LDT2 - GAS	LDT2 - GAS	983.3	30,043.6	4,528.6	0.0035	0.0034	0.0275	0.0015	7.90	0.0015	0.0006	0.0001	0.8459	
Sub-Areas	Sacramento (SV)	2034	Annual	LHD1 - DSL	LHDT1 - DSL	52.4	1,670.3	659.2	0.0003	0.0003	0.0012	0.0013	0.8692	0.0002	0.0001	0.0000		0.0782
Sub-Areas	Sacramento (SV)	2034	Annual	LHD1 - GAS	LHDT1 - GAS	53.5	1,675.7	796.4	0.0009	0.0009	0.0022	0.0005	1.62	0.0002	0.0001	0.0000	0.1728	
Sub-Areas	Sacramento (SV)	2034	Annual	LHD2 - DSL	LHDT2 - DSL	20.5	641.9	258.0	0.0001	0.0001	0.0005	0.0005	0.3758	0.0001	0.0000	0.0000		0.0338
Sub-Areas	Sacramento (SV)	2034	Annual	LHD2 - GAS	LHDT2 - GAS	8.00	252.5	119.2	0.0001	0.0001	0.0003	0.0001	0.2788	0.0000	0.0000	0.0000	0.0297	
Sub-Areas	Sacramento (SV)	2034	Annual	MCY - GAS	MCY - GAS	132.2	791.7	264.4	0.0042	0.0037	0.0181	0.0011	0.1619	0.0000	0.0000	0.0000	0.0212	
Sub-Areas	Sacramento (SV)	2034	Annual	MDV - DSL	MDV - DSL	19.6	619.6	91.7	0.0000	0.0000	0.0001	0.0000	0.1881	0.0000	0.0000	0.0000		0.0169
Sub-Areas	Sacramento (SV)	2034	Annual	MDV - GAS	MDV - GAS	630.7	18,455.6	2,873.1	0.0028	0.0027	0.0181	0.0011	5.92	0.0009	0.0004	0.0001	0.6334	
Sub-Areas	Sacramento (SV)	2034	Annual	MH - DSL	MH - DSL	4.32	35.1	0.4321	0.0000	0.0000	0.0000	0.0001	0.0347	0.0000	0.0000	0.0000		0.0031
Sub-Areas	Sacramento (SV)	2034	Annual	MH - GAS	MH - GAS	8.69	79.1	0.8690	0.0000	0.0000	0.0000	0.0000	0.1307	0.0000	0.0000	0.0000	0.0139	
Sub-Areas	Sacramento (SV)	2034	Annual	MOTOR COACH - DSL	OBUS - DSL	0.5265	62.4	7.69	0.0000	0.0000	0.0000	0.0002	0.0910	0.0000	0.0000	0.0000		0.0082
Sub-Areas	Sacramento (SV)	2034	Annual	OBUS - GAS	OBUS - GAS	1.77	67.1	35.4	0.0000	0.0000	0.0002	0.0000	0.1121	0.0000	0.0000	0.0000	0.0120	
Sub-Areas	Sacramento (SV)	2034	Annual	PTO - DSL	HHDT - DSL		135.8		0.0000	0.0000	0.0001	0.0007	0.2434	0.0000	0.0000	0.0000		0.0219
Sub-Areas	Sacramento (SV)	2034	Annual	SBUS - DSL	SBUS - DSL	3.26	102.2	37.6	0.0000	0.0000	0.0001	0.0006	0.1244	0.0001	0.0000	0.0000		0.0112
Sub-Areas	Sacramento (SV)	2034	Annual	SBUS - GAS	SBUS - GAS	0.8959	39.4	3.58	0.0000	0.0000	0.0001	0.0000	0.0347	0.0000	0.0000	0.0000	0.0037	
Sub-Areas	Sacramento (SV)	2034	Annual	T6 AG - DSL	MHDT - DSL	0.0421	0.1393	0.1851	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2034	Annual	T6 CAIRP HEAVY - DSL	MHDT - DSL	0.5633	97.0	8.22	0.0000	0.0000	0.0000	0.0001	0.0742	0.0000	0.0000	0.0000		0.0067
Sub-Areas	Sacramento (SV)	2034	Annual	T6 CAIRP SMALL - DSL	MHDT - DSL	0.3223	14.4	4.71	0.0000	0.0000	0.0000	0.0000	0.0123	0.0000	0.0000	0.0000		0.0011
Sub-Areas	Sacramento (SV)	2034	Annual	T6 INSTATE CONSTRUCTION HEAVY - DSL	MHDT - DSL	1.25	78.6	5.67	0.0000	0.0000	0.0000	0.0002	0.0948	0.0000	0.0000	0.0000		0.0085
Sub-Areas	Sacramento (SV)	2034	Annual	T6 INSTATE CONSTRUCTION SMALL - DSL	MHDT - DSL	11.6	576.9	52.5	0.0000	0.0000	0.0001	0.0015	0.6343	0.0001	0.0000	0.0000		0.0571
Sub-Areas	Sacramento (SV)	2034	Annual	T6 INSTATE HEAVY - DSL	MHDT - DSL	8.27	836.1	95.4	0.0000	0.0000	0.0001	0.0017	0.7579	0.0001	0.0001	0.0000		0.0682
Sub-Areas	Sacramento (SV)	2034	Annual	T6 INSTATE SMALL - DSL	MHDT - DSL	24.0	1,067.2	277.1	0.0000	0.0000	0.0002	0.0025	1.01	0.0002	0.0001	0.0000		0.0907
Sub-Areas	Sacramento (SV)	2034	Annual	T6 OOS HEAVY - DSL	MHDT - DSL	0.3112	53.9	4.54	0.0000	0.0000	0.0000	0.0001	0.0412	0.0000	0.0000	0.0000		0.0037
Sub-Areas	Sacramento (SV)	2034	Annual	T6 OOS SMALL - DSL	MHDT - DSL	0.1711	7.59	2.50	0.0000	0.0000	0.0000	0.0000	0.0065	0.0000	0.0000	0.0000		0.0006
Sub-Areas	Sacramento (SV)	2034	Annual	T6 PUBLIC - DSL	MHDT - DSL	18.4	285.7	55.7	0.0000	0.0000	0.0002	0.0012	0.3532	0.0000	0.0000	0.0000		0.0318
Sub-Areas	Sacramento (SV)	2034	Annual	T6 UTILITY - DSL	MHDT - DSL	0.7360	12.3	8.46	0.0000	0.0000	0.0000	0.0000	0.0120	0.0000	0.0000	0.0000		0.0011
Sub-Areas	Sacramento (SV)	2034	Annual	T6TS - GAS	MHDT - GAS	6.88	311.6	137.7	0.0001	0.0001	0.0007	0.0001	0.5160	0.0000	0.0000	0.0000	0.0551	
Sub-Areas	Sacramento (SV)	2034	Annual	T7 AG - DSL	HHDT - DSL	0.0462	0.1093	0.2034	0.0000	0.0000	0.0000	0.0000	0.0003	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2034	Annual	T7 CAIRP - DSL	HHDT - DSL	3.25	684.2	47.4	0.0001	0.0001	0.0007	0.0021	0.8136	0.0001	0.0000	0.0000		0.0732
Sub-Areas	Sacramento (SV)	2034	Annual	T7 CAIRP CONSTRUCTION - DSL	HHDT - DSL	0.3075	56.5	1.39	0.0000	0.0000	0.0000	0.0003	0.0830	0.0000	0.0000	0.0000		0.0075
Sub-Areas	Sacramento (SV)	2034	Annual	T7 NNOOS - DSL	HHDT - DSL	4.81	834.1	70.2	0.0001	0.0001	0.0012	0.0027	1.02	0.0001	0.0001	0.0000		0.0914
Sub-Areas	Sacramento (SV)	2034	Annual	T7 NOOS - DSL	HHDT - DSL	1.29	268.8	18.9	0.0000	0.0000	0.0003	0.0009	0.3278	0.0000	0.0000	0.0000		0.0295
Sub-Areas	Sacramento (SV)	2034	Annual	T7 OTHER PORT - DSL	HHDT - DSL	0.0505	8.32	0.3839	0.0000	0.0000	0.0000	0.0000	0.0114	0.0000	0.0000	0.0000		0.0010
Sub-Areas	Sacramento (SV)	2034	Annual	T7 POAK - DSL	HHDT - DSL	0.2224	34.4	1.69	0.0000	0.0000	0.0000	0.0002	0.0483	0.0000	0.0000	0.0000		0.0043
Sub-Areas	Sacramento (SV)	2034	Annual	T7 POLA - DSL	HHDT - DSL	0.0000	0.0000	0.0000	0	0	0	0	0.0000	0	0	0		0.0000
Sub-Areas	Sacramento (SV)	2034	Annual	T7 PUBLIC - DSL	HHDT - DSL	21.8	441.3	66.1	0.0001	0.0001	0.0005	0.0026	0.7360	0.0001	0.0000	0.0000		0.0662
Sub-Areas	Sacramento (SV)	2034	Annual	T7 SINGLE - DSL	HHDT - DSL	8.52	684.0	98.3	0.0000	0.0000	0.0005	0.0022	0.9523	0.0001	0.0000	0.0000		0.0857
Sub-Areas	Sacramento (SV)	2034	Annual	T7 SINGLE CONSTRUCTION - DSL	HHDT - DSL	1.90	140.1	8.57	0.0000	0.0000	0.0001	0.0006	0.2375	0.0000	0.0000	0.0000		0.0214
Sub-Areas	Sacramento (SV)	2034	Annual	T7 SWCV - DSL	HHDT - DSL	3.48	142.1	13.6	0.0002	0.0000	0.0008	0.0005	0.4660	0.0000	0.0000	0.0000		0.0476
Sub-Areas	Sacramento (SV)	2034	Annual	T7 TRACTOR - DSL	HHDT - DSL	4.29	513.0	54.5	0.0000	0.0000	0.0002	0.0013	0.5962	0.0001	0.0000	0.0000		0.0537
Sub-Areas	Sacramento (SV)	2034	Annual	T7 TRACTOR CONSTRUCTION - DSL	HHDT - DSL	1.57	115.6	7.11	0.0000	0.0000	0.0001	0.0006	0.1943	0.0000	0.0000	0.0000		0.0175
Sub-Areas	Sacramento (SV)	2034	Annual	T7 UTILITY - DSL	HHDT - DSL	0.1027	2.08	1.18	0.0000	0.0000	0.0000	0.0000	0.0032	0.0000	0.0000	0.0000		0.0003
Sub-Areas	Sacramento (SV)	2034	Annual	T7IS - GAS	HHDT - GAS	0.0204	2.60	0.4072	0.0000	0.0000	0.0001	0.0000	0.0044	0.0000	0.0000	0.0000	0.0005	
Sub-Areas	Sacramento (SV)	2034	Annual	UBUS - DSL	UBUS - DSL	2.61	249.5	10.4	0.0018	0.0000	0.0139	0.0001	0.5251	0.0000	0.0000	0		0.0646
Sub-Areas	Sacramento (SV)	2034	Annual	UBUS - GAS	UBUS - GAS	1.22	92.2	4.88	0.0000	0.0000	0.0001	0.0000	0.1753	0.0000	0.0000	0.0000	0.0187	

EMFAC2017 Results - No-Build Horizon Year (2040)

Area	Sub-Area	Cal. Year	Season	Veh_Tech	EMFAC2007 Category	Population	VMT	Trips	TOG_TOTAL	ROG_TOTAL	CO_TOTEX	NOx_TOTEX	CO2_TOTEX	PM10_TOTAL	PM2_5_TOTAL	SOx_TOTEX	Fuel_GAS	Fuel_DSL
Sub-Areas	Sacramento (SV)	2040	Annual	All Vehicles	All Vehicles	6,017.2	182,575.0	29,176.5	0.0205	0.0169	0.1667	0.0331	52.1	0.0103	0.0043	0.0005	4.34	1.07
Sub-Areas	Sacramento (SV)	2040	Annual	ALL OTHER BUSES - DSL	OBUS - DSL	1.62	76.5	13.6	0.0000	0.0000	0.0000	0.0002	0.0797	0.0000	0.0000	0.0000		0.0072
Sub-Areas	Sacramento (SV)	2040	Annual	LDA - DSL	LDA - DSL	38.9	1,221.6	182.1	0.0000	0.0000	0.0002	0.0000	0.2029	0.0001	0.0000	0.0000		0.0183
Sub-Areas	Sacramento (SV)	2040	Annual	LDA - GAS	LDA - GAS	3,404.9	105,253.4	15,832.5	0.0061	0.0059	0.0692	0.0040	21.6	0.0053	0.0021	0.0002	2.31	
Sub-Areas	Sacramento (SV)	2040	Annual	LDT1 - DSL	LDT1 - DSL	0.0895	1.73	0.3427	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000		0.0001
Sub-Areas	Sacramento (SV)	2040	Annual	LDT1 - GAS	LDT1 - GAS	336.3	9,921.5	1,539.1	0.0008	0.0008	0.0070	0.0004	2.43	0.0005	0.0002	0.0000	0.2600	
Sub-Areas	Sacramento (SV)	2040	Annual	LDT2 - DSL	LDT2 - DSL	10.2	314.8	47.7	0.0000	0.0000	0.0001	0.0000	0.0698	0.0000	0.0000	0.0000		0.0063
Sub-Areas	Sacramento (SV)	2040	Annual	LDT2 - GAS	LDT2 - GAS	1,080.0	31,805.4	4,963.8	0.0029	0.0028	0.0269	0.0014	7.80	0.0016	0.0006	0.0001	0.8348	
Sub-Areas	Sacramento (SV)	2040	Annual	LHD1 - DSL	LHDT1 - DSL	53.9	1,701.5	678.0	0.0003	0.0002	0.0012	0.0006	0.8387	0.0002	0.0001	0.0000		0.0755
Sub-Areas	Sacramento (SV)	2040	Annual	LHD1 - GAS	LHDT1 - GAS	53.9	1,681.7	802.9	0.0005	0.0005	0.0018	0.0004	1.55	0.0002	0.0001	0.0000	0.1654	
Sub-Areas	Sacramento (SV)	2040	Annual	LHD2 - DSL	LHDT2 - DSL	22.0	668.0	276.5	0.0001	0.0001	0.0005	0.0003	0.3726	0.0001	0.0000	0.0000		0.0335
Sub-Areas	Sacramento (SV)	2040	Annual	LHD2 - GAS	LHDT2 - GAS	8.17	256.2	121.7	0.0001	0.0001	0.0003	0.0001	0.2698	0.0000	0.0000	0.0000	0.0288	
Sub-Areas	Sacramento (SV)	2040	Annual	MCY - GAS	MCY - GAS	143.8	828.4	287.7	0.0044	0.0039	0.0187	0.0011	0.1701	0.0000	0.0000	0.0000	0.0222	
Sub-Areas	Sacramento (SV)	2040	Annual	MDV - DSL	MDV - DSL	22.4	669.3	103.9	0.0000	0.0000	0.0001	0.0000	0.1928	0.0000	0.0000	0.0000		0.0173
Sub-Areas	Sacramento (SV)	2040	Annual	MDV - GAS	MDV - GAS	684.6	19,399.5	3,115.9	0.0022	0.0022	0.0171	0.0010	5.77	0.0010	0.0004	0.0001	0.6171	
Sub-Areas	Sacramento (SV)	2040	Annual	MH - DSL	MH - DSL	4.42	35.7	0.4421	0.0000	0.0000	0.0000	0.0001	0.0337	0.0000	0.0000	0.0000		0.0030
Sub-Areas	Sacramento (SV)	2040	Annual	MH - GAS	MH - GAS	8.70	80.0	0.8700	0.0000	0.0000	0.0000	0.0000	0.1260	0.0000	0.0000	0.0000	0.0134	
Sub-Areas	Sacramento (SV)	2040	Annual	MOTOR COACH - DSL	OBUS - DSL	0.5390	66.7	7.87	0.0000	0.0000	0.0000	0.0002	0.0920	0.0000	0.0000	0.0000		0.0083
Sub-Areas	Sacramento (SV)	2040	Annual	OBUS - GAS	OBUS - GAS	1.79	67.5	35.8	0.0000	0.0000	0.0002	0.0000	0.1077	0.0000	0.0000	0.0000	0.0115	
Sub-Areas	Sacramento (SV)	2040	Annual	PTO - DSL	HHDT - DSL		155.5		0.0000	0.0000	0.0001	0.0008	0.2633	0.0000	0.0000	0.0000		0.0237
Sub-Areas	Sacramento (SV)	2040	Annual	SBUS - DSL	SBUS - DSL	2.86	90.3	32.9	0.0000	0.0000	0.0000	0.0003	0.0982	0.0001	0.0000	0.0000		0.0088
Sub-Areas	Sacramento (SV)	2040	Annual	SBUS - GAS	SBUS - GAS	1.13	48.0	4.51	0.0000	0.0000	0.0001	0.0000	0.0409	0.0000	0.0000	0.0000	0.0044	
Sub-Areas	Sacramento (SV)	2040	Annual	T6 AG - DSL	MHDT - DSL	0.0285	0.0468	0.1256	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2040	Annual	T6 CAIRP HEAVY - DSL	MHDT - DSL	0.6231	103.7	9.10	0.0000	0.0000	0.0000	0.0001	0.0776	0.0000	0.0000	0.0000		0.0070
Sub-Areas	Sacramento (SV)	2040	Annual	T6 CAIRP SMALL - DSL	MHDT - DSL	0.3591	15.4	5.24	0.0000	0.0000	0.0000	0.0000	0.0129	0.0000	0.0000	0.0000		0.0012
Sub-Areas	Sacramento (SV)	2040	Annual	T6 INSTATE CONSTRUCTION HEAVY - DSL	MHDT - DSL	1.33	87.2	6.02	0.0000	0.0000	0.0000	0.0003	0.0996	0.0000	0.0000	0.0000		0.0090
Sub-Areas	Sacramento (SV)	2040	Annual	T6 INSTATE CONSTRUCTION SMALL - DSL	MHDT - DSL	12.9	640.1	58.2	0.0000	0.0000	0.0002	0.0017	0.6734	0.0001	0.0000	0.0000		0.0606
Sub-Areas	Sacramento (SV)	2040	Annual	T6 INSTATE HEAVY - DSL	MHDT - DSL	8.98	891.8	103.6	0.0000	0.0000	0.0001	0.0018	0.7675	0.0001	0.0001	0.0000		0.0691
Sub-Areas	Sacramento (SV)	2040	Annual	T6 INSTATE SMALL - DSL	MHDT - DSL	25.2	1,128.5	291.2	0.0000	0.0000	0.0002	0.0026	1.02	0.0002	0.0001	0.0000		0.0917
Sub-Areas	Sacramento (SV)	2040	Annual	T6 OOS HEAVY - DSL	MHDT - DSL	0.3440	57.6	5.02	0.0000	0.0000	0.0000	0.0001	0.0431	0.0000	0.0000	0.0000		0.0039
Sub-Areas	Sacramento (SV)	2040	Annual	T6 OOS SMALL - DSL	MHDT - DSL	0.1914	8.11	2.80	0.0000	0.0000	0.0000	0.0000	0.0068	0.0000	0.0000	0.0000		0.0006
Sub-Areas	Sacramento (SV)	2040	Annual	T6 PUBLIC - DSL	MHDT - DSL	19.1	296.2	57.9	0.0000	0.0000	0.0003	0.0010	0.3440	0.0000	0.0000	0.0000		0.0310
Sub-Areas	Sacramento (SV)	2040	Annual	T6 UTILITY - DSL	MHDT - DSL	0.7668	12.8	8.82	0.0000	0.0000	0.0000	0.0000	0.0121	0.0000	0.0000	0.0000		0.0011
Sub-Areas	Sacramento (SV)	2040	Annual	T6TS - GAS	MHDT - GAS	6.97	317.2	139.4	0.0001	0.0001	0.0006	0.0001	0.5000	0.0001	0.0000	0.0000	0.0534	
Sub-Areas	Sacramento (SV)	2040	Annual	T7 AG - DSL	HHDT - DSL	0.0268	0.0473	0.1180	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2040	Annual	T7 CAIRP - DSL	HHDT - DSL	3.46	731.1	50.5	0.0001	0.0001	0.0007	0.0022	0.8309	0.0001	0.0001	0.0000		0.0748
Sub-Areas	Sacramento (SV)	2040	Annual	T7 CAIRP CONSTRUCTION - DSL	HHDT - DSL	0.3509	62.7	1.59	0.0000	0.0000	0.0000	0.0003	0.0890	0.0000	0.0000	0.0000		0.0080
Sub-Areas	Sacramento (SV)	2040	Annual	T7 NNOOS - DSL	HHDT - DSL	5.35	891.3	78.2	0.0001	0.0001	0.0013	0.0029	1.06	0.0001	0.0001	0.0000		0.0958
Sub-Areas	Sacramento (SV)	2040	Annual	T7 NOOS - DSL	HHDT - DSL	1.37	287.3	20.1	0.0000	0.0000	0.0003	0.0009	0.3342	0.0000	0.0000	0.0000		0.0301
Sub-Areas	Sacramento (SV)	2040	Annual	T7 OTHER PORT - DSL	HHDT - DSL	0.0534	9.10	0.4059	0.0000	0.0000	0.0000	0.0000	0.0117	0.0000	0.0000	0.0000		0.0010
Sub-Areas	Sacramento (SV)	2040	Annual	T7 POAK - DSL	HHDT - DSL	0.2439	42.2	1.85	0.0000	0.0000	0.0000	0.0002	0.0547	0.0000	0.0000	0.0000		0.0049
Sub-Areas	Sacramento (SV)	2040	Annual	T7 POLA - DSL	HHDT - DSL	0.0000	0.0000	0.0000	0	0	0	0	0.0000	0	0	0		0
Sub-Areas	Sacramento (SV)	2040	Annual	T7 PUBLIC - DSL	HHDT - DSL	23.3	472.0	70.7	0.0001	0.0000	0.0006	0.0022	0.7265	0.0001	0.0000	0.0000		0.0654
Sub-Areas	Sacramento (SV)	2040	Annual	T7 SINGLE - DSL	HHDT - DSL	9.59	783.2	110.7	0.0000	0.0000	0.0005	0.0025	1.03	0.0001	0.0000	0.0000		0.0926
Sub-Areas	Sacramento (SV)	2040	Annual	T7 SINGLE CONSTRUCTION - DSL	HHDT - DSL	2.04	155.5	9.23	0.0000	0.0000	0.0001	0.0007	0.2452	0.0000	0.0000	0.0000		0.0221
Sub-Areas	Sacramento (SV)	2040	Annual	T7 SWCV - DSL	HHDT - DSL	3.60	146.9	14.0	0.0002	0.0000	0.0009	0.0003	0.4437	0.0000	0.0000	0.0000		0.0457
Sub-Areas	Sacramento (SV)	2040	Annual	T7 TRACTOR - DSL	HHDT - DSL	4.39	547.9	55.8	0.0000	0.0000	0.0002	0.0013	0.5833	0.0001	0.0000	0.0000		0.0525
Sub-Areas	Sacramento (SV)	2040	Annual	T7 TRACTOR CONSTRUCTION - DSL	HHDT - DSL	1.71	128.2	7.74	0.0000	0.0000	0.0001	0.0007	0.1980	0.0000	0.0000	0.0000		0.0178
Sub-Areas	Sacramento (SV)	2040	Annual	T7 UTILITY - DSL	HHDT - DSL	0.1068	2.16	1.23	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000		0.0003
Sub-Areas	Sacramento (SV)	2040	Annual	T7IS - GAS	HHDT - GAS	0.0246	2.88	0.4930	0.0000	0.0000	0.0001	0.0000	0.0047	0.0000	0.0000	0.0000	0.0005	
Sub-Areas	Sacramento (SV)	2040	Annual	UBUS - DSL	UBUS - DSL	3.14	299.9	12.6	0.0022	0.0000	0.0167	0.0002	0.6312	0.0000	0.0000	0		0.0776
Sub-Areas	Sacramento (SV)	2040	Annual	UBUS - GAS	UBUS - GAS	1.47	110.8	5.87	0.0000	0.0000	0.0001	0.0000	0.2098	0.0000	0.0000	0.0000	0.0224	

EMFAC2017 Results - Horizon Year (2040)


