

Draft
Initial Study/Proposed Mitigated Negative Declaration

Folsom Light Rail Modernization Double Track Project

Prepared for:
Sacramento Regional Transit District



November 2019

Draft
Initial Study/Proposed Mitigated Negative Declaration

Folsom Light Rail Modernization Double Track Project

Prepared for:
Sacramento Regional Transit District
2811 O Street
Sacramento, CA 95812

Contact:
Sangita Arya
Project Manager
(916) 557-0998

Prepared by:
AECOM
300 California Street, Suite 500
San Francisco, CA 94104

November 2019

Date: November 12, 2019

To: Responsible and Trustee Agencies, Interested Parties, and Organizations

**Subject: INITIAL STUDY AND NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE
DECLARATION FOR THE FOLSOM LIGHT RAIL MODERNIZATION
DOUBLE TRACK PROJECT**

The Sacramento Regional Transit District (SacRT) has prepared an Initial Study (IS) and intends to adopt a Mitigated Negative Declaration (MND) for the proposed project in compliance with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines.

Project Title: Folsom Light Rail Modernization Double Track Project

Lead Agency: Sacramento Regional Transit District

Project Location: The project is on the SacRT's "Gold Line" (U.S. Highway 50 corridor), a light rail service that operates between downtown Sacramento and historic Folsom. The proposed improvements would be at the northeastern end of the corridor in the cities of Rancho Cordova and Folsom and unincorporated Sacramento County. The Folsom project segment is approximately 0.6 mile long, generally between Parkshore Drive and Bidwell Street, and includes the Glenn/Robert G Holderness Station. The Rancho Cordova project segment is approximately 1.2 miles long, generally between Marketplace Lane and Aerojet Road, and includes the Hazel Station. Both segments are along Folsom Boulevard.

Project Description: SacRT proposes to improve its light rail service to Folsom along its Gold Line. The improvements would allow light rail trains to operate every 15 minutes from the Sunrise Station to the Historic Folsom Station, rather than the current 30 minutes. The improvements are part of the "Folsom Light Rail Modernization Project" that collectively includes new low-floor light rail vehicles, modification to station platforms to accommodate the new vehicles, and addition of new passing tracks and signalization. Current service between the Sunrise Station and the eastern terminus of the Gold Line at the Historic Folsom Station (at Leidesdorff Street and Folsom Boulevard) is impeded because only a single track provides service between these stations. To remedy this operational constraint, the proposed project includes "double tracking" (or installing a passing track) in two locations; updating the signal system that controls train movements so that trains will be able to operate inbound and outbound between the Sunrise and Historic Folsom Stations with little or no delay; adding a second loading platform at the Glenn and Hazel Stations; and modifying the existing platforms at these stations to accommodate the new low-floor light rail vehicles.

Environmental Review Process: SacRT has prepared this IS/MND on the proposed project in accordance with the requirements of CEQA. The IS/MND describes the proposed project and provides an assessment of the project's potential significant adverse impacts on the environment. The IS/MND concludes that the proposed project would not have any significant effects on the environment after implementation of mitigation measures.

SacRT has been allocated federal funding for the proposed project and will be coordinating with the Federal Transit Administration (FTA). Federal actions and approvals require environmental review under the National Environmental Policy Act (NEPA). While this document is not being prepared as a joint NEPA/CEQA document, information contained in it may also be used to inform FTA as it considers whether to approve the proposed project. FTA's review of the project will occur independently of any CEQA action taken by SacRT, and any associated NEPA public review process will be initiated by FTA in accordance with its own regulatory requirements.

Public Review Period: The IS/MND is being circulated for public review and comment for a period of 30 days starting November 13, 2019. Written comments should be submitted and received at the following address no later than close of business (5:00 p.m.) on December 12, 2019.

Sangita Arya
Sacramento Regional Transit District
2811 O Street
Sacramento, CA 95812
e-mail: sarya@sacrt.com

To Review or Obtain a Copy of the Environmental Document: Copies of the IS/MND can be reviewed on the SacRT project website at: <https://www.sacrt.com/apps/modernization/>. Copies of the Draft IS/Proposed Mitigated Negative Declaration are also available for viewing at the following locations:

Location	Address	Hours
Sacramento Regional Transit District Customer Service and Sales Center	1225 R Street, Sacramento, CA 95811	Monday through Friday: 8:00 am to 5:30 pm Saturday, Sunday: CLOSED
Folsom Public Library	Georgia Murray Building 411 Stafford Street Folsom, CA 95630	Monday: CLOSED Tuesday: 10:00 am to 8:00 pm Wednesday: 10:00 am to 8:00 pm Thursday: 10:00 am to 5:00 pm Friday: 10:00 am to 5:00 pm Saturday: 10:00 am to 5:00 pm Sunday: CLOSED
Rancho Cordova Public Library	9845 Folsom Boulevard Sacramento, CA 95827	Monday: 10:00 am to 7:00 pm Tuesday: 10:00 am to 7:00 pm Wednesday: 10:00 am to 7:00 pm Thursday: 10:00 am to 7:00 pm Friday: 10:00 am to 5:00 pm Saturday: 10:00 am to 5:00 pm Sunday: 12:00 pm to 5:00 pm

SacRT Board of Directors Meeting: The SacRT Board of Directors will conduct a public meeting at its regularly scheduled meeting on December 9, 2019 to consider the proposed project and request public comment on the Draft IS/MND. The meeting will be held at the SacRT Auditorium, 1400 29th Street, Sacramento, CA, beginning at 5:30 pm and will be open to the public. Interested persons are encouraged to attend. SacRT staff will present the proposed project to the Board, the Board will take and consider public comments on the Draft IS/MND and the project. No decisions regarding project approval will occur at this meeting, which is intended primarily to discuss the environmental document.

PROPOSED MITIGATED NEGATIVE DECLARATION

Project: Folsom Light Rail Modernization Double Track Project

Lead Agency: Sacramento Regional Transit District

Project Description

SacRT proposes to improve its light rail service to Folsom along its Gold Line. The improvements would allow light rail trains to operate every 15 minutes from the Sunrise Station to the Historic Folsom Station, rather than the current 30 minutes. The improvements are part of the “Folsom Light Rail Modernization Project” that collectively includes new low-floor light rail vehicles, modification to station platforms to accommodate the new vehicles, and addition of new passing tracks and signalization. Current service between the Sunrise Station and the eastern terminus of the Gold Line at the Historic Folsom Station (at Leidesdorff Street and Folsom Boulevard) is impeded because only a single track provides service between these stations. To remedy this operational constraint, the proposed project includes “double tracking” (or installing a passing track) in two locations; updating the signal system that controls train movements so that trains will be able to operate inbound and outbound between the Sunrise and Historic Folsom Stations with little or no delay; adding a second loading platform at the Glenn and Hazel Stations; and modifying the existing platforms at these stations to accommodate the new low-floor light rail vehicles.

Findings

An Initial Study has been prepared by SacRT in accordance with the California Environmental Quality Act to ascertain whether the proposed project would have a significant effect on the environment. On the basis of this study, it is determined that the proposed project will have:

No impact or a less-than significant impact on aesthetics, agriculture and forestry resources, energy, greenhouse gas emissions, hydrology and water quality, land use and planning, mineral resources, population and housing, public services, recreation, and wildfire.

A less-than-significant impact with mitigation on air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, noise, transportation, tribal cultural resources, and utilities and service systems with incorporation of the following mitigation measures:

Mitigation Measure AQ-1. Implement basic construction emission control practices (Best Management Practices)

The SacRT must include the following construction measures in construction contract specifications and procedures to limit and reduce air emissions from construction sites:

- Control fugitive dust as required by Sacramento Metropolitan Air Quality Management District (SMAQMD) Rule 403 and enforced by SMAQMD staff.
- Water all exposed surfaces two times daily. Exposed surfaces include soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover all haul trucks transporting soil, sand, or other loose material off-site.

- Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on site. Cover any haul trucks that will be traveling along freeways or major roadways.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt visible on 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.
- Complete paving all roadways, driveways, and sidewalks as soon as possible. In addition, lay building pads as soon as possible after grading, unless seeding or soil binders are used.
- Minimize idling times either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure under Title 13, California Code of Regulations Section 2485). Provide clear signage that posts this requirement for workers at the entrances to the project sites.
- Provide current certificate(s) of compliance with ARB's In-Use Off-Road Diesel-Fueled Fleets Regulation (Title 13, California Code of Regulations Sections 2449 and 2449.1).
- Maintain all construction equipment in proper working condition, according to the manufacturer's specifications. Have all equipment checked by a certified mechanic and determined to be running in proper condition before use.

Mitigation Measure BIO-1: Conduct preconstruction surveys for migratory birds and raptors

Trees and vegetation must only be removed outside the nesting season, September 1 through January 31. If construction occurs between February 1 and September 15, SacRT must conduct preconstruction surveys for active nests of migratory nesting birds and raptors, including special-status species (i.e., grasshopper sparrow and white-tailed kite), within 14 days before the start of any construction-related activities. Preconstruction surveys for Swainson's hawk will be carried out separately, in accordance with Mitigation Measure BIO-2, over a longer survey period in the months before the start of project-related construction.

If active nests are found, SacRT must consult with a qualified biologist to establish avoidance buffers around nests that will be sufficient so that breeding will not be likely to be disrupted or adversely affected by project activities. An avoidance buffer will consist of an area where project-related activities (i.e., vegetation removal, earth moving, and construction) will not occur. Typical avoidance buffers during the nesting season will be a radius of 100 feet for nesting passerine birds and 500 feet for nesting raptors, unless a qualified biologist determines that smaller buffers will be sufficient to avoid impacts on nesting raptors and/or other birds. Factors to be considered for determining buffer size will include the presence of existing buffers provided by vegetation, topography, and infrastructure; nest height; locations of foraging territory; and baseline levels of noise and human activity. The buffer zone must be delineated by highly visible temporary construction fencing. A qualified biologist must monitor active nests during construction, so that the species is not harmed or harassed by the noise or activity resulting from project-related activities. The buffers must be maintained until a qualified biologist has determined that the young have fledged and are no longer reliant on the nest or parental care for survival.

Mitigation Measure BIO-2: Avoid impacts on nesting Swainson's hawk through preconstruction surveys and buffer zones around active nests

SacRT must implement the following measures to avoid and minimize impacts on Swainson's hawk:

- Trees must not be removed during the breeding season for nesting raptors (March 1 through September 15), unless a survey by a qualified biologist verifies that no active nests are in the trees.
- For staging and construction activities that begin between March 1 and September 15, SacRT must retain a qualified biologist to conduct preconstruction surveys for Swainson's hawk and identify active nests on and within 0.25 mile of the project area. The surveys will be timed in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). To meet the minimum level of protection for the species, the surveys will be completed for at least the two survey periods immediately before the project's implementation. Appropriate survey periods will include:
 - Between January and March 20, before Swainson's hawk returns from migration, an optional survey of the project segments may be conducted to determine potential nest locations.
 - Between March 20 and April 5, old nests, staging birds, and competing species will be observed. The hawks are expected to be in their territories during survey hours from sunrise to 10 a.m. and from 4 p.m. to sunset.
 - Between April 5 and April 20, both males and females are expected to be actively nest-building, visiting their selected site frequently. Territorial and courtship displays and copulation will be increased. The birds will tend to vocalize often, and their nest locations will be identified most easily.
 - Between June 10 and July 30 (post-fledging), from sunrise to noon and from 4 p.m. to sunset, young birds are expected to be active and visible. Both adult parents will make numerous trips to the nest and often will soar above, or will perch near or on the nest tree, allowing easy observation.

If no active nests are found, a letter report documenting the survey methods and results must be submitted to CDFW and no further mitigation will be required.

- If an active nest is found, impacts on nesting Swainson's hawks must be avoided by establishing appropriate buffers around active nest sites, identified during preconstruction Swainson's hawk surveys. CDFW guidelines recommend implementation of a 0.25-mile-wide buffer for Swainson's hawk, but the size of the buffer may be adjusted if a qualified biologist and SacRT, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest. Project construction activities will not begin within the buffer areas until a qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer will not be likely to result in nest abandonment. Nest monitoring by a qualified biologist during and after construction or staging activities will be required if the activity has the potential to adversely affect a nest.

Mitigation Measure BIO-3: Avoid impacts on burrowing owl in the Rancho Cordova project segment through preconstruction surveys and buffer zones around occupied burrows

SacRT must implement the following measures to reduce impacts on breeding or wintering burrowing owl in the Rancho Cordova project segment:

- SacRT must retain a qualified biologist to conduct focused surveys for burrowing owls in areas of suitable habitat. The surveys must be conducted before the start of construction activities and in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). If no occupied burrows are found, a letter report documenting the survey methods and results will be submitted to CDFW, and no further mitigation will be required.
- If a burrow that is occupied by a burrowing owl is found, SacRT must consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. Recommended buffers will range from a radius of 150 to 1,500 feet, depending on site conditions and burrowing owl use of the burrow. Exclusion of burrowing owls from any occupied burrows is not expected to be necessary because the staging areas may be adjusted to minimize disturbance. No exclusion of burrowing owls will be permitted during the breeding season (February 1 through August 31).

Mitigation Measure BIO-4: Avoid impacts on Valley Elderberry Longhorn Beetle (VELB) in the Rancho Cordova project segment through preconstruction surveys for VELB exit holes, restrictions on removal or trimming of elderberry shrubs, and compensatory mitigation if necessary

Before the start of project construction, SacRT must retain a qualified biologist to conduct a survey for VELB exit holes in the Rancho Cordova project segment and prepare a VELB survey report for SacRT, to be submitted to USFWS for review and consultation before project construction. The VELB survey report must include the following:

- the location of elderberry shrubs in the project segment and within 165 feet (50 meters) of the project footprint;
- the number of elderberry shrubs that will be directly affected by the project;
- a map that delineates the area that will be directly affected and the elderberry shrub locations within 165 feet (50 meters) of the project footprint;
- information regarding the quality of individual elderberry shrubs and the continuity of riparian habitat outside the project area;
- a determination of the presence of exit holes in elderberry stems, and whether or not these stems will be affected by the project;
- an evaluation of the surrounding habitat and known VELB occurrences within 2,625 feet (800 meters) of the project segment; and
- a description of surrounding land uses, including land uses that may be incompatible with VELB use or a potential barrier to VELB dispersal.

To avoid and minimize impacts on VELB and/or its habitat, SacRT must coordinate with USFWS to determine project-specific conservation measures. At minimum, SacRT must implement the following measures, which may be amended in consultation with USFWS:

- To the greatest extent feasible, damaging or removing elderberry shrubs must be avoided. Construction activities that may damage or kill an elderberry shrub (e.g., trenching, paving) may need an avoidance area of at least 20 feet (6 meters) from the dripline, depending on the type of activity. All areas to be avoided during construction activities must be fenced and/or flagged as close to construction limits as feasible.
- As much as feasible, all activities that occur within 165 feet (50 meters) of an elderberry shrub must be conducted outside the VELB flight season (March–July).
- Any trimming of elderberry shrubs must occur only between November and February. Trimming must avoid removal of any branches or stems that are greater than or equal to 1 inch in diameter. Measures to address regular and/or large-scale maintenance (trimming) will be established in consultation with USFWS.

If adverse impacts on VELB are expected because of the project, SacRT must consult with USFWS to determine the appropriate type and amount of compensatory mitigation. Because the project segment is in a non-riparian area, compensation typically will be appropriate for occupied shrubs (USFWS 2017). Appropriate compensatory mitigation can include purchasing credits at a USFWS-approved conservation bank, providing on-site mitigation, or establishing and/or protecting habitat for VELB. At minimum, impacts on individual shrubs in nonriparian areas will be replaced through a purchase of 1 credit at a USFWS-approved bank for each shrub that will be trimmed, if exit holes are found in any shrub on or within 165 feet (50 meters) of the project area. If the occupied shrub will be completely removed by the activity, the entire shrub will be transplanted to a USFWS-approved location, in addition to a credit purchase (USFWS 2017).

Mitigation Measure BIO-5: Conduct a preconstruction arborist survey and implement a tree replacement plan

Before project construction, SacRT must retain a certified arborist to conduct an arborist survey at the Folsom and Rancho Cordova project segments and prepare an Arborist Survey Report for each segment. To meet the requirements of both the Folsom Tree Preservation Ordinance and the Rancho Cordova Tree Preservation and Protection Ordinance, the Arborist Survey Report must include the following information:

- species identification and sub-meter accuracy locations of each tree within and near the project footprint;
- trunk diameters, measured at standard height;
- approximate tree heights;
- approximate tree dripline radii;
- a brief statement for the reasons for removal or major trimming of trees;
- identification of suitable measures to protect trees for preservation;
- evaluation of areas in which to plant replacement trees; and
- a site plan showing the accurate location, number of trees affected, species, trunk diameters, approximate heights, and approximate driplines of any trees to be removed.

In accordance with Chapter 12.16 of the Folsom Municipal Code (2019), before vegetation removal or clearing activities in the Folsom project segment, SacRT must provide the following information:

- Justification statement
- Arborist's Survey Report
- Site Map
- Tree locations
- Protected zone of protected trees
- Preservation Program
- Arborist's Survey Report

In accordance with Chapter 19.12 of the Rancho Cordova Municipal Code (2019), before project implementation in the Rancho Cordova project segment, SacRT must provide the following information:

- Statement for the reasons for removal or major trimming, written by a certified arborist
- Consent of the owner of the record of the land on which the proposed activity is to occur
- A tree inventory, including a Site Plan
- Tree Replacement Plan

Based on the information in these submittals, SacRT must meet with the cities to establish suitable tree plantings or payment of in-lieu fees. If tree plantings are selected as the preferred method of mitigation, then details regarding the location and size of the replacement trees must be incorporated into the construction specifications and plans.

Mitigation Measure CUL-1: Implement procedures to address unanticipated archaeological discoveries, including halting construction, evaluating the resource, and appropriate recordation and recovery if the resource is unique

If prehistoric or historic period archaeological resources are encountered during construction, work must be temporarily halted in the vicinity of the discovered materials and workers must avoid altering the materials and their context until a qualified professional archaeologist has evaluated, recorded, and determined appropriate treatment of the resource, in consultation with the SacRT. Cultural resources must be recorded on State Department of Parks and Recreation 523 historic resource recordation forms. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include foundations or walls, refuse deposits, or bottle dumps. If the proposed development could damage a unique archaeological resource, this measure must be implemented in accordance with Public Resources Code Section 21083.2 and State CEQA Guidelines Section 15126.4, with a preference for preservation in place.

Mitigation Measure CUL-2: Implement procedures to address discovery of human remains

If human remains are discovered during construction of the proposed project, SacRT must comply with state laws: Health and Safety Code Section 7050.5 et seq. relating to discovery or recognition of human remains, and Public Resources Code Section 5097 relating to the disposition of Native American burials. If any human remains are discovered in any location in the project area, SacRT must halt any further

excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- The Sacramento County coroner has been informed and has determined that no investigation of the cause of death is required; and
- If the remains are of Native American origin:
 - The descendants of the deceased Native Americans have made a recommendation regarding the disposition of remains and any associated grave goods, as provided in Public Resources Code Section 5097.98; or
 - The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified.

Mitigation Measure GEO-1: Conduct construction worker education, stop work if paleontological resources are discovered, assess the significance of the find, and prepare and implement a recovery plan, as required in a portion of the Rancho Cordova project segment

Before the start of earth-moving activities in the Rancho Cordova project segment, the SacRT must require that all construction workers involved with earth-moving activities be informed regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures to be followed if such fossils are encountered. This worker training may be prepared and presented by an experienced field archaeologist at the same time as construction worker education on cultural resources, or prepared and presented separately by a qualified paleontologist.

If paleontological resources are discovered during earth-moving activities, all work within 50 feet of the find must cease immediately, and the construction contractor must notify the SacRT and Sacramento County Office of Planning and Environmental Review. The SacRT must retain a qualified paleontologist to evaluate the resource and prepare a recovery plan, based on Society of Vertebrate Paleontology (SVP) guidelines (SVP 1996). The recovery plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum curation for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the SacRT (as the CEQA lead agency) to be necessary and feasible must be implemented before construction activities resume at the site where the paleontological resources were discovered.

Mitigation Measure HAZ-1: Undertake a Phase I environmental site assessment on the property to be acquired within the Aerojet Superfund site

To perform its due diligence for the acquisition of the sliver of land that currently is owned by Aerojet, the SacRT must retain a qualified environmental professional to prepare a Phase I environmental site assessment during final design, in accordance with ASTM E1527-13. The assessment must include, among other investigations, a review of the extensive documentation already prepared by Aerojet in response to requirements of U.S. Environmental Protection Agency (EPA), Department of Toxic Substance Control (DTSC), and the Central Valley Regional Water Quality Control Board (RWQCB) that define and characterize the known contamination and the type of and schedule for the remediation efforts. In addition, per the ASTM E1527-13 standards, the Phase I assessment must include an evaluation of the

potential impacts from vapor migration that can adversely affect the health and safety of project construction workers. The Phase I assessment will be essential to establish the responsibility and liability for known environmental contamination and cleanup on the property to be acquired. A Phase II environmental site assessment may be recommended to further investigate the contamination, but because the site already is part of a Superfund site, the extent and characterization of the contamination has been identified, and remedies are underway, a Phase II is not expected to be necessary for the SacRT to complete its environmental due diligence for the acquisition.

Mitigation Measure HAZ-2: Undertake a Limited Phase II environmental site assessment within the ground disturbance area in the rail right-of-way adjacent to the Aerojet Superfund site to identify the extent and characterization of contamination in the unsaturated (vadose) zone, generally between the ground surface and the underlying water table, to define the potential health risks for project construction workers

The SacRT must retain a qualified environmental professional to prepare a limited Phase II environmental site assessment, to assess the environmental contamination of the surficial and subsurficial soil and any encountered groundwater in the areas where ground disturbance and excavation will occur adjacent to the Aerojet Superfund site in the Rancho Cordova project segment. The Phase II assessment must comply with ASTM E1903 standards and include sufficient sampling to identify types of chemicals and potential hazards to construction workers, and to assist in determining soil re-use or disposal requirements during construction. The Phase II assessment will be a “limited” assessment, in that it will focus on soils to the depth of ground disturbance (i.e., generally 4 feet below ground surface (bgs) where only track improvements are proposed; 10 feet where footings for passenger shelters are proposed at the loading platform; and 30 feet where foundations for the Overhead Contact System support poles are proposed). Although not expected, if groundwater is encountered, the Phase II assessment must include sampling to identify the chemicals and concentrations in the groundwater. The results from the Phase II assessment must be provided to project contractors, to inform preparation of a site-specific health and safety plan (HASP), in accordance with Mitigation Measure HAZ-3, and recommendations from the Phase II assessment regarding soil re-use or disposal must be incorporated into contractor specifications.

Mitigation Measure HAZ-3: Prepare and implement a site-specific Health and Safety Plan (HASP) to minimize impacts on public health, worker health, and the environment from project construction activities in ground disturbance areas in the Rancho Cordova project segment

Based on the Phase II assessment that is completed under Mitigation Measure HAZ-2, and on information from Aerojet and the regulatory agencies for the property to be acquired for the proposed project, the SacRT must prepare and implement a site-specific HASP for the Rancho Cordova project segment. The HASP must be prepared in accordance with State and federal OSHA regulations (29 CFR Section 1910.120) and approved by a certified industrial hygienist. Copies of the HASP must be made available to construction workers for review during their orientation training and/or during regular health and safety meetings. The HASP must identify chemicals of concern, potential hazards, personal protective equipment and devices, decontamination procedures, the need for personal or area monitoring, and emergency response procedures. The HASP must be amended, as necessary, if new information becomes available that can affect implementation of the plan.

Mitigation Measure HAZ-4: Incorporate standards for the proper handling, transport, and disposal of excavated soils and materials into the proposed project's construction specifications

The SacRT must incorporate contract specifications and procedures to be followed by the contractor for the safe handling, transport, and disposal of the excavated soils and materials, consistent with federal and State requirements, including the Resources Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act, the Emergency Planning and Community Right-to-Know Act, the Hazardous Materials Transportation Act of 1976, the Clean Water Act, the Occupational Safety and Health Act, California Code of Regulations Title 22, and the Hazardous Waste Control Law. The following specifications must be included:

- Construction workers in the Rancho Cordova project segment who will be involved with ground disturbance must be trained in Hazardous Waste Operations and Emergency Response (HAZWOPER), if the types of contaminants and their concentrations warrant this training based on the results of the limited Phase II environmental site assessment, completed under Mitigation Measure HAZ-1, and on the HASP, completed under Mitigation Measure HAZ-3.
- Soil and materials removal must be performed by a licensed engineering contractor with a Class A license and hazardous substance removal certification. A California-licensed engineer must provide field oversight on behalf of the SacRT, to document the origin and destination of all removed materials. If necessary, removed materials must be stockpiled temporarily and covered with plastic sheeting, pending relocation, segregation, or off-site hauling.
- If excess materials are hauled off-site, waste profiling of the material must be completed and documented. Materials classified as nonhazardous waste must be transported under a bill of lading. Materials classified as non-RCRA hazardous waste must be transported under a hazardous waste manifest. All materials must be disposed at an appropriately licensed landfill or facility.
- Trucking operations must comply with Caltrans requirements and any other applicable regulations, and all trucks must be licensed and permitted to carry the appropriate waste classification. The tracking of dirt by trucks leaving the project site must be minimized by cleaning the wheels on exit, and by cleaning the loading zone and exit area as needed.
- If materials require dewatering before being hauled off-site, a dewatering plan must be prepared, specifying methods of water collection, transport, treatment, and discharge of all water produced by dewatering.

Mitigation Measure HAZ-5: Schedule project construction activities and site light rail facilities to avoid interference with the soil vapor extraction activities in the Rancho Cordova project segment

The SacRT must provide Aerojet, EPA, DTSC, and the Central Valley RWQCB with available information on the location, nature, and duration of construction activities as well as the preliminary engineering plans for the Rancho Cordova project segment during final design, to avoid disturbance to or interference of current or planned remediation activities in Operable Unit 5, including Area 49000. After sharing the available information, the SacRT, Aerojet, and the regulatory agencies must coordinate to ensure that project improvements do not interfere or adversely affect the remediation activities and treatment. Avoidance can be achieved through a variety of strategies, such as adjusting the schedule for

project construction or remediation activities; shifting the location of Overhead Contact System support poles and wayside facilities to avoid treatment facilities; and protecting in-place monitoring wells, groundwater extraction and treatment facilities, and soil vapor extraction equipment. The SacRT must incorporate the agreed on measures in the construction specifications and documents that will govern the contractor's work in the Rancho Cordova project segment.

Mitigation Measure NOI-1: Prepare and implement a construction noise control plan

The SacRT must include a requirement in the project construction specifications and documents to prepare a noise control plan that incorporates, at a minimum, the following best practices to reduce the impact of temporary construction-related noise on nearby noise-sensitive receptors:

- Install temporary construction site sound barriers near noise sources.
- Use moveable sound barriers at the source of the construction activity.
- Locate stationary construction equipment as far as possible from noise-sensitive sites.
- Re-route construction-related truck traffic along roadways so as to cause the least disturbance to residents.
- Use low noise emission equipment.
- Implement noise-deadening measures for truck loading and operations.
- Line or cover storage bins, conveyors, and chutes with sound-deadening material.
- Use acoustic enclosures, shields, or shrouds for equipment and facilities.
- Use high-grade engine exhaust silencers and engine-casing sound insulation.
- Use specialty equipment, such as vehicles with enclosed engines and/or high-performance mufflers.
- Minimize the use of generators to power equipment.
- Limit unnecessary idling of equipment.
- Monitor and maintain equipment to meet noise limits.
- Establish an active community liaison program to keep residents, offices, and other noise-sensitive uses informed about construction, and provide a procedure for addressing complaints.

Mitigation Measure TR-1: Adjust traffic and train signaling to reduce intersection delays to acceptable levels

SacRT must coordinate with the City of Folsom, City of Rancho Cordova, and Sacramento County during final design to synchronize and implement train and automobile traffic controllers to maintain acceptable LOS at the street crossings of the Gold Line light rail tracks and Folsom Boulevard. Specifically, the signal adjustments must be made so that either: (1) intersection LOS does not deteriorate to LOS E or worse if operating acceptably (LOS D or better), or (2) if already operating at an unacceptable LOS (LOS E or F), to reduce the additional delay resulting from light rail operations at signalized intersections so that the additional delay is less than 5 seconds. Implementation of this mitigation measure must occur during final design, and signal operations must be adjusted if necessary during implementation and testing, before starting revenue service.

Mitigation Measure TR-2: Prepare and implement a traffic control plan

Before the start of project construction, the SacRT and/or its contractor must prepare and implement a traffic control plan, to minimize construction-related traffic safety hazards on public roads, sidewalks, bicycle facilities, and non-motorized pathways, and ensure adequate access for emergency responders. The SacRT and/or its contractor must coordinate development and implementation of this plan with the City of Folsom, City of Rancho Cordova, and Sacramento County, and solicit their input on practices and procedures to enhance safety and minimize hazards. The traffic control plan must, at minimum, identify and include:

- number of truck trips, time, and day of street closures;
- time of day of arrival and departure of trucks;
- limitations on size and type of trucks;
- provision of staging areas, with a limitation on the number of trucks that can be waiting;
- a truck circulation pattern and identification of haul routes;
- manual traffic control when necessary;
- a driveway access plan so that safe vehicular, pedestrian, and bicycle movements are maintained (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas);
- safe and efficient access routes for emergency vehicles;
- establishment of manual traffic control when necessary;
- requirements for construction workers to park personal vehicles at approved staging areas and take only necessary project vehicles to the work sites;
- a plan for notifications and a process for communication with affected residents, businesses, and landowners about construction activities, schedule, and duration before the start of construction (Public notification must include posting of notices and signage of construction activities at visible locations in the project area. Notifications must be distributed to residents, businesses, and landowners to describe the construction schedule, the exact location and duration of activities on each street [e.g., which roads/lanes and access points/driveways will be blocked on which days and for how long], suggestions for alternative routes, and contact information for questions and complaints. This same information must be posted on the SacRT website for the project.);
- posting warning signs before the start of construction activities, alerting bicyclists and pedestrians to any closures or temporary modifications of non-motorized facilities (This information must be shared with local agencies and active transportation organizations to ensure widespread notification of interruption to pedestrian, bicycle, and other non-motorized vehicular pathways.);
- pedestrian and bicycle safety measures (e.g., buffers, vertical delineation, signage), subject to review and approval by the cities and the County traffic departments;
- notification of police and fire personnel, ambulance service providers, other emergency responders, and recreational facility managers of the timing, location, and duration of construction activities, and the locations of detours and lane closures, where applicable;

- maintenance of access for emergency vehicles in and/or adjacent to roadways affected by construction activities at all times; and
- repair and restoration of affected roadway rights-of-way to preconstruction conditions after construction is completed, other than permanent changes called for in the construction plans and specifications.

A copy of the construction traffic management plan must be submitted to local emergency response agencies, and these agencies are to be notified at least 14 days before the start of construction that will partially or fully obstruct roadways.

TABLE OF CONTENTS

	PAGE
1 Introduction	1-1
1.1 Background	1-1
1.2 Purpose of this Document	1-3
2 Project Description	2-1
2.1 Project Overview	2-1
2.2 Project Components	2-3
2.3 Construction	2-11
3 Environmental Checklist	3-1
3.1 Aesthetics	3.1-1
3.2 Agriculture and Forestry Resources	3.2-1
3.3 Air Quality.....	3.3-1
3.4 Biological Resources	3.4-1
3.5 Cultural Resources	3.5-1
3.6 Energy	3.6-1
3.7 Geology and Soils	3.7-1
3.8 Greenhouse Gas Emissions	3.8-1
3.9 Hazards and Hazardous Materials	3.9-1
3.10 Hydrology and Water Quality	3.10-1
3.11 Land Use and Planning.....	3.11-1
3.12 Mineral Resources	3.12-1
3.13 Noise.....	3.13-1
3.14 Population and Housing	3.14-1
3.15 Public Services	3.15-1
3.16 Recreation.....	3.16-1
3.17 Transportation and Traffic.....	3.17-1
3.18 Tribal Cultural Resources.....	3.18-1
3.19 Utilities and Service Systems	3.19-1
3.20 Wildfire	3.20-1
3.21 Mandatory Findings of Significance	3.21-1
4 Determination	4-1
5 List of Preparers	5-1

Appendices

Appendix A – Folsom Light Rail Modernization Project Plans and Profiles

Appendix B – Air Quality Modeling Assumptions and Results

Appendix C – Biological Resources Supplement

Appendix D – Noise Modeling Assumptions and Results

Tables

Table 3.3-1	National and California Ambient Air Quality Standards	3.3-4
Table 3.3-2	SMAQMD Thresholds of Significance for Criteria Pollutants	3.3-4
Table 3.3-3	Daily and Annual Project Construction Emissions	3.3-7
Table 3.4-1	Land Cover Type Acreages within the Folsom and Rancho Cordova Project Segments	3.4-2
Table 3.4-2	Special-status Species with Potential to Occur in the Project Biological Study Area.....	3.4-8
Table 3.4-3	Trees Mapped Within and Outside (within 20 feet) the Folsom and Rancho Cordova Project Segment Footprints	3.4-16
Table 3.5-1	Post-2000 Cultural Resources Investigations in the Project Area	3.5-3
Table 3.7-1	Soil Characteristics in the Gold Line Passing Track Segments.....	3.7-2
Table 3.7-2	Paleontological Sensitivity Assessment of the Gold Line Passing Track Project Segments.....	3.7-4
Table 3.8-1	Project Construction-Related GHG Emissions	3.8-3
Table 3.10-1	Beneficial Uses of the Lower American River Watershed.....	3.10-5
Table 3.10-2	Project Vicinity Section 303(d) List of Impaired Water Bodies	3.10-5
Table 3.12-1	California Geological Survey Mineral Land Classification System	3.12-1
Table 3.13-1	Existing Noise Measurements in the Project Corridor	3.13-5
Table 3.13-2	Computed Noise from Light Rail Operations in Folsom	3.13-7
Table 3.13-3	Computed Noise from Light Rail Operations in Rancho Cordova and Unincorporated Sacramento County	3.13-7
Table 3.13-4	FTA Land Use Categories and Noise Metrics.....	3.13-9
Table 3.13-5	FTA Construction Noise General Assessment Criteria.....	3.13-11
Table 3.13-6	FTA General Vibration Assessment Impact Criteria for Groundborne Vibration	3.13-12
Table 3.13-7	FTA Construction Vibration Damage Criteria	3.13-12
Table 3.13-8	FTA Construction Vibration Annoyance Criteria	3.13-13
Table 3.13-9	Maximum Transportation Noise Exposure	3.13-16
Table 3.13-10	Noise Impact Assessment for Construction Activities	3.13-18
Table 3.13-11	Summary of SacRT Operational Noise Levels	3.13-20
Table 3.13-12	Summary of SacRT Operational Vibration Impact Assessment	3.13-21
Table 3.14-1	Population in Sacramento County, Folsom, and Rancho Cordova, 2010–2035	3.14-1
Table 3.14-2	Housing Trends and Characteristics in Sacramento County, Folsom, and Rancho Cordova, 2010–2019	3.14-2
Table 3.17-1	Existing Intersection Level of Service along Project Alignment	3.17-4

Figures

Figure 1-1	SacRT Light Rail System	1-2
Figure 2-1	Project Vicinity.....	2-4
Figure 2-2	Folsom Project Segment Track Improvements	2-5
Figure 2-3	Folsom Project Segment Station Improvements	2-7
Figure 2-4	Rancho Cordova Project Segment Track Improvements!!	2-10
Figure 2-5	Rancho Cordova Project Segment Station Improvements	2-13
Figure 3.4-1	Folsom Project Segment Land Cover Types	3.4-3
Figure 3.4-2	Rancho Cordova Project Segment Land Cover Types	3.4-4
Figure 3.10-1	Folsom Project Segment Floodplain Designations.....	3.10-3
Figure 3.10-2	Rancho Cordova Project Segment Floodplain Designations.....	3.10-4
Figure 3.13-1	Typical A-weighted Sound Levels	3.13-2
Figure 3.13-2	Typical L_{dn} Noise Exposure Levels.....	3.13-3
Figure 3.13-3	Typical Levels of Groundborne Vibration	3.13-4
Figure 3.13-4	Measurement Locations for Existing Conditions in the Project Corridor	3.13-6
Figure 3.13-5	Generalized Ground-Surface Vibration Curves	3.13-8
Figure 3.13-6	FTA Impact Criteria for Noise	3.13-10
Figure 3.16-1	Folsom Bicycle and Pedestrian Trails	3.16-2
Figure 3.16-2	Rancho Cordova Bicycle and Pedestrian Trails	3.16-4
Figure 3.17-1	Key Intersections, Folsom Project Segment.....	3.17-2
Figure 3.17-2	Key Intersections, Rancho Cordova Project Segment.....	3.17-3

ACRONYMS AND ABBREVIATIONS

2016 MTP/SCS	2016 Metropolitan Transportation Plan/Sustainable Communities Strategy
AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ADA	Americans with Disabilities Act
amsl	above mean sea level
ARB	California Air Resources Board
ARCF	American River Watershed Common Features Project
AREMA	American Railroad Engineering and Maintenance-of-Way Association
ASTM	American Society for Testing and Materials
bgs	below ground surface
Blueprint	Sacramento Region Blueprint
BMP	best management practice
BP	before present
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention program
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Health and Safety Organization
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH ₄	methane
CHP	California Highway Patrol
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalents
County General Plan	Sacramento County General Plan of 2005–2030
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CUPA	Certified Unified Program Agency
CVFPP	Central Valley Flood Protection Plan
CWA	Clean Water Act
CY	cubic yard(s)
dB	decibel(s)
dBA	A-weighted decibel(s)
Delta	Sacramento–San Joaquin Delta
DOC	California Department of Conservation
DOF	California Department of Finance
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EMFAC2014	California Air Resources Board Emissions Factor database
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FFD	Folsom Fire Department
FPD	Folsom Police Department

FTA	Federal Transit Administration
GET	groundwater extraction and treatment
GHG	greenhouse gas
GO	General Orders
GWP	global warming potential
HASP	health and safety plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HCP	Habitat Conservation Plan
HFC	hydrofluorocarbon
IS	Initial Study
L _{dn}	day-night sound level
L _{eq}	equivalent sound level
L _{max}	maximum A-weighted sound pressure levels
LOS	level of service
LRA	local responsibility area
LRT	light rail train
Metro Fire	Sacramento Metropolitan Fire District
mph	miles per hour
MT	metric tons
MTIP	Metropolitan Transportation Improvement Program
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCIC	North Central Information Center
NEPA	National Environmental Policy Act
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OCS	overhead contact system
OEHHA	Office of Environmental Health Hazard Assessment
OHP HPD	California Office of Historic Preservation Historic Properties Directory
OSHA	Occupational Health and Safety Organization
PFC	perfluorocarbon
PGA	peak horizontal ground acceleration
PG&E	Pacific Gas and Electric Company
PL	Public Law
PM	particulate matter
PM ₁₀	PM equal to or less than 10 micrometers in diameter
PM _{2.5}	PM equal to or less than 2.5 micrometers in diameter
pmpg	passenger-miles per gallon
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
proposed project	Folsom Rail Modernization Double Track Project
RCPD	Rancho Cordova Police Department
RCRA	Resource Conservation and Recovery Act
RoadMod	Road Construction Emissions Model
RPS	Renewable Portfolio Standard
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments

SacRT	Sacramento Regional Transit District
SAFCA	Sacramento Area Flood Control Agency
SARA	Superfund Amendments and Reauthorization Act of 1986
SB	Senate Bill
SEL	sound exposure level
SF ₆	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SJWD	San Juan Water District
SLF	Sacred Lands File
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SMUD	Sacramento Municipal Utility District
SO ₂	sulfur dioxide
SPTCJPA	Sacramento–Placerville Transportation Corridor Joint Powers Authority
SR	State Route
SRA	State Recreation Area
SVRR	Sacramento Valley Railroad
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TMDL	Total Maximum Daily Load
UCMP	University of California, Berkeley Museum of Paleontology
UPRR	Union Pacific Railroad
US-50	U.S. Highway 50
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VdB	vibration velocity
VELB	valley elderberry longhorn beetle
VMT	vehicle miles traveled
WDR	waste discharge requirement
Williamson Act	California Land Conservation Act of 1965

1 Introduction

1.1 Background

1.1.1 Light Rail Modernization Project

In 2018, the Sacramento Regional Transit District (SacRT) was awarded approximately \$129 million in grants to enhance its light rail service, with the majority of these funds directed first to the Gold Line (originally referred to as the Amtrak Folsom project). These grants are expected to help tremendously with the SacRT's plans to convert its light rail stations, to accommodate low-floor vehicles that will expedite boarding and alighting for SacRT passengers, to acquire new low-floor vehicles to replace the existing outdated vehicles, and to make track improvements at the eastern end of the Gold Line in Rancho Cordova and Folsom that will permit SacRT to operate trains every 15 minutes instead of the current 30 minutes.