Area	Sub-Area	Cal. Year	Season	Veh_Tech	EMFAC2007 Category	Population	VMT	Trips	TOG_TOTAL	ROG_TOTAL	CO_TOTEX	NOx_TOTEX	CO2_TOTEX	PM10_TOTAL	PM2_5_TOTAL	SOx_TOTEX	Fuel_GAS	Fuel_DSL
Sub-Areas	Sacramento (SV)	2040	Annual	All Vehicles	All Vehicles	6,021.7	182,711.0	29,198.2	0.0205	0.0170	0.1668	0.0332	52.1	0.0103	0.0043	0.0005	4.35	1.07
Sub-Areas	Sacramento (SV)	2040	Annual	ALL OTHER BUSES - DSL	OBUS - DSL	1.62	76.5	13.6	0.0000	0.0000	0.0000	0.0002	0.0798	0.0000	0.0000	0.0000		0.0072
Sub-Areas	Sacramento (SV)	2040	Annual	LDA - DSL	LDA - DSL	38.9	1,222.5	182.2	0.0000	0.0000	0.0002	0.0000	0.2030	0.0001	0.0000	0.0000		0.0183
Sub-Areas	Sacramento (SV)	2040	Annual	LDA - GAS	LDA - GAS	3,407.5	105,331.8	15,844.2	0.0061	0.0059	0.0692	0.0040	21.6	0.0053	0.0021	0.0002	2.31	
Sub-Areas	Sacramento (SV)	2040	Annual	LDT1 - DSL	LDT1 - DSL	0.0896	1.73	0.3430	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.0000		0.0001
Sub-Areas	Sacramento (SV)	2040	Annual	LDT1 - GAS	LDT1 - GAS	336.5	9,928.9	1,540.3	0.0008	0.0008	0.0070	0.0004	2.43	0.0005	0.0002	0.0000	0.2601	
Sub-Areas	Sacramento (SV)	2040	Annual	LDT2 - DSL	LDT2 - DSL	10.3	315.0	47.8	0.0000	0.0000	0.0001	0.0000	0.0698	0.0000	0.0000	0.0000		0.0063
Sub-Areas	Sacramento (SV)	2040	Annual	LDT2 - GAS	LDT2 - GAS	1,080.8	31,829.1	4,967.5	0.0029	0.0028	0.0269	0.0014	7.80	0.0016	0.0006	0.0001	0.8354	
Sub-Areas	Sacramento (SV)	2040	Annual	LHD1 - DSL	LHDT1 - DSL	53.9	1,702.8	678.5	0.0003	0.0002	0.0012	0.0006	0.8393	0.0002	0.0001	0.0000		0.0755
Sub-Areas	Sacramento (SV)	2040	Annual	LHD1 - GAS	LHDT1 - GAS	53.9	1,682.9	803.4	0.0005	0.0005	0.0018	0.0004	1.55	0.0002	0.0001	0.0000	0.1656	
Sub-Areas	Sacramento (SV)	2040	Annual	LHD2 - DSL	LHDT2 - DSL	22.0	668.5	276.7	0.0001	0.0001	0.0005	0.0003	0.3729	0.0001	0.0000	0.0000		0.0336
Sub-Areas	Sacramento (SV)	2040	Annual	LHD2 - GAS	LHDT2 - GAS	8.18	256.4	121.8	0.0001	0.0001	0.0003	0.0001	0.2700	0.0000	0.0000	0.0000	0.0288	
Sub-Areas	Sacramento (SV)	2040	Annual	MCY - GAS	MCY - GAS	143.9	829.0	287.9	0.0044	0.0039	0.0187	0.0011	0.1702	0.0000	0.0000	0.0000	0.0222	
Sub-Areas	Sacramento (SV)	2040	Annual	MDV - DSL	MDV - DSL	22.4	669.8	104.0	0.0000	0.0000	0.0001	0.0000	0.1929	0.0000	0.0000	0.0000		0.0174
Sub-Areas	Sacramento (SV)	2040	Annual	MDV - GAS	MDV - GAS	685.1	19,414.0	3,118.2	0.0022	0.0022	0.0171	0.0010	5.77	0.0010	0.0004	0.0001	0.6176	
Sub-Areas	Sacramento (SV)	2040	Annual	MH - DSL	MH - DSL	4.42	35.7	0.4424	0.0000	0.0000	0.0000	0.0001	0.0337	0.0000	0.0000	0.0000		0.0030
Sub-Areas	Sacramento (SV)	2040	Annual	MH - GAS	MH - GAS	8.70	80.0	0.8707	0.0000	0.0000	0.0000	0.0000	0.1261	0.0000	0.0000	0.0000	0.0134	
Sub-Areas	Sacramento (SV)	2040	Annual	MOTOR COACH - DSL	OBUS - DSL	0.5394	66.7	7.87	0.0000	0.0000	0.0000	0.0002	0.0921	0.0000	0.0000	0.0000		0.0083
Sub-Areas	Sacramento (SV)	2040	Annual	OBUS - GAS	OBUS - GAS	1.79	67.5	35.9	0.0000	0.0000	0.0002	0.0000	0.1078	0.0000	0.0000	0.0000	0.0115	
Sub-Areas	Sacramento (SV)	2040	Annual	PTO - DSL	HHDT - DSL		155.6		0.0000	0.0000	0.0001	0.0008	0.2635	0.0000	0.0000	0.0000		0.0237
Sub-Areas	Sacramento (SV)	2040	Annual	SBUS - DSL	SBUS - DSL	2.86	90.3	33.0	0.0000	0.0000	0.0000	0.0003	0.0983	0.0001	0.0000	0.0000		0.0088
Sub-Areas	Sacramento (SV)	2040	Annual	SBUS - GAS	SBUS - GAS	1.13	48.0	4.51	0.0000	0.0000	0.0001	0.0000	0.0409	0.0000	0.0000	0.0000	0.0044	
Sub-Areas	Sacramento (SV)	2040	Annual	T6 AG - DSL	MHDT - DSL	0.0286	0.0468	0.1257	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2040	Annual	T6 CAIRP HEAVY - DSL	MHDT - DSL	0.6235	103.8	9.10	0.0000	0.0000	0.0000	0.0001	0.0776	0.0000	0.0000	0.0000		0.0070
Sub-Areas	Sacramento (SV)	2040	Annual	T6 CAIRP SMALL - DSL	MHDT - DSL	0.3594	15.4	5.25	0.0000	0.0000	0.0000	0.0000	0.0129	0.0000	0.0000	0.0000		0.0012
Sub-Areas	Sacramento (SV)	2040	Annual	T6 INSTATE CONSTRUCTION HEAVY - DSL	MHDT - DSL	1.33	87.3	6.02	0.0000	0.0000	0.0000	0.0003	0.0997	0.0000	0.0000	0.0000		0.0090
Sub-Areas	Sacramento (SV)	2040	Annual	T6 INSTATE CONSTRUCTION SMALL - DSL	MHDT - DSL	12.9	640.5	58.2	0.0000	0.0000	0.0002	0.0017	0.6739	0.0001	0.0000	0.0000		0.0607
Sub-Areas	Sacramento (SV)	2040	Annual	T6 INSTATE HEAVY - DSL	MHDT - DSL	8.98	892.5	103.7	0.0000	0.0000	0.0001	0.0018	0.7681	0.0001	0.0001	0.0000		0.0691
Sub-Areas	Sacramento (SV)	2040	Annual	T6 INSTATE SMALL - DSL	MHDT - DSL	25.3	1,129.4	291.5	0.0000	0.0000	0.0002	0.0026	1.02	0.0002	0.0001	0.0000		0.0918
Sub-Areas	Sacramento (SV)	2040	Annual	T6 OOS HEAVY - DSL	MHDT - DSL	0.3443	57.7	5.03	0.0000	0.0000	0.0000	0.0001	0.0431	0.0000	0.0000	0.0000		0.0039
Sub-Areas	Sacramento (SV)	2040	Annual	T6 OOS SMALL - DSL	MHDT - DSL	0.1916	8.12	2.80	0.0000	0.0000	0.0000	0.0000	0.0068	0.0000	0.0000	0.0000		0.0006
Sub-Areas	Sacramento (SV)	2040	Annual	T6 PUBLIC - DSL	MHDT - DSL	19.1	296.4	57.9	0.0000	0.0000	0.0003	0.0010	0.3443	0.0000	0.0000	0.0000		0.0310
Sub-Areas	Sacramento (SV)	2040	Annual	T6 UTILITY - DSL	MHDT - DSL	0.7674	12.8	8.83	0.0000	0.0000	0.0000	0.0000	0.0122	0.0000	0.0000	0.0000		0.0011
Sub-Areas	Sacramento (SV)	2040	Annual	T6TS - GAS	MHDT - GAS	6.97	317.4	139.6	0.0001	0.0001	0.0006	0.0001	0.5003	0.0001	0.0000	0.0000	0.0534	
Sub-Areas	Sacramento (SV)	2040	Annual	T7 AG - DSL	HHDT - DSL	0.0268	0.0473	0.1180	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2040	Annual	T7 CAIRP - DSL	HHDT - DSL	3.46	731.7	50.5	0.0001	0.0001	0.0007	0.0022	0.8315	0.0001	0.0001	0.0000		0.0748
Sub-Areas	Sacramento (SV)	2040	Annual	T7 CAIRP CONSTRUCTION - DSL	HHDT - DSL	0.3512	62.7	1.59	0.0000	0.0000	0.0000	0.0003	0.0891	0.0000	0.0000	0.0000		0.0080
Sub-Areas	Sacramento (SV)	2040	Annual	T7 NNOOS - DSL	HHDT - DSL	5.36	892.0	78.2	0.0001	0.0001	0.0013	0.0029	1.06	0.0001	0.0001	0.0000		0.0958
Sub-Areas	Sacramento (SV)	2040	Annual	T7 NOOS - DSL	HHDT - DSL	1.37	287.5	20.1	0.0000	0.0000	0.0003	0.0009	0.3345	0.0000	0.0000	0.0000		0.0301
Sub-Areas	Sacramento (SV)	2040	Annual	T7 OTHER PORT - DSL	HHDT - DSL	0.0535	9.10	0.4062	0.0000	0.0000	0.0000	0.0000	0.0117	0.0000	0.0000	0.0000		0.0010
Sub-Areas	Sacramento (SV)	2040	Annual	T7 POAK - DSL	HHDT - DSL	0.2441	42.3	1.86	0.0000	0.0000	0.0000	0.0002	0.0547	0.0000	0.0000	0.0000		0.0049
Sub-Areas	Sacramento (SV)	2040	Annual	T7 POLA - DSL	HHDT - DSL	0.0000	0.0000	0.0000	0	0	0	0	0.0000	0	0	0		0
Sub-Areas	Sacramento (SV)	2040	Annual	T7 PUBLIC - DSL	HHDT - DSL	23.3	472.3	70.7	0.0001	0.0000	0.0006	0.0022	0.7270	0.0001	0.0000	0.0000		0.0654
Sub-Areas	Sacramento (SV)	2040	Annual	T7 SINGLE - DSL	HHDT - DSL	9.60	783.8	110.7	0.0000	0.0000	0.0005	0.0025	1.03	0.0001	0.0000	0.0000		0.0927
Sub-Areas	Sacramento (SV)	2040	Annual	T7 SINGLE CONSTRUCTION - DSL	HHDT - DSL	2.04	155.6	9.24	0.0000	0.0000	0.0001	0.0007	0.2454	0.0000	0.0000	0.0000		0.0221
Sub-Areas	Sacramento (SV)	2040	Annual	T7 SWCV - DSL	HHDT - DSL	3.61	147.0	14.1	0.0002	0.0000	0.0009	0.0003	0.4440	0.0000	0.0000	0.0000		0.0457
Sub-Areas	Sacramento (SV)	2040	Annual	T7 TRACTOR - DSL	HHDT - DSL	4.40	548.3	55.8	0.0000	0.0000	0.0002	0.0013	0.5838	0.0001	0.0000	0.0000		0.0525
Sub-Areas	Sacramento (SV)	2040	Annual	T7 TRACTOR CONSTRUCTION - DSL	HHDT - DSL	1.71	128.3	7.74	0.0000	0.0000	0.0001	0.0007	0.1982	0.0000	0.0000	0.0000		0.0178
Sub-Areas	Sacramento (SV)	2040	Annual	T7 UTILITY - DSL	HHDT - DSL	0.1069	2.17	1.23	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000		0.0003
Sub-Areas	Sacramento (SV)	2040	Annual	T7IS - GAS	HHDT - GAS	0.0247	2.88	0.4934	0.0000	0.0000	0.0001	0.0000	0.0047	0.0000	0.0000	0.0000	0.0005	
Sub-Areas	Sacramento (SV)	2040	Annual	UBUS - DSL	UBUS - DSL	3.14	300.1	12.6	0.0022	0.0000	0.0167	0.0002	0.6316	0.0000	0.0000	0		0.0777
Sub-Areas	Sacramento (SV)	2040	Annual	UBUS - GAS	UBUS - GAS	1.47	110.9	5.87	0.0000	0.0000	0.0001	0.0000	0.2100	0.0000	0.0000	0.0000	0.0224	

EMFAC2017 Results - No-Build Future (2044)

Area	Sub-Area	Cal. Year	Season	Veh_Tech	EMFAC2007 Category	Population	VMT	Trips	TOG_TOTAL	ROG_TOTAL	CO_TOTEX	NOx_TOTEX	CO2_TOTEX	PM10_TOTAL	PM2_5_TOTAL	SOx_TOTEX	Fuel_GAS	Fuel_DSL
Sub-Areas	Sacramento (SV)	2044	Annual	All Vehicles	All Vehicles	6,369.9	189,705.0	30,836.0	0.0201	0.0163	0.1711	0.0338	53.3	0.0107	0.0044	0.0005	4.44	1.09
Sub-Areas	Sacramento (SV)	2044	Annual	ALL OTHER BUSES - DSL	OBUS - DSL	1.63	74.0	13.7	0.0000	0.0000	0.0000	0.0002	0.0766	0.0000	0.0000	0.0000		0.0069
Sub-Areas	Sacramento (SV)	2044	Annual	LDA - DSL	LDA - DSL	41.6	1,273.6	194.3	0.0000	0.0000	0.0002	0.0000	0.2096	0.0001	0.0000	0.0000		0.0189
Sub-Areas	Sacramento (SV)	2044	Annual	LDA - GAS	LDA - GAS	3,609.9	109,412.3	16,775.0	0.0059	0.0057	0.0706	0.0041	22.2	0.0055	0.0022	0.0002	2.37	
Sub-Areas	Sacramento (SV)	2044	Annual	LDT1 - DSL	LDT1 - DSL	0.0687	1.55	0.2809	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2044	Annual	LDT1 - GAS	LDT1 - GAS	356.2	10,312.7	1,630.1	0.0007	0.0007	0.0070	0.0004	2.48	0.0005	0.0002	0.0000	0.2649	
Sub-Areas	Sacramento (SV)	2044	Annual	LDT2 - DSL	LDT2 - DSL	11.1	329.9	51.3	0.0000	0.0000	0.0001	0.0000	0.0722	0.0000	0.0000	0.0000		0.0065
Sub-Areas	Sacramento (SV)	2044	Annual	LDT2 - GAS	LDT2 - GAS	1,144.2	33,039.5	5,256.2	0.0026	0.0025	0.0271	0.0013	7.93	0.0017	0.0007	0.0001	0.8493	
Sub-Areas	Sacramento (SV)	2044	Annual	LHD1 - DSL	LHDT1 - DSL	55.9	1,748.2	703.3	0.0003	0.0002	0.0012	0.0004	0.8434	0.0002	0.0001	0.0000		0.0759
Sub-Areas	Sacramento (SV)	2044	Annual	LHD1 - GAS	LHDT1 - GAS	55.3	1,716.5	824.4	0.0005	0.0004	0.0018	0.0005	1.55	0.0002	0.0001	0.0000	0.1658	
Sub-Areas	Sacramento (SV)	2044	Annual	LHD2 - DSL	LHDT2 - DSL	23.2	691.8	291.9	0.0001	0.0001	0.0005	0.0002	0.3787	0.0001	0.0000	0.0000		0.0341
Sub-Areas	Sacramento (SV)	2044	Annual	LHD2 - GAS	LHDT2 - GAS	8.48	263.2	126.3	0.0001	0.0001	0.0003	0.0001	0.2720	0.0000	0.0000	0.0000	0.0290	
Sub-Areas	Sacramento (SV)	2044	Annual	MCY - GAS	MCY - GAS	152.3	857.6	304.7	0.0046	0.0040	0.0193	0.0012	0.1765	0.0000	0.0000	0.0000	0.0230	
Sub-Areas	Sacramento (SV)	2044	Annual	MDV - DSL	MDV - DSL	24.1	699.0	111.2	0.0000	0.0000	0.0001	0.0000	0.1982	0.0000	0.0000	0.0000		0.0178
Sub-Areas	Sacramento (SV)	2044	Annual	MDV - GAS	MDV - GAS	723.3	20,119.3	3,290.4	0.0021	0.0020	0.0171	0.0009	5.85	0.0010	0.0004	0.0001	0.6256	
Sub-Areas	Sacramento (SV)	2044	Annual	MH - DSL	MH - DSL	4.52	36.4	0.4522	0.0000	0.0000	0.0000	0.0001	0.0336	0.0000	0.0000	0.0000		0.0030
Sub-Areas	Sacramento (SV)	2044	Annual	MH - GAS	MH - GAS	8.98	82.1	0.8984	0.0000	0.0000	0.0000	0.0000	0.1270	0.0000	0.0000	0.0000	0.0135	
Sub-Areas	Sacramento (SV)	2044	Annual	MOTOR COACH - DSL	OBUS - DSL	0.5574	69.7	8.14	0.0000	0.0000	0.0000	0.0002	0.0944	0.0000	0.0000	0.0000		0.0085
Sub-Areas	Sacramento (SV)	2044	Annual	OBUS - GAS	OBUS - GAS	1.77	68.9	35.5	0.0000	0.0000	0.0001	0.0000	0.1082	0.0000	0.0000	0.0000	0.0115	
Sub-Areas	Sacramento (SV)	2044	Annual	PTO - DSL	HHDT - DSL		166.4		0.0000	0.0000	0.0001	0.0008	0.2735	0.0000	0.0000	0.0000		0.0246
Sub-Areas	Sacramento (SV)	2044	Annual	SBUS - DSL	SBUS - DSL	2.74	86.6	31.6	0.0000	0.0000	0.0000	0.0003	0.0886	0.0001	0.0000	0.0000		0.0080
Sub-Areas	Sacramento (SV)	2044	Annual	SBUS - GAS	SBUS - GAS	1.28	53.5	5.11	0.0000	0.0000	0.0002	0.0000	0.0449	0.0000	0.0000	0.0000	0.0048	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 AG - DSL	MHDT - DSL	0.0186	0.0165	0.0820	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2044	Annual	T6 CAIRP HEAVY - DSL	MHDT - DSL	0.6623	108.4	9.67	0.0000	0.0000	0.0000	0.0001	0.0808	0.0000	0.0000	0.0000		0.0073
Sub-Areas	Sacramento (SV)	2044	Annual	T6 CAIRP SMALL - DSL	MHDT - DSL	0.3818	16.1	5.57	0.0000	0.0000	0.0000	0.0000	0.0134	0.0000	0.0000	0.0000		0.0012
Sub-Areas	Sacramento (SV)	2044	Annual	T6 INSTATE CONSTRUCTION HEAVY - DSL	MHDT - DSL	1.33	88.6	6.00	0.0000	0.0000	0.0000	0.0003	0.0978	0.0000	0.0000	0.0000		0.0088
Sub-Areas	Sacramento (SV)	2044	Annual	T6 INSTATE CONSTRUCTION SMALL - DSL	MHDT - DSL	13.1	649.6	59.3	0.0000	0.0000	0.0002	0.0017	0.6736	0.0001	0.0000	0.0000		0.0606
Sub-Areas	Sacramento (SV)	2044	Annual	T6 INSTATE HEAVY - DSL	MHDT - DSL	9.43	931.2	108.8	0.0000	0.0000	0.0001	0.0019	0.7790	0.0002	0.0001	0.0000		0.0701
Sub-Areas	Sacramento (SV)	2044	Annual	T6 INSTATE SMALL - DSL	MHDT - DSL	26.4	1,176.5	304.5	0.0000	0.0000	0.0002	0.0027	1.05	0.0002	0.0001	0.0000		0.0942
Sub-Areas	Sacramento (SV)	2044	Annual	T6 OOS HEAVY - DSL	MHDT - DSL	0.3656	60.2	5.34	0.0000	0.0000	0.0000	0.0001	0.0449	0.0000	0.0000	0.0000		0.0040
Sub-Areas	Sacramento (SV)	2044	Annual	T6 OOS SMALL - DSL	MHDT - DSL	0.2040	8.48	2.98	0.0000	0.0000	0.0000	0.0000	0.0071	0.0000	0.0000	0.0000		0.0006
Sub-Areas	Sacramento (SV)	2044	Annual	T6 PUBLIC - DSL	MHDT - DSL	19.6	304.3	59.5	0.0000	0.0000	0.0003	0.0010	0.3442	0.0000	0.0000	0.0000		0.0310
Sub-Areas	Sacramento (SV)	2044	Annual	T6 UTILITY - DSL	MHDT - DSL	0.7880	13.1	9.06	0.0000	0.0000	0.0000	0.0000	0.0124	0.0000	0.0000	0.0000		0.0011
Sub-Areas	Sacramento (SV)	2044	Annual	T6TS - GAS	MHDT - GAS	7.20	326.6	144.0	0.0001	0.0001	0.0006	0.0001	0.5074	0.0001	0.0000	0.0000	0.0541	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 AG - DSL	HHDT - DSL	0.0205	0.0207	0.0900	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2044	Annual	T7 CAIRP - DSL	HHDT - DSL	3.66	764.3	53.5	0.0001	0.0001	0.0008	0.0024	0.8628	0.0001	0.0001	0.0000		0.0777
Sub-Areas	Sacramento (SV)	2044	Annual	T7 CAIRP CONSTRUCTION - DSL	HHDT - DSL	0.3629	63.6	1.64	0.0000	0.0000	0.0000	0.0003	0.0898	0.0000	0.0000	0.0000		0.0081
Sub-Areas	Sacramento (SV)	2044	Annual	T7 NNOOS - DSL	HHDT - DSL	5.70	931.7	83.2	0.0001	0.0001	0.0014	0.0031	1.11	0.0001	0.0001	0.0000		0.0997
Sub-Areas	Sacramento (SV)	2044	Annual	T7 NOOS - DSL	HHDT - DSL	1.45	300.3	21.2	0.0000	0.0000	0.0004	0.0010	0.3470	0.0000	0.0000	0.0000		0.0312
Sub-Areas	Sacramento (SV)	2044	Annual	T7 OTHER PORT - DSL	HHDT - DSL	0.0567	9.64	0.4308	0.0000	0.0000	0.0000	0.0000	0.0123	0.0000	0.0000	0.0000		0.0011
Sub-Areas	Sacramento (SV)	2044	Annual	T7 POAK - DSL	HHDT - DSL	0.2748	47.2	2.09	0.0000	0.0000	0.0000	0.0002	0.0607	0.0000	0.0000	0.0000		0.0055
Sub-Areas	Sacramento (SV)	2044	Annual	T7 POLA - DSL	HHDT - DSL	0.0000	0.0000	0.0000	0	0	0	0	0.0000	0	0	0		0
Sub-Areas	Sacramento (SV)	2044	Annual	T7 PUBLIC - DSL	HHDT - DSL	24.2	489.9	73.4	0.0001	0.0000	0.0006	0.0021	0.7265	0.0001	0.0000	0.0000		0.0654
Sub-Areas	Sacramento (SV)	2044	Annual	T7 SINGLE - DSL	HHDT - DSL	10.3	837.8	118.6	0.0000	0.0000	0.0006	0.0027	1.07	0.0001	0.0000	0.0000		0.0962
Sub-Areas	Sacramento (SV)	2044	Annual	T7 SINGLE CONSTRUCTION - DSL	HHDT - DSL	2.07	157.8	9.35	0.0000	0.0000	0.0001	0.0007	0.2397	0.0000	0.0000	0.0000		0.0216
Sub-Areas	Sacramento (SV)	2044	Annual	T7 SWCV - DSL	HHDT - DSL	3.70	150.8	14.4	0.0002	0.0000	0.0009	0.0003	0.4396	0.0000	0.0000	0.0000		0.0454
Sub-Areas	Sacramento (SV)	2044	Annual	T7 TRACTOR - DSL	HHDT - DSL	4.58	572.6	58.2	0.0000	0.0000	0.0002	0.0013	0.5912	0.0001	0.0000	0.0000		0.0532
Sub-Areas	Sacramento (SV)	2044	Annual	T7 TRACTOR CONSTRUCTION - DSL	HHDT - DSL	1.75	130.2	7.91	0.0000	0.0000	0.0001	0.0007	0.1938	0.0000	0.0000	0.0000		0.0174
Sub-Areas	Sacramento (SV)	2044	Annual	T7 UTILITY - DSL	HHDT - DSL	0.1095	2.22	1.26	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000		0.0003
Sub-Areas	Sacramento (SV)	2044	Annual	T7IS - GAS	HHDT - GAS	0.0267	3.01	0.5350	0.0000	0.0000	0.0001	0.0000	0.0049	0.0000	0.0000	0.0000	0.0005	
Sub-Areas	Sacramento (SV)	2044	Annual	UBUS - DSL	UBUS - DSL	3.50	334.4	14.0	0.0024	0.0000	0.0186	0.0002	0.7037	0.0000	0.0000	0		0.0866
Sub-Areas	Sacramento (SV)	2044	Annual	UBUS - GAS	UBUS - GAS	1.64	123.5	6.54	0.0000	0.0000	0.0001	0.0000	0.2340	0.0000	0.0000	0.0000	0.0249	

EMFAC2017 Results - Future + Project (2044)

Area	Sub-Area	Cal. Year	Season	Veh_Tech	EMFAC2007 Category	Population	VMT	Trips	TOG_TOTAL	ROG_TOTAL	CO_TOTEX	NOx_TOTEX	CO2_TOTEX	PM10_TOTAL	PM2_5_TOTAL	SOx_TOTEX	Fuel_GAS	Fuel_DSL	
Sub-Areas	Sacramento (SV)	2044	Annual	All Vehicles	All Vehicles	6,375.0	189,856.0	30,860.5	0.0201	0.0164	0.1713	0.0338	53.3	0.0107	0.0044	0.0005	4.44	1.09	
Sub-Areas	Sacramento (SV)	2044	Annual	ALL OTHER BUSES - DSL	OBUS - DSL	1.63	74.1	13.7	0.0000	0.0000	0.0000	0.0002	0.0766	0.0000	0.0000	0.0000		0.0069	
Sub-Areas	Sacramento (SV)	2044	Annual	LDA - DSL	LDA - DSL	41.6	1,274.6	194.4	0.0000	0.0000	0.0002	0.0000	0.2097	0.0001	0.0000	0.0000		0.0189	
Sub-Areas	Sacramento (SV)	2044	Annual	LDA - GAS	LDA - GAS	3,612.7	109,499.4	16,788.4	0.0059	0.0057	0.0706	0.0041	22.2	0.0055	0.0022	0.0002	2.37		
Sub-Areas	Sacramento (SV)	2044	Annual	LDT1 - DSL	LDT1 - DSL	0.0687	1.55	0.2812	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000		0.0000	
Sub-Areas	Sacramento (SV)	2044	Annual	LDT1 - GAS	LDT1 - GAS	356.5	10,320.9	1,631.4	0.0007	0.0007	0.0070	0.0004	2.48	0.0005	0.0002	0.0000	0.2651		
Sub-Areas	Sacramento (SV)	2044	Annual	LDT2 - DSL	LDT2 - DSL	11.1	330.2	51.4	0.0000	0.0000	0.0001	0.0000	0.0722	0.0000	0.0000	0.0000		0.0065	
Sub-Areas	Sacramento (SV)	2044	Annual	LDT2 - GAS	LDT2 - GAS	1,145.1	33,065.8	5,260.3	0.0026	0.0025	0.0271	0.0013	7.94	0.0017	0.0007	0.0001	0.8500		
Sub-Areas	Sacramento (SV)	2044	Annual	LHD1 - DSL	LHDT1 - DSL	56.0	1,749.6	703.9	0.0003	0.0002	0.0012	0.0004	0.8441	0.0002	0.0001	0.0000		0.0760	
Sub-Areas	Sacramento (SV)	2044	Annual	LHD1 - GAS	LHDT1 - GAS	55.4	1,717.9	825.1	0.0005	0.0004	0.0018	0.0005	1.56	0.0002	0.0001	0.0000	0.1660		
Sub-Areas	Sacramento (SV)	2044	Annual	LHD2 - DSL	LHDT2 - DSL	23.2	692.3	292.2	0.0001	0.0001	0.0005	0.0002	0.3790	0.0001	0.0000	0.0000		0.0341	
Sub-Areas	Sacramento (SV)	2044	Annual	LHD2 - GAS	LHDT2 - GAS	8.48	263.4	126.4	0.0001	0.0001	0.0003	0.0001	0.2722	0.0000	0.0000	0.0000	0.0290		
Sub-Areas	Sacramento (SV)	2044	Annual	MCY - GAS	MCY - GAS	152.5	858.3	304.9	0.0046	0.0040	0.0193	0.0012	0.1766	0.0000	0.0000	0.0000	0.0231		
Sub-Areas	Sacramento (SV)	2044	Annual	MDV - DSL	MDV - DSL	24.1	699.6	111.3	0.0000	0.0000	0.0001	0.0000	0.1983	0.0000	0.0000	0.0000		0.0179	
Sub-Areas	Sacramento (SV)	2044	Annual	MDV - GAS	MDV - GAS	723.9	20,135.3	3,293.0	0.0021	0.0020	0.0171	0.0009	5.85	0.0010	0.0004	0.0001	0.6261		
Sub-Areas	Sacramento (SV)	2044	Annual	MH - DSL	MH - DSL	4.53	36.4	0.4526	0.0000	0.0000	0.0000	0.0001	0.0336	0.0000	0.0000	0.0000		0.0030	
Sub-Areas	Sacramento (SV)	2044	Annual	MH - GAS	MH - GAS	8.99	82.2	0.8992	0.0000	0.0000	0.0000	0.0000	0.1271	0.0000	0.0000	0.0000	0.0135		
Sub-Areas	Sacramento (SV)	2044	Annual	MOTOR COACH - DSL	OBUS - DSL	0.5579	69.7	8.15	0.0000	0.0000	0.0000	0.0002	0.0945	0.0000	0.0000	0.0000		0.0085	
Sub-Areas	Sacramento (SV)	2044	Annual	OBUS - GAS	OBUS - GAS	1.78	68.9	35.5	0.0000	0.0000	0.0001	0.0000	0.1083	0.0000	0.0000	0.0000	0.0116		
Sub-Areas	Sacramento (SV)	2044	Annual	PTO - DSL	HHDT - DSL		166.5		0.0000	0.0000	0.0001	0.0008	0.2737	0.0000	0.0000	0.0000		0.0246	
Sub-Areas	Sacramento (SV)	2044	Annual	SBUS - DSL	SBUS - DSL	2.74	86.7	31.6	0.0000	0.0000	0.0000	0.0003	0.0887	0.0001	0.0000	0.0000		0.0080	
Sub-Areas	Sacramento (SV)	2044	Annual	SBUS - GAS	SBUS - GAS	1.28	53.5	5.12	0.0000	0.0000	0.0002	0.0000	0.0449	0.0000	0.0000	0.0000	0.0048		
Sub-Areas	Sacramento (SV)	2044	Annual	T6 AG - DSL	MHDT - DSL	0.0187	0.0166	0.0821	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2044	Annual	T6 CAIRP HEAVY - DSL	MHDT - DSL	0.6628	108.5	9.68	0.0000	0.0000	0.0000	0.0001	0.0808	0.0000	0.0000	0.0000		0.0073	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 CAIRP SMALL - DSL	MHDT - DSL	0.3821	16.1	5.58	0.0000	0.0000	0.0000	0.0000	0.0135	0.0000	0.0000	0.0000		0.0012	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 INSTATE CONSTRUCTION HEAVY - DSL	MHDT - DSL	1.33	88.6	6.00	0.0000	0.0000	0.0000	0.0003	0.0978	0.0000	0.0000	0.0000		0.0088	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 INSTATE CONSTRUCTION SMALL - DSL	MHDT - DSL	13.1	650.2	59.3	0.0000	0.0000	0.0002	0.0017	0.6741	0.0001	0.0000	0.0000		0.0607	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 INSTATE HEAVY - DSL	MHDT - DSL	9.44	932.0	108.9	0.0000	0.0000	0.0001	0.0019	0.7796	0.0002	0.0001	0.0000		0.0702	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 INSTATE SMALL - DSL	MHDT - DSL	26.4	1,177.5	304.7	0.0000	0.0000	0.0002	0.0027	1.05	0.0002	0.0001	0.0000		0.0942	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 OOS HEAVY - DSL	MHDT - DSL	0.3659	60.3	5.34	0.0000	0.0000	0.0000	0.0001	0.0449	0.0000	0.0000	0.0000		0.0040	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 OOS SMALL - DSL	MHDT - DSL	0.2041	8.48	2.98	0.0000	0.0000	0.0000	0.0000	0.0071	0.0000	0.0000	0.0000		0.0006	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 PUBLIC - DSL	MHDT - DSL	19.6	304.5	59.5	0.0000	0.0000	0.0003	0.0010	0.3445	0.0000	0.0000	0.0000		0.0310	
Sub-Areas	Sacramento (SV)	2044	Annual	T6 UTILITY - DSL	MHDT - DSL	0.7886	13.1	9.07	0.0000	0.0000	0.0000	0.0000	0.0124	0.0000	0.0000	0.0000		0.0011	
Sub-Areas	Sacramento (SV)	2044	Annual	T6TS - GAS	MHDT - GAS	7.20	326.9	144.1	0.0001	0.0001	0.0006	0.0001	0.5078	0.0001	0.0000	0.0000	0.0542		
Sub-Areas	Sacramento (SV)	2044	Annual	T7 AG - DSL	HHDT - DSL	0.0205	0.0207	0.0901	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000		0.0000
Sub-Areas	Sacramento (SV)	2044	Annual	T7 CAIRP - DSL	HHDT - DSL	3.66	764.9	53.5	0.0001	0.0001	0.0008	0.0024	0.8635	0.0001	0.0001	0.0000		0.0777	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 CAIRP CONSTRUCTION - DSL	HHDT - DSL	0.3632	63.7	1.64	0.0000	0.0000	0.0000	0.0003	0.0899	0.0000	0.0000	0.0000		0.0081	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 NNOOS - DSL	HHDT - DSL	5.70	932.5	83.3	0.0001	0.0001	0.0014	0.0031	1.11	0.0001	0.0001	0.0000		0.0998	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 NOOS - DSL	HHDT - DSL	1.46	300.6	21.3	0.0000	0.0000	0.0004	0.0010	0.3473	0.0000	0.0000	0.0000		0.0313	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 OTHER PORT - DSL	HHDT - DSL	0.0567	9.64	0.4312	0.0000	0.0000	0.0000	0.0000	0.0123	0.0000	0.0000	0.0000		0.0011	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 POAK - DSL	HHDT - DSL	0.2750	47.2	2.09	0.0000	0.0000	0.0000	0.0002	0.0608	0.0000	0.0000	0.0000		0.0055	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 POLA - DSL	HHDT - DSL	0.0000	0.0000	0.0000	0	0	0	0	0.0000	0	0	0		0	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 PUBLIC - DSL	HHDT - DSL	24.2	490.3	73.4	0.0001	0.0000	0.0006	0.0022	0.7271	0.0001	0.0000	0.0000		0.0654	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 SINGLE - DSL	HHDT - DSL	10.3	838.5	118.7	0.0000	0.0000	0.0006	0.0027	1.07	0.0001	0.0000	0.0000		0.0963	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 SINGLE CONSTRUCTION - DSL	HHDT - DSL	2.07	157.9	9.36	0.0000	0.0000	0.0001	0.0007	0.2398	0.0000	0.0000	0.0000		0.0216	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 SWCV - DSL	HHDT - DSL	3.70	150.9	14.4	0.0003	0.0000	0.0009	0.0003	0.4399	0.0000	0.0000	0.0000		0.0454	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 TRACTOR - DSL	HHDT - DSL	4.59	573.1	58.2	0.0000	0.0000	0.0002	0.0013	0.5917	0.0001	0.0000	0.0000		0.0533	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 TRACTOR CONSTRUCTION - DSL	HHDT - DSL	1.75	130.3	7.92	0.0000	0.0000	0.0001	0.0007	0.1940	0.0000	0.0000	0.0000		0.0175	
Sub-Areas	Sacramento (SV)	2044	Annual	T7 UTILITY - DSL	HHDT - DSL	0.1096	2.22	1.26	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000		0.0003	
Sub-Areas	Sacramento (SV)	2044	Annual	T7IS - GAS	HHDT - GAS	0.0268	3.01	0.5354	0.0000	0.0000	0.0001	0.0000	0.0049	0.0000	0.0000	0.0000	0.0005		
Sub-Areas	Sacramento (SV)	2044	Annual	UBUS - DSL	UBUS - DSL	3.50	334.6	14.0	0.0024	0.0000	0.0186	0.0002	0.7043	0.0000	0.0000	0		0.0866	
Sub-Areas	Sacramento (SV)	2044	Annual	UBUS - GAS	UBUS - GAS	1.64	123.6	6.55	0.0000	0.0000	0.0001	0.0000	0.2342	0.0000	0.0000	0.0000	0.0250		

Road Construction Emissions Model Data Entry Worksheet		Version 8.1.0		
<p>Note: Required data input sections have a yellow background. Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background. The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types. Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.</p>		<p>To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.</p>		
				
Input Type				
Project Name	Capital SouthEast Connector - Kammerer 2-Lane Facility			
Construction Start Year	2018	Enter a Year between 2014 and 2025 (inclusive)		
Project Type	1	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction		
Project Construction Time	25.00	months		
Working Days per Month	22.00	days (assume 22 if unknown)		
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)		
Project Length	5.75	miles		
Total Project Area	330.00	acres		
Maximum Area Disturbed/Day	1.00	acre		
Water Trucks Used?	1	1. Yes 2. No		
Material Hauling Quantity Input				
Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)
Soil	Grubbing/Land Clearing	20.00		4840.00
	Grading/Excavation	20.00	2121.21	
	Drainage/Utilities/Sub-Grade	20.00	539.00	
	Paving	20.00		
Asphalt	Grubbing/Land Clearing	20.00		
	Grading/Excavation	20.00		
	Drainage/Utilities/Sub-Grade	20.00		
	Paving	20.00	0.28	
Mitigation Options				
On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer		
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml).		
		Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard		

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Capital SouthEast Connector - Kammerer 2-Lane Facility														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.43	15.61	37.86	12.27	2.27	10.00	3.26	1.18	2.08	0.27	27,783.48	0.50	0.87	28,054.08
Grading/Excavation	7.13	51.51	81.19	14.07	4.07	10.00	5.39	3.31	2.08	0.20	20,270.53	2.38	0.46	20,466.93
Drainage/Utilities/Sub-Grade	5.80	45.23	57.39	12.94	2.94	10.00	4.69	2.61	2.08	0.11	10,695.50	1.65	0.17	10,787.00
Paving	2.07	20.04	18.70	1.17	1.17	0.00	1.03	1.03	0.00	0.04	3,546.98	0.76	0.04	3,578.52
Maximum (pounds/day)	7.13	51.51	81.19	14.07	4.07	10.00	5.39	3.31	2.08	0.27	27,783.48	2.38	0.87	28,054.08
Total (tons/construction project)	1.51	11.36	16.59	3.20	0.86	2.34	1.19	0.70	0.49	0.04	4,301.22	0.48	0.10	4,341.81

Notes:
 Project Start Year -> 2018
 Project Length (months) -> 25
 Total Project Area (acres) -> 330
 Maximum Area Disturbed/Day (acres) -> 1
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	4840	0	7,260	0	720	40
Grading/Excavation	2,121	0	3,210	0	1,200	40
Drainage/Utilities/Sub-Grade	539	0	810	0	1,120	40
Paving	0	0	0	30	960	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Capital SouthEast Connector - Kammerer 2-Lane Facility														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.07	0.43	1.04	0.34	0.06	0.28	0.09	0.03	0.06	0.01	764.05	0.01	0.02	699.89
Grading/Excavation	0.88	6.37	10.05	1.74	0.50	1.24	0.67	0.41	0.26	0.02	2,508.48	0.29	0.06	2,297.73
Drainage/Utilities/Sub-Grade	0.48	3.73	4.73	1.07	0.24	0.83	0.39	0.22	0.17	0.01	882.38	0.14	0.01	807.34
Paving	0.09	0.83	0.77	0.05	0.05	0.00	0.04	0.04	0.00	0.00	146.31	0.03	0.00	133.91
Maximum (tons/phase)	0.88	6.37	10.05	1.74	0.50	1.24	0.67	0.41	0.26	0.02	2,508.48	0.29	0.06	2,297.73
Total (tons/construction project)	1.51	11.36	16.59	3.20	0.86	2.34	1.19	0.70	0.49	0.04	4,301.22	0.48	0.10	3,938.87

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.
 The CO2e emissions are reported as metric tons per phase.

**Road Construction Emissions Model
Data Entry Worksheet**

Version 8.1.0

Note: Required data input sections have a yellow background.
 Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
 The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
 Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Input Type

Project Name	Capital SouthEast Connector -	Kammerer 4-Lane Facility
Construction Start Year	2018	Enter a Year between 2014 and 2025 (inclusive)
Project Type	1	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	25.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	2	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the lone formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	5.75	miles
Total Project Area	330.00	acres
Maximum Area Disturbed/Day	1.00	acre
Water Trucks Used?	1	1. Yes 2. No

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd ³) (assume 20 if unknown)	Import Volume (yd ³ /day)	Export Volume (yd ³ /day)
Soil	Grubbing/Land Clearing	20.00		4540.00
	Grading/Excavation	20.00	2580.00	
	Drainage/Utilities/Sub-Grade			
	Paving			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving	20.00	1760.00	
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation	
Off-road Equipment Emissions Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Capital SouthEast Connector - Kammerer 4-Lane Facility													Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)									
Grubbing/Land Clearing	2.36	15.26	36.37	12.17	2.17	10.00	3.22	1.14	2.08	0.25	26,205.81	0.50	0.81	26,460.87									
Grading/Excavation	7.22	52.03	83.38	14.22	4.22	10.00	5.45	3.37	2.08	0.22	22,581.28	2.38	0.54	22,800.45									
Drainage/Utilities/Sub-Grade	5.68	44.59	54.76	12.76	2.76	10.00	4.62	2.54	2.08	0.08	7,879.76	1.64	0.08	7,943.51									
Paving	2.45	22.13	27.17	1.77	1.77	0.00	1.26	1.26	0.00	0.12	12,610.51	0.78	0.34	12,731.35									
Maximum (pounds/day)	7.22	52.03	83.38	14.22	4.22	10.00	5.45	3.37	2.08	0.25	26,205.81	2.38	0.81	26,460.87									
Total (tons/construction project)	1.53	11.45	16.96	3.22	0.88	2.34	1.20	0.71	0.49	0.05	4,685.36	0.48	0.11	4,729.74									

Notes: Project Start Year -> 2018
 Project Length (months) -> 25
 Total Project Area (acres) -> 330
 Maximum Area Disturbed/Day (acres) -> 1
 Water Truck Used? -> Yes

Phase	Total Material Imported/Exported Volume (yd ³ /day)		Daily VMT (miles/day)			
	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	4540	0	6,810	0	720	40
Grading/Excavation	2,580	0	3,870	0	1,200	40
Drainage/Utilities/Sub-Grade	0	0	0	0	1,120	40
Paving	0	1760	0	2,640	960	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Capital SouthEast Connector - Kammerer 4-Lane Facility													Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM10 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)									
Grubbing/Land Clearing	0.06	0.42	1.00	0.33	0.06	0.28	0.09	0.03	0.06	0.01	720.66	0.01	0.02	660.14									
Grading/Excavation	0.89	6.44	10.32	1.76	0.52	1.24	0.67	0.42	0.26	0.03	2,794.43	0.29	0.07	2,559.70									
Drainage/Utilities/Sub-Grade	0.47	3.68	4.52	1.05	0.23	0.83	0.38	0.21	0.17	0.01	650.08	0.14	0.01	594.52									
Paving	0.10	0.91	1.12	0.07	0.07	0.00	0.05	0.05	0.00	0.01	520.18	0.03	0.01	476.43									
Maximum (tons/phase)	0.89	6.44	10.32	1.76	0.52	1.24	0.67	0.42	0.26	0.03	2,794.43	0.29	0.07	2,559.70									
Total (tons/construction project)	1.53	11.45	16.96	3.22	0.88	2.34	1.20	0.71	0.49	0.05	4,685.36	0.48	0.11	4,290.79									

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.
 Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.
 CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1, 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.
 The CO2e emissions are reported as metric tons per phase.

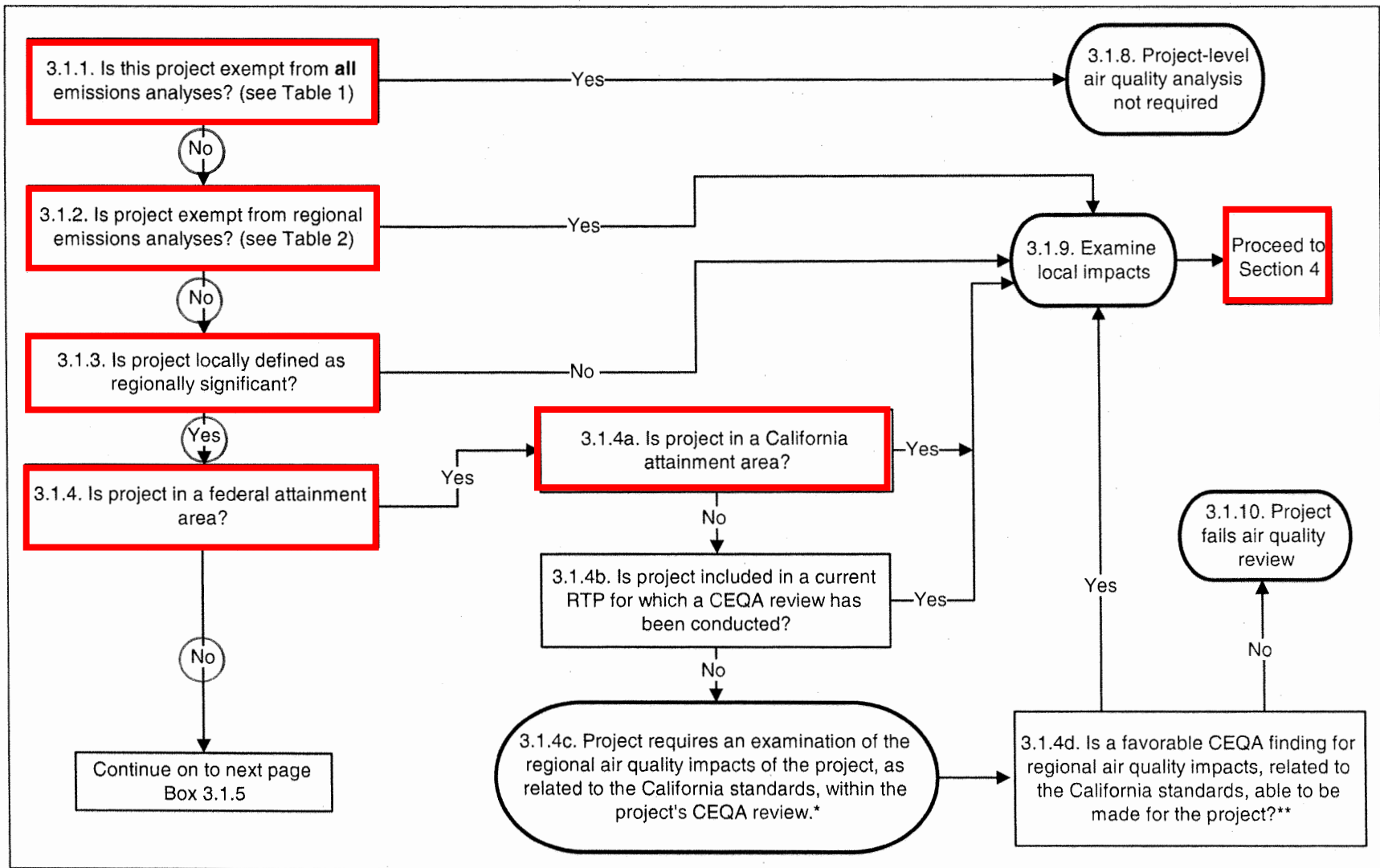


Figure 1. Requirements for New Projects

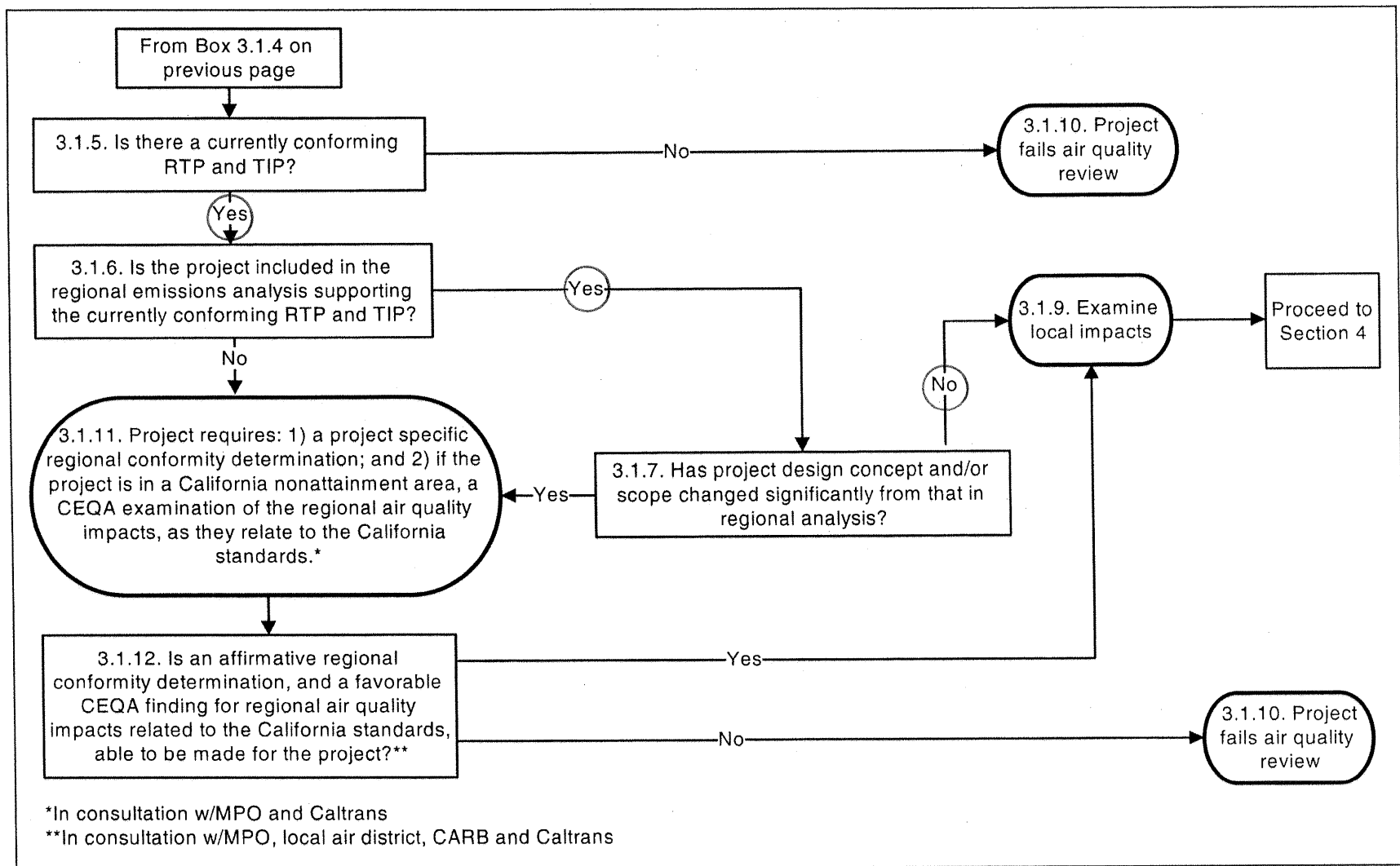


Figure 1 (cont.). Requirements for New Projects

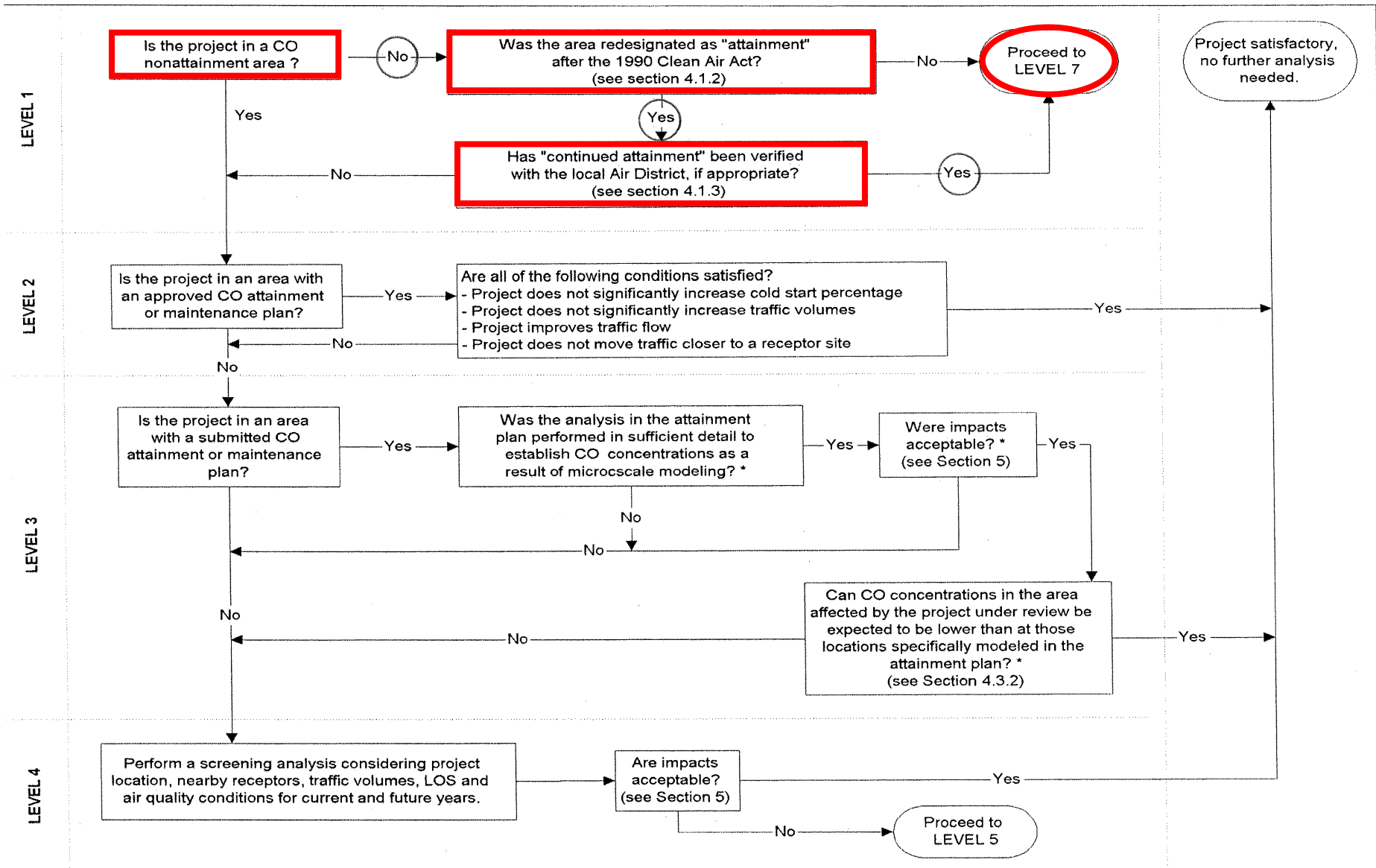


Figure 3. Local CO Analysis

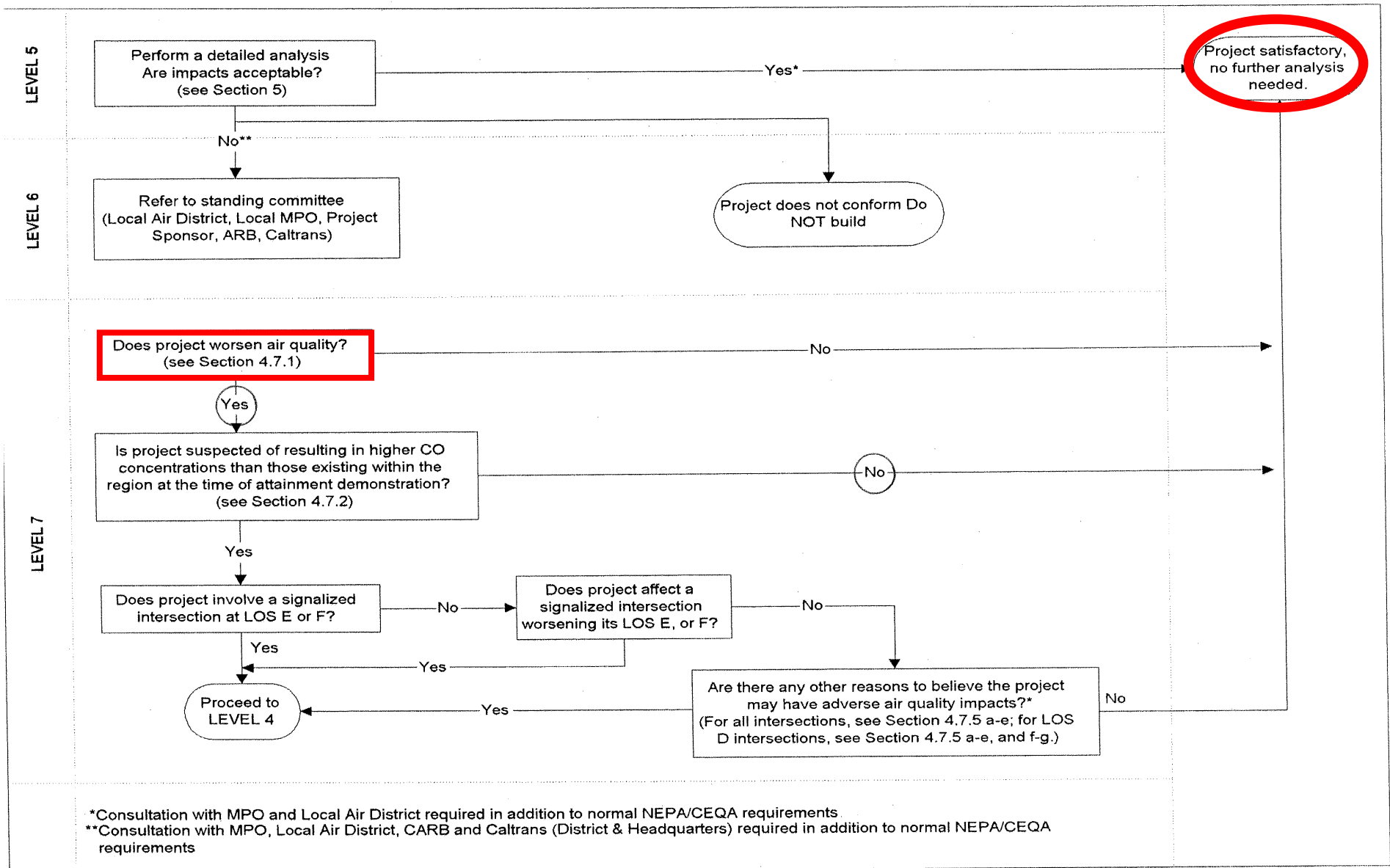


Figure 3 (cont.). Local CO Analysis

Ken Chen

From: OConnor, Karina <OConnor.Karina@epa.gov>
Sent: Thursday, December 6, 2018 8:42 AM
To: Shengyi Gao; Alexander Fong; Dave Johnston; David Yang; Douglas Coleman; Heather Phillips ; jlam@airquality.org; Jason Lee; Jerry Barton; Ungvarsky, John; Jose Luis Caceres; Joseph Vaughn; Ken Born; Lucas Sanchez; Mark Loutzenhiser; Matt Jones; Mcneel-Caird; Paul Philley; Renee DeVere-Oki; Rodney Tavitas; Shalanda Christian; Sharon Tang; sspaethe@fraqmd.org; Wright Molly; Yu-Shuo Chang
Cc: minnemad@connectorjpa.net; Ken Chen
Subject: RE: POAQC: SAC24094/SAC24114 Kammerer Rd Extension (Connector Segment), DUE 12/18

EPA concurs that this is not a project of air quality concern.