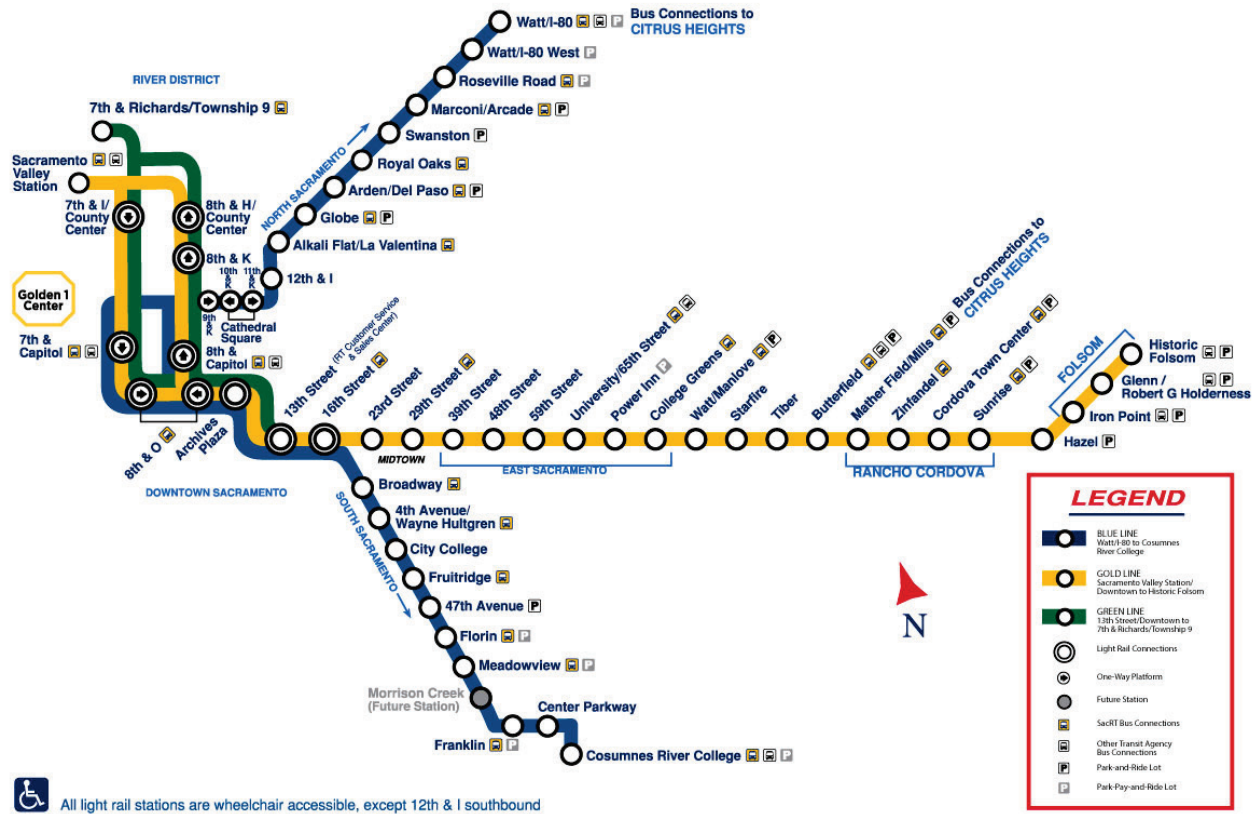
The purpose of this environmental review document, as described further below, is to evaluate the potential environmental effects of constructing and operating the proposed improvements that would allow light rail trains to operate every 15 minutes between the Sunrise Station and the eastern terminus of the Gold Line at the Historic Folsom Station, approximately 7.3 miles. The 15-minute service currently is impeded because only a single track runs between the Hazel Station and the Historic Folsom Station. Therefore, outbound light rail trains traveling from downtown Sacramento to historic Folsom, and inbound trains traveling from historic Folsom to downtown Sacramento must use the same track.

Installing a second track, or a "passing track," would allow SacRT to modernize its light rail system and increase service and reliability to historic Folsom—the second track would enable light rail trains to operate outbound and inbound between the Sunrise and Historic Folsom stations with little or no delay. In addition, at the Glenn/Robert G Holderness and Hazel stations, the existing passenger loading platforms would be modified to accommodate SacRT's new low-floor vehicles, and a new platform would be constructed so that one platform would be for inbound passengers and another platform would be for outbound passengers. The track and station enhancements would be combined with updated train signaling, enabling SacRT to optimize train movements at the existing at-grade crossings between the Sunrise and Historic Folsom stations, and thereby reducing the amount of time that the crossing gates are lowered to prevent traffic from crossing the light rail tracks.

1.1.2 Prior Environmental Review for the Gold Line

The SacRT Gold Line opened for service in 2005, connecting downtown Sacramento with Folsom, and was subsequently extended in 2006, linking with the Sacramento Valley Station, where passengers can connect conveniently to four Amtrak passenger rail lines and a number of local and regional bus routes. The Gold Line, serving 29 light rail stations, operates along 23 miles of the U.S. Highway 50 corridor, parallel to Folsom Boulevard and the Union Pacific Railroad's Placerville Branch Line, through the cities of Sacramento, Rancho Cordova, and Folsom. Figure 1-1 shows the SacRT light rail system, focusing on the Gold Line.

Figure 1-1 SacRT Light Rail System



The original light rail project underwent an environmental review beginning in the winter of 1998, pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The Final Environmental Impact Statement/Final Subsequent Environmental Impact Report was certified by the SacRT District Board of Directors on March 13, 2000, and the Record of Decision was signed by the Federal Transit Administration (FTA) on May 4, 2000. Among other components, the approved project included the following:

- the extension of existing light rail tracks from 7th and K Streets in downtown Sacramento to the Sacramento Valley Station;
- the extension of existing light rail tracks from the then end-of-the-line Mather Field Station to downtown Folsom; and
- provision of double tracks from the Sacramento Valley Station to a point approximately 2 miles east of Sunrise Boulevard, and a single track east to Iron Point Road and into downtown Folsom.
- The light rail service was to operate within a right-of-way owned by SacRT or by an association of public agencies known as the Sacramento–Placerville Transportation Corridor Joint Powers Authority (SPTCJPA).

1.2 Purpose of this Document

1.2.1 Need for Further Environmental Analysis

The environmental review that was completed in 2001 paved the way for the Gold Line project to be constructed and offer light rail service between the Sacramento Valley Station and Historic Folsom Station. That project did not include double tracking the entire corridor; specifically, between the Iron Point and Historic Folsom stations, only a single track exists and limits light rail frequency to 30 minutes between trains. To enable 15-minute service and prepare for its new low-floor light rail vehicles, SacRT is proposing the Folsom Rail Modernization Double Track Project (the proposed project), to install “passing tracks” at strategic locations along the existing single-track segment, modify the existing loading platforms at the Hazel and Glenn/Robert G Holderness Stations, and



improve signaling to optimize the movement of trains and reduce delays at the at-grade crossings along the project corridor. More details about the proposed project are provided in Chapter 2 of this document.

Because the proposed project improvements to the Gold Line were not evaluated as part of the earlier environmental review documents, they require further environmental analysis to comply with CEQA. This document is intended to serve that purpose. CEQA requires State and local governmental agencies to consider the potential adverse environmental effects of projects over which they have discretionary authority before taking action on those projects and prohibits public agencies from approving projects as proposed if feasible alternatives or feasible mitigation measures are available that would substantially lessen a proposed project’s significant environmental effects. The primary purpose of this

document is to present decision-makers and the public with the potential environmental consequences of implementing the proposed project. Information contained in this document will be used to determine whether the proposed project potentially could have significant environmental consequences. Under CEQA, the public agency with primary responsibility over approval of a proposed project is identified as the “lead agency.” SacRT has environmental review responsibilities as specified in CEQA and the State CEQA Guidelines that it must fulfill before approving and implementing any proposed improvements related to the Gold Line service.

SacRT has been awarded federal funding to assist with implementing the proposed project. As a result, federal actions and approvals will require environmental review under NEPA. Although this is not a joint NEPA/CEQA document, information contained in this document may be used to inform a NEPA document for the FTA’s consideration.

1.2.2 Type of Environmental Document

To document the assessment of environmental consequences, inform the decision-makers and the public, and determine the appropriate CEQA review document, this Initial Study (IS) has been prepared by SacRT, pursuant to the State CEQA Guidelines (Title 14, California Code of Regulations, Section 15000 et seq.). This IS includes a brief description of the proposed project, a description of the environmental setting, identification and

explanation of potential environmental impacts, a discussion of the significance of the impacts, and proposed mitigation.

More specifically, in accordance with Section 15070 of the State CEQA Guidelines:

A public agency shall prepare...a proposed negative declaration or mitigated negative declaration...when:

- (a) The initial study shows that there is no substantial evidence...that the project may have a significant impact on the environment, or
- (b) The initial study identifies potentially significant effects, but
 - (1) Revisions in the project plans or proposals [are] made by, or agreed to by the applicant...[and such revisions] would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur...

If these provisions are satisfied, SacRT can prepare a written statement describing its reasons for concluding that implementing the proposed project would not have a significant effect on the environment and, therefore, does not require preparation of an EIR. If the first condition above is satisfied, SacRT would prepare a Negative Declaration. If the second condition is satisfied, SacRT would prepare a Mitigated Negative Declaration (MND).

As described in Chapter 3, “Environmental Checklist,” implementing the proposed project could result in significant environmental impacts; however, they would be reduced to less-than-significant levels through implementation of revisions to the proposed project (in the form of mitigation measures) that have been agreed to and would be implemented by SacRT. Therefore, an IS and MND are the appropriate documents for compliance with CEQA requirements. This IS and the proposed MND would conform to these requirements and would comply with Section 15071 of the State CEQA Guidelines.

1.2.3 Public Review Process and SacRT Actions

This document is being made available to the public for a 30-day public review period, from November 13, 2019 through December 12, 2019. After comments are received from the public and reviewing agencies, SacRT is expected to adopt the MND and then approve the proposed project. After this approval, SacRT would proceed to final design of the proposed improvements, followed by construction and operations.

2 Project Description

2.1 Project Overview

The following background information about the proposed project is provided as recommended in Appendix G, Environmental Checklist Form of the State CEQA Guidelines:

1. **Project Title:** Folsom Light Rail Modernization Double Track Project
2. **Lead Agency Name and Address:** Sacramento Regional Transit District,
1400 29th Street, Sacramento, CA 95816
3. **Lead Agency Contact:** Sangita Arya, Senior Systems Engineer
Phone: 916-557-0998
e-mail: sarya@sacrt.com
4. **Project Location:** Along Folsom Boulevard through the cities of Rancho Cordova and Folsom, and through unincorporated Sacramento County, within the Sacramento–Placerville Transportation Corridor Joint Powers Authority’s right-of-way
5. **Project Sponsor’s Name and Address:** Sacramento Regional Transit District
1400 29th Street, Sacramento, CA 95816
6. **General Plan Designation(s):** Almost entirely Public/Utilities
7. **Zoning Designation(s):** Transportation in Rancho Cordova, almost entirely Light Industrial in Folsom, and Special Planning Area in unincorporated Sacramento County

8. Description of Project:

The SacRT proposes to improve its light rail service to Folsom along its Gold Line. The improvements would allow light rail trains to operate every 15 minutes from the Sunrise Station to downtown Folsom, rather than the current 30 minutes. The improvements are part of the “Folsom Light Rail Modernization Project” that collectively includes new low-floor light rail vehicles, modification to station platforms to accommodate the new vehicles, and addition of new passing tracks and signalization. Current service between the Sunrise Station and the eastern terminus of the Gold Line at the Historic Folsom Station (at Leidesdorff Street and Folsom Boulevard) is impeded because only a single track provides service between these stations. Thus, eastbound trains from the Sunrise Station to the Historic Folsom Station and westbound trains from the Historic Folsom Station to the Sunrise Station use the same track.

Although the single-track design is less costly and desirable on lesser-used lines, where demand does not justify a second track, it does result in operational and reliability disadvantages. A single-track line that takes 15 minutes of travel has capacity for only two trains per hour in each direction. In contrast, the addition of one or more passing tracks would allow trains to run every 15 minutes in each direction, if all the trains were traveling at the design speed. If a train is disabled on the single-track segment, service is held up until the train is moved. Both of these disadvantages can impede service frequency and reliability.

Grant awards to SacRT in 2018, totaling approximately \$129 million, are providing funds to enhance light rail service. The funding is from a variety of sources, including the State of California's Transit and Intercity Rail Capital Improvement Program and the Solutions for Congested Corridors Program Service improvements, federal funds from the Surface Transportation Program/Congestion Mitigation and Air Quality Improvement Program that were allocated to SacRT by the Sacramento Area Council of Governments, Caltrans lawsuit settlement with the Environmental Council of Sacramento and California Proposition 1A, the High-Speed Rail Act (2008). These funds are being directed in part to the Gold Line to enable 15-minute service frequencies, to be achieved by "double tracking" or installing a passing track and updating the signal system that controls train movements so that trains will be able to operate inbound and outbound between the Sunrise and Historic Folsom stations with little or no delay. The double tracking does not have to be constructed along the entire corridor between the stations. A properly-located section of double track, along with the appropriate signal modifications and minor adjustments to the operating schedule, would provide the means to achieve the 15-minute service frequency.

9. Surrounding Land Uses and Setting:

The project lies almost entirely within the Gold Line right-of-way ("Highway 50" corridor). The corridor generally follows Folsom Boulevard through the cities of Rancho Cordova and Folsom. The portion of the project in Folsom is defined by office, industrial, and vacant lands to the east and the Folsom Lake State Recreation Area to the west. The portion of the project in Rancho Cordova is defined by commercial and industrial uses on both sides of the corridor. The large area generally to the south of the Gold Line is part of the Aerojet facilities (including administrative and manufacturing activities related to the space, defense, and technology industries) and planned mixed use developments.

10. Other Public Agencies whose Approval is Required:

- Cities of Folsom and Rancho Cordova and Sacramento County – public right-of-way encroachment/modifications, traffic signal timing, tree replacement
- Central Valley Regional Water Quality Control Board – stormwater discharge and management; groundwater contamination and remediation related to adjacent Superfund site
- California Department of Toxic Substances Control – soil contamination and remediation related to adjacent Superfund site
- California Department of Fish and Wildlife Service – preconstruction surveys and conservation measures for special-status species
- U.S. Environmental Protection Agency – soil and groundwater contamination and remediation related to adjacent Superfund site
- U.S. Fish and Wildlife Service – preconstruction surveys and conservation measures for special-status species

11. Have California Native American tribes traditional and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.31:

Requests for consultation were sent by AECOM on behalf of SacRT on August 5, 2019 to eight potentially interested Native American tribes, as identified by the Native American Heritage Commission. As of the date of this Initial Study/Mitigated Negative Declaration, the United Auburn Indian Community of the Auburn Rancheria

responded to indicate that the project would not likely affect cultural resources of importance to the tribe, and to request receipt of the environmental documents (Starkey 2019).

2.2 Project Components

The proposed project being evaluated pursuant to would involve only passing tracks, signalization, and modification of the station platforms along the passing track segments. To achieve its desired service level of 15-minute headways,¹ SacRT has identified two potential locations for the passing tracks, at the eastern end of the Gold Line between the Sunrise and Historic Folsom stations: (1) an approximately 0.6-mile segment between Parkshore Drive and Bidwell Street in Folsom; and (2) an approximately 1.2-mile segment between Marketplace Lane and Aerojet Road in Rancho Cordova and unincorporated Sacramento County (Figure 2-1). A detailed description of each segment is presented below, and the engineering drawings showing the track layout are provided in Appendix A.

2.2.1 Folsom Project Segment

Passing Track Alignment

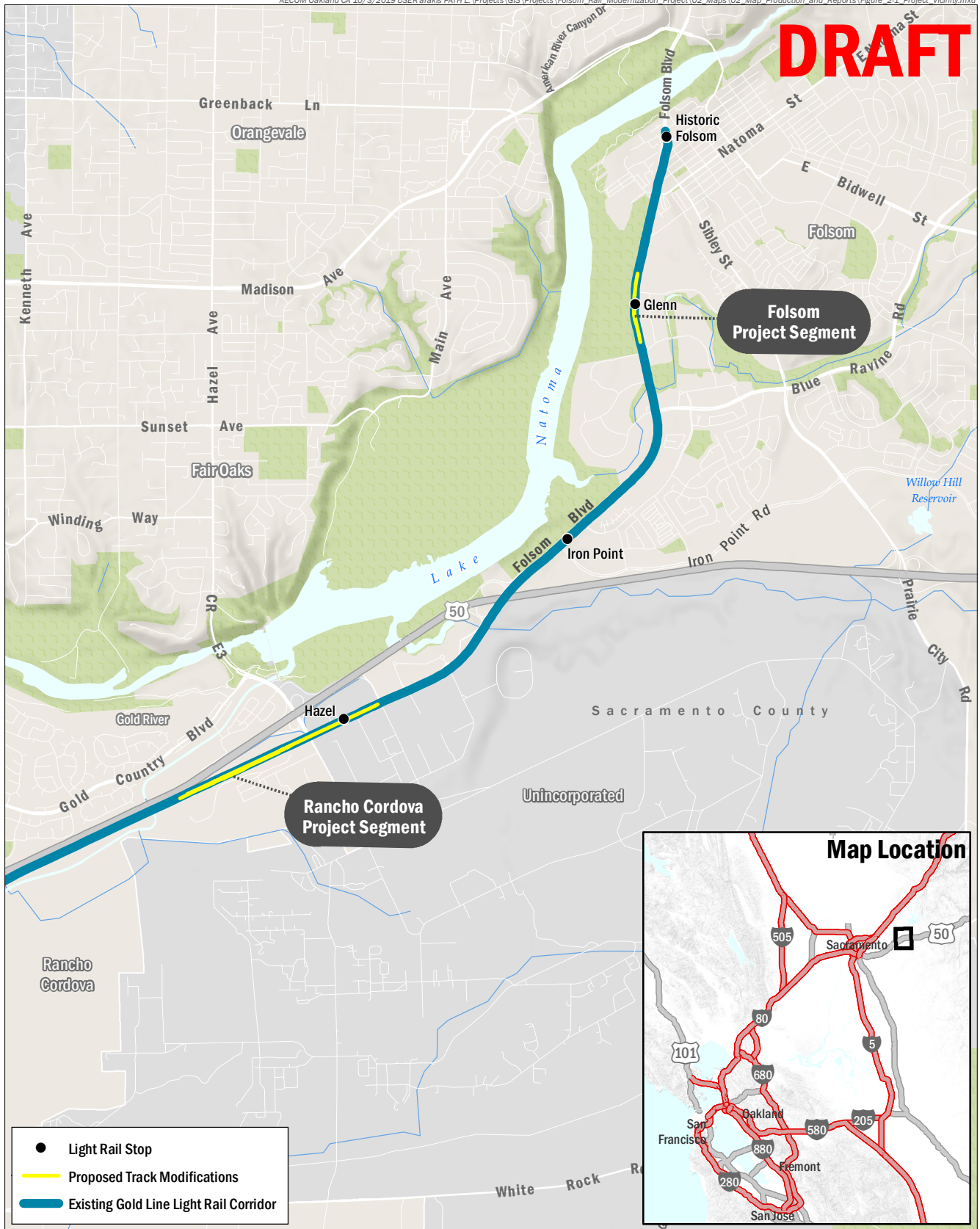
Starting just north of Parkshore Drive, the second track would be installed east of the existing single track (Figure 2-2). The centerline of the passing track would be 14 feet from the centerline of the existing track. This track alignment would be maintained for about 0.3 mile, until the tracks approach the Glenn/Robert G Holderness Station (also identified in this document by its abbreviated name, Glenn Station).