Thanks, Karina

Karina OConnor
Air Planning Office
US EPA Region 9 (AIR-2)
75 Hawthorne St.
San Francisco, CA 94105
(775) 434-8176
oconnor.karina@epa.gov

From: Shengyi Gao <SGao@sacog.org>
Sent: Wednesday, December 5, 2018 10:52 AM
To: Alexander Fong <alexander.fong@dot.ca.gov>; Dave Johnston <dave.johnston@edcgov.us>; David Yang <DYang@airquality.org>; Douglas Coleman <douglas.coleman@dot.ca.gov>; Heather Phillips <Heather.Phillips@arb.ca.gov>; jlam@airquality.org; Jason Lee <jason.lee@dot.ca.gov>; Jerry Barton <jbarton@edtc.org>; Ungvarsky, John <Ungvarsky.John@epa.gov>; Jose Luis Caceres <JCaceres@sacog.org>; Joseph Vaughn <Joseph.Vaughn@dot.gov>; OConnor, Karina <OConnor.Karina@epa.gov>; Ken Born <kenneth.born@dot.gov>; Lucas Sanchez <lucas.sanchez@dot.ca.gov>; Mark Loutzenhiser <mloutzenhiser@airquality.org>; Matt Jones <mjones@ysaqmd.org>; Mcneel-Caird <lmcneel-caird@pctpa.net>; Paul Philley <pphilley@airquality.org>; Renee DeVere-Oki <RDeVere-Oki@sacog.org>; Rodney Tavitas <rodney.tavitas@dot.ca.gov>; Shalanda Christian <shalanda_christian@dot.ca.gov>; Sharon Tang <sharon.tang@dot.ca.gov>; sspaethe@fraqmd.org; Wright Molly <mwright@airquality.org>; Yu-Shuo Chang <YChang@placer.ca.gov>
Cc: minnemad@connectorjpa.net; Ken Chen <kchen@dokkenengineering.com>
Subject: POAQC: SAC24094/SAC24114 Kammerer Rd Extension (Connector Segment), DUE 12/18

Project Level Conformity Group,

Attached for interagency review is the Sacramento County's and City of Elk Grove's project, **Kammerer Rd Extension (Connector Segment) (SAC24094/SAC24114)**. As part of project level conformity under NEPA, it requires a determination of whether it is a project of air quality concern. (This project was previously determined by SACOG's Project Level Conformity Group to not be a POAQC on June 13, 2016. Since then, the project has undergone a number of changes, including an updated Transportation Impact Analysis. The changes of this project will be required to re-visit for NEPA validation including re-submitting an Interagency Consultation and the following hot-spot analysis incorporating all the changes in the project. Therefore, the existing IAC would be an obsolete and no longer valid one.)

Please confirm that you concur that this is NOT a Project of Air Quality Concern (POAQC). **Please email questions and comments by 5 p.m., Wed, December 18, 2018.**

This project falls under the 23 USC 327 (formerly 6005) federal process. As such, it requires written concurrence by EPA (Karina O'Conner) and FHWA (Joseph Vaughn). Please remember to use "reply all," to make comments to the group. Otherwise, you may also contact the sponsor directly:

Derek Minnema

Capital SouthEast Connector Joint Powers Authority

Tel: (916) 876-9092

Email: minnemad@connectorjpa.net

Ken Chen

From: Vaughn, Joseph (FHWA) <Joseph.Vaughn@dot.gov>
Sent: Friday, December 7, 2018 11:17 AM
To: Shengyi Gao; Alexander Fong; Dave Johnston; David Yang; Douglas Coleman; Heather Phillips ; Janice Lam Snyder; Jason Lee; Jerry Barton; John Ungvarsky; Jose Luis Caceres; Karina O'Connor; Born, Kenneth (FHWA); Lucas Sanchez; Mark Loutzenhiser; Matt Jones; Mcneel-Caird; Paul Philley; Renee DeVere-Okie; Rodney Tavitas; Shalanda Christian; Sharon Tang; Sondra Spaethe; Wright Molly; Yu-Shuo Chang
Cc: minnemad connectorjpa.net; Ken Chen
Subject: RE: POAQC: SAC24094/SAC24114 Kemmerer Rd Extension (Connector Segment), DUE 12/18

FHWA concurs that this is not a project of air quality concern. Thanks

Joseph Vaughn
Environmental Specialist
FHWA, California Division
(916) 498-5346

From: Shengyi Gao <SGao@sacog.org>
Sent: Wednesday, December 05, 2018 10:52 AM
To: Alexander Fong <alexander.fong@dot.ca.gov>; Dave Johnston <dave.johnston@edcgov.us>; David Yang <DYang@airquality.org>; Douglas Coleman <douglas.coleman@dot.ca.gov>; Heather Phillips <Heather.Phillips@arb.ca.gov>; Janice Lam Snyder <JLam@airquality.org>; Jason Lee <jason.lee@dot.ca.gov>; Jerry Barton <jbarton@edctc.org>; John Ungvarsky <Ungvarsky.John@epa.gov>; Jose Luis Caceres <JCaceres@sacog.org>; Vaughn, Joseph (FHWA) <Joseph.Vaughn@dot.gov>; Karina O'Connor <oconnor.karina@epa.gov>; Born, Kenneth (FHWA) <kenneth.born@dot.gov>; Lucas Sanchez <lucas.sanchez@dot.ca.gov>; Mark Loutzenhiser <mloutzenhiser@airquality.org>; Matt Jones <mjones@ysaqmd.org>; Mcneel-Caird <Imcneel-caird@pctpa.net>; Paul Philley <pphilley@airquality.org>; Renee DeVere-Okie <RDeVere-Okie@sacog.org>; Rodney Tavitas <rodney.tavitas@dot.ca.gov>; Shalanda Christian <shalanda_christian@dot.ca.gov>; Sharon Tang <sharon.tang@dot.ca.gov>; Sondra Spaethe <sspaethe@fraqmd.org>; Wright Molly <mwright@airquality.org>; Yu-Shuo Chang <YChang@placer.ca.gov>
Cc: minnemad connectorjpa.net <minnemad@connectorjpa.net>; Ken Chen <kchen@dokkenengineering.com>
Subject: POAQC: SAC24094/SAC24114 Kammerer Rd Extension (Connector Segment), DUE 12/18

Project Level Conformity Group,

Attached for interagency review is the Sacramento County's and City of Elk Grove's project, **Kammerer Rd Extension (Connector Segment) (SAC24094/SAC24114)**. As part of project level conformity under NEPA, it requires a determination of whether it is a project of air quality concern. (This project was previously determined by SACOG's Project Level Conformity Group to not be a POAQC on June 13, 2016. Since then, the project has undergone a number of changes, including an updated Transportation Impact Analysis. The changes of this project will be required to re-visit for NEPA validation including re-submitting an Interagency Consultation and the following hot-spot analysis incorporating all the changes in the project. Therefore, the existing IAC would be an obsolete and no longer valid one.)

Please confirm that you concur that this is NOT a Project of Air Quality Concern (POAQC). **Please email questions and comments by 5 p.m., Wed, December 18, 2018.**

This project falls under the 23 USC 327 (formerly 6005) federal process. As such, it requires written concurrence by EPA (Karina O'Conner) and FHWA (Joseph Vaughn). Please remember to use "reply all," to make comments to the group. Otherwise, you may also contact the sponsor directly:

Derek Minnema

Capital SouthEast Connector Joint Powers Authority

Tel: (916) 876-9092

Email: minnemad@connectorjpa.net

Appendix G: Noise Modeling Results

Table A-1. Existing Calibration Traffic Volumes Used in TNM

	Segment	Number of Lanes	Total Peak Hour Traffic	Auto #	MT #	HT #	Bus #	Moto #	Speed (A/MT/HT/Moto)
Franklin	NB S of Hood Franklin	1	9	6	3	0	0	0	55/55/0/0/0
Franklin	SB S of Hood Franklin	1	66	63	3	0	0	0	55/55/0/0/0
Kammerer	WB E of Bruceville	1	126	6	0	0	0	0	55/55/0/0/0
Kammerer	EB E of Bruceville	1	105	0	0	0	0	0	55/0/0/0/0
Kammerer	WB W of Lent Ranch Parkway	2	126	114	9	0	3	0	55/55/0/55/0
Kammerer	EB W of Lent Ranch Parkway	2	126	123	0	0	0	3	55/0/0/0/55

Source: Dokken Engineering, 2018

A = Auto, MT = medium truck, HT = heavy truck

Table A-2. Existing Average Daily Traffic Volumes Used in TNM

	Segment	Number of Lanes	Total AM Peak Hour Traffic	Auto %	MT %	HT %	Speed (A/MT/HT)
Hood Franklin	WB W of Franklin	1	544	78	19	3	55/55/55
Hood Franklin	EB W of Franklin	1	204	78	19	3	55/55/55
Hood Franklin	WB I-5 NB Ramp to SB Ramp	1	312	78	19	3	55/55/55
Hood Franklin	EB I-5 NB Ramp to SB Ramp	1	188	78	19	3	55/55/55
Hood Franklin	WB W of I-5 SB Ramp	1	261	78	19	3	55/55/55
Hood Franklin	EB W of I-5 SB Ramp	1	39	78	19	3	55/55/55
Franklin	NB N of Hood Franklin	1	367	78	19	3	55/55/55
Franklin	SB N of Hood Franklin	1	699	78	19	3	55/55/55
Franklin	NB S of Hood Franklin	1	367	78	19	3	55/55/55
Franklin	SB S of Hood Franklin	1	699	78	19	3	55/55/55
Bruceville	NB N of Kammerer	1	261	78	19	3	55/55/55
Bruceville	SB N of Kammerer	1	417	78	19	3	55/55/55
Bruceville	NB S of Kammerer	1	166	78	19	3	55/55/55
Bruceville	SB S of Kammerer	1	90	78	19	3	55/55/55
Kammerer	WB Bruceville to Col 2	1	218	78	19	3	55/55/55
Kammerer	EB Bruceville to Col 2	1	450	78	19	3	55/55/55
Kammerer	WB Col 2 to Big Horn	1	218	78	19	3	55/55/55
Kammerer	EB Col 2 to Big Horn	1	450	78	19	3	55/55/55
Kammerer	WB Big Horn to Col 1	1	218	78	19	3	55/55/55
Kammerer	EB Big Horn to Col 1	1	450	78	19	3	55/55/55
Kammerer	WB Col 1 to Lotz	1	218	78	19	3	55/55/55
Kammerer	EB Col 1 to Lotz	1	450	78	19	3	55/55/55
Kammerer	WB Lotz to Lent	1	218	78	19	3	55/55/55
Kammerer	EB Lotz to Lent	1	450	78	19	3	55/55/55
Kammerer	EB Lent to Lotz	2	218	78	19	3	55/55/55
Kammerer	WB E of Lent	2	450	78	19	3	55/55/55
I-5	NB S of Off-ramp	2	1408	76	6	18	75/70/65
I-5	NB Off-ramp to Bridge	2	1226	76	6	18	75/70/65
I-5	Bridge to On-ramp	2	1246	76	6	18	75/70/65
I-5	NB N of On-ramp	2	1624	76	6	18	75/70/65
I-5	SB N of Off-ramp	2	1499	76	6	18	75/70/65
I-5	SB Off-ramp to Bridge	2	1300	76	6	18	75/70/65
I-5	SB Bridge to On-ramp	2	1395	76	6	18	75/70/65
I-5	SB S of On-ramp	2	1401	76	6	18	75/70/65
I-5	NB On-ramp	1	378	76	6	18	75/70/65
I-5	NB Loop On-ramp	1	20	76	6	18	75/70/65
I-5	NB Off-ramp	1	182	76	6	18	75/70/65
I-5	SB On-ramp	1	6	76	6	18	75/70/65
I-5	SB Loop On-ramp	1	95	76	6	18	75/70/65
I-5	SB Off-ramp	1	199	76	6	18	75/70/65

Source: DKS Associates, 2018

A = Auto, MT = medium truck, HT = heavy truck

Table A-3. Design Year 2034 No Build Average Daily Hour Traffic Volumes Used in TNM

	Segment	Number of Lanes	Average Daily Traffic	Auto %	MT %	HT %	Speed (A/MT/HT)
Hood Franklin	WB W of Franklin	1	625	78	19	3	55/55/55
Hood Franklin	EB W of Franklin	1	221	78	19	3	55/55/55
Hood Franklin	WB I-5 NB Ramp to SB Ramp	1	384	78	19	3	55/55/55
Hood Franklin	EB I-5 NB Ramp to SB Ramp	1	211	78	19	3	55/55/55
Hood Franklin	WB W of I-5 SB Ramp	1	281	78	19	3	55/55/55
Hood Franklin	EB W of I-5 SB Ramp	1	48	78	19	3	55/55/55
Franklin	NB N of Hood Franklin	1	420	78	19	3	55/55/55
Franklin	SB N of Hood Franklin	1	772	78	19	3	55/55/55
Franklin	NB S of Hood Franklin	1	420	78	19	3	55/55/55
Franklin	SB S of Hood Franklin	1	772	78	19	3	55/55/55
Bruceville	NB N of Kammerer	1	295	78	19	3	55/55/55
Bruceville	SB N of Kammerer	1	526	78	19	3	55/55/55
Bruceville	NB S of Kammerer	1	260	78	19	3	55/55/55
Bruceville	SB S of Kammerer	1	174	78	19	3	55/55/55
Kammerer	WB Bruceville to Col 2	1	336	78	19	3	55/55/55
Kammerer	EB Bruceville to Col 2	1	653	78	19	3	55/55/55
Kammerer	WB Col 2 to Big Horn	1	333	78	19	3	55/55/55
Kammerer	EB Col 2 to Big Horn	1	596	78	19	3	55/55/55
Kammerer	WB Big Horn to Col 1	1	398	78	19	3	55/55/55
Kammerer	EB Big Horn to Col 1	1	683	78	19	3	55/55/55
Kammerer	WB Col 1 to Lotz	1	476	78	19	3	55/55/55
Kammerer	EB Col 1 to Lotz	1	732	78	19	3	55/55/55
Kammerer	WB Lotz to Lent	1	651	78	19	3	55/55/55
Kammerer	EB Lotz to Lent	1	791	78	19	3	55/55/55
Kammerer	EB E of Lent	2	834	78	19	3	55/55/55
Kammerer	WB E of Lent	2	659	78	19	3	55/55/55
I-5	NB S of Off-ramp	2	1736	76	6	18	75/70/65
I-5	NB Off-ramp to Bridge	2	1547	76	6	18	75/70/65
I-5	NB Bridge to On-ramp	2	1573	76	6	18	75/70/65
I-5	NB N of On-ramp	2	1960	76	6	18	75/70/65
I-5	SB N of Off-ramp	2	1580	76	6	18	75/70/65
I-5	SB Off-ramp to Bridge	2	1365	76	6	18	75/70/65
I-5	SB Bridge to On-ramp	2	1492	76	6	18	75/70/65
I-5	SB S of On-ramp	2	1502	76	6	18	75/70/65
I-5	NB On-ramp	1	387	76	6	18	75/70/65
I-5	NB Loop On-ramp	1	26	76	6	18	75/70/65
I-5	NB Off-ramp	1	189	76	6	18	75/70/65
I-5	SB On-ramp	2	10	76	6	18	75/70/65
I-5	SB Loop On-ramp	2	127	76	6	18	75/70/65
I-5	SB Off-ramp	2	215	76	6	18	75/70/65

Source: DKS Associates, 2018

A = Auto, MT = medium truck, HT = heavy truck

Table A-4. Design Year 2034 2-Lane Build Average Daily Hour Traffic Volumes Used in TNM

	Segment	Number of Lanes	Average Daily Traffic	Auto %	MT %	HT %	Speed (A/MT/HT)
Hood Franklin	WB W of Franklin	1	223	77	19	4	55/55/55
Hood Franklin	EB W of Franklin	1	3	77	19	4	55/55/55
Hood Franklin	WB E of I-5 NB Ramp	1	917	77	19	4	55/55/55
Hood Franklin	EB E of I-5 NB Ramp	1	798	77	19	4	55/55/55
Hood Franklin	WB I-5 NB Ramp to SB Ramp	1	582	77	19	4	55/55/55
Hood Franklin	EB I-5 NB Ramp to SB Ramp	1	445	77	19	4	55/55/55
Hood Franklin	WB W of I-5 SB Ramp	1	283	77	19	4	55/55/55
Hood Franklin	EB W of I-5 SB Ramp	1	57	77	19	4	55/55/55
Franklin	NB N of Kammerer	1	32	77	19	4	55/55/55
Franklin	SB N of Kammerer	1	107	77	19	4	55/55/55
Franklin	NB S of Kammerer	1	182	77	19	4	55/55/55
Franklin	SB S of Kammerer	1	117	77	19	4	55/55/55
Willard	NB N of Kammerer	1	324	77	19	4	55/55/55
Willard	SB N of Kammerer	2	409	77	19	4	55/55/55
Bruceville	NB N of Kammerer	1	296	77	19	4	55/55/55
Bruceville	SB N of Kammerer	1	507	77	19	4	55/55/55
Bruceville	NB S of Kammerer	1	129	77	19	4	55/55/55
Bruceville	SB S of Kammerer	1	39	77	19	4	55/55/55
Kammerer	WB I5 to Franklin	1	826	77	19	4	55/55/55
Kammerer	EB I5 to Franklin	1	683	77	19	4	55/55/55
Kammerer	WB Franklin to Willard	1	816	77	19	4	55/55/55
Kammerer	EB Franklin to Willard	1	753	77	19	4	55/55/55
Kammerer	WB Willard to Bruceville	1	604	77	19	4	55/55/55
Kammerer	EB Willard to Bruceville	1	581	77	19	4	55/55/55
Kammerer	WB Bruceville to Col 2	1	597	77	19	4	55/55/55
Kammerer	EB Bruceville to Col 2	1	875	77	19	4	55/55/55
Kammerer	WB Col 2 to Big Horn	1	582	77	19	4	55/55/55
Kammerer	EB Col 2 to Big Horn	1	806	77	19	4	55/55/55
Kammerer	WB Big Horn to Col 1	1	541	77	19	4	55/55/55
Kammerer	EB Big Horn to Col 1	1	818	77	19	4	55/55/55
Kammerer	WB Col 1 to Lotz	1	602	77	19	4	55/55/55
Kammerer	EB Col 1 to Lotz	1	819	77	19	4	55/55/55
Kammerer	WB Lotz to Lent	1	759	77	19	4	55/55/55
Kammerer	EB Lotz to Lent	1	865	77	19	4	55/55/55
I-5	NB S of Off-ramp	2	1853	76	6	18	75/70/65
I-5	NB Off-ramp to Bridge	2	1298	76	6	18	75/70/65
I-5	NB Bridge to On-ramp	2	1321	76	6	18	75/70/65
I-5	NB N of On-ramp	2	1830	76	6	18	75/70/65
I-5	SB N of Off-ramp	2	1580	76	6	18	75/70/65
I-5	SB Off-ramp to Bridge	2	1197	76	6	18	75/70/65
I-5	SB Bridge to On-ramp	2	1524	76	6	18	75/70/65

I-5	SB S of On-ramp	2	1534	76	6	18	75/70/65
I-5	NB On-ramp	1	509	76	6	18	75/70/65
I-5	NB Loop On-ramp	1	23	76	6	18	75/70/65
I-5	NB Off-ramp	1	555	76	6	18	75/70/65
I-5	SB On-ramp	2	383	76	6	18	75/70/65
I-5	SB Loop On-ramp	2	327	76	6	18	75/70/65
I-5	SB Off-ramp	2	10	76	6	18	75/70/65

Source: DKS Associates, 2018

A = Auto, MT = medium truck, HT = heavy truck

Table A-5. Design Year 2044 No Build Average Daily Hour Traffic Volumes Used in TNM

	Segment	Number of Lanes	Total AM Peak Hour Traffic	Auto %	MT %	HT %	Speed (A/MT/HT)
Hood Franklin	WB W of Franklin	1	663	78	19	3	55/55/55
Hood Franklin	EB W of Franklin	1	221	78	19	3	55/55/55
Hood Franklin	WB I-5 NB Ramp to SB Ramp	1	422	78	19	3	55/55/55
Hood Franklin	EB I-5 NB Ramp to SB Ramp	1	220	78	19	3	55/55/55
Hood Franklin	WB W of I-5 SB Ramp	1	292	78	19	3	55/55/55
Hood Franklin	EB W of I-5 SB Ramp	1	55	78	19	3	55/55/55
Franklin	NB N of Hood Franklin	1	439	78	19	3	55/55/55
Franklin	SB N of Hood Franklin	1	809	78	19	3	55/55/55
Franklin	NB S of Hood Franklin	1	439	78	19	3	55/55/55
Franklin	SB S of Hood Franklin	1	809	78	19	3	55/55/55
Bruceville	NB N of Kammerer	1	293	78	19	3	55/55/55
Bruceville	SB N of Kammerer	1	572	78	19	3	55/55/55
Bruceville	NB S of Kammerer	1	311	78	19	3	55/55/55
Bruceville	SB S of Kammerer	1	214	78	19	3	55/55/55
Kammerer	WB Bruceville to Col 2	2	374	78	19	3	55/55/55
Kammerer	EB Bruceville to Col 2	2	750	78	19	3	55/55/55
Kammerer	WB Col 2 to Big Horn	2	372	78	19	3	55/55/55
Kammerer	EB Col 2 to Big Horn	2	674	78	19	3	55/55/55
Kammerer	WB Big Horn to Col 1	2	479	78	19	3	55/55/55
Kammerer	EB Big Horn to Col 1	2	856	78	19	3	55/55/55
Kammerer	WB Col 1 to Lotz	2	609	78	19	3	55/55/55
Kammerer	EB Col 1 to Lotz	2	943	78	19	3	55/55/55
Kammerer	WB Lotz to Lent	2	932	78	19	3	55/55/55
Kammerer	EB Lotz to Lent	2	922	78	19	3	55/55/55
Kammerer	EB E of Lent	2	1207	78	19	3	55/55/55
Kammerer	WB E of Lent	2	945	78	19	3	55/55/55
I-5	NB S of Off-ramp	2	1483	76	6	18	75/70/65
I-5	NB Off-ramp to Bridge	2	982	76	6	18	75/70/65
I-5	NB Bridge to On-ramp	2	1002	76	6	18	75/70/65
I-5	NB N of On-ramp	2	1480	76	6	18	75/70/65
I-5	SB N of Off-ramp	2	1450	76	6	18	75/70/65
I-5	SB Off-ramp to Bridge	2	1102	76	6	18	75/70/65
I-5	SB Bridge to On-ramp	2	1404	76	6	18	75/70/65
I-5	SB S of On-ramp	2	1410	76	6	18	75/70/65
I-5	NB On-ramp	1	478	76	6	18	75/70/65
I-5	NB Loop On-ramp	1	20	76	6	18	75/70/65
I-5	NB Off-ramp	1	501	76	6	18	75/70/65
I-5	SB On-ramp	2	6	76	6	18	75/70/65
I-5	SB Loop On-ramp	2	194	76	6	18	75/70/65
I-5	SB Off-ramp	2	348	76	6	18	75/70/65

Source: DKS Associates, 2018

A = Auto, MT = medium truck, HT = heavy truck

Table A-6. Design Year 2044 4-Lane Build Average Daily Hour Traffic Volumes Used in TNM

	Segment	Number of Lanes	Average Daily Traffic	Auto %	MT %	HT %	Speed (A/MT/HT)
Hood Franklin	WB W of Franklin	1	345	77	19	4	55/55/55
Hood Franklin	EB W of Franklin	1	5	77	19	4	55/55/55
Hood Franklin	WB E of I-5 NB Ramp	1	1620	77	19	4	55/55/55
Hood Franklin	EB E of I-5 NB Ramp	1	1274	77	19	4	55/55/55
Hood Franklin	WB I-5 NB Ramp to SB Ramp	1	986	77	19	4	55/55/55
Hood Franklin	EB I-5 NB Ramp to SB Ramp	1	664	77	19	4	55/55/55
Hood Franklin	WB W of I-5 SB Ramp	1	299	77	19	4	55/55/55
Hood Franklin	EB W of I-5 SB Ramp	1	66	77	19	4	55/55/55
Franklin	NB N of Kammerer	1	24	77	19	4	55/55/55
Franklin	SB N of Kammerer	1	41	77	19	4	55/55/55
Franklin	NB S of Kammerer	1	81	77	19	4	55/55/55
Franklin	SB S of Kammerer	1	73	77	19	4	55/55/55
Willard	NB N of Kammerer	1	725	77	19	4	55/55/55
Willard	SB N of Kammerer	2	576	77	19	4	55/55/55
Bruceville	NB N of Kammerer	1	324	77	19	4	55/55/55
Bruceville	SB N of Kammerer	1	724	77	19	4	55/55/55
Bruceville	NB S of Kammerer	1	132	77	19	4	55/55/55
Bruceville	SB S of Kammerer	1	38	77	19	4	55/55/55
Kammerer	WB I5 to Franklin	2	1351	77	19	4	55/55/55
Kammerer	EB I5 to Franklin	2	1070	77	19	4	55/55/55
Kammerer	WB Franklin to Willard	2	1355	77	19	4	55/55/55
Kammerer	EB Franklin to Willard	2	1099	77	19	4	55/55/55
Kammerer	WB Willard to Bruceville	2	1039	77	19	4	55/55/55
Kammerer	EB Willard to Bruceville	2	992	77	19	4	55/55/55
Kammerer	WB Bruceville to Col 2	2	903	77	19	4	55/55/55
Kammerer	EB Bruceville to Col 2	2	1350	77	19	4	55/55/55
Kammerer	WB Col 2 to Big Horn	2	888	77	19	4	55/55/55
Kammerer	EB Col 2 to Big Horn	2	1256	77	19	4	55/55/55
Kammerer	WB Big Horn to Col 1	2	817	77	19	4	55/55/55
Kammerer	EB Big Horn to Col 1	2	1300	77	19	4	55/55/55
Kammerer	WB Col 1 to Lotz	2	916	77	19	4	55/55/55
Kammerer	EB Col 1 to Lotz	2	1329	77	19	4	55/55/55
Kammerer	WB Lotz to Lent	2	1147	77	19	4	55/55/55
Kammerer	EB Lotz to Lent	2	1461	77	19	4	55/55/55
I-5	NB S of Off-ramp	2	2746	76	6	18	75/70/65
I-5	NB Off-ramp to Bridge	2	1933	76	6	18	75/70/65
I-5	NB Bridge to On-ramp	2	1990	76	6	18	75/70/65
I-5	NB N of On-ramp	2	2770	76	6	18	75/70/65
I-5	SB N of Off-ramp	2	1720	76	6	18	75/70/65
I-5	SB Off-ramp to Bridge	2	1119	76	6	18	75/70/65

I-5	SB Bridge to On-ramp	2	1864	76	6	18	75/70/65
I-5	SB S of On-ramp	2	1884	76	6	18	75/70/65
I-5	NB On-ramp	1	780	76	6	18	75/70/65
I-5	NB Loop On-ramp	1	57	76	6	18	75/70/65
I-5	NB Off-ramp	1	813	76	6	18	75/70/65
I-5	SB On-ramp	2	601	76	6	18	75/70/65
I-5	SB Loop On-ramp	2	745	76	6	18	75/70/65
I-5	SB Off-ramp	2	20	76	6	18	75/70/65