At the Glenn/Robert G Holderness Station, the passing track would merge onto the existing single track, while a second track would be installed west of the existing single track. This track layout is proposed because limited space exists to continue the passing track on the eastern side of the existing track; the land east of the existing track is occupied by an SacRT traction power substation, the existing station, and mature trees.

At the Glenn Station, the existing track would be kept in place, thus maintaining access to the existing station platform. The new track would be constructed 14 feet west of the existing track. A new platform would be constructed west of the new track. The new track and platform would extend the rail right-of-way slightly into the existing northbound, right-turn lane from Folsom Boulevard onto eastbound Glenn Drive. Sidewalk and curb modifications would be made at the southeast corner of the Folsom Boulevard/Glenn Drive intersection in accordance with City of Folsom design specifications. The existing station platform and park-and-ride lot would remain as-is.

At Glenn Drive, the western track would shift eastward and transition to the existing single track. The new passing track would be constructed east of this track. The separation between the track centerlines would narrow again to 14 feet, similar to the configuration south of the Glenn/Robert G Holderness Station. This track layout is proposed because more space exists to the east for the second track, and modifications to the existing crossing gate at Glenn Drive and the sidewalk and curb at the northeast quadrant of the Folsom Boulevard/Glenn Drive intersection would not be required. This double track alignment would continue for about 0.2 mile, at which point the tracks would converge and become a single track, approximately 300 feet south of Bidwell Street. In this segment, north of Glenn Drive, a 300-foot-long retaining wall would be constructed to protect the adjacent Folsom Parkway Rail Trail.

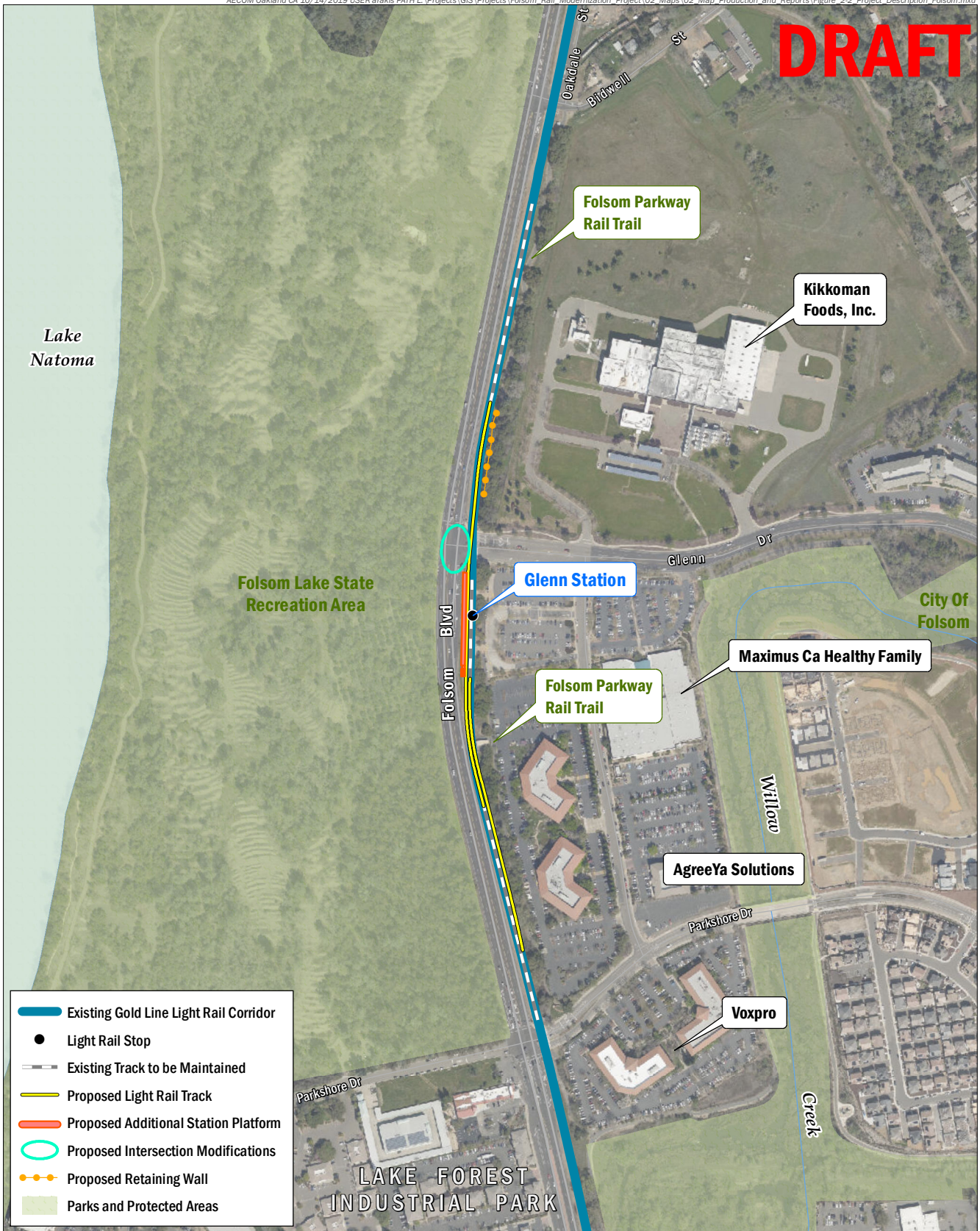
¹ The average time between light rail trains along the line. Lower headways means the wait time for passengers is less and a greater frequency in service occurs.



AECOM

Sacramento Regional Transit District
Folsom Light Rail Modernization Double Tracking Project
SACRAMENTO COUNTY, CA

FIGURE 2-1
Project Vicinity



AECOM

Sacramento Regional Transit District
Folsom Light Rail Modernization Double Tracking Project
SACRAMENTO COUNTY, CA

FIGURE 2-2

Proposed Folsom Segment Improvements

The existing overhead contact system (OCS) poles would be between the two tracks and shifted as needed. The poles currently have a single cantilevered arm to support the overhead wires above the existing track; these poles would be retrofitted with a second cantilevered arm to support the overhead wires above the new track. Approximately 13 new poles would be installed as indicated in Appendix A. Two proposed instrument houses would be installed, one just north of Glenn Drive and east of the bicycle path, and a second one where the double track reverts to single track south of Bidwell Street.

Also, drainage would be provided mainly as open ditches, with some perforated underdrains.

2.2.2 Glenn/Robert G Holderness Station

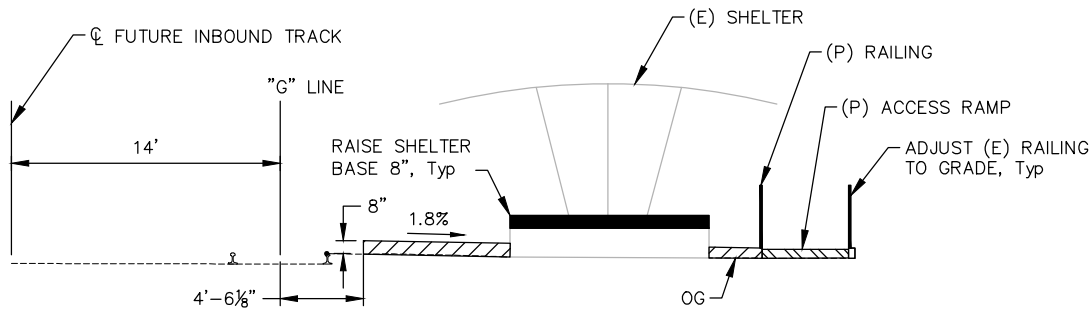
A new side-boarding station platform would be constructed between the new track and Folsom Boulevard (Figure 2-3). The new platform would be designed to accommodate the low-floor vehicles. The existing platform at the station would be modified, so that it too would be 8 inches above the top of the tracks, to accommodate the low-floor vehicles, rather than the existing SacRT station platforms that are at the same elevation as the top of the tracks. To accommodate existing SacRT light rail vehicles, the new station platform would be fitted with a mini-high platform at the south end of the station, to align with the front door of an inbound train. This mini-high platform could be removed when the new vehicle fleet becomes operational. The new platform would be approximately 15 feet wide and 338 feet long.

Passengers would access the new platform by using the existing sidewalk along the southern side of Glenn Drive. The sidewalk would be extended to cross the new track, leading to a concrete walkway to access the new platform. The existing warning devices (i.e., gate, flashing lights, and bells) would be relocated to accommodate the new track alignment.

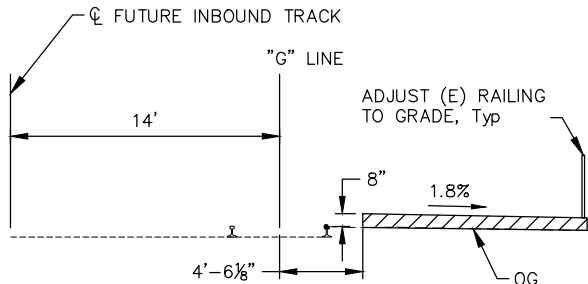
The Folsom Boulevard (western) side of the new platform would be protected by a barrier, with a steel handrail mounted on the top. The barrier would extend along the station access walkway and the street side of the sidewalk, to protect the warning device west of the new track.

The new platform would comply with the Americans with Disabilities Act (ADA) and SacRT station design criteria and safety standards. According to SacRT's Station Design Criteria, the new platform would include the following features, similar to the amenity and safety features already provided at the existing Glenn/Robert G Holderness Station and platform:

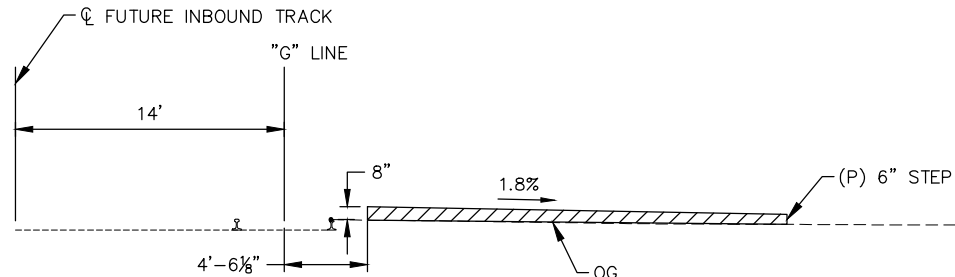
- passenger comfort features, such as canopies and seating;
- light fixtures and standards;
- security features, including surveillance cameras and speakers;
- kiosks with route maps and schedule information;
- direction signs;
- fare vending machines; and
- trash receptacles.



SECTION A-A
SCALE: NO SCALE



SECTION B-B
SCALE: NO SCALE



SECTION C-C
SCALE: NO SCALE

LEGEND:

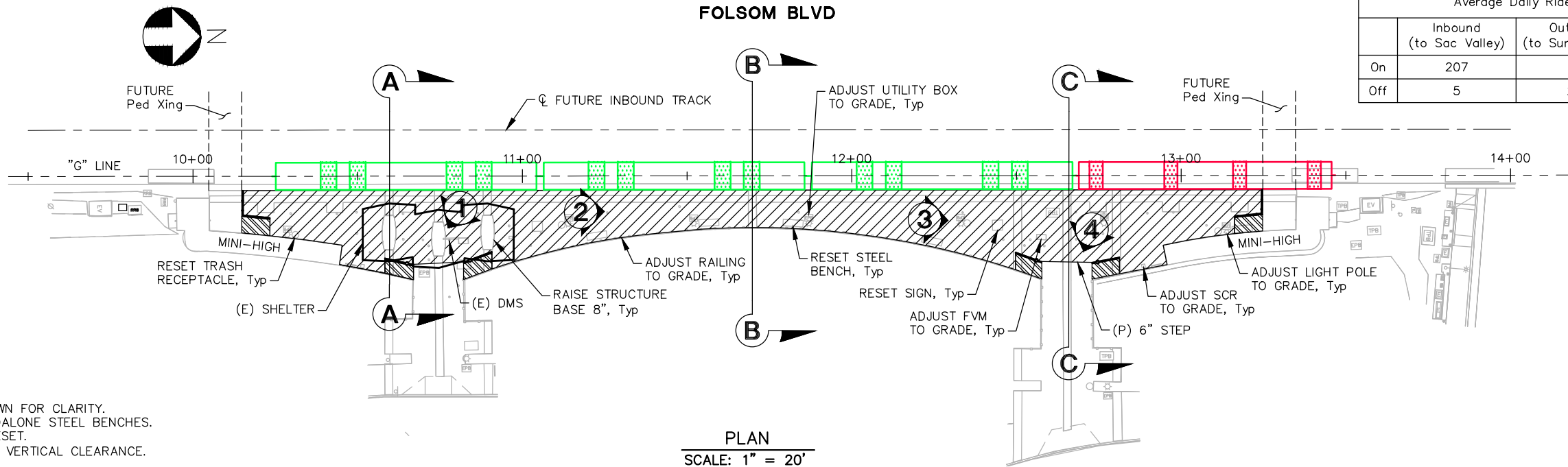
- (P) RAISED PLATFORM AREA
(8" ABOVE EXISTING TOP OF RAIL)
- (P) ACCESSIBILITY RAMP
- DRAINAGE DIRECTION OF FLOW
- TRAIN ACCESS DOOR
- (E) SIEMENS TRAIN CONFIGURATION
- FUTURE SIEMENS TRAIN CONFIGURATION

ABBREVIATIONS:

- Clr CLEARANCE
- DMS DYNAMIC MESSAGE SIGN
- DWT DETECTABLE WARNING TILE
- FVM FARE VENDING MACHINE
- Horiz HORIZONTAL
- OCS OVERHEAD CONTACT SYSTEM
- Ped PEDESTRIAN
- SCR SMART CARD READER
- Temp TEMPORARY
- TOR TOP OF RAIL
- Xing CROSSING
- (E) EXISTING
- (P) PROPOSED

NOTES:

1. EXISTING AND PROPOSED DWT ON PLATFORM NOT SHOWN FOR CLARITY.
2. ALL CONCRETE BENCHES TO BE REPLACED WITH STANDALONE STEEL BENCHES.
3. ALL EXISTING STEEL BENCHES TO BE REMOVED AND RESET.
4. ALL OVERHEAD SIGNS TO BE ADJUSTED TO 7' MINIMUM VERTICAL CLEARANCE.



PLAN
SCALE: 1" = 20'

GLENN STATION (GOLD LINE)			
Average Daily Ridership			
	Inbound (to Sac Valley)	Outbound (to Sunr/Folsom)	Total
On	207	39	246
Off	5	230	235



1



2



3



4

REVISIONS

MARK	DATE	DESCRIPTION	BY	CHKD

SCALE: VERTICAL: N/A
HORIZONTAL: AS SHOWN
ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: B. WRIGHT
DESIGNED BY: C. SPATZ
DRAWN BY: C. BRAZIL
CHECKED BY: T. HAYES

DATE

7/19

7/19

7/19

PSOMAS

1075 Creekside Ridge Drive, Suite 200
Roseville, CA 95678 | 916.788-8122



Cl:

FILE:

SUBMITTAL: PRELIM. 30%
6/29/19



LOW FLOOR VEHICLE PLATFORM CONVERSION
PRELIMINARY DESIGN

GLENN STATION

SHEET

This page intentionally left blank.

2.2.3 Rancho Cordova Project Segment

Passing Track Alignment

In the passing track segment in Rancho Cordova and unincorporated Sacramento County, there are currently three tracks at the far west project limits, adjacent to Beck's Furniture and Schnitzer Steel. The two northerly tracks are used by SacRT and converge to provide light rail service on a single track. A third track lies south of the two light rail tracks and provides freight service to the neighboring properties to the south. The existing freight track, which is owned by the SPTCJPA and operated by Union Pacific Railroad (UPRR) through a 20-foot-wide easement, would be moved approximately 15 feet south to maintain the required physical separation from the proposed light rail passing track (20 feet) (Figure 2-4). The SPTCJPA members are the SacRT, the City of Folsom, Sacramento County, and El Dorado County.

The passing track would be constructed as an extension of the existing outbound light rail track and would be 14 feet from the single light rail track that is closest to Folsom Boulevard. The freight line would be reconstructed to the south, and maintain a 20-foot separation between the centerlines of the light rail and freight tracks.

Approximately 1,000 feet east from the western project limits, a new freight rail siding also would be installed, separated 14 feet from the freight mainline. The siding would be relocated south and west of its current location, to accommodate the light rail track and allow the main freight track to end before crossing Nimbus Road. This would eliminate delays for vehicles crossing Nimbus Road when freight switching operations are performed.