Source: DKS Associates, 2018

A = Auto, MT = medium truck, HT = heavy truck

Receptor I.D.	Land Use	Noise Abatement category (NAC)	Number of Dwelling Units	Address	Capital SouthEast Connector Segment Kammerer Future Peak Hour Noise Levels -Leq, dBA																	Barrier Feasible (5 dB I.L.)	Barrier meets Caltrans Acoustical Design Goal (7 dB I.L.)													
					Modeled Existing Year 2017 Noise Level Leq, dBA	Design Year 2034 Noise Level without Project Leq, dBA	Design Year 2034 Noise Level with Project Leq, dBA	Existing to Design year No Project Noise Increase	Existing to Design year with Project Noise Increase	Design Year No Project to Project increase	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																									
											6 feet			8 feet			10 feet			12 feet				14 feet			16 feet									
											Leq	I.L.	NBR	Leq	I.L.	NBR	Leq	I.L.	NBR	Leq	I.L.			NBR	Leq	I.L.	NBR	Leq	I.L.	NBR						
R35	SFR	B(67)	1	4812 Tusk Way	45 - 48	45 - 48	61	0	13 - 16	13 - 16	-	-	-	61	0	0	58	-3	0	55	-6	1	54	-7	1	53	-8	1	53	-8	1	-	-	-	Y	Y
R36	SFR	B(67)	1	4816 Tusk Way	45 - 48	45 - 48	61	0	13 - 16	13 - 16	-	-	-	61	0	0	57	-4	0	55	-6	1	54	-7	1	53	-8	1	53	-8	1	-	-	-	Y	Y
R37	SFR	B(67)	1	4820 Tusk Way	45 - 48	45 - 48	61	0	13 - 16	13 - 16	-	-	-	61	0	0	57	-4	0	55	-6	1	54	-7	1	53	-8	1	53	-8	1	-	-	-	Y	Y
R38	SFR	B(67)	1	4824 Tusk Way	45 - 48	45 - 48	61	0	13 - 16	13 - 16	-	-	-	60	-1	0	57	-4	0	55	-6	1	54	-7	1	53	-8	1	53	-8	1	-	-	-	Y	Y
R39	SFR	B(67)	1	4828 Tusk Way	45 - 48	45 - 48	61	0	13 - 16	13 - 16	-	-	-	60	-1	0	56	-5	1	55	-6	1	53	-8	1	53	-8	1	53	-8	1	-	-	-	Y	Y
R40	SFR	B(67)	1	4836 Tusk Way	45 - 48	45 - 48	61	0	13 - 16	13 - 16	-	-	-	60	-1	0	56	-5	1	55	-6	1	54	-7	1	53	-8	1	53	-8	1	-	-	-	Y	Y
R41	SFR	B(67)	1	4836 Tusk Way	45 - 48	45 - 48	61	0	13 - 16	13 - 16	-	-	-	59	-2	0	56	-5	1	54	-7	1	53	-8	1	52	-9	1	52	-9	1	-	-	-	Y	Y
R42	SFR	B(67)	1	4836 Tusk Way	45 - 48	45 - 48	57	0	9 - 12	9 - 12	-	-	-	56	-1	0	54	-3	0	53	-4	0	52	-5	1	51	-6	1	51	-6	1	-	-	-	Y	Y
R43	SFR	B(67)	1	4848 Tusk Way	45 - 48	45 - 48	59	0	11 - 14	11 - 14	-	-	-	58	-1	0	56	-3	0	54	-5	1	53	-6	1	53	-6	1	53	-6	1	-	-	-	Y	Y
R44	SFR	B(67)	1	4848 Tusk Way	45 - 48	45 - 48	59	0	11 - 14	11 - 14	-	-	-	57	-2	0	56	-3	0	54	-5	1	54	-5	1	53	-6	1	53	-6	1	-	-	-	Y	Y
R45	SFR	B(67)	1	4856 Tusk Way	45 - 48	45 - 48	59	0	11 - 14	11 - 14	-	-	-	58	-1	0	56	-3	0	55	-4	0	54	-5	1	53	-6	1	53	-6	1	-	-	-	Y	Y
R46	SFR	B(67)	1	4860 Tusk Way	45 - 48	45 - 48	58	0	10 - 13	10 - 13	-	-	-	57	-1	0	55	-3	0	54	-4	0	54	-4	0	53	-5	1	53	-5	1	-	-	-	Y	Y
R47	SFR	B(67)	1	4860 Tusk Way	45 - 48	45 - 48	59	0	11 - 14	11 - 14	-	-	-	58	-1	0	56	-3	0	55	-4	0	54	-5	1	54	-5	1	54	-5	1	-	-	-	Y	Y
R48	SFR	B(67)	1	4860 Tusk Way	45 - 48	45 - 48	59	0	11 - 14	11 - 14	-	-	-	58	-1	0	56	-3	0	55	-4	0	55	-4	0	54	-5	1	54	-5	1	-	-	-	Y	Y
R49	SFR	B(67)	1	4868 Tusk Way	45 - 48	45 - 48	59	0	11 - 14	11 - 14	-	-	-	58	-1	0	56	-3	0	55	-4	0	54	-5	1	54	-5	1	54	-5	1	-	-	-	Y	Y
R50	SFR	B(67)	1	4868 Tusk Way	45 - 48	45 - 48	60	0	12 - 15	12 - 15	-	-	-	58	-2	0	57	-3	0	56	-4	0	55	-5	1	54	-6	1	54	-6	1	-	-	-	Y	Y
R51	MFR	B(67)	1	8250-8260 Kammerer Rd	58	56	58	-2	0	-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R52	MFR	B(67)	1	8250-8260 Kammerer Rd	59	57	58	-2	-1	-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R53	MFR	B(67)	1	8250-8260 Kammerer Rd	59	57	52	-2	-7	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R54	MFR	B(67)	1	8250-8260 Kammerer Rd	59	57	58	-2	-1	-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Bold and underlined indicates impacted receiver subject to soundwall abatement analysis
R-32 through R-50 show a range of measured noise levels rather than modelled noise levels due to lack of adjacent existing traffic noise
Orange – SW-W2 analysis
Yellow – SW-W3 v1 (Reconstruct Existing Soundwall) analysis
Green – SW-W3 v2 (New Overcrossing Soundwall) analysis
Purple – SW-W4 analysis
Blue – SW-W5 analysis

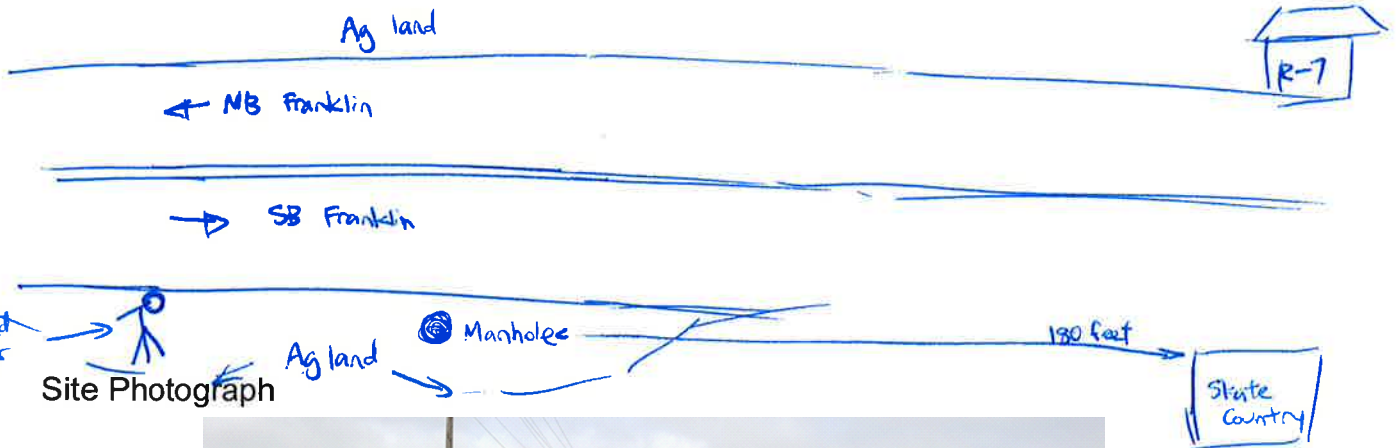
Receptor I.D.	Land Use	Noise Abatement category (NAC)	Number of Dwelling Units	Address	Capital SouthEast Connector Segment Kammerer Future Peak Hour Noise Levels -Leq, dBA																	Barrier Feasible (5 dB I.L.)	Barrier meets Caltrans Acoustical Design Goal (7 dB I.L.)							
					Modeled Existing Year 2017 Noise Level Leq, dBA	Design Year 2044 Noise Level without Project Leq, dBA	Design Year 2044 Noise Level with Project Leq, dBA	Existing to Design year No Project Noise Increase	Existing to Design year with Project Noise Increase	Design Year No Project to Project Increase	Noise Prediction with Barrier, Barrier Insertion Loss (I.L.), and Number of Benefited Receptors (NBR)																			
											6 feet			8 feet			10 feet			12 feet				14 feet			16 feet			
											Leq	I.L.	NBR	Leq	I.L.	NBR	Leq	I.L.	NBR	Leq	I.L.			NBR	Leq	I.L.	NBR	Leq	I.L.	NBR
R35	SFR	B(67)	1	4812 Tusk Way	45 - 48	45 - 48	62	0	<u>14 - 17</u>	<u>14 - 17</u>	-	-	-	59	-3	0	57	-5	1	55	-7	1	54	-8	1	53	-9	1	Y	Y
R36	SFR	B(67)	1	4816 Tusk Way	45 - 48	45 - 48	61	0	<u>13 - 16</u>	<u>13 - 16</u>	-	-	-	59	-2	0	57	-4	0	55	-6	1	54	-7	1	53	-8	1	Y	Y
R37	SFR	B(67)	1	4820 Tusk Way	45 - 48	45 - 48	62	0	<u>14 - 17</u>	<u>14 - 17</u>	-	-	-	59	-3	0	57	-5	1	55	-7	1	54	-8	1	54	-8	1	Y	Y
R38	SFR	B(67)	1	4824 Tusk Way	45 - 48	45 - 48	62	0	<u>14 - 17</u>	<u>14 - 17</u>	-	-	-	59	-3	0	56	-6	1	55	-7	1	54	-8	1	54	-8	1	Y	Y
R39	SFR	B(67)	1	4828 Tusk Way	45 - 48	45 - 48	62	0	<u>14 - 17</u>	<u>14 - 17</u>	-	-	-	59	-3	0	56	-6	1	55	-7	1	54	-8	1	54	-8	1	Y	Y
R40	SFR	B(67)	1	4836 Tusk Way	45 - 48	45 - 48	62	0	<u>14 - 17</u>	<u>14 - 17</u>	-	-	-	59	-3	0	56	-6	1	55	-7	1	55	-7	1	54	-8	1	Y	Y
R41	SFR	B(67)	1	4836 Tusk Way	45 - 48	45 - 48	61	0	<u>13 - 16</u>	<u>13 - 16</u>	-	-	-	58	-3	0	56	-5	1	55	-6	1	54	-7	1	54	-7	1	Y	Y
R42	SFR	B(67)	1	4836 Tusk Way	45 - 48	45 - 48	58	0	<u>10 - 13</u>	<u>10 - 13</u>	-	-	-	56	-2	0	55	-3	0	54	-4	0	54	-4	0	53	-5	1	Y	Y
R43	SFR	B(67)	1	4848 Tusk Way	45 - 48	45 - 48	60	0	<u>12 - 15</u>	<u>12 - 15</u>	-	-	-	58	-2	0	56	-4	0	56	-4	0	55	-5	1	54	-6	1	Y	Y
R44	SFR	B(67)	1	4848 Tusk Way	45 - 48	45 - 48	60	0	<u>12 - 15</u>	<u>12 - 15</u>	-	-	-	58	-2	0	57	-3	0	56	-4	0	55	-5	1	55	-5	1	Y	Y
R45	SFR	B(67)	1	4856 Tusk Way	45 - 48	45 - 48	60	0	<u>12 - 15</u>	<u>12 - 15</u>	-	-	-	58	-2	0	57	-3	0	56	-4	0	55	-5	1	55	-5	1	Y	Y
R46	SFR	B(67)	1	4860 Tusk Way	45 - 48	45 - 48	60	0	<u>12 - 15</u>	<u>12 - 15</u>	-	-	-	58	-2	0	57	-3	0	56	-4	0	55	-5	1	55	-5	1	Y	Y
R47	SFR	B(67)	1	4860 Tusk Way	45 - 48	45 - 48	60	0	<u>12 - 15</u>	<u>12 - 15</u>	-	-	-	58	-2	0	58	-2	0	57	-3	0	56	-4	0	56	-4	0	Y	Y
R48	SFR	B(67)	1	4860 Tusk Way	45 - 48	45 - 48	61	0	<u>13 - 16</u>	<u>13 - 16</u>	-	-	-	59	-2	0	58	-3	0	57	-4	0	57	-4	0	56	-5	1	Y	Y
R49	SFR	B(67)	1	4868 Tusk Way	45 - 48	45 - 48	61	0	<u>13 - 16</u>	<u>13 - 16</u>	-	-	-	59	-2	0	58	-3	0	57	-4	0	56	-5	1	56	-5	1	Y	Y
R50	SFR	B(67)	1	4868 Tusk Way	45 - 48	45 - 48	62	0	<u>14 - 17</u>	<u>14 - 17</u>	-	-	-	61	-1	0	59	-3	0	58	-4	0	57	-5	1	57	-5	1	Y	Y
R51	MFR	B(67)	1	8250-8260 Kammerer Rd	58	56	61	-2	3	-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
R52	MFR	B(67)	1	8250-8260 Kammerer Rd	59	57	62	-2	3	-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
R53	MFR	B(67)	1	8250-8260 Kammerer Rd	59	57	61	-2	2	-4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
R54	MFR	B(67)	1	8250-8260 Kammerer Rd	59	57	62	-2	3	-5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bold and underlined indicates impacted receiver subject to soundwall abatement analysis
R-32 through R-50 show a range of measured noise levels rather than modelled noise levels due to lack of adjacent existing traffic noise
Orange – SW-W2 analysis
Yellow – SW-W3 v1 (Reconstruct Existing Soundwall) analysis
Green – SW-W3 v2 (New Overcrossing Soundwall) analysis
Purple – SW-W4 analysis
Blue – SW-W5 analysis

Noise Field Data Sheet

Project Name and Number	2379 Hammerer Road Extension
Receptor Site #1	North of 10592 Franklin Blvd.
Latitude/Longitude/Description	
Start Date & Time	11:30 AM 1/23/2018
End Date & Time	11:45 PM 1/23/2018
Relative Humidity (%) , Temperature (degrees F), Wind Speed/Direction	Humidity - 90% Temperature - 51° Wind Speed - 2 MPH
Vehicle Speeds	55 MPH
Notes	11:33 AM Bicyclist greeted staff 11:38 AM - 11:40 AM Train 64.9 dBA Leq , Data File #8

Site Sketch (including landmarks—building corners, trees, street signs, curbs, fences)

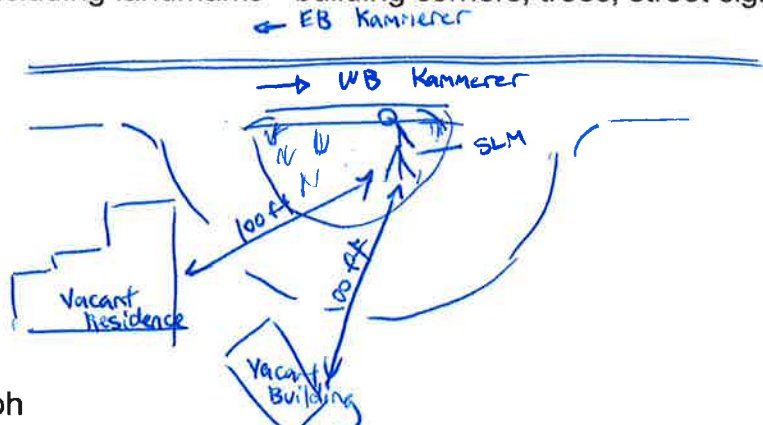


Equipment	Meter Type: Larson Davis 824
	Calibrator: Larson Davis Cal 200
Company meter #	
Staff	Ken C , Athena A.

Noise Field Data Sheet

Project Name and Number	2379 Kammerer Road Extension
Receptor Site #2	7809 Kammerer Road
Latitude/Longitude/Description	
Start Date & Time	12:00 PM 1/23/2018
End Date & Time	12:15 PM 1/23/2018
Relative Humidity (%), Temperature (degrees F), Wind Speed/Direction	Humidity - 92% Temperature - 56°F Wind Speed - 3 MPH
Vehicle Speeds	55 MPH
Notes	67.0 dBA Leq, Data File #9

Site Sketch (including landmarks—building corners, trees, street signs, curbs, fences)



Site Photograph



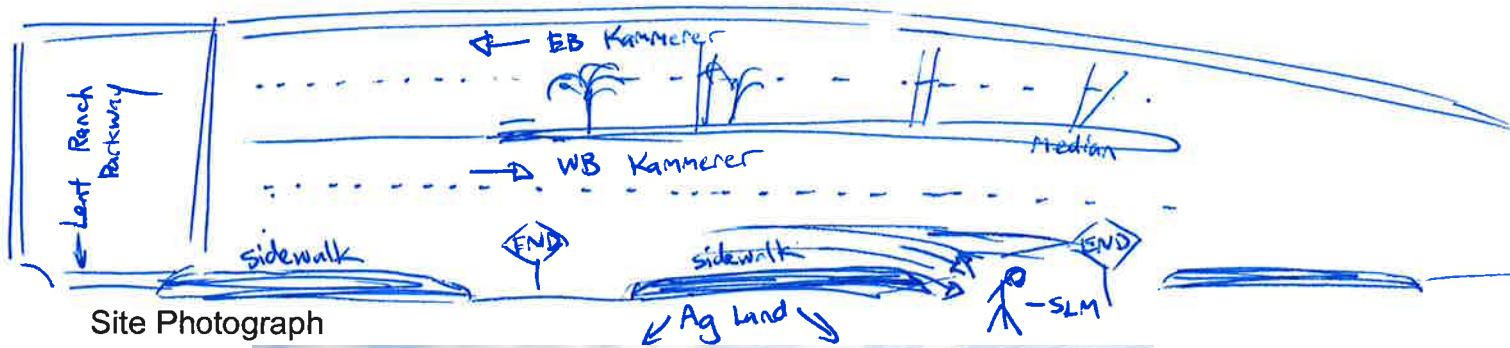
Equipment	Meter Type: Larson Davis 824
	Calibrator: Larson Davis Cal 200
Company meter #	
Staff	Ken C., Althen A.

Noise Field Data Sheet

Project Name and Number	2379 Kammerer Road Extension
Receptor Site #3	Second End Sign West of Lant Ranch Parkway
Latitude/Longitude/Description	
Start Date & Time	12:27 PM 1/23/2018
End Date & Time	12:42 PM 1/23/2018
Relative Humidity (%), Temperature (degrees F), Wind Speed/Direction	Humidity - 72% Temperature - 58° Wind Speed - 5 MPH
Vehicle Speeds	55 MPH
Notes	63.0 dBA, Data File #10

Site Sketch (including landmarks—building corners, trees, street signs, curbs, fences)

Ag Land



Site Photograph

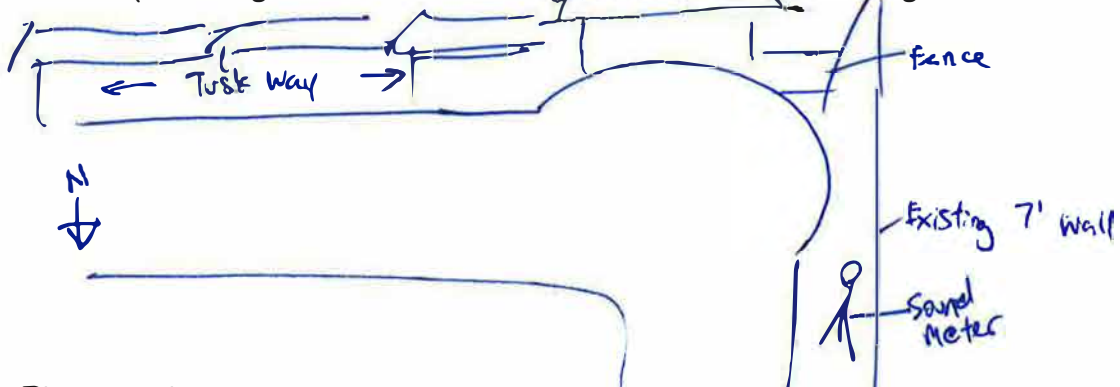


Equipment	Meter Type: Larson Davis 824
	Calibrator: Larson Davis Cal 200
Company meter #	
Staff	Ken C., Althea A

Noise Field Data Sheet

Project Name and Number	2379 Kammerer Road
Receptor Site	ST-4 PM, 4800 Tusck Way
Latitude/Longitude/Description	38.373118, -121.45008
Start Date & Time	4:06 PM
End Date & Time	4:21 PM
Relative Humidity (%) , Temperature (degrees F), Wind Speed/Direction	Humidity - 92% temp - 50°F Wind - NNW at 5mph
Vehicle Speeds	
Notes	data #17 48.2 dBA children playing in distance 4:11PM Ball bouncing?

Site Sketch (including landmarks—building corners, trees, street signs, curbs, fences)



Site Photograph

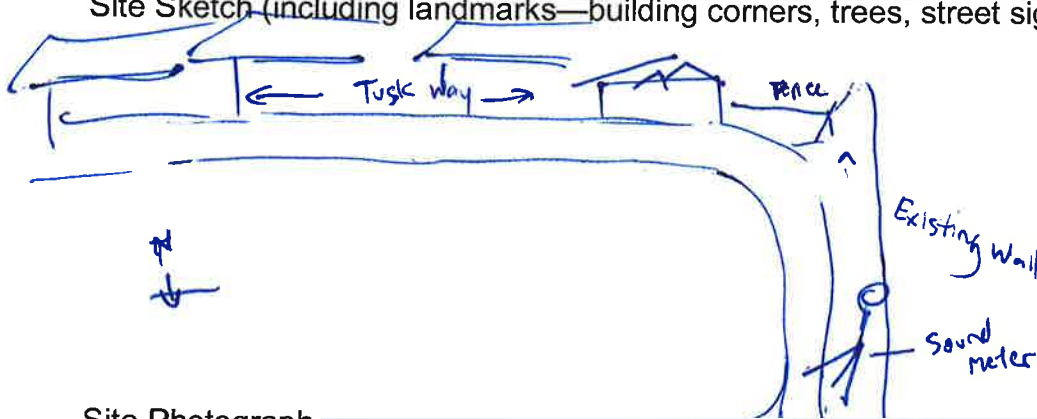


Equipment	Meter Type: Larson Davis 824
	Calibrator: Larson Davis Cal 200
Company meter #	
Staff	Ken C.

Noise Field Data Sheet

Project Name and Number	2379 Kammerer Road
Receptor Site	ST-4 ^{AM} , 4800 Tusk Way
Latitude/Longitude/Description	38.37318, -121.45008
Start Date & Time	8:27 AM - 8:42 AM 1/10/2018
End Date & Time	8:42 AM 1/10/2018
Relative Humidity (%) , Temperature (degrees F) , Wind Speed/Direction	Humidity - 82% Temp - 45°F wind - W at 2 mph
Vehicle Speeds	—
Notes	<p>Data #15 45.1 dBA Ken</p> <p>Fog Construction Activity in background</p>

Site Sketch (including landmarks—building corners, trees, street signs, curbs, fences)



Site Photograph

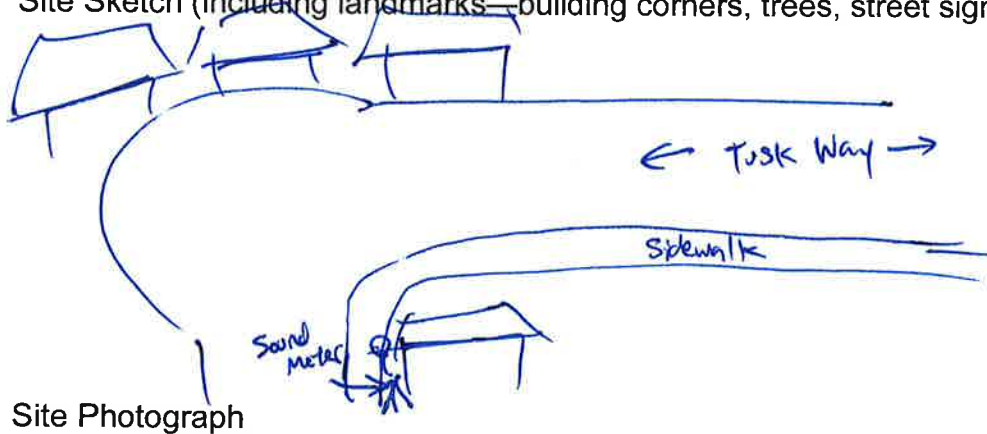


Equipment	Meter Type: Larson Davis 824
	Calibrator: Larson Davis Cal 200
Company meter #	
Staff	Ken C.

Noise Field Data Sheet

Project Name and Number	2579 Kannerer Road
Receptor Site	ST-S AM, 4877 Tusk Way
Latitude/Longitude/Description	38.373193, -121.446594
Start Date & Time	8:47 AM 1/10/2018
End Date & Time	9:02 AM 1/10/2018
Relative Humidity (%) , Temperature (degrees F) , Wind Speed/Direction	Humidity - 94% Wind - NW at 2mph Temp - 45°F
Vehicle Speeds	
Notes	8:47 Helicopter Fog Data #16 44.5 dBA

Site Sketch (including landmarks—building corners, trees, street signs, curbs, fences)

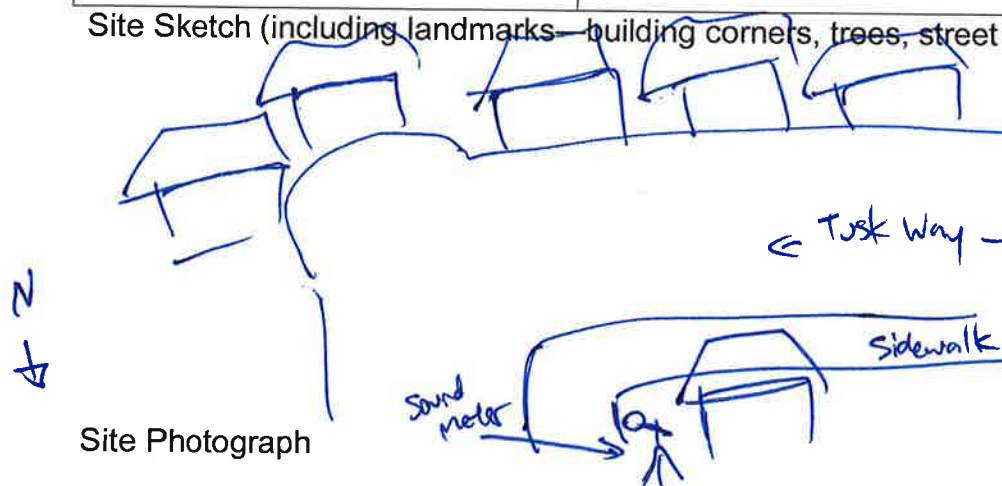


Equipment	Meter Type: Larson Davis 824
	Calibrator: Larson Davis Cal200
Company meter #	
Staff	Ken C.

Noise Field Data Sheet

Project Name and Number	2379 Kammerer Road	
Receptor Site	ST-5 PM	
Latitude/Longitude/Description	38.373193, -121.446594	
Start Date & Time	4:25 PM	1/10/2018
End Date & Time	4:40 PM	1/10/2018
Relative Humidity (%) , Temperature (degrees F) , Wind Speed/Direction	Humidity - 92% Temp - 50°F	Wind - NNW at 5mph
Vehicle Speeds	-	
Notes	Data #18 44.9 dBA Water heater running Human conversation, Dog barking, water boilers 4:30 PM	

Site Sketch (including landmarks—building corners, trees, street signs, curbs, fences)



Site Photograph



Equipment	Meter Type: Larson Davis 824
	Calibrator: Larson Davis Q1200
Company meter #	
Staff	Ken C.