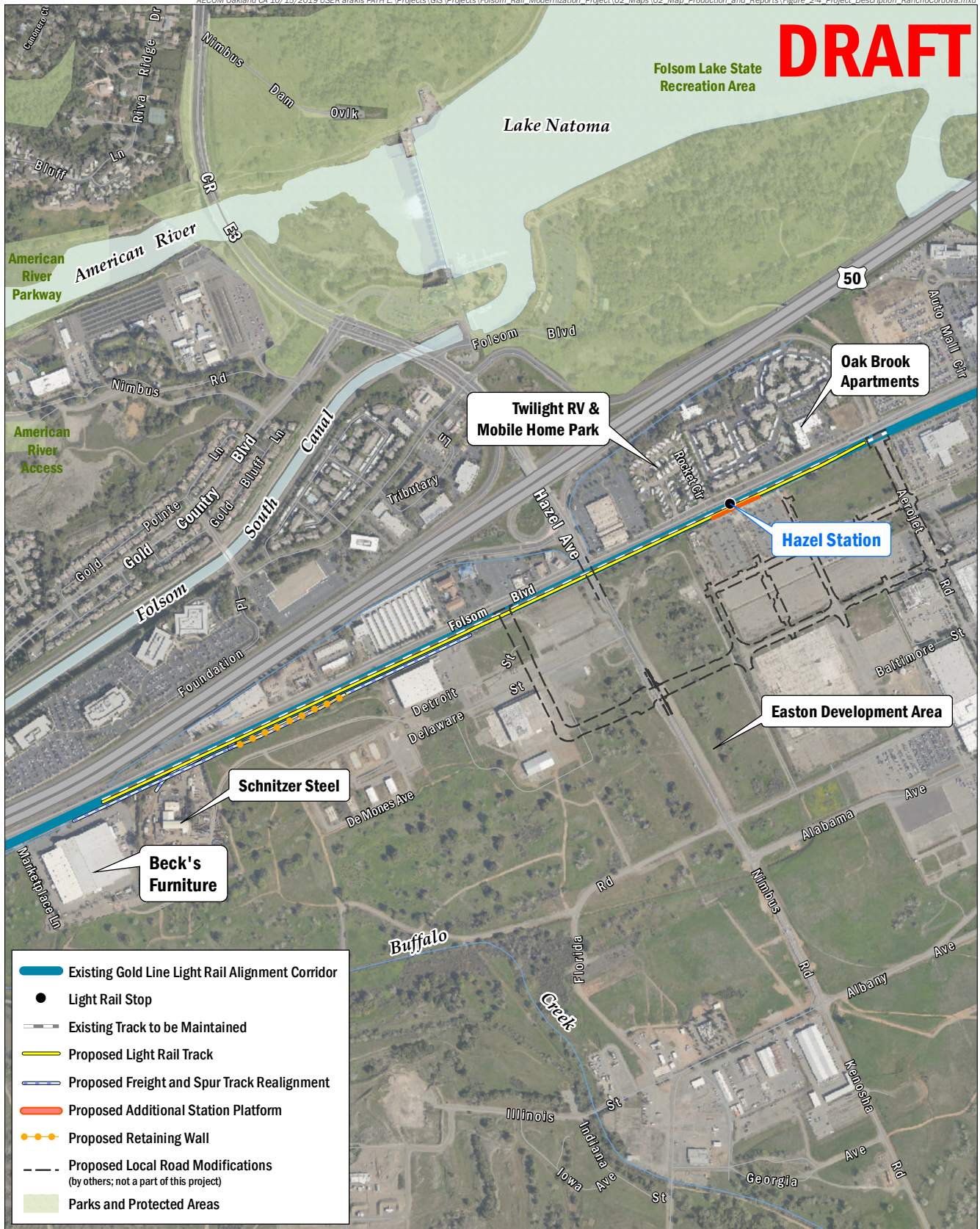
This four-track configuration (two light rail tracks and two freight tracks) would continue for 1,100 feet, at which point the track configuration would revert to three tracks (two light rail tracks and one freight track) adjacent to a large warehouse/distribution building and across Folsom Boulevard from Sentry Storage. The freight track would stop about 100 feet from the future at-grade crossing of the proposed "jug handle" that is part of the improvements at the Hazel Avenue interchange with U.S. 50.² This four-track configuration would require acquisition of private property along the south side of the right-of-way. A retaining wall, approximately 850 feet long, would be constructed along this stretch to keep the land acquisition to a minimum.

The two light rail tracks would continue to the northeast in their current alignments and configurations. The Nimbus Road grade crossing would be modified slightly to install a pre-cast track section that is required for the proposed passing track. Any modifications to the street, sidewalk, or curb would be designed in accordance with the City of Rancho Cordova and Sacramento County design specifications.

After passing Nimbus Road, as the tracks approach the Hazel Station, the alignment of the outbound track would be adjusted to conform to the existing freight track at the station. Between the station and a point before Aerojet Road, the double tracks would merge onto the existing single track to continue to the next station at Iron Point in Folsom.

Similar to the Folsom project segment, the existing OCS poles would be used as much as possible. In the Rancho Cordova project segment, approximately 10 new poles would be installed (see Appendix A). An instrument house would be proposed at the new jug handle crossing. Drainage improvements in this segment would be similar to the Folsom project segment (i.e., mainly open ditch with perforated underdrains).

² The interchange improvement in Sacramento County would be bounded along Hazel Avenue by Tributary Point/westbound off-ramp intersection to the north and would extend approximately 1,000 feet south of Folsom Boulevard to a future intersection within the approved Easton Place development. Hazel Avenue would be elevated over Folsom Boulevard and the SPTCJPA rail corridor. The "jug handle" is so called because, when viewed from above, the local street alignments look like a jug handle.



AECOM

Sacramento Regional Transit District
Folsom Light Rail Modernization Double Tracking Project
SACRAMENTO COUNTY, CA

FIGURE 2-4

Proposed Rancho Cordova Segment Improvements

Hazel Station

The addition of passing tracks in the segment west of the Hazel Station would not result in any modifications to the existing station facilities and layout, except that the existing platform would be modified, similar to the proposed changes to the existing Glenn/Robert G Holderness Station platform, to accommodate SacRT's new low-floor vehicle fleet (Figure 2-5). A new platform would be constructed along the southern side of the new track, to serve outbound passengers. The new platform would be approximately 15 feet wide and 338 feet long. New pedestrian connections would be provided to link the existing platform to the new platform.

2.2.4 Signal Operations and Gate Downtime

The train control system (signals) would be upgraded from the Sunrise Station to the Historic Folsom Station, to facilitate the increased service. The signal upgrade would allow increased operational flexibility and would reduce the downtime for crossing gates at road crossings.

For road crossings, the existing signal system uses a single-track circuit that results in the crossing gates lowering and staying in the down position. This system affects not only the intersection that a train is approaching or has just passed, but can lower the gates at several intersections, depending on the speed of the train. As a result, the gates can be in the down position long after the train has passed through the crossing. The proposed project would include additional track circuits that would detect when the train passes through the crossing and immediately would send a signal to the control cabinet to raise the gates.

At the Iron Point and Glenn Stations, on-board "call" activators would be used to lower the crossing gates only when the train is ready to leave the station. Currently, the gates at Glenn Drive start to lower when an outbound train is approaching the Glenn Station and stay in the down position until after the train has crossed Glenn Drive. With the new system, the gates would start to lower only when the train is ready to leave, thus reducing the gate downtime while meeting the California Public Utilities Commission (CPUC) requirement, depending on how long the train is stopped at the station.

Over the length of the Gold Line between the Sunrise Station and the Historic Folsom Station, SacRT has estimated the additional delay at each of the 14 street crossings would be a maximum of 14 seconds per train crossing. With 38 more scheduled trains operating along the Gold Line, the total delay on a typical weekday would be less than 9 minutes.

In conjunction with the signaling, SacRT would install two new instrument houses and replace or relocate an existing one. These structures are weatherproof buildings used to house wayside signal equipment and may also house communications equipment along the tracks.

2.3 Construction

2.3.1 General Overview

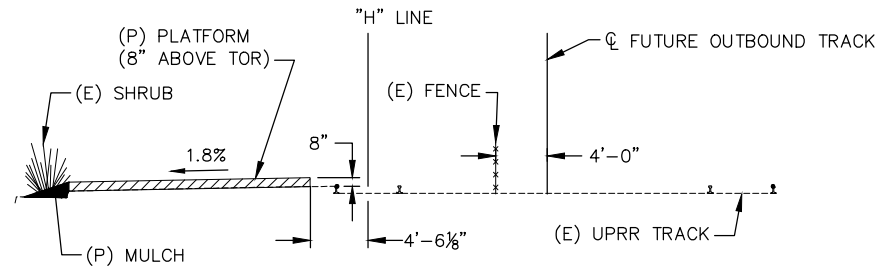
Construction of the passing tracks is expected to take approximately 25 months, starting in late 2020 and finishing at the end of 2022. Service with the new passing tracks would be operational by spring 2023. After completion of final design, acquisition of any required real estate, and selection of a construction contractor, the general construction sequence would be as follows:

1. Demolition of existing structures, including portions of the existing street curb, gutter, and sidewalk, and any structures that lie within the permanent “footprint,” the land area required for future light rail operations, stations, and other ancillary facilities.
2. If necessary, relocation of aboveground utilities, including traffic signals, SacRT OCS support poles, and other overhead utilities for electrical transmission and communications, and potentially relocation of underground utilities in various segments along the track alignment. Based on initial field visits, no overhead utilities appear to require relocation and existing underground facilities are only at street crossings, where they are at a depth not expected to be affected by construction. These utilities would be protected in place.
3. Installation of underground utilities, including all electrical systems needed for traffic control systems at street crossings. This would include installation of foundations for poles supporting the overhead contact wires; each pole (approximately 3 feet in diameter) would require a shaft up to 30 feet deep that would be backfilled with concrete. Poles typically would be 150 feet apart, depending on the alignment (closer spacing would be required, if the alignment is curved).
4. Grading to create proper site elevations along the corridor. Generally, track bed preparation would require excavation to a depth of approximately 36 inches before the rail bed is built up. Excavation may be deeper in localized areas where unsuitable material is removed and replaced to support the track section. Installation of trackwork would be included.
5. Installation of asphalt and concrete works, including curb, gutter, sidewalk, and pedestrian crossings. This would include all necessary paving for the new light rail station platforms at the Glenn/Robert G Holderness and Hazel stations.
6. Installation of aboveground electrical utilities to support the light rail operations, including power poles and overhead contact wires.
7. Completion of all architectural features for passenger service on the new light rail station platforms.

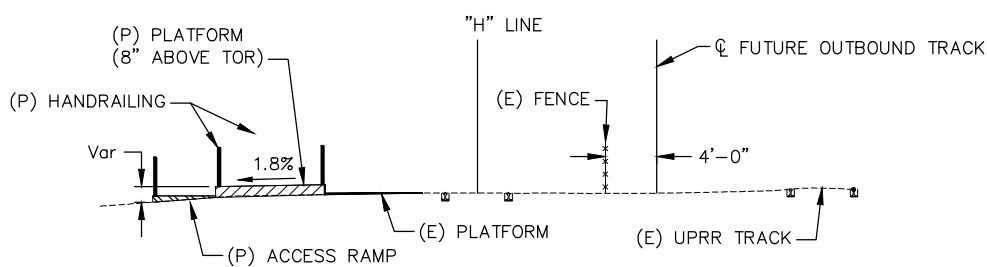
These construction activities would apply to both passing tracks, but SacRT would be expected to phase some of the construction activities, depending on the availability of funding. If funds are not sufficient to install both passing tracks, the passing track in Folsom would be constructed first.

2.3.2 Construction Techniques

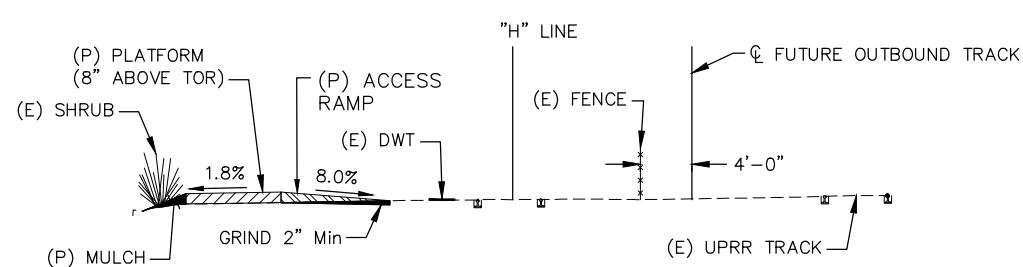
The contractor would begin construction of at-grade ballasted track sections by excavating or leveling the ground surface. Up to 3 feet typically would be graded and excavated before the rail bed is built up, although excavations of up to 5 feet could be necessary where highly compressible soils, such as peat or soft clay, are present and could not be remediated by other means because of construction or cost constraints. The contractor would be expected to re-use approximately 75 percent of the excavated materials as fill in other project areas. Following initial grading, the contractor would move earth for use in the rail bed, construct the rail bed using scrapers to expand cuts, and then deposit material to build up the rail bed. Imported fill (up to 25 percent) would be obtained from existing permitted borrow pits and quarries. Rail bed construction would be completed using subballast and ballast material from existing permitted quarries. After the track is placed, it would be adjusted to its final alignment with special rail-mounted equipment, aligning the track and tamping the ballast.



SECTION A-A
SCALE: NO SCALE



SECTION B-B
SCALE: NO SCALE



SECTION C-C
SCALE: NO SCALE

LEGEND:

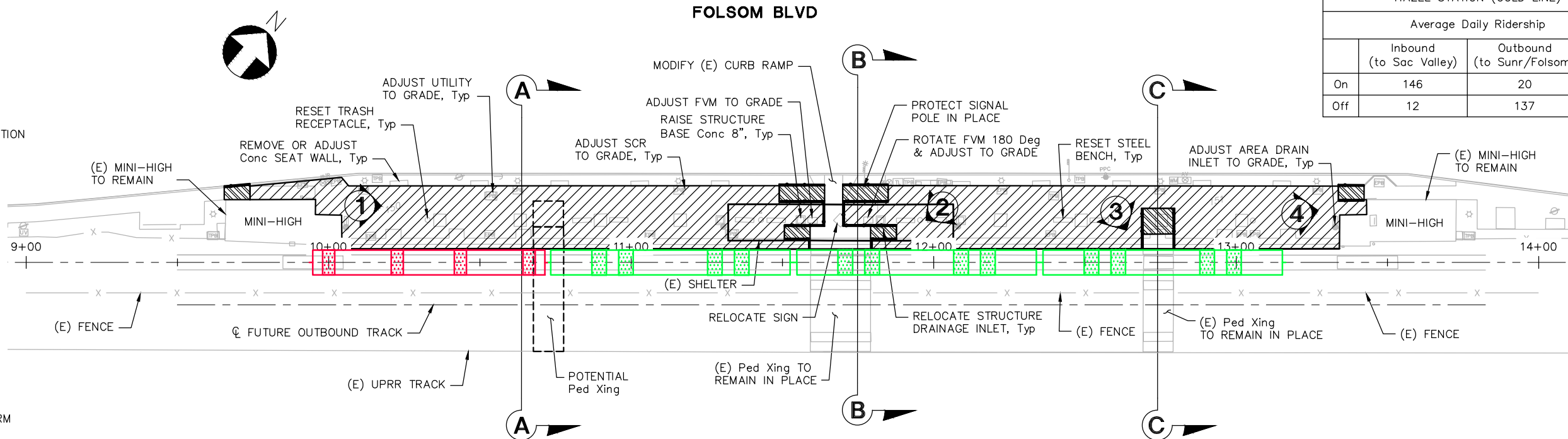
- (P) RAISED PLATFORM AREA (8" ABOVE EXISTING TOP OF RAIL)
- (P) ACCESSIBILITY RAMP
- DRAINAGE DIRECTION OF FLOW
- TRAIN ACCESS DOOR
- (E) SIEMENS TRAIN CONFIGURATION
- FUTURE SIEMENS TRAIN CONFIGURATION

ABBREVIATIONS:

- Clr CLEARANCE
- Deg DEGREES
- DMS DYNAMIC MESSAGE SIGN
- DWT DETECTABLE WARNING TILE
- FVM FARE VENDING MACHINE
- Horiz HORIZONTAL
- SCR SMART CARD READER
- Temp TEMPORARY
- TOR TOP OF RAIL
- (E) EXISTING
- (P) PROPOSED

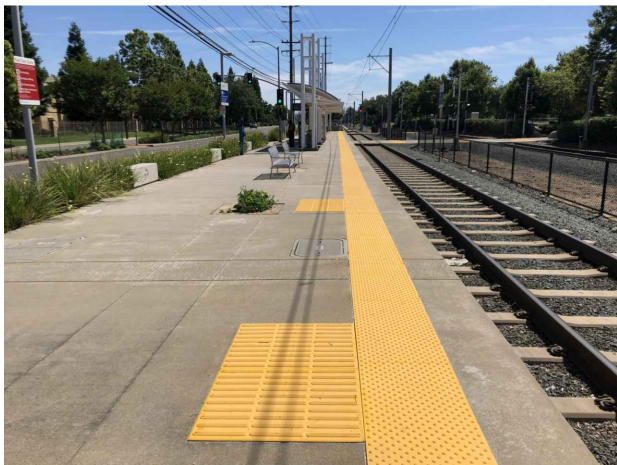
NOTES:

- EXISTING AND PROPOSED DWT ON PLATFORM NOT SHOWN FOR CLARITY.
- ALL CONCRETE BENCHES TO BE REPLACED WITH STANDALONE STEEL BENCHES. ALL EXISTING STEEL BENCHES TO BE RESET.
- ALL OVERHEAD SIGNS TO BE ADJUSTED TO 7' MINIMUM VERTICAL CLEARANCE.

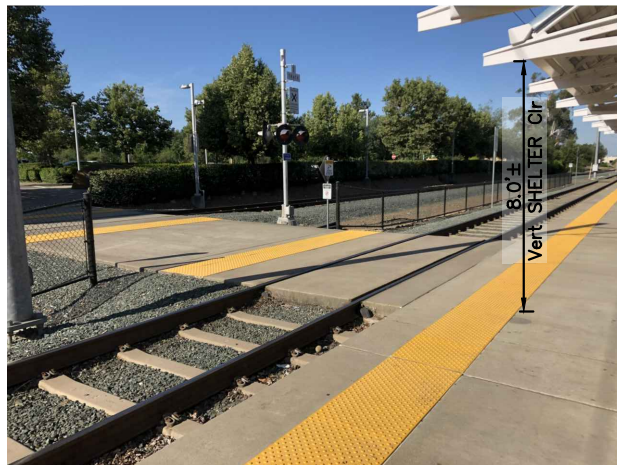


PLAN
SCALE: 1" = 20'

HAZEL STATION (GOLD LINE)			
Average Daily Ridership			
	Inbound (to Sac Valley)	Outbound (to Sunr/Folsom)	Total
On	146	20	167
Off	12	137	149



1



2



3



4

REVISIONS

MARK	DATE	DESCRIPTION	BY	CHKD

SCALE: VERTICAL: N/A
HORIZONTAL: AS SHOWN
ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: B. WRIGHT
DESIGNED BY: C. SPATZ
DRAWN BY: C. BRAZIL
CHECKED BY: T. HAYES

DATE
7/19
7/19
7/19

PSOMAS
1075 Creekside Ridge Drive, Suite 200
Roseville, CA 95678 | 916.788-8122



Cl:
FILE:
C-LFV-LAYOUTS-HAZEL.DWG
SUBMITTAL: PRELIM. 30%
6/29/19



LOW FLOOR VEHICLE PLATFORM CONVERSION
PRELIMINARY DESIGN

HAZEL STATION

SHEET

This page intentionally left blank.

For track within a street right-of-way at grade crossings, the contractor would remove existing pavement and excavate to a depth of approximately 42 inches below the final top-of-rail elevation. Some of the removed soil (10 to 12 inches) would be placed at the bottom of the excavation and compacted. A 6-inch layer of aggregate base (a gravel/sand mixture) would be placed on top of the compacted soil. Precast concrete track panels then would be placed. Underground utilities are not expected to be encountered at this depth, but if they are detected, they would be protected in place, either by a steel pipe or concrete cover.

2.3.3 Construction Schedule and Phases

The construction activities described in Section 2.3.1 would take place in the following three phases over the approximately 25-month construction duration, although the actual duration of each phase would be expected to vary:

- Phase 1 would last approximately 8 months and would include utility relocations, clearing and grubbing the project site, and installing new duct banks for traction power and signaling; along with installing foundations for OCS poles where needed, train control signal cases, and grade crossing warning devices. It also would include any new drainage facilities (open ditches and underground pipes).
- Phase 2 would last approximately 14 months and would include construction of the new station platforms and new track, relocation of OCS poles where needed, installation of signal equipment and grade crossing warning devices, and construction of sidewalk improvements. Toward the end of Phase 2, the pedestrian connection from the new platform to the park-and-ride lot, the temporary mini-high shelters, and the main shelter would be installed. Decorative and centerline fencing would be installed as well as station furniture and signage to complete this phase.
- Phase 3 would last approximately 3 months, during which the contractor would conduct operational tests, clean up the project site, and perform finishing work.

The majority of the construction equipment would be needed throughout Phase 1 and most of Phase 2, and would include graders, back hoes, medium-size cranes, dump trucks, excavators, augers, pavers, tampers, concrete trucks, and rail grinding machines.

Construction typically would occur between 7 a.m. and 4 p.m. on weekdays. Off-service hours or night work would be required for all construction within 10 feet of the nearest rail and within 10 feet of the OCS. It is estimated that the night work could be completed over a weekend, starting on a Friday night and finishing before revenue service Monday morning. When light rail service needs to be halted during part of Phase 2 when the OCS installation and the train signaling are completed, a bus bridge or temporary bus service would be put in place to replace interrupted light rail service.

The typical depth of construction would be 3 to 5 feet below ground surface, although the footings for shelters could be as deep as 10 feet, and for OCS poles could be 30 feet where needed. Staging areas have not been identified because typically it would be the contractor's responsibility to permit and obtain approval. Undeveloped lands, private parking lots, and the park-and-ride lots of the two light rail stations are adjacent to the alignment that could be used for construction staging. The outside eastbound lane of Folsom Boulevard would require temporary closures from time to time; however, no extended closure of this lane is anticipated. The greatest modifications to local streets would occur at the southeastern corner of the Folsom Boulevard/Glenn Drive intersection, where the sidewalk, curb, gutter, lane geometrics, and signalization would be modified to accommodate the second track and new platform.

2.3.4 Construction Employees and Truck Trips

The number of construction workers would vary, depending on the available funding for one or both passing track segments, the construction phase, and the schedule and hours of construction activities. The size of the construction crew would be variable throughout the 25-month construction period, subject to the needs of SacRT's contractor.

Construction workers would be encouraged to carpool or take public transit to work sites. Those driving to work sites would be expected to park at the station park-and-ride lots.

The most intense construction activities would be expected during Phase 1 and Phase 2, over the first 22 months, when construction materials and any fill would be delivered and excavation/grading and construction would be occurring within the corridor. Trucks would be used to deliver and haul materials and would include an estimated:

- 58 standard-length trucks and 14 extended-length trucks for the rails and ties for the new track;
- three standard-length flatbed trucks for the precast concrete panels would be used at the two at-grade street crossings; and
- four standard-length trucks for overhead contact lines and support poles.

3 Environmental Checklist

The proposed project potentially could affect the environmental factor(s) checked below. The following pages in this chapter present a more detailed checklist and discussion of each environmental factor.

- | | | |
|---|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input checked="" type="checkbox"/> Geology and Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards and Hazardous Materials |
| <input type="checkbox"/> Hydrology and Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input checked="" type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input checked="" type="checkbox"/> Utilities / Service Systems | <input type="checkbox"/> Wildfire | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

This IS/MND examines the proposed project to identify its potential effects on the environment. For each item on the Environmental Checklist, the evaluation has considered the impacts of the project both individually and cumulatively (i.e., combined with other reasonably foreseeable future projects). The following significance conclusions are used to describe the impacts on the environmental factors:

- **Potentially Significant Impact:** An impact that could be significant, and for which a mitigation measure must be identified. If any potentially significant impacts are identified for which mitigation is not possible, an EIR must be prepared.
- **Less than Significant with Mitigation Incorporated:** An impact that would require mitigation to be reduced to a less-than-significant level.
- **Less-Than-Significant Impact:** Any impact that would not be considered significant under CEQA, based on established significance thresholds.
- **No Impact:** The project would not have any impact.

If an item on the environmental checklist has been checked “Less than Significant with Mitigation Incorporated,” “Less than Significant Impact,” or “No Impact,” it indicates that on evaluation, the SacRT has determined that the proposed project would not have a significant adverse environmental effect related to that issue. A full discussion is included for all items checked “Less than Significant with Mitigation Incorporated” or “Less than Significant Impact,” and a brief discussion is included for items checked “No Impact.” The items checked above have been determined to be “Less than Significant with Mitigation Incorporated.” A determination of “Potentially Significant” applies when a project component could result in a significant impact for which mitigation would not be expected to reduce the impact to a less-than-significant level. As discussed in detail in the following sections of this chapter, implementation of the proposed project would not be expected to cause any “Potentially Significant” impacts.

This page intentionally left blank

3.1 Aesthetics

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Aesthetics. Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.1 Environmental Setting

The visual appearance of the landscape is dependent on the underlying landform and its landcover. Natural landscape elements include topography, geology, hydrology, vegetation, and wildlife. Engineered landscape elements include buildings, roads, infrastructure, and settlement patterns. The visual character of a particular landscape is established by the interaction of these physical elements. To determine the visual quality of the landscape, the concepts of vividness, intactness, and unity have been used (FHWA 1988), along with considerations related to viewer sensitivity (i.e., the number and type of viewers and the frequency and duration of views). Representative photographs of the existing visual character of each project segment, obtained by AECOM during a site visit on May 2, 2019, are presented in this section.

Folsom Project Segment

The Folsom project segment is in the city of Folsom on flat bottomland adjacent to the eastern boundary of the Folsom Lake State Recreation Area (SRA), approximately 1,300 feet east of Lake Natoma. The project footprint in Folsom encompasses the existing light rail track and right-of-way, along with a portion of the Glenn Station, on the east side of Folsom Boulevard from Parkshore Drive north to Bidwell Street. A modification to the right-turn lane also is planned, from northbound Folsom Boulevard to eastbound Glenn Drive. Folsom Boulevard is a major north-south travel corridor in Folsom and a locally designated scenic corridor (City of Folsom 2014). Folsom Boulevard is a paved, four-lane arterial roadway with Class II bike lanes in both directions. A barren strip of brown dirt approximately 12 feet wide separates the light rail right-of-way from the roadway. The rails and ties of the light rail tracks are supported on an elevated bed of grey crushed rock (referred to as the ballast). Slim, grey metal poles with overhead electrical lines for the light rail train (referred to as the OCS) are visible at intervals on the east side and running parallel with the tracks. Tall, brown wood poles with multiple overhead electrical lines are along both the east and west sides of Folsom Boulevard.

Both sides of Folsom Boulevard are lined by tall deciduous trees and small shrubs and grasses. Views of 20-foot-tall piles of grey/brown dredger mine tailings in the Folsom Lake SRA are visible between Glenn Drive and Bidwell Street. (Viewpoint 1).



Viewpoint 1. Looking north along Folsom Boulevard between Glenn Drive and Bidwell Street. The light rail track bed, tracks, OCS, and trees shading the Folsom Parkway Rail Trail, are on the right (in the foreground and middleground). Wood electrical poles and overhead electrical lines, along with trees and piles of dredger mine tailings in the Folsom Lake SRA, are on the left (in the foreground and middleground). Folsom Boulevard, which consists of four lanes, a center turn lane, and Class II bicycle lanes, is in the center (in the foreground and middleground). Trees and shrubs are along both sides of Folsom Boulevard.

Folsom Boulevard from Aerojet Road to Greenback Lane (which includes the Folsom project segment) is a scenic corridor, designated by the City of Folsom (2014). Trees on the east side of Folsom Boulevard provide shade for the Folsom Parkway Rail Trail, which begins at Bidwell Street and continues south along Folsom Boulevard to the Iron Point Light Rail Station, south and east of the project segment (Viewpoint 2). This Class I pedestrian and bicycle trail parallels the light rail tracks in the Folsom project segment and through the Glenn Station, adjacent to and east of the project footprint.

The dominant features in the viewshed consist primarily of Folsom Boulevard and the adjacent trees on both sides of the roadway. The visual prominence of the roadway, with its linear alignment, black color, and smooth texture, is the primary visual feature in the viewshed. However, the mounded forms of the trees and shrubs introduce a visual contrast in terms of form, color, mass, and scale that softens the linear nature of Folsom Boulevard and the other human-made elements, particularly in spring and summer when the vegetation is green. The light rail track and ballasted track bed are visually similar in form, line, and color to the roadway, and therefore blend with the landscape. The occasional presence of the Gold Line light rail trains is consistent with passenger vehicles and light duty trucks on the roadway. The form and color of the light rail OCS and poles are visible along the east side of Folsom Boulevard but are visually similar to the overhead electrical lines and poles on the west side of the roadway.



Viewpoint 2. Looking south along the Folsom Parkway Rail Trail near Bidwell Street. The paved Class II multi-use trail and associated trees and other vegetation; light rail tracks, and associated OCS; Folsom Boulevard; and vegetation and dredger mine tailings in the Folsom Lake SRA are visible in the foreground, middleground, and background.

At the Folsom Boulevard/Glenn Drive intersection (where project-related improvements to the right-turn lane are proposed), grey metal poles with overhead traffic signals and signage are present. Tall metal crossing signals with red and white striped movable barriers also are visible at the intersection, along with white roadway striping for the Folsom Parkway Rail Trail crossing through Glenn Drive. However, the dominant element in the viewshed is the tall deciduous trees on both sides of Folsom Boulevard, particularly on the west side in the Folsom Lake SRA (Viewpoint 3).

The viewshed in the Folsom project segment also includes a few office, transit, and manufacturing land uses on the east side of Folsom Boulevard. Two office buildings with paved parking lots and landscaping are adjacent to and east of the Folsom Parkway Rail Trail between Parkshore Drive and Glenn Drive; however, views of these buildings are blocked by trees on the east side of Folsom Boulevard. The Glenn Station (Viewpoint 4) has been designed with minimal street frontage and dark colors, to blend in with the trees on the east side of Folsom Boulevard. Between Glenn Drive and Bidwell Street, the Kikkoman Foods manufacturing facility occupies a large parcel that includes two-story block industrial buildings painted tan and white, landscaping, grass fields, and paved internal roadways and parking areas. Most views of the Kikkoman Foods facility are blocked by trees along the east side of Folsom Boulevard. The Glenn Station light rail boarding platform (Viewpoint 4) consists of a long, narrow, light-colored concrete area at the same elevation as the light rail tracks. The platform has decorative metal lighting, fencing, benches, shade structures, informational signage, trash receptacles, and is lined by tall, deciduous urban street trees.



Viewpoint 3. Looking north along Folsom Boulevard from Parkshore Drive. The light rail track, gravel railroad bed, metal poles with overhead electrical lines, Folsom Boulevard, and trees in the Folsom Lake SRA and along the Folsom Parkway Rail Trail are visible in the foreground, middleground, and background.



Viewpoint 4. Looking south at the Glenn Station. Trees, shade structures, and the concrete boarding platform, along with the light rail tracks and the OCS, and the proposed location of the new boarding platform, are visible in the foreground and middleground. Folsom Boulevard and trees in the Folsom Lake SRA are visible in the foreground, middleground, and background.

The human-made circulation elements, including Folsom Boulevard and its vehicles and bicycle lanes, the light rail facilities and trains, traffic signals and electrical lines, shade trees on both sides of Folsom Boulevard, and the Class I bicycle trail convey a coordinated, planned, “complete street” as envisioned by the Folsom General Plan 2035 (City of Folsom 2018a) and the Sacramento Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) (SACOG 2016). The viewshed along the Folsom project segment exhibits a high degree of visual coherence, vividness, and compositional harmony. Because the vividness, intactness, and unity of the viewshed are considered to be high, the visual quality also is considered high.

Rancho Cordova Project Segment

The Rancho Cordova project segment is in the city of Rancho Cordova and unincorporated Sacramento County on flat alluvial terrace land. The project footprint in this segment encompasses the light rail right-of-way and a portion of the Hazel Station, from Aerojet Road to the southern end of the Schnitzer Steel facility. Folsom Boulevard is a paved, four-lane arterial roadway with Class II bike lanes in both directions. Both sides of Folsom Boulevard in the Rancho Cordova project segment are heavily developed with commercial and industrial land uses, particularly on the north side. Stretches of Aerojet-owned undeveloped land are on the south side of Folsom Boulevard—on the east and west sides of the Hazel Station and immediately east of Schnitzer Steel. Although a few scattered urban street trees are along Folsom Boulevard, the area surrounding the Rancho Cordova project segment is primarily open, and therefore the commercial and industrial development is clearly visible throughout the viewshed (Viewpoints 5, 7, and 8).



Viewpoint 5. Looking southwest along Folsom Boulevard from Aerojet Road. Railroad crossing structures, light rail track, OCS, wood power poles with overhead electrical lines, Folsom Boulevard, urban street trees, fencing, and commercial development are visible in the foreground, middleground, and background.

The Hazel Station stands out from the surrounding landscape because of its tall, white, tubular metal features, associated with white metal shade canopies (Viewpoint 6). The boarding platform consists of a long, narrow, light-colored concrete area at the same elevation as the light rail tracks. The platform has decorative metal lighting, fencing, benches, informational signage, and trash receptacles. Deciduous urban street trees occupy the

narrow area between the platform and the adjacent parking lot to the east. Commercial development, landscaped with urban street trees, is on the northwest side of Folsom Boulevard, opposite the light rail station.



Viewpoint 6. Looking north at the Hazel Station. Fencing and commercial development, Folsom Boulevard, wood power poles with overhead electrical lines, and white shade canopies over the Hazel Station boarding platform are visible in the foreground. Folsom Boulevard and associated traffic signals, commercial development, fencing, and urban street trees are visible in the middleground and background.

At the western end of the Rancho Cordova project segment, west of Nimbus Road, commercial and industrial development (including the Aerojet facilities on the south side of Folsom Boulevard) are on both sides of Folsom Boulevard (Viewpoints 7 and 8). Tall power poles, with numerous overhead electrical lines running north-south and east-west, are visible throughout the viewshed. A variety of architectural styles and exterior coatings are visible on the block-style older buildings. A few deciduous urban street trees have been planted along the northwest side of Folsom Boulevard. The undeveloped and vacant fields that are associated with the Aerojet property on the southeast side of Folsom Boulevard throughout the Rancho Cordova project segment are green in the spring but brown during the rest of the year.

Overall, the existing forms, colors, and textures in the Rancho Cordova project segment do not create a visually coherent corridor, particularly in the area south and west of Hazel Avenue. The human-made circulation elements—Folsom Boulevard and the light rail tracks, along with the overhead electrical lines—are the dominant features in the viewshed. A moderate degree of unity and a low degree of vividness and intactness exist; therefore, the overall visual quality is considered to be low.



Viewpoint 7. Looking south at Folsom Boulevard from Nimbus Road. The light rail tracks, OCS, chain-link fencing around the Aerojet property, a portion of SacRT wayside equipment, wood power poles and overhead electrical lines, Folsom Boulevard and associated traffic signals, commercial development, and scattered trees are visible in the foreground, middleground, and background.



Viewpoint 8. Looking south at Folsom Boulevard south of Hazel Avenue. The light rail tracks, OCS, wood power poles and overhead electrical lines, Aerojet industrial development and metal fencing, Folsom Boulevard, metal overhead street lights, signage, scattered urban street trees, and commercial development are visible in the foreground and middleground. Wood power poles, Folsom Boulevard, and trees in front of Schnitzer Steel are visible in the background.

3.1.2 Discussion

a) Have a substantial adverse effect on a scenic vista?

Less than Significant. In the Folsom project segment, scenic vistas are along Lake Natoma and the Jedediah Smith Memorial Trail, approximately 1,200 feet west of the project footprint. However, views of the project segment from these areas are blocked by tall trees, thick shrubs, and 20-foot-tall piles of dredge tailings. The project footprint is approximately 130 feet east of, and is clearly visible from the eastern edge of the Folsom Lake SRA. This portion of the SRA does not have any developed recreation facilities, other than the Jedediah Smith Memorial Trail. The portion of the SRA that is opposite the project footprint consists of 20-foot-tall piles of dredger mine tailings, interspersed with tall deciduous trees and thick shrubs; the visual quality in this area of the SRA is considered to be moderate. Because this portion of the SRA contains piles of unstable mine tailings, does not include trails, and is screened by thick vegetation, this area receives little recreational use. Even if recreationists were in this area of the SRA between the Jedediah Smith Memorial Trail and Folsom Boulevard, the proposed double track for light rail and the second loading platform would not detract from scenic views, because the new facilities would be substantially similar in appearance to the existing light rail facilities. These proposed facilities are part of the “complete streets” concept for Folsom Boulevard, as envisioned by the Folsom General Plan 2035 (City of Folsom 2018a) and the Sacramento MTP/SCS (SACOG 2016). Therefore, the impact would be **less than significant**.

In the Rancho Cordova project segment, scenic vistas are along the American River Parkway, Lake Natoma, the Jedediah Smith Memorial Trail, the Nimbus Flat Recreation Area, and the Nimbus Fish Hatchery, which are approximately 1,200–4,000 feet northwest of the project footprint. Views of the project footprint from these areas are blocked by the intervening topography, distance, vegetation, and buildings. Thus, **no impact** on scenic vistas would occur.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less than Significant. No State-designated scenic highways are in the project vicinity. U.S. Highway 50 (US-50) at Placerville and State Route (SR) 160 at Freeport, approximately 21 miles east and 18 miles southwest, respectively, are the closest State-designated scenic highways (Caltrans 2017). However, Folsom Boulevard from Aerojet Road to Greenback Lane (which includes the Folsom project segment) is a locally designated scenic corridor, per the Folsom General Plan 2035 (City of Folsom 2014) and Section 17.59.040 of the City of Folsom Zoning Ordinance.

The proposed project would include removal of trees within the project footprint, as discussed in Section 3.4, “Biological Resources” (Figures 3.4-1 and 3.4-2). The proposed loss of four trees in the Folsom project segment would minimally alter the visual setting, because the trees that would be removed occur within a narrow strip along the project footprint, are spaced apart (rather than clustered), and the surrounding area would remain visually intact because other trees still would be present (although they may be trimmed). Thus, the visual appearance of the Folsom project segment would continue to be a tree-lined corridor with high visual coherence and vividness, as viewed from Folsom Boulevard.

The proposed new concrete boarding platform, signage, and shade structures would be consistent visually with the existing Glenn Station facilities. As shown in Viewpoints 1, 3, and 4, the light rail system is a visual element of the Folsom Boulevard viewshed. The proposed passing track, additional boarding platform, and signage would be constructed immediately adjacent to, and visually similar and compatible with, the existing track and boarding

platform/signage. Therefore, the proposed project would not substantially damage scenic resources within a locally designated scenic highway, and the impact would be **less than significant**.

- c) **Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?**

Folsom Project Segment

Less than Significant. The Folsom project segment is in an urbanized area. As described in item b, Folsom Boulevard in this segment is a locally designated scenic corridor, per the Folsom General Plan 2035 Existing Conditions Report (City of Folsom 2014) and Section 17.59.040 of the City of Folsom Zoning Ordinance. Folsom General Plan Policy NCR 2.1.1 states that the City shall protect views along identified scenic corridors. The SacRT Gold Line light rail service in Folsom and the Glenn Station are identified in the Folsom General Plan 2035 and the SACOG MTP/SCS as an important part of Folsom's transit-oriented development strategy. General Plan Policy NCR 2.1.2 states that through the planned development permit process, the City shall require new development to be located and designed to visually complement the natural environment along Folsom Lake, the American River, nearby hillsides, and major creek corridors, such as Humbug, Willow, Alder, and Hinkle (City of Folsom 2018a). Willow Creek is approximately 800 feet east and 750 feet south of the project footprint, and because of the intervening buildings and vegetation, is not visible. Folsom Lake and the American River are approximately 1,200 feet west of the project footprint, and because of the intervening vegetation and piles of dredger mine tailings, are not visible. General Plan Goal LU 9.1 encourages community design that results in a distinctive, high-quality built environment with a character that creates memorable places and enriches the quality of life of Folsom's residents. General Plan Policy LU 9.1.6 encourages the landscaping of public rights-of-way and planting of street trees to beautify Folsom, consistent with water-wise policies.