Appendix D-1 : Long - Term Traffic Noise Measurement Field Data Sheet

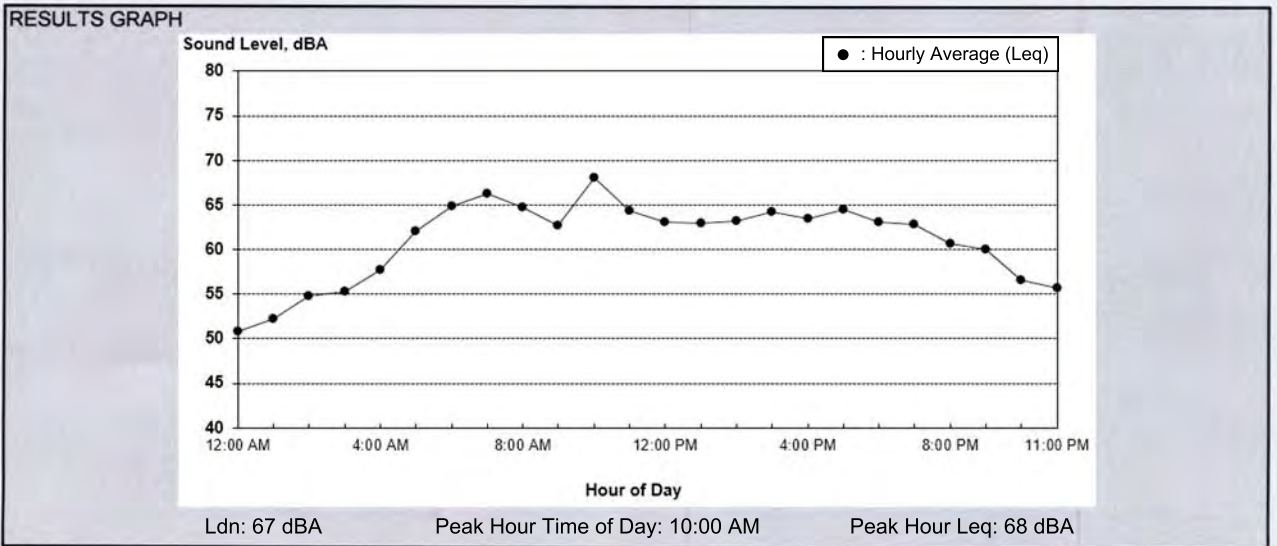
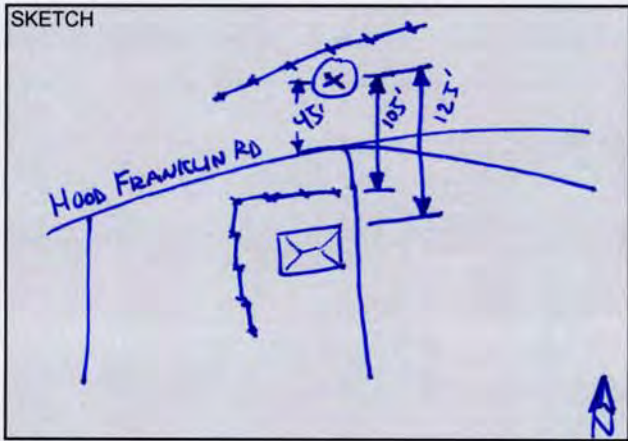
L.T. SITE # LT-1	SITE DESCRIPTION WEST OF I-5 / HOOD FRANKLIN RD	LAT/LON 38°22'30.66"N 121°28'51.96"W
PROJECT Kammerer Road Extension Project		START DATE/TIME 10/15/13 15:00
BAC JOB # 2013-059	BAC STAFF PAUL B / JON L	END DATE/TIME 10/17/13 8:00

BAC METER # 4	SLM MODEL Larson Davis Model 820	SLM S/N 1126
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114 dB / 8.96
WEIGHTING (circle one) Flat A B C	RESPONSE (circle one) Fast Slow Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 80°	WIND SPEED / DIR 7 mph NW	SKY / R.H. Clear
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
I-5 & Hood Franklin Rd

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
	MED. TRK	55	MED. TRK	1	MED. TRK	1
	HVY TRK	55	HVY TRK	1	HVY TRK	1



Appendix D-2 : Long - Term Traffic Noise Measurement Field Data Sheet

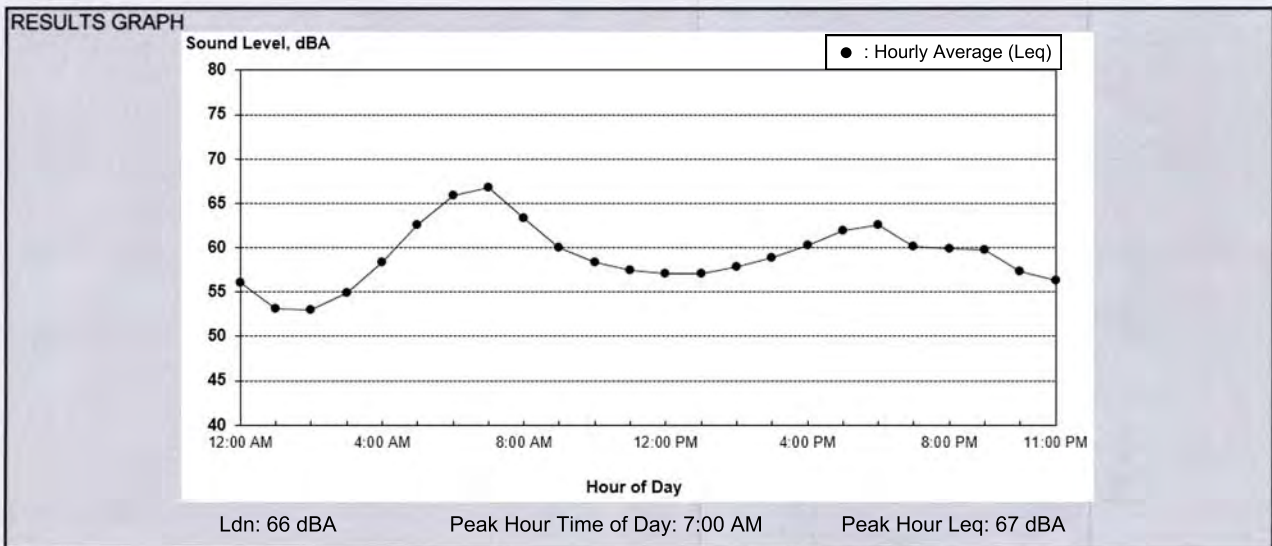
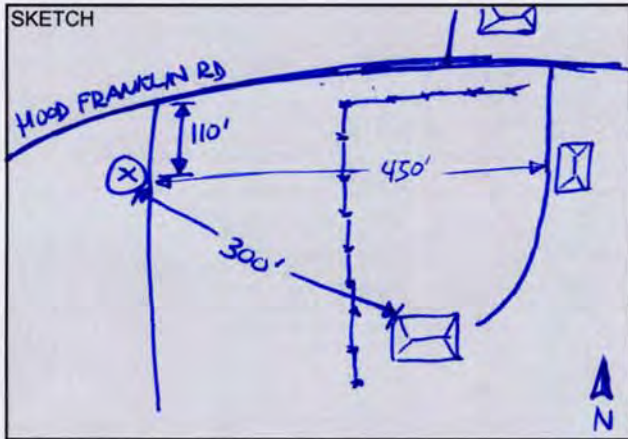
L.T. SITE # LT-2	SITE DESCRIPTION 3206 HOOD FRANKLIN ROAD	LAT/LON N 38°22'32.47" W 121°28'5.98"
PROJECT Kammerer Road Extension Project		START DATE/TIME 10/01/13 13:00
BAC JOB # 2013-059	BAC STAFF PAUL B / JON L	END DATE/TIME 10/03/13 14:00

BAC METER # 1	SLM MODEL Larson Davis Model 820	SLM S/N 1514
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114 dB 9.68
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 72°	WIND SPEED / DIR 5 MPH S	SKY / R.H. CLOUDY
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
Hood Franklin Rd, main noise source, No obstructions

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK	1	
HVY TRK		HVY TRK		HVY TRK		



Appendix D-3 : Long - Term Traffic Noise Measurement Field Data Sheet

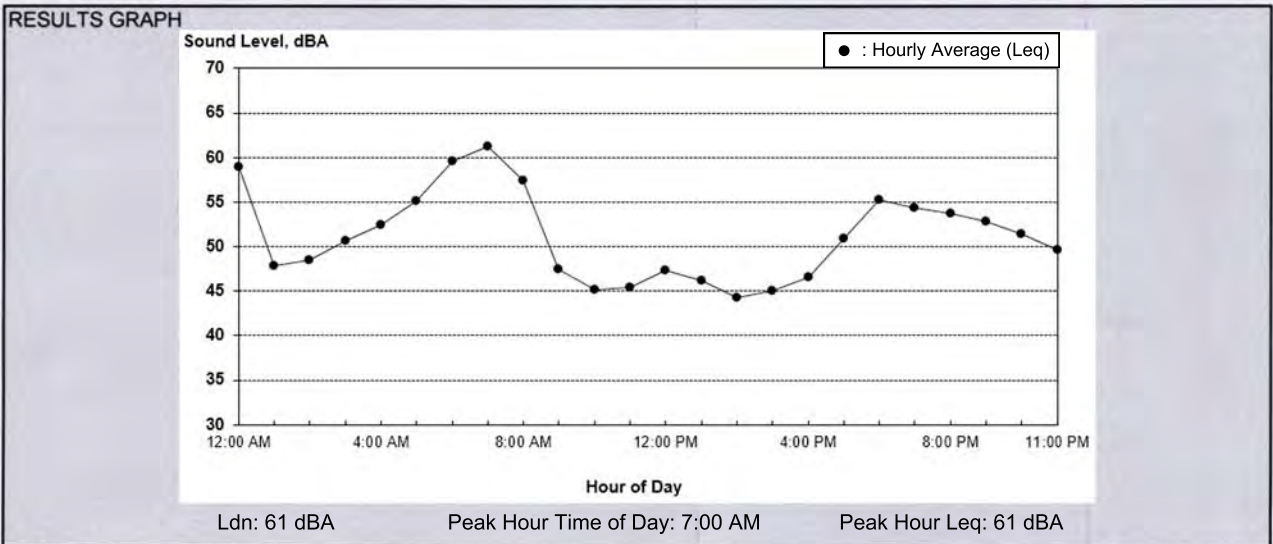
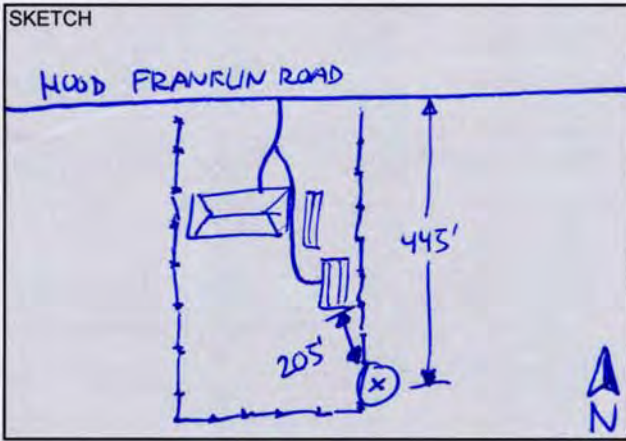
L.T. SITE # LT-3	SITE DESCRIPTION 3460 HOOD FRANKLIN ROAD	LAT/LON N 38°22'29.53" W 121°27'53.93"
PROJECT Kammerer Road Extension Project		START DATE/TIME 10/15/13 14:00
BAC JOB # 2013-059	BAC STAFF PAULA / JON L	END DATE/TIME 10/17/13 9:00

BAC METER # 1	SLM MODEL Larson Davis Model 820	SLM S/N 1514
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114 dB / 9.72
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 78°	WIND SPEED / DIR 7 MPH NW	SKY / R.H. CLEAR
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
Hood Franklin Road. Residence b/t roadway.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK	1	
HVY TRK		HVY TRK		HVY TRK		



Appendix D-4 : Long - Term Traffic Noise Measurement Field Data Sheet

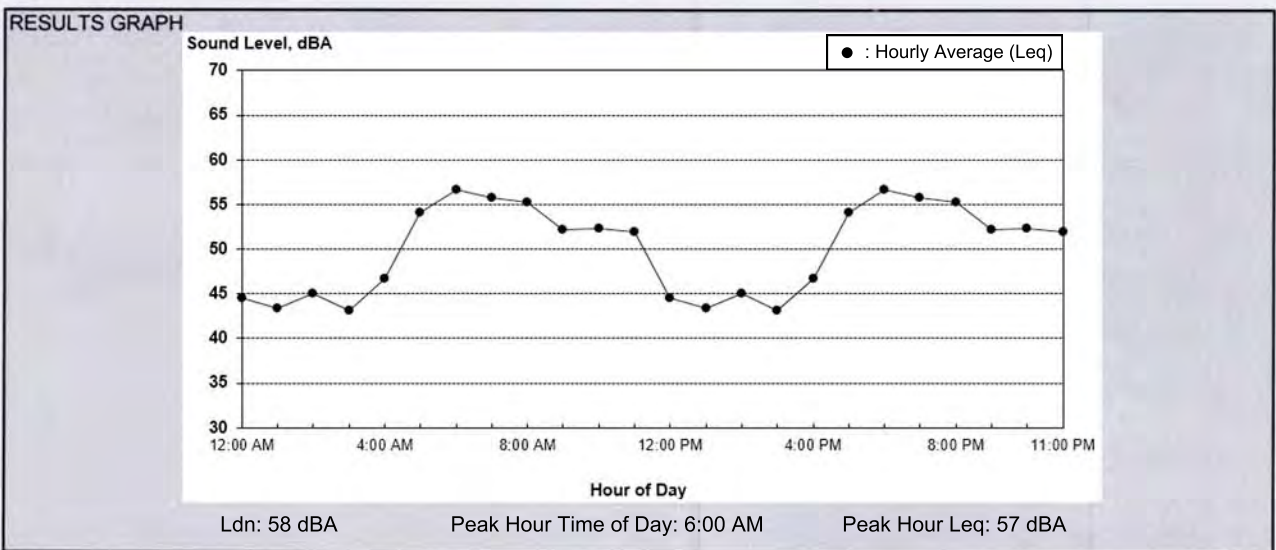
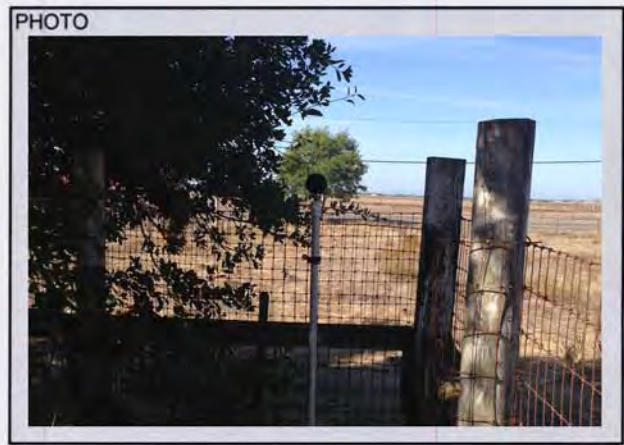
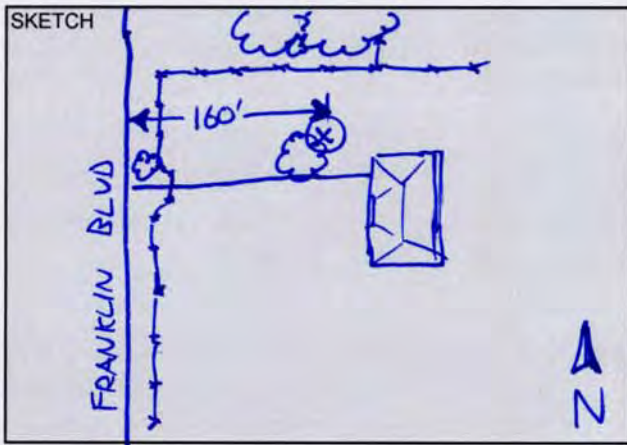
L.T. SITE # LT-4	SITE DESCRIPTION 10609 FRANKLIN BLVD	LAT/LON 38°22'17.76" / 121°27'13.89"
PROJECT Kammerer Road Extension Project	START DATE/TIME 10/01/13 11:00	
BAC JOB # 2013-059	BAC STAFF PAUL B / Jon L	END DATE/TIME 10/03/13 15:00

BAC METER # 4	SLM MODEL Larson Davis Model 820	SLM S/N 1126
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114.8B / 8.86
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 65°	WIND SPEED / DIR CALM	SKY / R.H. PARTLY CLOUDY
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
Main Source: Franklin Blvd.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK	1	
HVY TRK		HVY TRK		HVY TRK		



Appendix D-5 : Long - Term Traffic Noise Measurement Field Data Sheet

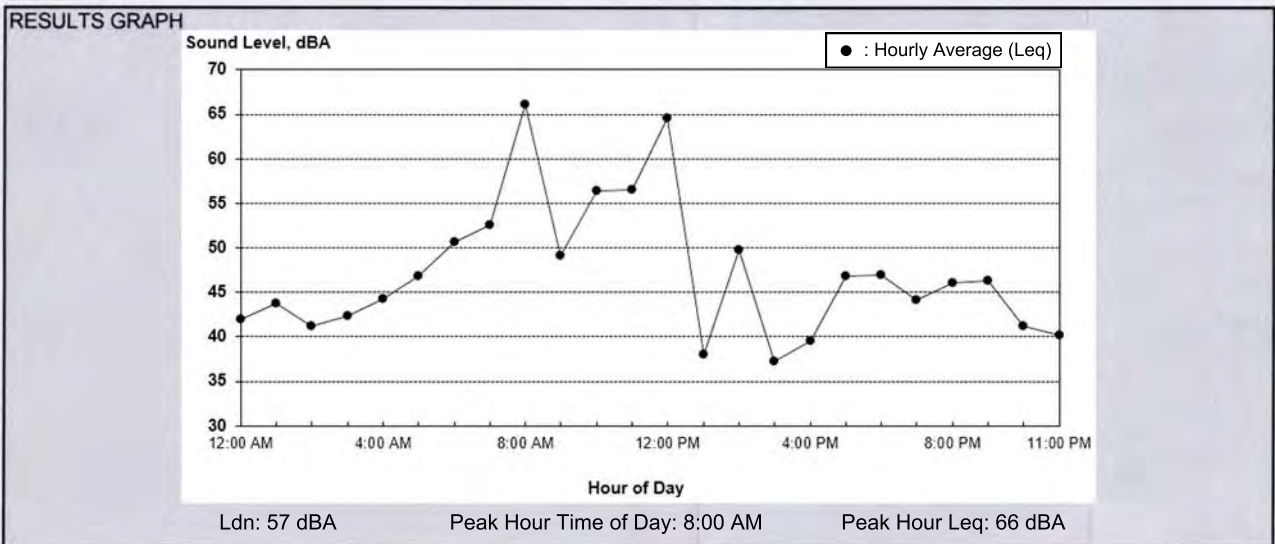
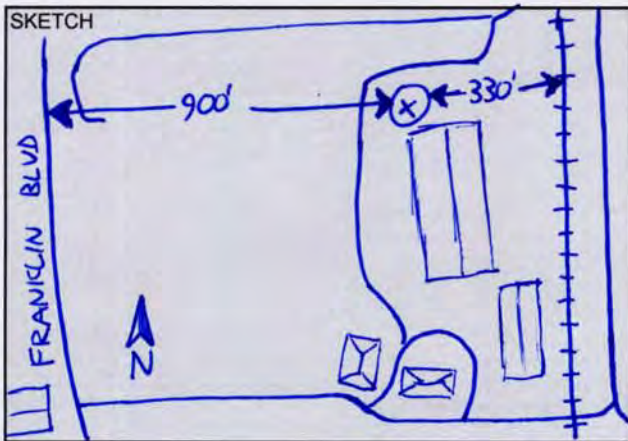
L.T. SITE # LT-5	SITE DESCRIPTION 10775 FRANKLIN BLVD	LAT/LON 38°22'0.89" / 121°27'3.21"
PROJECT Kammerer Road Extension Project		START DATE/TIME 10/15/13 14:00
BAC JOB # 2013-059	BAC STAFF PAUL B / JON L	END DATE/TIME 10/17/13 9:00

BAC METER # 2	SLM MODEL Larson Davis Model 820	SLM S/N 1516
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114 dB / 9.44
WEIGHTING (circle one) Flat A B C	RESPONSE (circle one) Fast Slow Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 76°	WIND SPEED / DIR 7 MPH NW	SKY / R.H. CLEAR
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
Long shed obstructing view from R/R.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK	1	
HVY TRK	1	HVY TRK	1	HVY TRK	1	



Appendix D-6 : Long - Term Traffic Noise Measurement Field Data Sheet

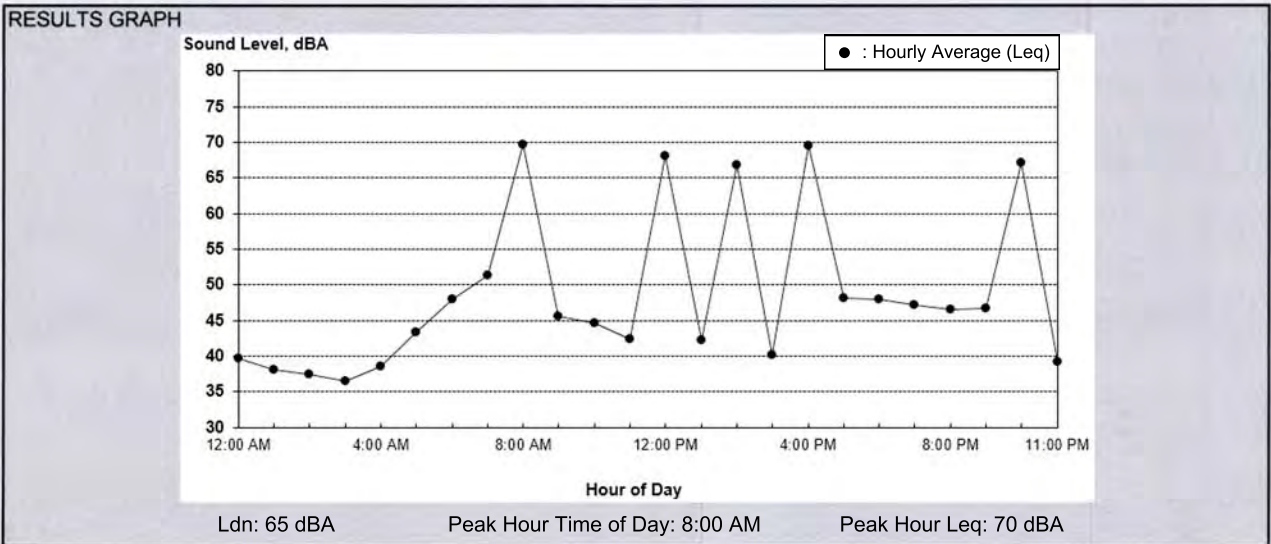
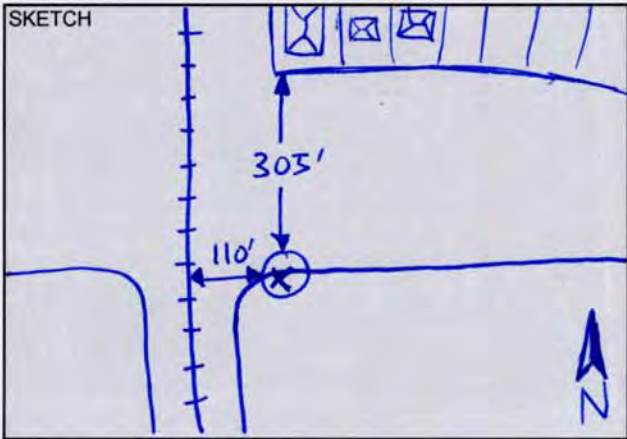
L.T. SITE # LT-6	SITE DESCRIPTION O BILBY ROAD	LAT/LON 38°22'18.90" / 121°26'59.72"
PROJECT Kammerer Road Extension Project		START DATE/TIME 10/01/13 14:00
BAC JOB # 2013-059	BAC STAFF PAUL B / SON L	END DATE/TIME 10/03/13 14:00

BAC METER # 3	SLM MODEL Larson Davis Model 820	SLM S/N 1459
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114 dB 10.86
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 74°	WIND SPEED / DIR 7 MPH SW	SKY / R.H. CLOUDY
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
R/R

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK	1	
HVY TRK	1	HVY TRK	1	HVY TRK	1	



Appendix D-7 : Long - Term Traffic Noise Measurement Field Data Sheet

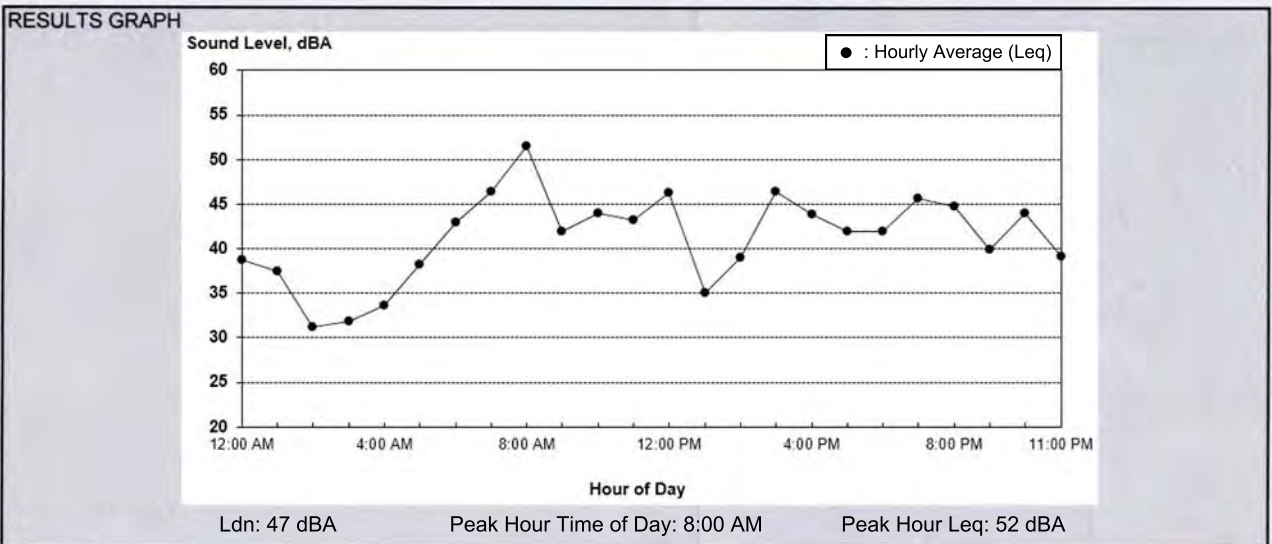
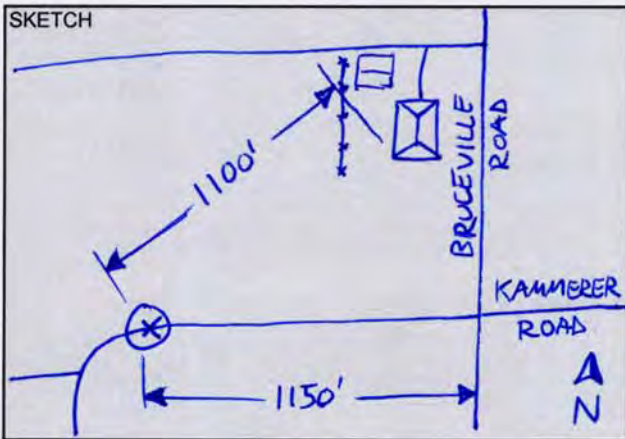
L.T. SITE # LT-7	SITE DESCRIPTION 0 BRUCEVILLE ROAD	LAT/LON 38°22'19.74" / 121°25'17.74"
PROJECT Kammerer Road Extension Project	START DATE/TIME 10/01/13 14:00	
BAC JOB # 2013-059	BAC STAFF PAUL B / JON L	END DATE/TIME 10/03/13 14:00

BAC METER # 5	SLM MODEL Larson Davis Model 820	SLM S/N 1129
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114dB 7.46
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 74°	WIND SPEED / DIR 7 MPH SW	SKY / R.H. CLOUDY
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
Bruceville Rd + Kammerer Rd

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK	1	
HVY TRK		HVY TRK		HVY TRK		



Appendix D-8 : Long - Term Traffic Noise Measurement Field Data Sheet

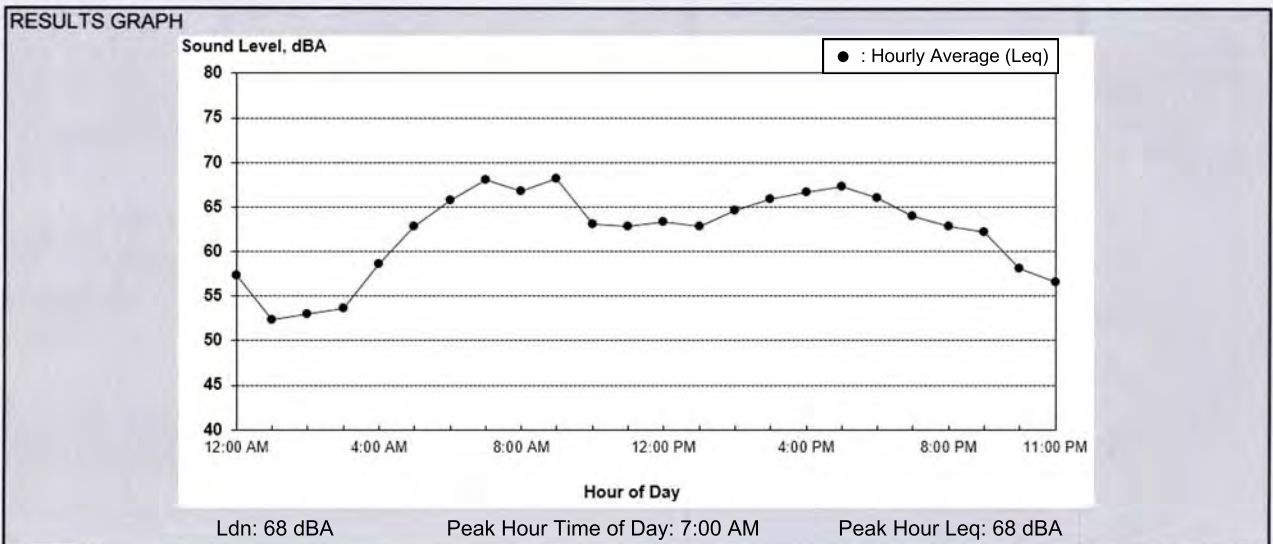
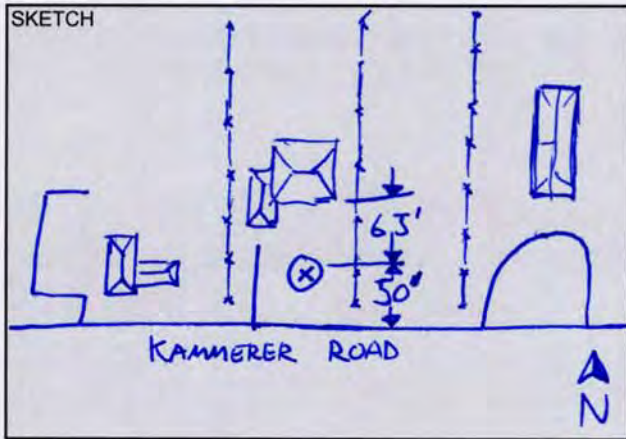
L.T. SITE # LT-8	SITE DESCRIPTION 8051 KAMMERER ROAD	LAT/LON 38°22'21.03" / 121°24'35.64"
PROJECT Kammerer Road Extension Project	START DATE/TIME 10/01/13 14:00	
BAC JOB # 2013-059	BAC STAFF PAUL B / JON L	END DATE/TIME 10/03/13 14:00