The proposed facilities would be constructed on the east side of Folsom Boulevard, in an area zoned for light industrial development, along with a small area zoned for apartment housing (City of Folsom 2018b). The west side of Folsom Boulevard is zoned Open Space Conservation District, associated with the Lake Natoma sub-unit of the Folsom Lake SRA.

As described in item b, the proposed project would be constructed immediately adjacent to, and would be visually compatible with the existing light rail track, OCS, wood poles, crossing signals, and facilities at Glenn Station. There would be some removal of trees, but their removal would not be visually noticeable and SacRT would follow tree replacement standards described in the city's tree protection ordinance. Thus, the proposed improvements would not contrast visually with the existing landscape or alter the visual quality of the setting. The proposed project would not conflict with applicable zoning and other regulations governing scenic quality. Therefore, the impact on visual character and public views would be **less than significant**.

Rancho Cordova Project Segment

Less than Significant. The SacRT Gold Line service in Rancho Cordova and the Hazel Station are identified in the Rancho Cordova General Plan 2035 and the SACOG MTP/SCS as an important part of Rancho Cordova's transit-oriented development strategy. The Circulation Element of the Rancho Cordova General Plan identifies the need to: foster north/south, east/west connectivity, allowing citizens to leave their cars at home and use an attractive transit system; simplify current and future transit routes, to provide more frequent and efficient services; and make transit service fun, fast, and frequent so that it attracts riders. The Urban Design Element identifies the need to: create high-quality urban design throughout the community that is visually pleasing and inviting; and use

site, architecture, and streetscape features to create a unifying theme, such as common light fixtures or benches, landscaping, or citywide signage. General Plan Policy LU.1.4 states that the City will promote high quality, efficient, and cohesive land utilization that minimizes negative impacts (e.g., traffic congestion and visual blight) and environmental hazards (e.g. flood, soil instability) on adjacent neighborhoods and infrastructure, and preserve existing and future residential neighborhoods from encroachment of incompatible activities and land uses (City of Rancho Cordova 2018).

The Folsom Boulevard Complete Street Master Plan (SCDOT et al. 2016) includes plans to transform Folsom Boulevard from an automobile-oriented corridor to a compact, mixed-use transit rail corridor. From Hazel Avenue north to the city limits, the Complete Street Master Plan includes plans for landscaped medians, sidewalks, and Class II bike lanes on both sides of Folsom Boulevard, additional light rail service, additional light rail stations and track, and new lighting. The Rancho Cordova project segment, from Hazel Avenue north to Aerojet Road, is within the area that is covered by the Complete Street Master Plan.

The proposed facilities would be constructed on the south side of Folsom Boulevard, within a designated and zoned transportation corridor that is adjacent to areas zoned as commercial and industrial/manufacturing, along with planned transit-oriented development, including Easton Place and Glenborough (City of Rancho Cordova 2019).

The proposed project would be constructed immediately adjacent to, and would be visually identical to the existing light rail track, OCS, wood poles, crossing signals, and facilities at Hazel Station. Thus, the proposed improvements would not visually contrast with the existing landscape or alter the visual quality of the setting. The proposed project would not conflict with applicable zoning and other regulations governing scenic quality. Therefore, the impact on visual character and public views would be **less than significant**.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant. The proposed passing track, associated facilities, and OCS would not require lighting. The Glenn and Hazel stations are equipped with lighting that is consistent with SacRT design criteria for public safety, as well as with local Folsom and Rancho Cordova policies requiring light fixtures to be shielded and directed downward, to reduce light pollution. New lighting, associated with the additional boarding platforms at the stations, also would be installed according to these standards. Because the new boarding platforms and associated shelters would comply with these standards and would be similar to the existing lighting at the stations, they would not result in substantial new sources of glare. Therefore, the impact on substantial light and glare would be **less than significant**.

3.1.3 References

California Department of Transportation (Caltrans). 2017. *Eligible and Officially Designated Scenic Highways*. Available: <http://www.dot.ca.gov/design/lap/livability/scenic-highways/index.html>. Accessed April 30, 2019.

City of Folsom. 2014 (April). *City of Folsom General Plan Update, Existing Conditions Report*. Available: https://www.folsom.ca.us/community/planning/general_plan.asp. Accessed April 23, 2019.

———. 2018a (August). *Folsom General Plan 2035*. Available: https://www.folsom.ca.us/community/planning/general_plan/2035_general_plan.asp. Accessed April 23, 2019.

- . 2018b (May). *Zoning Map*. Available: <https://assist.folsom.ca.us/civicax/filebank/blobdload.aspx?blobid=33316>. Accessed June 24, 2019.
- City of Rancho Cordova. 2018 (December). *Rancho Cordova General Plan*. Adopted June 2006, updated December 2018. Available: <https://www.cityofranchocordova.org/government/planning/general-plan#a4>. Accessed June 24, 2019.
- . 2019. *Zoning Map*. Available: <https://www.cityofranchocordova.org/government/planning/most-used-documents/maps>. Accessed June 24, 2019.
- Federal Highway Administration (FHWA). 1988. *Visual Impact Assessment for Highway Projects*. Publication No. FHWA-HI-88-054. Washington, DC.
- Sacramento Area Council of Governments (SACOG). 2016 (February). *Metropolitan Transportation Plan/Sustainable Communities Strategy*. Available: <https://www.sacog.org/2016-mtpscs>. Accessed April 23, 2019.
- Sacramento County Department of Transportation (SCDOT), Echelon Transportation Group, and Walk Sacramento. 2016 (April). *Folsom Boulevard Complete Street Master Plan*. Available: <http://www.sacdot.com/Documents/Projects/Folsom%20Boulevard%20Complete%20Street%20MP/Master%20Plan%20Documents%204-16/FINAL%20-%20Folsom%20Blvd%20Complete%20Street%20Master%20Plan%204-12-16.pdf>. Accessed April 16, 2019.

This page intentionally left blank

3.2 Agriculture and Forestry Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Agriculture and Forestry Resources.				
<p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.</p> <p>Would the project:</p>				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.2.1 Environmental Setting

The project segments are in the heavily developed and urbanized downtown Rancho Cordova and Folsom areas. The project segments and surrounding area are not zoned for agricultural uses (see Section 3.11, "Land Use and Planning," for further discussion).

The California Department of Conservation's (DOC) Important Farmland classifications—Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance—recognize the land's suitability for agricultural production by considering the physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops. Together, Important Farmland and Grazing Land are defined by DOC as "Agricultural Land" (California Public Resources Code, Sections 21060.1 and 21095).

Appendix G of the State CEQA Guidelines requires focusing an analysis on conversion of agricultural land on Prime Farmland, Farmland of Statewide Importance, or Unique Farmland; therefore, any conversion of these lands would be a significant impact under CEQA. According to the Sacramento County Important Farmland map, published by DOC's Division of Land Resource Protection, the project segments and adjacent lands are designated as Urban and Built-Up Land and Other Land (DOC 2016a). Urban and Built-Up Land is defined as land that is used for residential, industrial, commercial, institutional, and public utility structures, and for other developed purposes (DOC 2015). Other Land consists of miscellaneous uses, such as low-density rural developments; brush, timber, wetland, and riparian areas that are not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; and water bodies (DOC 2015). DOC does not consider Urban and Built-Up Land or Other Land to be Important Farmland.

Under the California Land Conservation Act of 1965 (also known as the Williamson Act), local governments can enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes.

Public Resources Code Section 12220(g) defines forest land as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows management of timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Similar to the above examination of agricultural lands, Appendix G of the State CEQA Guidelines requires an analysis of conversion of forest land to non-forest uses. Such conversion would be a significant impact under CEQA.

3.2.2 Discussion

a) **Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

No Impact. As discussed in Section 3.2.1, the project segments and surrounding areas are designated by the Sacramento County Important Farmland map as Other Land and Urban and Built-Up Land, which are not considered Important Farmland under CEQA (Public Resources Code Sections 21060.1 and 21095 and State CEQA Guidelines Appendix G). Therefore, **no impact** would occur related to conversion of farmland.

b) **Conflict with existing zoning for agricultural use or a Williamson Act contract?**

No Impact. The project segments and surrounding area are not zoned for agricultural uses (see Section 3.11, "Land Use and Planning"). In addition, no parcels within or adjacent to the project segments are under Williamson Act contracts (DOC 2016b). Therefore, **no impact** would occur related to conflicts with existing agricultural zoning or contracts.

- c) **Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?**

No Impact. The project segments are not zoned as forestland, timberland, or a Timberland Production Zone (see Section 3.11, “Land Use and Planning”). Therefore, **no impact** would occur related to conflicts with existing timberland zoning.

- d) **Result in the loss of forest land or conversion of forest land to non-forest use?**

No Impact. Based on site visits and review of aerial photography of the project segments and adjacent areas, the project segments do not contain 10 percent native tree cover necessary to be classified as forestland under Public Resources Code Section 12220(g). Therefore, **no impact** would occur related to loss or conversion of forest land.

- e) **Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?**

No Impact. See responses to items a and d. Because no agricultural land uses or forestland are within or adjacent to the project segments, implementing the proposed project would not result in other changes in the physical environment that would cause the conversion of agricultural land, including Important Farmland, to nonagricultural uses or cause conversion of forestland to non-forest uses. Therefore, **no impact** would occur related to other project-related changes that could result in conversion of farmlands or forest lands.

3.2.3 References

- California Department of Conservation (DOC). 2015 (September). *California Farmland Conversion Report 2015*. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/FMMP_2010-2012_FCR.aspx. Accessed December 13, 2017.
- . 2016a. *California Important Farmland Finder*. Available: <https://maps.conservation.ca.gov/DLRP/CIFF/>. Accessed December 13, 2017.
- . 2016b. *Sacramento County Williamson Act FY 2015–2016*. Available: <ftp://ftp.consrv.ca.gov/pub/dlrp/wa/>. Accessed December 13, 2017.

This page intentionally left blank

3.3 Air Quality

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Air Quality. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.3.1 Environmental Setting

Air quality is defined by the concentration of pollutants in relation to their impact on human health. Concentrations of air pollutants are determined by the rate and location of pollutant emissions released by pollution sources, and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, and sunlight. Therefore, ambient air quality conditions within the local air basin are influenced by natural factors, such as topography, meteorology, and climate, in addition to the amount of air pollutant emissions released by existing air pollutant sources.

The proposed project segments are in Folsom, unincorporated Sacramento County, and Rancho Cordova in Sacramento County. Sacramento County is in the Sacramento Valley Air Basin, under the jurisdiction of the Sacramento Metropolitan Air Quality Management District (SMAQMD).

Air Pollutants of Concern

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by EPA and the California Air Resources Board (ARB) as being of concern, both on a nationwide and statewide level: ozone; carbon monoxide (CO); nitrogen dioxide (NO₂); sulfur dioxide (SO₂); lead; and particulate matter (PM), which is subdivided into two classes based on particle size, PM equal to or less than 10 micrometers in diameter (PM₁₀) and PM equal to or less than 2.5 micrometers in diameter (PM_{2.5}). Because the air quality standards for these air pollutants are regulated using human health and environmentally based criteria, they commonly are referred to as "criteria air pollutants."

Attainment of Federal and State Air Quality Standards

Areas are classified under the federal Clean Air Act and California Clean Air Act as attainment, non-attainment, or maintenance (previously non-attainment and currently attainment) for each criteria pollutant, based on whether the federal and State air quality standards have been achieved. With respect to National Ambient Air Quality

Standards (NAAQS), the SMAQMD is designated as a nonattainment area for ozone and PM_{2.5}, and as an attainment or unclassified area for all other pollutants. With respect to the California Ambient Air Quality Standards (CAAQS), the SMAQMD is designated as a nonattainment area for ozone and PM₁₀, and as an attainment or unclassified area for all other pollutants (SMAQMD 2019). The air quality standards are presented in the section on “Regulatory Framework.”

Toxic Air Contaminants

In addition to criteria air pollutants, EPA and ARB regulate hazardous air pollutants, also known as toxic air contaminants (TACs). TACs collectively refer to a diverse group of air pollutants that are capable of causing chronic (i.e., long-duration) and acute (i.e., severe but short-term) adverse effects on human health, including carcinogenic effects. TACs can be separated into carcinogens and noncarcinogens, based on the nature of the effects associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Any exposure to a carcinogen poses some risk of contracting cancer. Noncarcinogens differ because generally a safe level of exposure is assumed for them, below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

Sensitive Receptors

This analysis includes consideration of “sensitive receptors” because of the proximity of the project corridor to residential areas. 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, childcare facilities, convalescent facilities, and residential areas are examples of sensitive receptors. The Rancho Cordova project segment is in an area that has mixed residential, commercial, and industrial land uses. Residential uses in the unincorporated county include the Twilight RV and Mobile Home Park and the Oak Brook Apartments north of Folsom Boulevard across from Hazel Station. No known sensitive receptors are in the Folsom project segment.

Regulatory Framework

Federal Clean Air Act and National Ambient Air Quality Standards. National air quality policies are regulated by the federal Clean Air Act (CAA). Pursuant to the CAA, EPA has established nationwide air quality standards to protect public health and welfare with an adequate margin of safety. These federal standards, known as the NAAQS, were developed for six criteria pollutants: ozone, CO, NO₂, PM₁₀, PM_{2.5}, SO₂, and lead. The NAAQS represent safe levels of each pollutant to avoid specific adverse effects on human health and the environment. Two types of NAAQS have been established, primary and secondary standards. Primary standards set limits to protect public health, especially that of sensitive populations such as asthmatics, children, and seniors. Secondary standards set limits to protect public welfare, including protections against decreased visibility and damage to animals, crops, and buildings. The NAAQS are summarized in Table 3.3-1.

The CAA was amended in 1977, to require each state to maintain a State Implementation Plan (SIP) for achieving compliance with the NAAQS. In 1990, the CAA was amended again to strengthen regulation of both stationary and motor vehicle emission sources. Conformity to the SIP is defined under the 1990 CAA amendments as conformity with the SIP’s purpose in eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of these standards.

California Clean Air Act and California Ambient Air Quality Standards. In 1988, the State Legislature adopted the California CAA, which established a statewide air pollution control program. The California CAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the

federal CAA, the California CAA does not set precise attainment deadlines. Instead, the California CAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. The CAAQS generally are more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS are shown in Table 3.3-1.

ARB and local air districts bear responsibility for achieving California's air quality standards, which are to be achieved through district-level air quality management plans, to be incorporated into the SIP. In California, EPA has delegated authority to prepare the SIP to ARB, which, in turn, has delegated that authority to individual air districts. ARB traditionally has 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 the SIP.

The California CAA substantially adds to the authority and responsibilities of air districts. The California CAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts the authority to implement transportation control measures. The California CAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. An indirect source is a facility or land use that attracts or generates motor vehicle traffic. The California CAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and establish traffic control measures.

Sacramento Air Quality Management District. The project area is in Sacramento County, which is under the jurisdiction of the SMAQMD. The SMAQMD is the local agency authorized to prepare, adopt, and implement mobile, stationary, and area emission control measures and standards. Under the California CAA, the SMAQMD is required to develop an air quality attainment plan for nonattainment criteria pollutants in the air district. The Sacramento Regional 2008 NAAQS 8-hours Ozone Attainment and Reasonable Further Progress Plan was approved by the SMAQMD on August 24, 2017, and it demonstrates attainment of the 2008 8-hour NAAQS of 75 parts per billion by an attainment year of 2024. ARB approved the plan on November 16, 2017.

The SMAQMD's Guide to Air Quality Assessment in Sacramento County provides air quality guidance when preparing CEQA documents (SMAQMD 2019). This document presents the SMAQMD's CEQA thresholds of significance for construction and operational emissions. Table 3.3-2 shows the applicable SMAQMD-adopted thresholds of significance for criteria pollutant emissions during project construction activities.

**Table 3.3-1
National and California Ambient Air Quality Standards**

Pollutant	Averaging Time	CAAQS ^b	NAAQS ^a	
			Primary ^c	Secondary ^d
Ozone	8 hours	0.070 ppm	0.070 ppm	0.070 ppm
	1 hour	0.09 ppm	—	—
PM ₁₀	Annual arithmetic mean	20 µg/m ³	—	—
	24 hours	50 µg/m ³	150 µg/m ³	150 µg/m ³
PM _{2.5}	Annual arithmetic mean	12 µg/m ³	12 µg/m ³	15 µg/m ³
	24 hours	—	35 µg/m ³	35 µg/m ³
CO	8 hours	9.0 ppm	9 ppm	—
	1 hour	20 ppm	35 ppm	—
NO ₂	Annual arithmetic mean	0.03 ppm	0.053 ppm	0.053 ppm
	1 hour	0.18 ppm	0.100 ppm	—
SO ₂	24 hours	0.04 ppm	—	—
	3 hours	—	—	0.5 ppm
	1 hour	0.25 ppm	0.075 ppm ^e	—
Lead ^f	Calendar quarter	—	1.5 µg/m ³ (certain areas)	1.5 µg/m ³
	Rolling 3-month average	—	0.15 µg/m ³	—
	30-day average	1.5 µg/m ³	—	—
Visibility-reducing particles	8 hours	g	—	—
Sulfates	24 hours	25 µg/m ³	—	—
Hydrogen sulfide	1 hour	0.03 ppm	—	—
Vinyl chloride ^f	24 hours	0.01 ppm	—	—

Notes:

- ^a The NAAQS—other than ozone, PM, and those based on annual averages or annual arithmetic means—are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 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 µg/m³ is equal to or less than 1. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, is equal to or less than the standard.
- ^b The CAAQS for ozone, CO (except Lake Tahoe), SO₂ (1-hour and 24-hour), NO₂, and suspended particulate matter (PM₁₀, PM_{2.5}, and visibility-reducing particles) are not to be exceeded. All others are not to be equaled or exceeded.
- ^c NAAQS Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect public health.
- ^d NAAQS Secondary Standards: The levels of air quality necessary to protect public welfare from known or anticipated adverse effects of a pollutant.
- ^e Final rule, signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor in an area must not exceed 75 parts per billion.
- ^f ARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined. ARB made this determination following implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- ^g In 1989, 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.

µg/m³ = micrograms per cubic meter

ARB = California Air Resources Board

CAAQS = California Ambient Air Quality Standards

CO = carbon monoxide

NAAQS = National Ambient Air Quality Standards

NO₂ = nitrogen dioxide

PM = particulate matter

PM₁₀ = particulate matter equal to or less than 10 micrometers in aerodynamic diameter

PM_{2.5} = particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter

ppm = parts per million (by volume)

SO₂ = sulfur dioxide

Source: ARB 2016

**Table 3.3-2
SMAQMD Thresholds of Significance for Criteria Pollutants**

Pollutant	Construction	
	Emissions Threshold (pounds/day)	Emissions Threshold (tons/year)
Nitrogen oxides (NO _x)	85	-
Reactive organic gases (ROG)	None	-
PM ₁₀ ¹	80	14.6
PM _{2.5} ¹	82	15

Notes:

¹ The particulate matter thresholds apply to projects that impose the Air District's best available control technology or best management practices, as feasible. Otherwise, the particulate matter thresholds would be 0 pounds per day.

NO_x = oxides of nitrogen; PM₁₀ = suspended particulate matter less than 10 microns in diameter;

PM_{2.5} = fine particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases

Source: SMAQMD 2019

3.3.2 Discussion

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant. Air quality plans describe air pollution control strategies to be implemented by a city, county, or regional air district. The primary purpose of an air quality plan is to bring an area that does not attain the NAAQS and CAAQS into compliance with those standards, pursuant to the requirements of the federal Clean Air Act and California Clean Air Act. The applicable air quality plan in the project region includes the Sacramento Regional Ozone Attainment and Reasonable Further Progress Plan, developed by the SMAQMD and the other air districts that make up the Sacramento Federal Ozone Nonattainment Area. The Sacramento Regional Ozone Attainment and Reasonable Further Progress Plan was approved by ARB on November 16, 2017, and it outlines how the region will demonstrate attainment of the 2008 8-hour ozone NAAQS and become a part of the SIP. In addition, the Triennial Report and Air Quality Plan was last revised in May 2015, and it describes the historical trends in ambient air quality levels, provides updates to the emission inventories, and evaluates implementation of stationary and mobile source control measures in reducing air pollutant emissions (SMAQMD 2015). To meet the schedule for developing, adopting, and implementing the air pollution control measures contained in the Triennial Report and Air Quality Plan, the SMAQMD prepared the 2016 Annual Progress Report in March 2017 (SMAQMD 2017). The SMAQMD also has developed maintenance plans for CO, PM₁₀, and PM_{2.5} (SMAQMD 2004, 2010, 2013).