BAC METER # 2	SLM MODEL Larson Davis Model 820	SLM S/N 1516
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114 dB / 9.60
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 74°	WIND SPEED / DIR 7 MPH SW	SKY / R.H. CLOUDY
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
Kammerer Rd.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK	1	
HVY TRK	1	HVY TRK	1	HVY TRK	1	



Appendix D-9 : Long - Term Traffic Noise Measurement Field Data Sheet

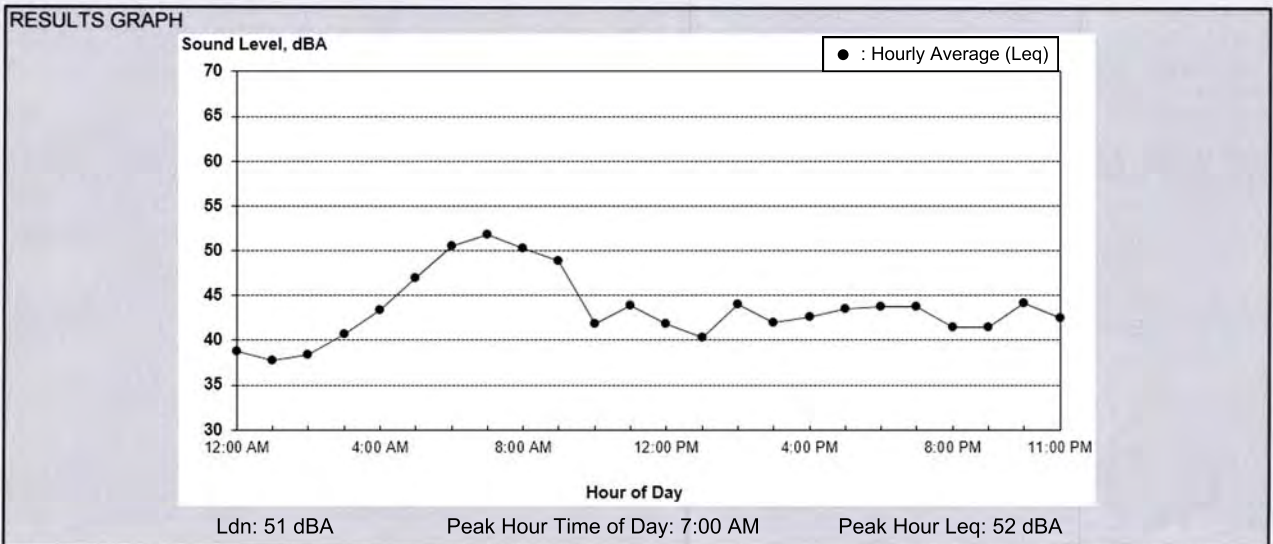
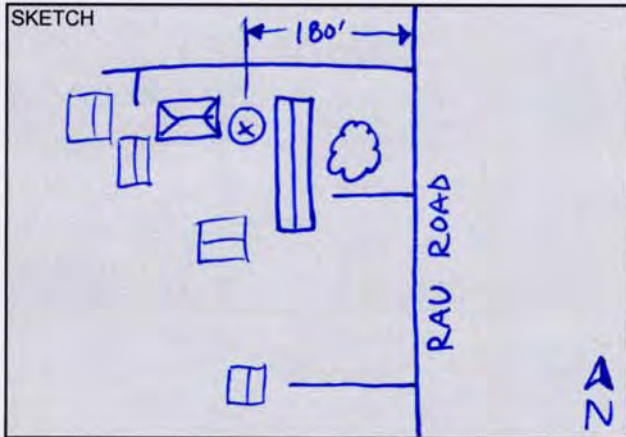
L.T. SITE # LT-9	SITE DESCRIPTION 10650 RAN ROAD	LAT/LON 38°22'17.62" / 121°24'13.90"
PROJECT Kammerer Road Extension Project		START DATE/TIME 10/01/13 15:00
BAC JOB # 2013-059	BAC STAFF PAUL B / JON L	END DATE/TIME 10/03/13 14:00

BAC METER # 6	SLM MODEL Larson Davis Model 820	SLM S/N 0976
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114 dB / 6.80
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 75°	WIND SPEED / DIR 6 MPH W	SKY / R.H. CLOUDY
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
Ran Rd. Shed obstructing roadway view.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK	1	
HVY TRK	1	HVY TRK	1	HVY TRK	1	



Appendix D-10 : Long - Term Traffic Noise Measurement Field Data Sheet

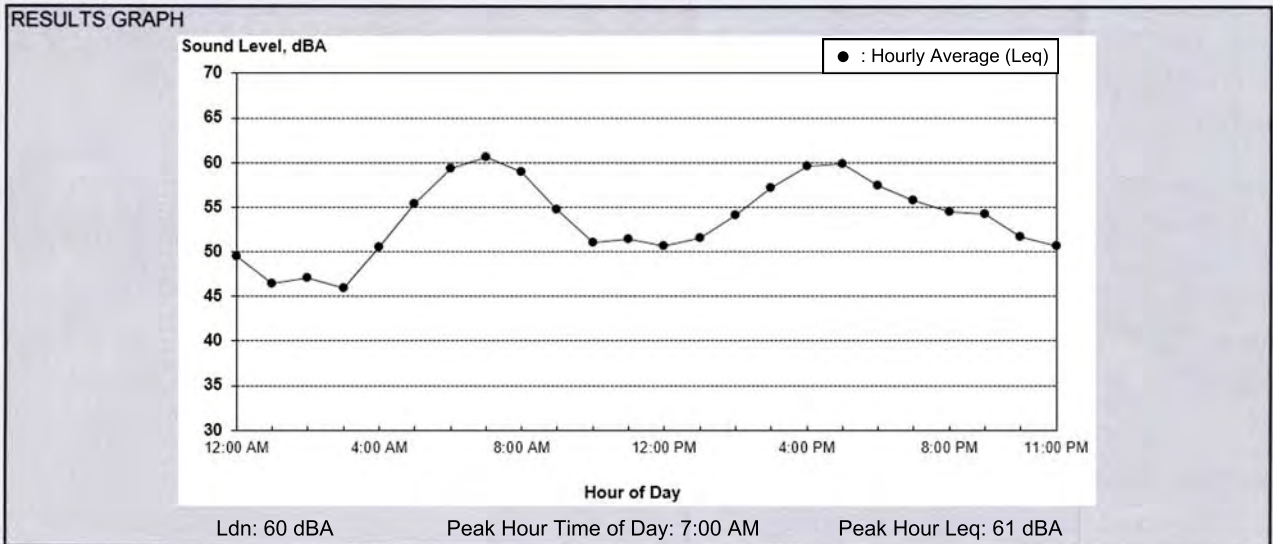
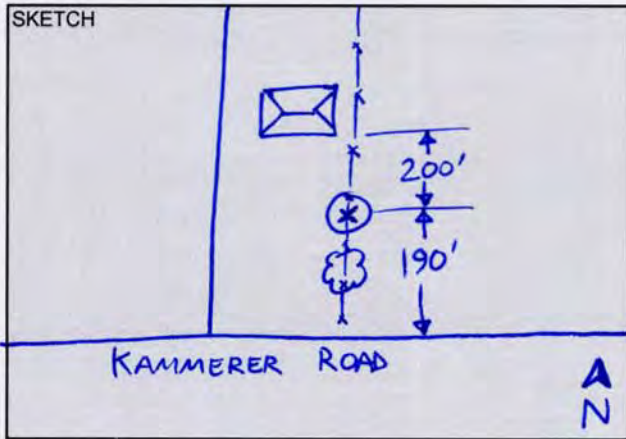
L.T. SITE # LT-10	SITE DESCRIPTION 8499 KAMMERER ROAD	LAT/LON 38°22'23.23" / 121°23'37.21"
PROJECT Kammerer Road Extension Project		START DATE/TIME 10/01/13 11:00
BAC JOB # 2013-059	BAC STAFF PAUL B / JON L	END DATE/TIME 10/03/13 13:00

BAC METER # 7	SLM MODEL Larson Davis Model 820	SLM S/N 1530
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114.8B / 7.20
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 65°	WIND SPEED / DIR CALM	SKY / R.H. PARTLY CLOUDY
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
Kammerer Rd.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK		
HVY TRK		HVY TRK		HVY TRK		



Appendix D-11 : Long - Term Traffic Noise Measurement Field Data Sheet

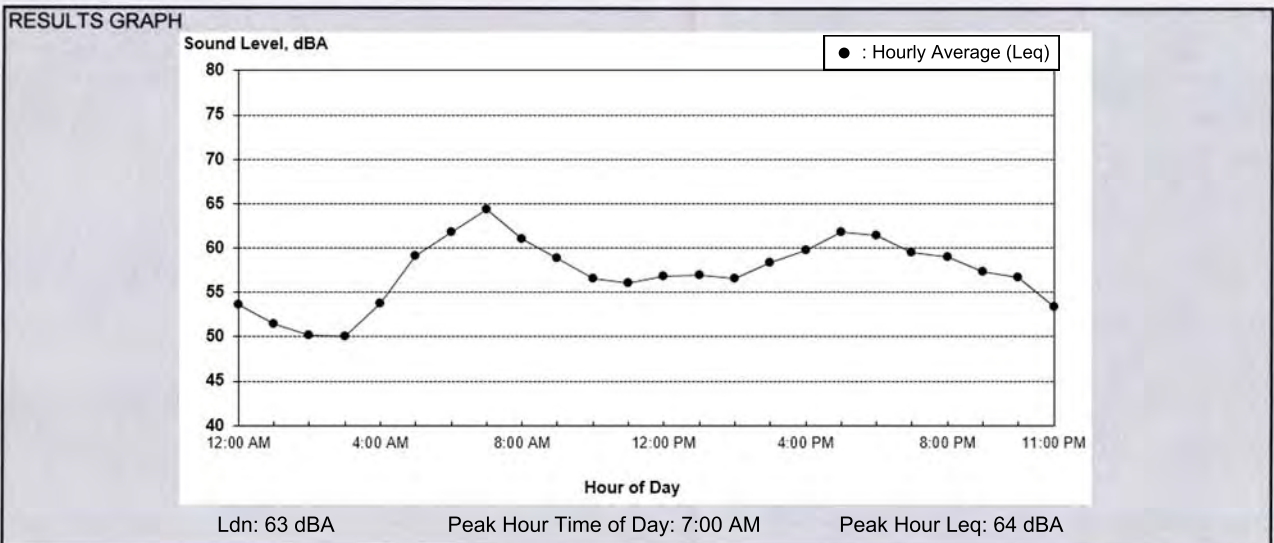
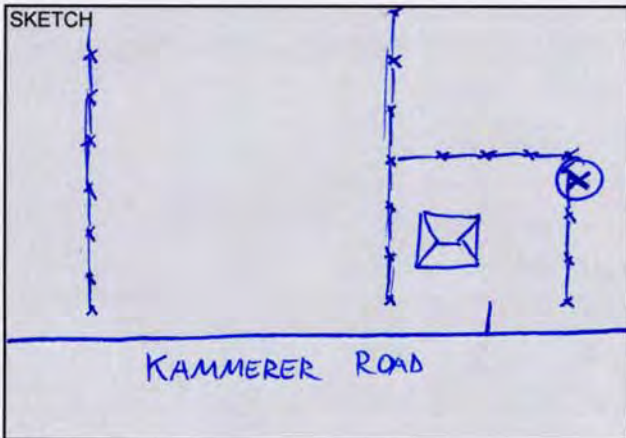
L.T. SITE # LT-11	SITE DESCRIPTION KAMMERER ROAD	LAT/LON 38°22'22.63" / 121°22'56.76"
PROJECT Kammerer Road Extension Project	BAC JOB # 2013-059	BAC STAFF PAUL B / JON L
		START DATE/TIME 10/15/13 14:00
		END DATE/TIME 10/17/13 9:00

BAC METER # 3	SLM MODEL Larson Davis Model 820	SLM S/N 1459
CALIBRATOR LDL CA-200	CAL S/N 4348	CAL LEVEL/OFFSET 114 dB / 12.68
WEIGHTING (circle one) Flat (A) B C	RESPONSE (circle one) Fast (Slow) Impulsive	MIC HEIGHT ABOVE GROUND 5'

TEMP (F) 78°	WIND SPEED / DIR 7 MPH NW	SKY / R.H. CLEAR
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NOISE SOURCE NOTES / OBSERVATIONS / OBSTRUCTIONS
Kammerer Rd.

VEHICLE SPEEDS (mph) (Estimated by driving corridor)	AM Peak		PM Peak		Off Peak	
	AUTOS	55	AUTOS	55	AUTOS	55
MED. TRK	1	MED. TRK	1	MED. TRK	1	
HVY TRK		HVY TRK		HVY TRK		



Appendix H: USFWS, CNDDDB, NMFS and CNPS Species Lists



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Project Code: 2022-0037002
Project Name: Kammerer Road Extension

November 07, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

San Francisco Bay-Delta Fish And Wildlife

650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

Project Summary

Project Code: 2022-0037002
Project Name: Kammerer Road Extension
Project Type: Road/Hwy - New Construction
Project Description: Kammerer Road Extension
Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.3754821,-121.47376267607709,14z>



Counties: Sacramento County, California

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake <i>Thamnophis gigas</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Valley Elderberry Longhorn Beetle <i>Desmocerus californicus dimorphus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp <i>Lepidurus packardii</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Fleshy Owl's-clover <i>Castilleja campestris ssp. succulenta</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8095	Threatened
Large-flowered Fiddleneck <i>Amsinckia grandiflora</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5558	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> https://ecos.fws.gov/ecp/species/321#crithab	Final

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

FACILITY NAME	ACRES
STONE LAKES NATIONAL WILDLIFE REFUGE https://www.fws.gov/refuges/profiles/index.cfm?id=81710	3,009.474

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\) list](#) or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Jan 1 to Aug 31
Belding's Savannah Sparrow <i>Passerculus sandwichensis beldingi</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15

NAME	BREEDING SEASON
Bullock's Oriole <i>Icterus bullockii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
Common Yellowthroat <i>Geothlypis trichas sinuosa</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Nuttall's Woodpecker <i>Picoides nuttallii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Tricolored Blackbird <i>Agelaius tricolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Western Grebe <i>aechmophorus occidentalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31
Wrentit <i>Chamaea fasciata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10
Yellow-billed Magpie <i>Pica nuttalli</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and

how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [Riverine](#)

FRESHWATER EMERGENT WETLAND

- [Palustrine](#)
-

IPaC User Contact Information

Agency: Dokken Engineering
Name: Clare Favro
Address: 110 Blue Ravine Road #200
City: Folsom
State: CA
Zip: 95630
Email: cfavro@dokkenengineering.com
Phone: 9168580642

Lead Agency Contact Information

Lead Agency: Federal Highway Administration



Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Lodi North (3812123) OR Galt (3812133) OR Elk Grove (3812143) OR Florin (3812144) OR Clarksburg (3812145) OR Courtland (3812135) OR Thornton (3812124) OR Isleton (3812125) OR Bruceville (3812134))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali-sink goldfields <i>Lasthenia chrysantha</i>	PDAST5L030	None	None	G2	S2	1B.1
American badger <i>Taxidea taxus</i>	AMAJF04010	None	None	G5	S3	SSC
black-crowned night heron <i>Nycticorax nycticorax</i>	ABNGA11010	None	None	G5	S4	
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	PDSCR0R060	None	Endangered	G2	S2	1B.2
Bolander's water-hemlock <i>Cicuta maculata var. bolanderi</i>	PDAP10M051	None	None	G5T4T5	S2?	2B.1
bristly sedge <i>Carex comosa</i>	PMCYP032Y0	None	None	G5	S2	2B.1
burrowing owl <i>Athene cunicularia</i>	ABNSB10010	None	None	G4	S3	SSC
California black rail <i>Laterallus jamaicensis coturniculus</i>	ABNME03041	None	Threatened	G3T1	S1	FP
California linderiella <i>Linderiella occidentalis</i>	ICBRA06010	None	None	G2G3	S2S3	
California tiger salamander - central California DPS <i>Ambystoma californiense pop. 1</i>	AAAAA01181	Threatened	Threatened	G2G3T3	S3	WL
Coastal and Valley Freshwater Marsh <i>Coastal and Valley Freshwater Marsh</i>	CTT52410CA	None	None	G3	S2.1	
Cooper's hawk <i>Accipiter cooperii</i>	ABNKC12040	None	None	G5	S4	WL
Crotch bumble bee <i>Bombus crotchii</i>	IIHYM24480	None	Candidate Endangered	G2	S1S2	
Delta mudwort <i>Limosella australis</i>	PDSCR10030	None	None	G4G5	S2	2B.1
Delta smelt <i>Hypomesus transpacificus</i>	AFCHB01040	Threatened	Endangered	G1	S1	
Delta tule pea <i>Lathyrus jepsonii var. jepsonii</i>	PDFAB250D2	None	None	G5T2	S2	1B.2
double-crested cormorant <i>Nannopterum auritum</i>	ABNFD01020	None	None	G5	S4	WL
dwarf downingia <i>Downingia pusilla</i>	PDCAM060C0	None	None	GU	S2	2B.2
ferruginous hawk <i>Buteo regalis</i>	ABNKC19120	None	None	G4	S3S4	WL



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
foothill yellow-legged frog - south Sierra DPS <i>Rana boylei</i> pop. 5	AAABH01055	Proposed Endangered	Endangered	G3T2	S2	
giant gartersnake <i>Thamnophis gigas</i>	ARADB36150	Threatened	Threatened	G2	S2	
great blue heron <i>Ardea herodias</i>	ABNGA04010	None	None	G5	S4	
great egret <i>Ardea alba</i>	ABNGA04040	None	None	G5	S4	
Great Valley Mixed Riparian Forest <i>Great Valley Mixed Riparian Forest</i>	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest <i>Great Valley Valley Oak Riparian Forest</i>	CTT61430CA	None	None	G1	S1.1	
green sturgeon - southern DPS <i>Acipenser medirostris</i> pop. 1	AFCAA01031	Threatened	None	G2T1	S1	
Heckard's pepper-grass <i>Lepidium latipes</i> var. <i>heckardii</i>	PDBRA1M0K1	None	None	G4T1	S1	1B.2
legenere <i>Legenere limosa</i>	PDCAM0C010	None	None	G2	S2	1B.1
longfin smelt <i>Spirinchus thaleichthys</i>	AFCHB03010	Candidate	Threatened	G5	S1	
marsh skullcap <i>Scutellaria galericulata</i>	PDLAM1U0J0	None	None	G5	S2	2B.2
Mason's lilaepsis <i>Lilaepsis masonii</i>	PDAP119030	None	Rare	G2	S2	1B.1
merlin <i>Falco columbarius</i>	ABNKD06030	None	None	G5	S3S4	WL
midvalley fairy shrimp <i>Branchinecta mesovallensis</i>	ICBRA03150	None	None	G2	S2S3	
Northern Hardpan Vernal Pool <i>Northern Hardpan Vernal Pool</i>	CTT44110CA	None	None	G3	S3.1	
pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	PDAST4R0P2	None	None	G3T2	S2	1B.2
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	PDCUS01111	None	None	G5T4?	SH	2B.2
Ricksecker's water scavenger beetle <i>Hydrochara rickseckeri</i>	IICOL5V010	None	None	G2?	S2?	
riparian brush rabbit <i>Sylvilagus bachmani riparius</i>	AMAEB01021	Endangered	Endangered	G5T1	S1	
Sacramento anthicid beetle <i>Anthicus sacramento</i>	IICOL49010	None	None	G1	S4	
Sacramento Orcutt grass <i>Orcuttia viscida</i>	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1



Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	AFCJB34020	None	None	G3	S3	SSC
saline clover <i>Trifolium hydrophilum</i>	PDFAB400R5	None	None	G2	S2	1B.2
Sanford's arrowhead <i>Sagittaria sanfordii</i>	PMALI040Q0	None	None	G3	S3	1B.2
side-flowering skullcap <i>Scutellaria lateriflora</i>	PDLAM1U0Q0	None	None	G5	S2	2B.2
slender Orcutt grass <i>Orcuttia tenuis</i>	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
song sparrow ("Modesto" population) <i>Melospiza melodia pop. 1</i>	ABPBXA3013	None	None	G5T3?Q	S3?	SSC
steelhead - Central Valley DPS <i>Oncorhynchus mykiss irideus pop. 11</i>	AFCHA0209K	Threatened	None	G5T2Q	S2	
Suisun Marsh aster <i>Symphotrichum lentum</i>	PDASTE8470	None	None	G2	S2	1B.2
Swainson's hawk <i>Buteo swainsoni</i>	ABNKC19070	None	Threatened	G5	S3	
tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	IICOL48011	Threatened	None	G3T2T3	S3	
Valley Oak Woodland <i>Valley Oak Woodland</i>	CTT71130CA	None	None	G3	S2.1	
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp <i>Lepidurus packardii</i>	ICBRA10010	Endangered	None	G4	S3	
watershield <i>Brasenia schreberi</i>	PDCAB01010	None	None	G5	S3	2B.3
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
western red bat <i>Lasiurus frantzii</i>	AMACC05080	None	None	G4	S3	SSC
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
white-tailed kite <i>Elanus leucurus</i>	ABNKC06010	None	None	G5	S3S4	FP
woolly rose-mallow <i>Hibiscus lasiocarpus var. occidentalis</i>	PDMAL0H0R3	None	None	G5T3	S3	1B.2
yellow-headed blackbird <i>Xanthocephalus xanthocephalus</i>	ABPBXB3010	None	None	G5	S3	SSC

Record Count: 61

Clare Favro

From: Clare Favro
Sent: Thursday, April 28, 2022 10:56 AM
To: nmfswcrca.specieslist@noaa.gov
Subject: RE: Kammerer Road Extension

From: Clare Favro
Sent: Thursday, October 14, 2021 4:15 PM
To: nmfswcrca.specieslist@noaa.gov
Subject: Kammerer Road Extension

Quad Name **Clarksburg**
Quad Number **38121-D5**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat - **X**
SRWR Chinook Salmon Critical Habitat - **X**
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH - **X**

Groundfish EFH - **X**

Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Florin**

Quad Number **38121-D4**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) - **X**

SRWR Chinook Salmon ESU (E) - **X**

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat -

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Elk Grove**
Quad Number **38121-D3**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

MMPA Cetaceans -
MMPA Pinnipeds -
Quad Name **Courtland**
Quad Number **38121-C5**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat - **X**
SRWR Chinook Salmon Critical Habitat - **X**
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -

- SCCC Steelhead Critical Habitat -
- SC Steelhead Critical Habitat -
- CCV Steelhead Critical Habitat - **X**
- Eulachon Critical Habitat -
- sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

- Range Black Abalone (E) -
- Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

- Black Abalone Critical Habitat -

ESA Sea Turtles

- East Pacific Green Sea Turtle (T) -
- Olive Ridley Sea Turtle (T/E) -
- Leatherback Sea Turtle (E) -
- North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

- Blue Whale (E) -
- Fin Whale (E) -
- Humpback Whale (E) -
- Southern Resident Killer Whale (E) -
- North Pacific Right Whale (E) -
- Sei Whale (E) -
- Sperm Whale (E) -

ESA Pinnipeds

- Guadalupe Fur Seal (T) -
- Steller Sea Lion Critical Habitat -

Essential Fish Habitat

- Coho EFH -
- Chinook Salmon EFH - **X**
- Groundfish EFH - **X**
- Coastal Pelagics EFH -
- Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Bruceville**

Quad Number **38121-C4**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) - **X**

SRWR Chinook Salmon ESU (E) - **X**

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat - **X**

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

- East Pacific Green Sea Turtle (T) -
- Olive Ridley Sea Turtle (T/E) -
- Leatherback Sea Turtle (E) -
- North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

- Blue Whale (E) -
- Fin Whale (E) -
- Humpback Whale (E) -
- Southern Resident Killer Whale (E) -
- North Pacific Right Whale (E) -
- Sei Whale (E) -
- Sperm Whale (E) -

ESA Pinnipeds

- Guadalupe Fur Seal (T) -
- Steller Sea Lion Critical Habitat -

Essential Fish Habitat

- Coho EFH -
- Chinook Salmon EFH - **X**
- Groundfish EFH - **X**
- Coastal Pelagics EFH -
- Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

- MMPA Cetaceans -
- MMPA Pinnipeds -

Quad Name **Galt**
Quad Number **38121-C3**

ESA Anadromous Fish

- SONCC Coho ESU (T) -
- CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -

Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Isleton**
Quad Number **38121-B5**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) - **X**
SRWR Chinook Salmon ESU (E) - **X**
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat - **X**
SRWR Chinook Salmon Critical Habitat - **X**
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

- Chinook Salmon EFH - **X**
- Groundfish EFH - **X**
- Coastal Pelagics EFH -
- Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

- MMPA Cetaceans -
- MMPA Pinnipeds -

Quad Name **Thornton**
 Quad Number **38121-B4**

ESA Anadromous Fish

- SONCC Coho ESU (T) -
- CCC Coho ESU (E) -
- CC Chinook Salmon ESU (T) -
- CVSR Chinook Salmon ESU (T) - **X**
- SRWR Chinook Salmon ESU (E) - **X**
- NC Steelhead DPS (T) -
- CCC Steelhead DPS (T) -
- SCCC Steelhead DPS (T) -
- SC Steelhead DPS (E) -
- CCV Steelhead DPS (T) - **X**
- Eulachon (T) -
- sDPS Green Sturgeon (T) - **X**

ESA Anadromous Fish Critical Habitat

- SONCC Coho Critical Habitat -
- CCC Coho Critical Habitat -
- CC Chinook Salmon Critical Habitat -
- CVSR Chinook Salmon Critical Habitat - **X**
- SRWR Chinook Salmon Critical Habitat -
- NC Steelhead Critical Habitat -
- CCC Steelhead Critical Habitat -
- SCCC Steelhead Critical Habitat -
- SC Steelhead Critical Habitat -
- CCV Steelhead Critical Habitat - **X**
- Eulachon Critical Habitat -
- sDPS Green Sturgeon Critical Habitat - **X**

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH -

X

Groundfish EFH -

X

Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office

562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Lodi North**

Quad Number **38121-B3**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) -

SRWR Chinook Salmon ESU (E) -

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat - **X**

Eulachon Critical Habitat -

sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -

Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -

Olive Ridley Sea Turtle (T/E) -

Leatherback Sea Turtle (E) -

North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -

Fin Whale (E) -

Humpback Whale (E) -

Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -

Sei Whale (E) -

Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH -

X

Groundfish EFH -

Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

**See list at left and consult the NMFS Long Beach office
562-980-4000**

MMPA Cetaceans -

MMPA Pinnipeds -



Clare Favro (she/her)

Biologist/Environmental Planner

Dokken Engineering

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www.dokkenengineering.com

CNPS Rare Plant Inventory













Search Results

26 matches found. Click on scientific name for details

Search Criteria: Quad is one of [3812145:3812144:3812143:3812135:3812134:3812133:3812125:3812124:3812123]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
<i>Azolla microphylla</i>	Mexican mosquito fern	Azollaceae	annual/perennial herb	Aug	None	None	G5	S4	4.2	No Photo Available
<i>Brasenia schreberi</i>	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	None	None	G5	S3	2B.3	 ©2014 Kirsten Bovee
<i>Carex comosa</i>	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	None	None	G5	S2	2B.1	 Dean Wm. Taylor 1997
<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	Asteraceae	annual herb	May-Nov	None	None	G3T2	S2	1B.2	No Photo Available
<i>Centromadia parryi</i> ssp. <i>rudis</i>	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	None	None	G3T3	S3	4.2	No Photo Available
<i>Cicuta maculata</i> var. <i>bolanderi</i>	Bolander's water-hemlock	Apiaceae	perennial herb	Jul-Sep	None	None	G5T4T5	S2?	2B.1	No Photo Available
<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	None	None	G5T4?	SH	2B.2	No Photo Available
<i>Downingia pusilla</i>	dwarf downingia	Campanulaceae	annual herb	Mar-May	None	None	GU	S2	2B.2	No Photo Available
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2	 ©2004 Carol W. Witham
<i>Hesperevax caulescens</i>	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	None	None	G3	S3	4.2	 © 2017 John Doyen
<i>Hibiscus</i>	woolly rose-	Malvaceae	perennial	Jun-Sep	None	None	G5T3	S3	1B.2	

<u><i>lasiocarpus</i></u> var. <u><i>occidentalis</i></u>	mallow		rhizomatous herb (emergent)									© 2020 Steven Perry
<u><i>Lasthenia</i></u> <u><i>chrysantha</i></u>	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1			© 2009 California State University, Stanislaus
<u><i>Lasthenia ferrisiae</i></u>	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2			© 2009 Zoya Akulova
<u><i>Lathyrus jepsonii</i></u> var. <u><i>jepsonii</i></u>	Delta tule pea	Fabaceae	perennial herb	May- Jul(Aug- Sep)	None	None	G5T2	S2	1B.2			© 2003 Mark Fogiel
<u><i>Legenere limosa</i></u>	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1			©2000 John Game
<u><i>Lepidium latipes</i></u> var. <u><i>heckardii</i></u>	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	None	None	G4T1	S1	1B.2			2018 Jennifer Buck
<u><i>Lilaeopsis masonii</i></u>	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	None	CR	G2	S2	1B.1			No Photo Available
<u><i>Limosella australis</i></u>	Delta mudwort	Scrophulariaceae	perennial stoloniferous herb	May-Aug	None	None	G4G5	S2	2B.1			© 2020 Richard Sage
<u><i>Navarretia</i></u> <u><i>eriocephala</i></u>	hoary navarretia	Polemoniaceae	annual herb	May-Jun	None	None	G4?	S4?	4.3			© 2018 Leigh Johnson
<u><i>Orcuttia tenuis</i></u>	slender Orcutt grass	Poaceae	annual herb	May- Sep(Oct)	FT	CE	G2	S2	1B.1			© 2013 Justy Leppert
<u><i>Orcuttia viscida</i></u>	Sacramento	Poaceae	annual herb	Apr-	FE	CE	G1	S1	1B.1			

Orcutt grass				Jul(Sep)						No Photo Available
<u><i>Sagittaria sanfordii</i></u>	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	 ©2013 Debra L. Cook
<u><i>Scutellaria galericulata</i></u>	marsh skullcap	Lamiaceae	perennial rhizomatous herb	Jun-Sep	None	None	G5	S2	2B.2	 © 2021 Scot Loring
<u><i>Scutellaria lateriflora</i></u>	side-flowering skullcap	Lamiaceae	perennial rhizomatous herb	Jul-Sep	None	None	G5	S2	2B.2	No Photo Available
<u><i>Symphotrichum lentum</i></u>	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	None	None	G2	S2	1B.2	No Photo Available
<u><i>Trifolium hydrophilum</i></u>	saline clover	Fabaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.2	No Photo Available

Showing 1 to 26 of 26 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website <https://www.rareplants.cnps.org> [accessed 7 November 2022].

Appendix I: **USFWS Biological Opinion**



United States Department of the Interior



In Reply Refer to:
08ESMF00-
2015-F-0252-2

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846

DEC 16 2016

Ms. Laura Loeffler
Chief, Environmental Planning, M-1 Branch
California Department of Transportation, District 3
703 B Street
Marysville, California 95901

Subject: Formal Consultation on the Proposed Kammerer Road Extension Project,
Sacramento County, California (Caltrans Fed. ID# STPL-5479[037])

Dear Ms. Loeffler:

This letter is in response to the California Department of Transportation's (Caltrans), March 3, 2016, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Kammerer Road Extension Project (proposed project), in Sacramento County, California. Your request was received by the Service on March 7, 2016; however, complete information was not received until November 25, 2016. At issue are the proposed project's effects on the federally-listed as endangered vernal pool tadpole shrimp (*Lepidurus packardii*) (tadpole shrimp) and the federally-listed as threatened vernal pool fairy shrimp (*Branchinecta lynchi*) (fairy shrimp), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (beetle), and giant garter snake (*Thamnophis gigas*) (snake). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act) and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR §402).

The federal action we are consulting on is the widening of an existing portion of Kammerer Road and its extension from Bruceville Road to Interstate 5 (I-5) by the city of Elk Grove (applicant) in coordination with Caltrans and the Federal Highway Administration (FHWA). The proposed project is receiving federal funding through FHWA, and Caltrans has assumed FHWA's responsibilities as the lead agency under the Act for this consultation in accordance with Section 1313, Surface Transportation Project Delivery Program, of the Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012. The MAP-21 is described in the National Environmental Policy Act assignment Memorandum of Understanding between FHWA and Caltrans (effective October 1, 2012) and codified in 23 U.S.C. 327. The applicant is also pursuing a Department of the Army permit for the proposed project from the U.S. Army Corps of Engineers (Corps). In a letter dated May 29, 2015, the Corps recognized Caltrans as the lead federal agency for purposes of this consultation.

Pursuant to 50 CFR §402.12(j), you submitted a biological assessment for our review and requested concurrence with the findings presented therein. These findings conclude that the proposed project may affect, and is likely to adversely affect the tadpole shrimp, the fairy shrimp, and the beetle. The findings also conclude that the proposed project may affect, but is not likely to adversely affect the snake. The proposed project is not within designated or proposed critical habitat for any federally-listed species.

In considering your request, we based our evaluation on the following: (1) your March 3, 2016, letter requesting initiation of formal consultation and the enclosed February 2016 *Kammerer Road Extension Biological Assessment*, prepared by Michael Baker International (consultant); (2) your November 23, 2016, letter and the enclosed November 2016 revised *Kammerer Road Extension Biological Assessment* (biological assessment), prepared by the consultant; (3) meetings and telephone calls attended by representatives of the Service, Caltrans, the Corps, the applicant, and the consultant; and (4) other information available to the Service.

Consultation History

March 7, 2016: The Service received the March 3, 2016, letter from Caltrans requesting initiation of formal consultation.

March 23, 2016: The Service mailed a letter to Caltrans requesting additional information in order for consultation to begin.

November 25, 2016: The Service received the November 23, 2016, letter from Caltrans with the revised biological assessment enclosed. This date also confirms the receipt of all of the complete information in order for consultation to begin.

Giant Garter Snake

The proposed project area is located within the Cosumnes-Mokelumne Watershed, identified as a “snake population unit” in the 5-year review for the snake (Service 2012). An intermittent drainage (the Shed C Channel) in the southwestern portion of the proposed project area provides potential habitat for the snake; however, the drainage does not provide water throughout the snake’s active season. Also, the last verified observation of snakes downstream occurred in 1976, and they were not detected during surveys conducted in 1987 (CNDDDB 2016).

In addition, the applicant has proposed the following measures to Caltrans in order to avoid adverse effects to the snake:

- Construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas and all operations will be confined to the minimal area necessary;
- Work will coincide to the driest time. If water is present at the time of construction, water will be diverted around the work area and work will resume after the site is dry. Flows will be diverted using gravity flow through temporary culverts/pipes or pumped around the work site with the use of hoses. When a temporary dam or other artificial obstruction is being constructed, maintained, or placed in operation, sufficient water will at all times be allowed to pass downstream. Any temporary dam or other artificial obstruction constructed will only be built from clean materials, such as sandbags, gravel bags, water dams, or clean/washed gravel that will cause little or no siltation;
- Standard staging area practices for sediment-tracking reduction will be implemented where necessary and may include vehicle washing and street sweeping;

- All exposed/disturbed areas and access points left barren of vegetation as a result of construction activities will be restored using locally native grass seeds, locally native grass plugs, and/or a mix of quick-growing sterile non-native grass with locally native grass seeds. Seeded areas will be covered with broadcast straw and/or jute netting (monofilament erosion blankets are not permitted);
- A Worker Environmental Awareness Program (WEAP) will be implemented to educate construction workers about the presence of sensitive habitats near the project area and to instruct them on proper avoidance measures;
- Twenty-four hours prior to the commencement of construction activities, the project area will be surveyed for snakes by a qualified biologist. The biologist will provide the Service with a written report that adequately documents the monitoring efforts. The project area will be reinspected by the monitoring biologist whenever a lapse in construction activity of two weeks or greater has occurred; and
- Project-related vehicles will observe a 20-mile-per-hour speed limit within construction areas, except on existing paved roads where they will adhere to the posted speed limits.

After reviewing all the available information, we concur with your determination that the proposed project is not likely to adversely affect the snake. The proposed project reached the 'may affect' level, and the subsequent requirement for a biological assessment, due to the fact that the proposed project occurs within a known population unit of the snake and potentially suitable habitat for the snake is present in the action area. However, due to the inconsistency of water during the snake's active season, the lack of recent snake observations downstream, and the conservation measures proposed by the applicant to Caltrans, the Service believes that any potential adverse effects to the snake from the proposed project are extremely unlikely to occur, and are therefore discountable for purposes of this consultation.

The remainder of this document provides our biological opinion on the effects of the proposed project on the tadpole shrimp, the fairy shrimp, and the beetle.

BIOLOGICAL OPINION

Description of the Action

The proposed project extends from the interchange of I-5 and Hood Franklin Road east approximately 2.35 miles to the existing Kammerer Road at Bruceville Road, then along the existing Kammerer Road to its intersection with Lent Ranch Parkway. Proposed project components include:

- Construction of a new four-lane expressway within a 200-foot right-of-way (ROW), accommodating four travel lanes, shoulders, and a 20-foot public utility easement on each side, including a grade-separation at the existing Union Pacific Railroad (UPRR) tracks;
- Improvements at the I-5/Hood Franklin Road interchange, including a dedicated access lane for the northbound on-ramp and intersection improvements including widening, realignment, and installation of traffic signals at the off-ramps;

- Intersection modifications and new intersections along the new Kammerer Road, including:
 - Realignment of approximately 0.25 mile of Hood Franklin Road to the southwest to create a new, stop-controlled T-intersection;
 - Installation of a four-way signalized intersection at the intersection with Franklin Boulevard; and
 - Construction of a new signalized intersection at the location of the proposed extension of Willard Parkway east of the UPRR tracks.
- Widening of the existing 2-lane Kammerer Road between Bruceville Road and approximately 750 west of its intersection with Lent Ranch Parkway. The additional ROW width will vary from 110 to 146 feet to accommodate the transitions at either end;
- Intersection modifications and new intersections along the existing Kammerer Road, including:
 - Construction of a new signalized intersection where the new extension meets the existing Kammerer Road at Bruceville Road;
 - Construction of two new signalized T-intersections 0.5 mile east of Bruceville Road and 0.5 mile east of McMillan Road to accommodate future collector roads;
 - Removal of the existing stop-controlled T-intersection at Rau Road and construction of a new frontage road between Rau Road and the southern extension of McMillan Road;
 - Installation of a new signalized intersection at McMillan Road; and
 - Construction of a new signalized T-intersection approximately 0.5 mile west of Lent Ranch Parkway to accommodate the future Lotz Parkway.
- Drainage improvements, including earthen swales along the roadway alignment and realignment of the Shed C Channel to ensure adequate flows during storm events; and
- Relocation of underground and overhead public utilities.

Construction activities will include demolition, clearing, installation of temporary detours, grading, excavation, and installation of roadway pavement sections and bridge structures. Equipment will include standard earthmoving and paving vehicles, including bulldozers, excavators, scrapers, dump trucks, water trucks, concrete pumpers, and fuel trucks. Staging areas will be located within the future ROW near Bruceville Road, Franklin Road, and I-5. Construction is expected to be completed over two construction seasons of March to December.

Conservation Measures

In addition to implementing Caltrans' standard Best Management Practices (BMPs; Caltrans 2003) throughout the proposed project area for the duration of construction, including erosion and

sediment control, the applicant has proposed the following measures to Caltrans to minimize effects on the tadpole shrimp, the fairy shrimp, and the beetle. The measures proposed below are considered part of the proposed action evaluated by the Service in this biological opinion.

- For every acre of vernal pool habitat directly or indirectly affected, two tadpole shrimp and fairy shrimp habitat preservation credits will be dedicated within a Service-approved conservation bank with a service area covering the proposed project. The proposed project will result in the purchase of 8.14 acres ($[3.08 \text{ acres direct} + 0.99 \text{ acre indirect}] \times 2 = 8.14$ acres) of tadpole shrimp and fairy shrimp habitat preservation credits;
- For every acre of vernal pool habitat directly affected, one vernal pool habitat creation credit will be dedicated within a Service-approved conservation bank with a service area covering the proposed project. The proposed project will result in the purchase of 3.08 acres of vernal pool habitat creation credits;
- Replace the loss of 35 elderberry plant stems between 1 and 3 inches in diameter at a 1:1 ratio through the dedication of beetle conservation credits within a Service-approved conservation bank with a service area covering the proposed project. The seven beetle conservation credits will result in the planting of 35 elderberry seedlings and 35 associated native plantings ($[35 \text{ elderberry seedlings} + 35 \text{ associated natives}] / 10 = 7$ credits);
- Construction operations, stockpiling of construction materials, portable equipment, vehicles, and supplies will be restricted to the designated construction staging areas and all operations will be confined to the minimal area necessary;
- Standard staging area practices for sediment-tracking reduction will be implemented where necessary and may include vehicle washing and street sweeping;
- All exposed/disturbed areas and access points left barren of vegetation as a result of construction activities will be restored using locally native grass seeds, locally native grass plugs, and/or a mix of quick-growing sterile non-native grass with locally native grass seeds;
- Protective silt fencing will be installed between the adjacent vernal pool habitats and the construction area limits to prevent accidental disturbance during construction and to protect water quality within the aquatic habitats during construction;
- A Worker Environmental Awareness Program (WEAP) will be implemented to educate construction workers about the presence of sensitive habitats near the project area and to instruct them on proper avoidance measures.

Action Area

The action area is defined in 50 CFR §402.02 as, “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.” For the proposed project, the action area encompasses the entire project site, including access and staging. The action area also includes all areas up to 330 feet from the construction footprint in which noise from construction activities is expected to exceed ambient levels (derived from Service 2006), as well as

areas outside the construction footprint where hydrology will be altered due to proposed project construction.

Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Endangered Species Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. “Jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the rangewide condition of the species, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed federal action and the effects of any interrelated or interdependent activities on the species; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-federal activities in the action area on the species.

Status of the Species

Vernal Pool Tadpole Shrimp and Vernal Pool Fairy Shrimp

The status of the tadpole shrimp and the fairy shrimp have been assessed in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005) (Recovery Plan) and 5-year reviews. For the most recent comprehensive assessment of the range-wide status of the tadpole shrimp, please refer to the *Vernal Pool Tadpole Shrimp (*Lepidurus packardii*) 5-Year Review: Summary and Evaluation* (Service 2007b). For the most recent comprehensive assessment of the range-wide status of the fairy shrimp, please refer to the *Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) 5-Year Review: Summary and Evaluation* (Service 2007a).

No change in either species’ listing status was recommended in the 5-year reviews. Threats such as the loss of vernal pool habitat primarily due to widespread urbanization were evaluated during the reviews and discussed in the final documents and have continued to act on the fairy shrimp and tadpole shrimp since the 2007 5-year reviews were finalized. The construction of infrastructure associated with urbanization also has contributed greatly to the loss and fragmentation of vernal pool species including the construction of roads. Habitat loss exacerbates the highly fragmented distribution of these species. Direct losses of habitat generally represent an irreversible damage to vernal pools. The alteration and destruction of habitat disrupts the physical processes conducive to functional vernal pool ecosystems. Vernal pool hydrology may be altered by further changes to the patterns of surface and subsurface flow due to the increase in the runoff associated with infrastructure.

While there have been continued losses of vernal pool habitat throughout the various vernal pool regions identified in the Recovery Plan, including the Southeastern Sacramento Valley Vernal Pool

Region where the proposed project is located, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for either species. The Service is in the process of finalizing its most current 5-year reviews for both the tadpole shrimp and the fairy shrimp.

Valley Elderberry Longhorn Beetle

For the most recent comprehensive assessment of the range-wide status of the beetle, please refer to the *Withdrawal of the Proposed Rule To Remove the Valley Elderberry Longhorn Beetle From the Federal List of Endangered and Threatened Wildlife* (Service 2014). Threats discussed in the withdrawal continue to act on the beetle, with loss of habitat being the most significant effect. While there continue to be losses of beetle habitat throughout its range, to date no project has proposed a level of effect for which the Service has issued a biological opinion of jeopardy for the beetle.

Environmental Baseline

Vernal Pool Tadpole Shrimp and Vernal Pool Fairy Shrimp

The action area is located in the Southeastern Sacramento Valley Vernal Pool Region, as described in the Recovery Plan. No surveys have been conducted within the proposed project area; however, there are known occurrences of the tadpole shrimp and the fairy shrimp in the California Natural Diversity Database (CNDDDB) in the vicinity of the action area. There are 11 known occurrences of the tadpole shrimp in the CNDDDB within 5 miles of the action area, with three occurrences within 1 mile (CNDDDB 2016). There are 16 known occurrences of the fairy shrimp in the CNDDDB within 5 miles of the action area, with the closest approximately 0.5 mile to the north (CNDDDB 2016). Due to the proximity of known occurrences, it is likely that both the tadpole shrimp and the fairy shrimp occur within vernal pool habitat within the action area.

The biological assessment identifies 22 vernal pools totaling 10.22 acres that provide suitable habitat for the tadpole shrimp and the fairy shrimp within the action area. An additional 10 seasonal wetlands were evaluated and do not appear to pond water for a sufficient duration to support the life cycle of the tadpole shrimp or the fairy shrimp. The acreage of vernal pool habitat represents a small proportion of habitat available within the vernal pool region and throughout the full range of the tadpole shrimp and the fairy shrimp.

Valley Elderberry Longhorn Beetle

One elderberry plant with 35 stems 1 inch or greater in diameter at ground level was located during surveys within the action area, in the small triangular area at the I-5 northbound off-ramp to Hood Franklin Road. No exit holes were observed, and half of the plant appeared to be dead. Due to the fact that the life cycle of the beetle takes one or two years to complete, during which it spends most of its life in the larval stage living within the stems of elderberry plants (*Sambucus* sp.), it is not possible to know if the plant in the action area is inhabited by the beetle. However, the action area is within the known range of the beetle and elderberry plants are the sole host plant for the beetle; therefore, the beetle's presence within the action area cannot be discounted. The elderberry plants in the proposed project's action area represent a very small proportion of habitat available throughout the full range of the beetle.

Effects of the Action

Vernal Pool Tadpole Shrimp and Vernal Pool Fairy Shrimp

A total of 6.15 acres of vernal pool habitat within the action area will not be affected due to proposed project construction. These pools are located west of the existing I-5/Hood Franklin Road interchange. The only construction activities that will occur near these pools will be confined to existing pavement. Due to the conservation measures proposed by the applicant to Caltrans, no adverse effects to these vernal pools are expected to occur.

The construction of the proposed project will result in direct effects to 3.08 acres of habitat for the tadpole shrimp and the fairy shrimp. The project related activities, such as grading, placement of fill, and the use of earth moving equipment, will result in the loss of tadpole shrimp and fairy shrimp habitat and the death of an unknown number of eggs. The earthmoving equipment will be moving dirt and filling tadpole shrimp and fairy shrimp habitat during construction activities and will likely crush or destroy the tadpole shrimp and fairy shrimp eggs, or otherwise prevent the eggs from hatching.

The construction of the proposed project will also result in indirect effects to 0.99 acre of habitat for the tadpole shrimp and the fairy shrimp. Indirect effects are caused by or result from the proposed action, are later in time, and are reasonably certain to occur. The grading and ground disturbance associated with the proposed project, in combination with the impervious nature of paved road surfaces, is reasonably likely to impede the surface and subsurface hydrology of the vernal pool landscape located outside the project footprint, leading to the eventual loss of the vernal pools and wetland swales. All tadpole shrimp and fairy shrimp eggs inhabiting the vernal pools and wetland swales will be prevented from hatching.

As noted previously in the *Description of the Action* section, the applicant has also proposed conservation measures to Caltrans, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effect on the tadpole shrimp and the fairy shrimp of the project's anticipated incidental take, resulting from the permanent loss of habitat described above. The compensatory habitat proposed will be in the form of tadpole shrimp and fairy shrimp habitat conservation credits at a Service-approved conservation bank(s).

This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the tadpole shrimp and the fairy shrimp.

Valley Elderberry Longhorn Beetle

The elderberry plant with 35 stems 1 inch or greater in diameter at ground level will be removed. Due to the poor health of the plant, it will not be transplanted. Any beetle larvae occupying the stems will be killed when the plant is destroyed.

As noted previously in the *Description of the Action* section, Caltrans has proposed conservation measures, including the commitment to provide compensatory habitat as a condition of the action.

This compensatory habitat is intended to minimize the effect on the beetle of the project's anticipated incidental take, resulting from the permanent loss of habitat described above. The compensatory habitat proposed will be in the form of beetle conservation credits at a Service-approved conservation bank.

This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory lands will provide suitable habitat for breeding, feeding, or sheltering commensurate with or better than habitat lost as a result of the project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the beetle.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. The biological assessment identifies future roadways to be constructed under the city of Elk Grove's Southeast Policy Area Project; however, it is likely that these future projects would have a federal nexus either through a Department of the Army permit or federal funding. During this consultation, the Service did not identify any future non-federal actions that are reasonably certain to occur in the action area of the proposed project.

Conclusion

Vernal Pool Tadpole Shrimp and Vernal Pool Fairy Shrimp

After reviewing the current status of the tadpole shrimp and the fairy shrimp, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the Kammerer Road Extension Project, as proposed, is not likely to jeopardize the continued existence of the tadpole shrimp or the fairy shrimp. The Service reached this conclusion because the project-related effects to the tadpole shrimp and the fairy shrimp, when added to the environmental baseline and analyzed in consideration of the lack of cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species. The vernal pool habitat affected by the proposed project represents a small proportion of habitat available to the tadpole shrimp and the fairy shrimp, and the loss will be minimized by the proposed purchase of conservation credits.

Valley Elderberry Longhorn Beetle

After reviewing the current status of the beetle, the environmental baseline for the action area, the effects of the proposed project, and the cumulative effects, it is the Service's biological opinion that the Kammerer Road Extension Project, as proposed, is not likely to jeopardize the continued existence of the beetle. The Service reached this conclusion because the project-related effects to the beetle, when added to the environmental baseline and analyzed in consideration of the lack of cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species. The elderberry stems affected by the proposed project represent a small proportion of habitat available to the species, and the loss will be minimized by the proposed purchase of conservation credits.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service regulations at 50 CFR §17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act which actually kills or injures wildlife. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by Caltrans so that they become binding conditions of any grant or permit issued, as appropriate, for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to assume and implement the terms and conditions or (2) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permits or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

Amount or Extent of Take

Vernal Pool Tadpole Shrimp and Vernal Pool Fairy Shrimp

The Service anticipates that incidental take of the tadpole shrimp and the fairy shrimp will be difficult to detect due to the fact that it is not possible to know how many eggs are in the soil of any vernal pool, or how many individuals or eggs will occupy any pool later in time. Fill of the 3.08 acres of vernal pools and future loss of the 0.99 acre of vernal pools due to the proposed project will result in the harm and mortality of all eggs inhabiting the pools. Therefore, the Service is authorizing incidental take to the proposed action as the killing of all tadpole shrimp and fairy shrimp, including their eggs, within the 4.07 acres of vernal pools inhabited by the tadpole shrimp and the fairy shrimp that will be lost.

Valley Elderberry Longhorn Beetle

The Service anticipates that incidental take of the beetle will be difficult to detect due to the fact that it is not possible to know how many larvae inhabit the 35 stems providing habitat for the beetle. Removal of the elderberry plant will result in the harm and mortality of all larvae inhabiting the stems. Therefore, the Service is authorizing incidental take to the proposed action as the harm of all larvae within the 35 elderberry stems greater than or equal to 1 inch in diameter at ground level.

Upon implementation of the following *Reasonable and Prudent Measures*, incidental take of the tadpole shrimp, the fairy shrimp, and the beetle associated with the Kammerer Road Extension Project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the tadpole shrimp, the fairy shrimp, or the beetle.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects to the tadpole shrimp, the fairy shrimp, and the beetle resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the following Reasonable and Prudent Measure is necessary and appropriate to minimize incidental take of the tadpole shrimp, the fairy shrimp, and the beetle:

1. The conservation measures for the tadpole shrimp, the fairy shrimp, and the beetle, as described in the biological assessment and restated here in the *Description of the Action* section of this biological opinion, will be fully implemented and adhered to. Further, this Reasonable and Prudent Measure will be supplemented by the Terms and Conditions below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must ensure compliance with the following terms and conditions, which implement the Reasonable and Prudent Measure described above. These terms and conditions are nondiscretionary.

1. Caltrans will include full implementation and adherence to the conservation measures as a condition of any permit or contract issued for the proposed project.
2. Prior to construction, Caltrans will provide a copy of the completed bill(s) of sale and payment receipt(s) to the Service upon the applicant's purchase of habitat conservation credits.
3. In order to monitor whether the amount or extent of incidental take anticipated from implementation of the proposed project is approached or exceeded, Caltrans will adhere to the following reporting requirement. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must immediately reinstate formal consultation, as per 50 CFR §402.16.
 - a. For those components of the action that will result in vernal pool habitat degradation or modification whereby incidental take in the form of harm is anticipated, Caltrans will provide a precise accounting of the total acreage of habitat impacted to the Service after the completion of construction. This report will also include any information about changes in project implementation that result in habitat disturbance not described in the *Description of the Action* and not analyzed in this biological opinion.

- b. For those components of the action that will result in beetle habitat degradation or modification whereby incidental take in the form of harm is anticipated, Caltrans will provide a precise accounting of the total elderberry stems greater than or equal to 1 inch in diameter at ground level impacted after the completion of construction. This report will also include any information about changes in project implementation that result in habitat disturbance not described in the *Description of the Action* and not analyzed in this biological opinion.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following action:

1. Caltrans should work with the Service to assist us in meeting the goals of the Recovery Plan for the fairy shrimp as outlined in the *December 2005, Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service 2005).

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendation.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the Kammerer Road Extension Project in Sacramento County, California. As provided in 50 CFR §402.16, reinitiation of formal consultation is required and will be requested by the federal agency or by the Service where discretionary federal agency involvement or control over the action has been retained or is authorized by law and:

- (a) If the amount or extent of taking specified in the incidental take statement is exceeded;
- (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or
- (d) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have questions regarding this biological opinion, please contact Lily Douglas, Fish and Wildlife Biologist (lily_douglas@fws.gov), or Kellie Berry, Chief, Sacramento Valley Division (kellie_berry@fws.gov) at the letterhead address, (916) 414-6631, or by e-mail.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Norris", with a long horizontal flourish extending to the right.

Jennifer M. Norris
Field Supervisor

cc:

Ms. Mary Pakenham-Walsh, U.S. Army Corps of Engineers, Sacramento, CA

LITERATURE CITED

- California Department of Transportation (Caltrans). 2003. Caltrans Storm Water Quality Handbooks: Construction Site Best Management Practices (BMPs) Manual. Caltrans Publication Distribution Unit, Sacramento, California. March 2003.
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- _____. 2006. Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California. Arcata Fish and Wildlife Office, Arcata, California. July 26, 2006. 61 pp.
- _____. 2007a. Vernal Pool Fairy Shrimp (*Branchinecta lynchi*) 5-year Review: Summary and Evaluation. Sacramento Fish and Wildlife Office, Sacramento, California. September 2007. 75 pp.
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- _____. 2012. Giant Garter Snake (*Thamnophis gigas*) 5-year Review: Summary and Evaluation. Sacramento Fish and Wildlife Office, Sacramento, California. June 2012. 62 pp.
- _____. 2014. Withdrawal of the Proposed Rule To Remove the Valley Elderberry Longhorn Beetle From the Federal List of Endangered and Threatened Wildlife. Federal Register 79:55874-55917. September 17, 2014

Appendix J:

List of Technical Studies (Attached on CD)

The following hardcopy technical studies are available upon request:

- Natural Environment Study Addendums (2019 and 2022)
- Historic Property Survey Report/Archaeological Survey Report (Confidential) (2018)
- Water Quality Assessment Report (2019)
- Traffic Impact Analysis (2019)
- Location Hydraulic Study (2018)
- Air Quality Report (2022)
- Noise Study Report and Addendum (2019 and 2022)
- Visual Impact Assessment and Addendum (2018 and 2022)
- Initial Site Assessment for Hazardous Waste and Addendum (2018 and 2022)
- Farmland Impact Assessment (2018)
- Community Impact Assessment Addendums (2018 and 2022)
- Paleontological Identification and Evaluation Report (2022)