Consistency with air quality plans is based on whether the project would exceed the estimated air basin emissions, which reflect projections of population and vehicle miles traveled (VMT), and implementation of the emission control strategies in the approved air quality plans. An increase in VMT beyond projections in local plans could result in a significant adverse incremental effect on a region's ability to attain or maintain the NAAQS and CAAQS. Similarly, achieving and maintaining attainment depends on successful implementation of the SMAQMD's emission control strategies in the approved air quality plans.

Project construction would involve worker commute trips and use of off-road equipment and haul trucks. Assumptions for off-road equipment emissions in the SIP were developed based on hours of activity and amount of equipment reported to ARB for rule compliance. The project would not increase the assumptions for off-road equipment use in the SIP. In addition, as noted under item b below, the SMAQMD's basic construction emission control practices (best management practices) would be implemented (Mitigation Measure AQ-1), further reducing emissions during project construction and not conflicting with the applicable air quality plans.

Furthermore, the proposed project would improve the existing light rail service to Folsom along its Gold Line, to increase frequency and reliability and help reduce traffic congestion. This would be consistent with transportation control measures included in the applicable air quality plans and the Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) goals to provide increased frequent and reliable rail services (SACOG 2016), in efforts to encourage public transportation and reduce vehicle trips and VMT. Therefore, project implementation would not conflict with or obstruct implementation of the applicable air quality plan. The impact would be **less than significant**.

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Construction

Less than Significant with Mitigation Incorporated. Air pollution generally is a cumulative impact. The nonattainment status of regional pollutants is from past and present development in the Sacramento Valley Air Basin, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited but cumulatively considerable when taken in combination with past, present, and future development projects.

Project construction would generate temporary emissions of criteria air pollutants. Reactive organic gases, oxides of nitrogen (NO_x), CO, and SO₂ emissions are associated primarily with mobile equipment exhaust, including off-road construction equipment and on-road motor vehicles. Fugitive dust emissions (PM₁₀ and PM_{2.5}) are associated primarily with site preparation and vary as a function of parameters such as soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by construction vehicles. As shown in Table 3.3-2, the SMAQMD has quantitative thresholds for NO_x, PM₁₀, and PM_{2.5}; thus, construction emissions for these pollutants were estimated quantitatively for the proposed project.

Project construction is expected to begin in 2020 and last approximately 24 months. Emissions generated by construction activities were modeled using the SMAQMD Road Construction Emissions Model (RoadMod), Version 9.0.0 (SMAQMD 2018), based on projected construction duration and anticipated construction equipment. Based on the anticipated depth of excavation and project footprint, the analysis assumed that approximately 5,259 and 13,383 cubic yards (CY) would be exported during construction of the Folsom and Rancho Cordova project segments, respectively. The analysis also assumed that approximately 2,291 and 4,727 CY of aggregate base would be imported during construction of the Folsom and Rancho Cordova project segments, respectively, based on the anticipated dimensions of the crossings, station platforms, and track lengths. In addition, construction of the Folsom and Rancho Cordova project segments are expected to include approximately 136 truck deliveries of rails, ties, concrete panels, drain pipes, and overhead contact system (OCS) poles and wires. The analysis conservatively assumed material deliveries would occur during peak construction activities. Emissions associated with material deliveries were estimated using ARB's Emissions Factor database

(EMFAC2014)³ and EPA's Compilation of Air Pollutant Factors. Additional modeling assumptions and details are provided in Appendix B.

Table 3.3-3 shows the daily and annual emissions associated with the proposed project. As shown in this table, maximum daily and annual construction emissions of NO_x, PM₁₀, and PM_{2.5} would not exceed the recommended thresholds of significance. In addition, if the peak days of construction at each segment were to overlap, the emissions level still would remain below the thresholds of significance.

Table 3.3-3
Daily and Annual Project Construction Emissions

Segment	NO _x	PM ₁₀	PM _{2.5}
Folsom Project Segment (pounds/day)	38.30	3.46	1.97
Rancho Cordova Project Segment (pounds/day)	40.65	3.38	2.05
Daily Threshold of Significance (pounds/day) ¹	85	80	82
Folsom Project Segment (tons) ²	6.27	0.32	0.29
Rancho Cordova Project Segment (tons) ²	7.41	0.40	0.34
Annual Threshold of Significance (tons/year)	--	14.6	15
<i>Significant Impact?</i>	No	No	No

Notes:

^{1,3} Source: SMAQMD 2019

² The emissions shown in tons are conservatively presented for the entire duration of construction, which is anticipated to last 24 months.

NO_x = nitrogen oxides;

PM₁₀ = particulate matter less than 10 microns in diameter;

PM_{2.5} = particulate matter less than 2.5 microns in diameter

These thresholds are designed to identify those projects that would result in significant levels of air pollution and assist the region in attaining the applicable State and federal ambient air quality standards. Projects that would not exceed the thresholds of significance would not contribute a considerable amount of criteria air pollutant emissions to the region's emissions profile, and would not impede attainment and maintenance of ambient air quality standards. As shown in Table 3.3-2, the PM thresholds apply to projects that impose the SMAQMD's best available control technology (best management practices); therefore, without these best management practices, an exceedance of the PM thresholds could occur, and the impact would be **potentially significant**.

Mitigation Measures. The following mitigation measure would reduce project construction air quality impacts by requiring implementation of best management practices accepted by the SMAQMD. Therefore, the level of air quality impacts during construction would be reduced to **less than significant with mitigation incorporated**.

³ In August 2019, EPA approved the latest version of the California EMFAC model (EMFAC2017) for use in SIP development and transportation conformity in California. However, the SMAQMD has not released an updated version of the RoadMod incorporating EMFAC2017. Thus, EMFAC2014 was used for consistency with the emission factors included in RoadMod. In addition, the Federal Register notice approving EMFAC2017 sets the date after which EMFAC2017, rather than EMFAC2014, must be used to satisfy the requirement that conformity determinations be based on the latest emissions model available. EMFAC2017 must be used for a new regional emissions analyses for transportation conformity purposes that are started on or after August 16, 2021 and for all new CO and PM hotspot analyses that are started on or after August 17, 2020 (Federal Register 2019).

Mitigation Measure AQ-1. Implement basic construction emission control practices (Best Management Practices)

The SacRT must include the following construction measures in construction contract specifications and procedures to limit and reduce air emissions from construction sites:

- Control fugitive dust as required by Sacramento Metropolitan Air Quality Management District (SMAQMD) Rule 403 and enforced by SMAQMD staff.
- Water all exposed surfaces two times daily. Exposed surfaces include soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover all haul trucks transporting soil, sand, or other loose material off-site.
- Cover or maintain at least 2 feet of freeboard space on haul trucks transporting soil, sand, or other loose material on site. Cover any haul trucks that will be traveling along freeways or major roadways.
- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt visible on 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.
- Complete paving all roadways, driveways, and sidewalks as soon as possible. In addition, lay building pads as soon as possible after grading, unless seeding or soil binders are used.
- Minimize idling times either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure under Title 13, California Code of Regulations Section 2485). Provide clear signage that posts this requirement for workers at the entrances to the project sites.
- Provide current certificate(s) of compliance with ARB's In-Use Off-Road Diesel-Fueled Fleets Regulation (Title 13, California Code of Regulations Sections 2449 and 2449.1).
- Maintain all construction equipment in proper working condition, according to the manufacturer's specifications. Have all equipment checked by a certified mechanic and determined to be running in proper condition before use.

Operations

Less than Significant. Because the proposed project would improve existing light rail service by installing new passing tracks and making modifications to platforms, emissions associated with project operations are not anticipated to increase above existing conditions. Furthermore, the proposed project would make improvements to the Gold Line's frequency, speed, reliability, and safety, potentially reducing vehicle trip emissions from passengers who otherwise would drive. The impact would be **less than significant**.

c) Expose sensitive receptors to substantial pollutant concentrations?

Some members of the population are especially sensitive to air pollutant emissions and need to be given special consideration when evaluating air quality impacts from projects. For CEQA analysis, the SMAQMD considers a sensitive receptor to be 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, childcare facilities, convalescent facilities, and residential areas are examples of sensitive receptors (SMAQMD 2019). As described previously under

“Sensitive Receptors,” the nearest sensitive receptors to the project area are multi-family residences, located approximately 150 feet across Folsom Boulevard in the Rancho Cordova project segment.

Criteria Air Pollutants

Less than Significant. As shown in Table 3.3-3, construction-related activities would result in emissions of criteria air pollutants, but at levels that would not exceed the SMAQMD regional thresholds of significance. The regional thresholds of significance were designed to identify those projects that would result in significant levels of air pollution and assist the region in attaining the applicable State and federal ambient air quality standards, which were established using health-based criteria to protect the public with a margin of safety from adverse health impacts from exposure to air pollution. Thus, the criteria air pollutant emissions associated with project construction would not expose sensitive receptors to substantial criteria pollutant concentrations. Furthermore, project operations and maintenance are not anticipated to increase substantially beyond existing conditions. In addition, light rail trains are electric-powered; thus, the increased service operations would not expose sensitive receptors to substantial criteria pollutant concentrations. Therefore, impacts on sensitive receptors from construction and operational activities related to the proposed project would be **less than significant**.

Carbon Monoxide Hotspots

Less than Significant. The primary mobile-source pollutant of localized concern is CO. Local mobile-source CO emissions near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is limited because it disperses rapidly with distance from the source under normal meteorological conditions. However, under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels related to local sensitive land uses, such as residential areas, hospitals, schools, and childcare facilities.

CO concentration is a direct function of motor vehicle activity, particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions, CO concentrations may reach unhealthy levels with respect to local sensitive land uses, such as residential areas, schools, playgrounds, childcare facilities, and hospitals. Thus, air districts typically recommend analysis of CO emissions at a local level, rather than a regional level.

As described in more detail in Section 3.17, Transportation, to accommodate the 15-minute headways under the improved service of the proposed project, approximately 38 additional trains per day are anticipated to be added, doubling the current number of scheduled runs between Sunrise and Historic Folsom Stations. However, doubling the number of trains to achieve the desired service frequency would not result in a doubling of delay times, because the proposed project also would include modernization of the line’s signaling system. The proposed project would include additional track circuits that would detect when the train passes through each street crossing and immediately would send a signal to the control cabinet to raise the gates. This feature would eliminate the long, single-track circuits and delays at upstream and downstream crossings. During the AM/PM peak hour, which is the time of day that CO hotspots are more likely to occur because of increase in vehicle activity and intersection delay, two additional trains are expected to cross the 14 intersections between Sunrise and Historic Folsom Stations. Based on information provided by the SacRT, the additional delay that would be expected during the peak travel time under a worst-case scenario would be less than 30 seconds. Thus, the additional delay during the peak periods would be less than a single signal cycle under existing conditions, and project operations would not violate the CAAQS for either the 1-hour period (20 parts per million [ppm]) or the 8-hour period (9 ppm). In addition, the proposed project would make improvements to the Gold Line’s frequency, speed,

reliability, and safety; thereby potentially reducing vehicle trip emissions from passengers who otherwise would drive. Therefore, the impact would be **less than significant**.

Toxic Air Contaminants

Less than Significant. The greatest potential for TAC emissions would be related to diesel PM emissions associated with heavy-duty construction equipment operations. The Office of Environmental Health Hazard Assessment (OEHHA) has developed a Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015). According to OEHHA methodology, health impacts from carcinogenic TACs usually are described in terms of individual cancer risk, which is based on a 30-year lifetime exposure to TACs. Construction activities are anticipated to last approximately 24 months. Construction emissions would occur intermittently throughout the day and would not occur as a constant plume of emissions from the project sites. In addition, site work, rail work, and light rail track/OCS and signals would be completed in segments along the existing rail alignment, similar to a moving assembly line. Therefore, trucks and off-road equipment would not operate in the immediate vicinity of the sensitive receptors in unincorporated Sacramento County across from Hazel Station for an extended period. Furthermore, implementation of the best management practices, described in Mitigation Measure AQ-1, also would reduce diesel PM emissions during construction by limiting idling times and ensuring that construction equipment is properly tuned to the manufacturer's specifications.

Project operations would involve only minimal and infrequent maintenance activities that are not expected to increase above existing conditions. In addition, rail propulsion is electrically powered; thus, no criteria pollutant or toxic emissions would be generated from project operations. Therefore, the proposed project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be **less than significant** for construction and operations.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant. The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Potential sources that may emit odors during construction activities include exhaust from diesel construction equipment. However, because of the distance to the nearest sensitive receptors (approximately 150 feet) and the highly diffusive properties of diesel exhaust, nearby receptors would not be affected by diesel exhaust odors associated with project construction. The project would use typical construction techniques, and the odors would be typical of most construction sites and temporary. Project operations would not add any new odor sources beyond existing conditions. Thus, the proposed project would not create objectionable odors, affecting a substantial number of people. Therefore, the impact would be **less than significant**.

3.3.3 References

California Air Resources Board (ARB). 2016. *Ambient Air Quality Standards*. Available: https://ww3.arb.ca.gov/research/aaqs/aaqs2.pdf?_ga=2.133791883.484522487.1543866444-1828960224.1543456803. Accessed October 2019.

- Federal Register. 2019. Official Release of EMFAC2017 Motor Vehicle Emission Factor Model for Use in State of California. Title 84, Code of Federal Regulations Section 41717. Available: <https://www.federalregister.gov/documents/2019/08/15/2019-17476/official-release-of-emfac2017-motor-vehicle-emission-factor-model-for-use-in-the-state-of-california>.
- Office of Environmental Health Hazard Assessment (OEHHA). 2015. *Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments*. Available: <https://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>. Accessed October 2019.
- Sacramento Area Council of Governments (SACOG). 2016. *Metropolitan Transportation Plan/Sustainable Communities Strategy*. Available: <https://www.sacog.org/2016-mtpscs>. Accessed October 2019.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). 2004. *2004 Revision to the California State Implementation Plan for Carbon Monoxide*. Available: [http://www.airquality.org/ProgramCoordination/Documents/1\)%202004%20CO%20Maintenance%20Plan.pdf](http://www.airquality.org/ProgramCoordination/Documents/1)%202004%20CO%20Maintenance%20Plan.pdf). Accessed October 2019.
- . 2010. *PM₁₀ Implementation/Maintenance Plan and Redesignation Request for Sacramento County*. Available: [http://www.airquality.org/ProgramCoordination/Documents/10\)%20%20PM10%20Imp%20and%20MP%202010.pdf](http://www.airquality.org/ProgramCoordination/Documents/10)%20%20PM10%20Imp%20and%20MP%202010.pdf). Accessed October 2019.
- . 2013. *PM_{2.5} Implementation/Maintenance Plan and Redesignation Request for Sacramento PM_{2.5} Nonattainment Area*. Available: [http://www.airquality.org/ProgramCoordination/Documents/9\)%20%20PM2.5%20Imp%20and%20MP%202013.pdf](http://www.airquality.org/ProgramCoordination/Documents/9)%20%20PM2.5%20Imp%20and%20MP%202013.pdf). Accessed October 2019.
- . 2015. *Triennial Report and Air Quality Plan Revision*. Available: [http://www.airquality.org/ProgramCoordination/Documents/11\)%20%202015TriennialReportandProgressRevision.pdf](http://www.airquality.org/ProgramCoordination/Documents/11)%20%202015TriennialReportandProgressRevision.pdf). Accessed October 2019.
- . 2017. *2016 Annual Progress Report*. Available: <http://www.airquality.org/ProgramCoordination/Documents/2016%20Annual%20Progress%20Report%20-%20final.pdf>. Accessed October 2019.
- . 2018 (May). *Roadway Construction Emissions Model*. Version 9.0. Available: <http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools>. Accessed October 2019.
- . 2019. *Guide to Air Quality Assessment in Sacramento County*. Available: <http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools>. Accessed October 2019.

This page intentionally left blank

3.4 Biological Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Biological Resources. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.4.1 Environmental Setting

The biological study area includes approximately 8.7 acres along the SacRT Gold Line, in the vicinity of the Glenn Station in Folsom and the Hazel Station in Rancho Cordova and Sacramento County.

Regional Setting and Description of Biological Study Area

The proposed double track extension segments of the Gold Line are on the eastern edge of the Sacramento Valley at the base of the Sierra Nevada foothills, within the Northern Terraces portion of the Central California Valley ecoregion, and are characterized by underlying alluvial fan/terrace geomorphology (Griffith et al. 2016) (see

Section 3.7, "Geology and Soils"). Both facilities are near the American River, in areas that were dredged extensively for gold in the early twentieth century, with remnant cobble dredge tailings being a common feature of the landscape (see Section 3.12, "Mineral Resources"). The region has undergone extensive development. Common habitats include urban and disturbed areas, riparian, oak woodland, and annual grassland. The majority of the region is privately owned and developed for industrial, residential, transportation, and agricultural uses. The project segments are south and east of Folsom Lake and Lake Natoma, both of which are managed for flood control, recreational, and habitat beneficial uses (see Section 3.10, "Hydrology and Water Quality").

The biological study area encompasses the two double track segments as well as the adjacent lands (i.e., up to a 50-foot buffer beyond the project footprint). Biological surveys were conducted by AECOM biologists for the SacRT on April 4, 2019, within and adjacent to each project segment for vegetation type, wetlands/other waters, riparian habitat, wildlife habitats, and general observations of wildlife usage. The specific locations and topography of each project segment in the biological study area are shown in Figures 2-2 and 2-4. The project sites are in an urban setting and are part of a highly disturbed and managed landscape with little to no remaining natural vegetation.

Land Cover Types

Three land cover types occur in the biological study area (described below and shown in Figures 3.4-1 and 3.4-2): urban (developed) areas; ruderal; and annual grassland. Table 3.4-1 summarizes the total acreages of each land cover type, mapped within the project footprints (both permanent and temporary areas). All three of these land cover types also contain scattered landscape plantings and patches of native trees and shrubs.

Table 3.4-1
Land Cover Type Acreages within the Folsom and Rancho Cordova Project Segments

Land Cover Type	Folsom Project Segment (acres)	Rancho Cordova Project Segment (acres)	Total (acres)
Urban	1.54	4.78	6.34
Ruderal	0.97	0.96	1.93
Annual Grassland	0.000	0.42	0.42
Total	2.51	6.18	8.69

Source: Compiled by AECOM in 2019

Urban. Urban land cover is defined as areas developed by humans and either generally is lacking in vegetation or contains only highly maintained landscape plantings. In the study area, urban land is the dominant land cover type, encompassing 6.3 acres (1.5 acres in the Folsom project segment and 4.8 acres in the Rancho Cordova project segment). Urban areas include rail lines, ballast, paved areas, landscape planters, concrete sidewalks, parking lots, and station platforms. Representative photographs of urban land cover are shown in the photos that follow Figures 3.4-1 and 3.4-1.

Wildlife commonly found in urban areas include opportunistic birds like American crow, rock dove, mourning dove, northern mockingbird, California scrub jay, and European starling. Plovers, such as killdeer, rely on open ground covered with gravel for constructing small scrape nests. Other wildlife that may use urban areas for cover and foraging include western fence lizard, eastern fox squirrel, and California ground squirrel.

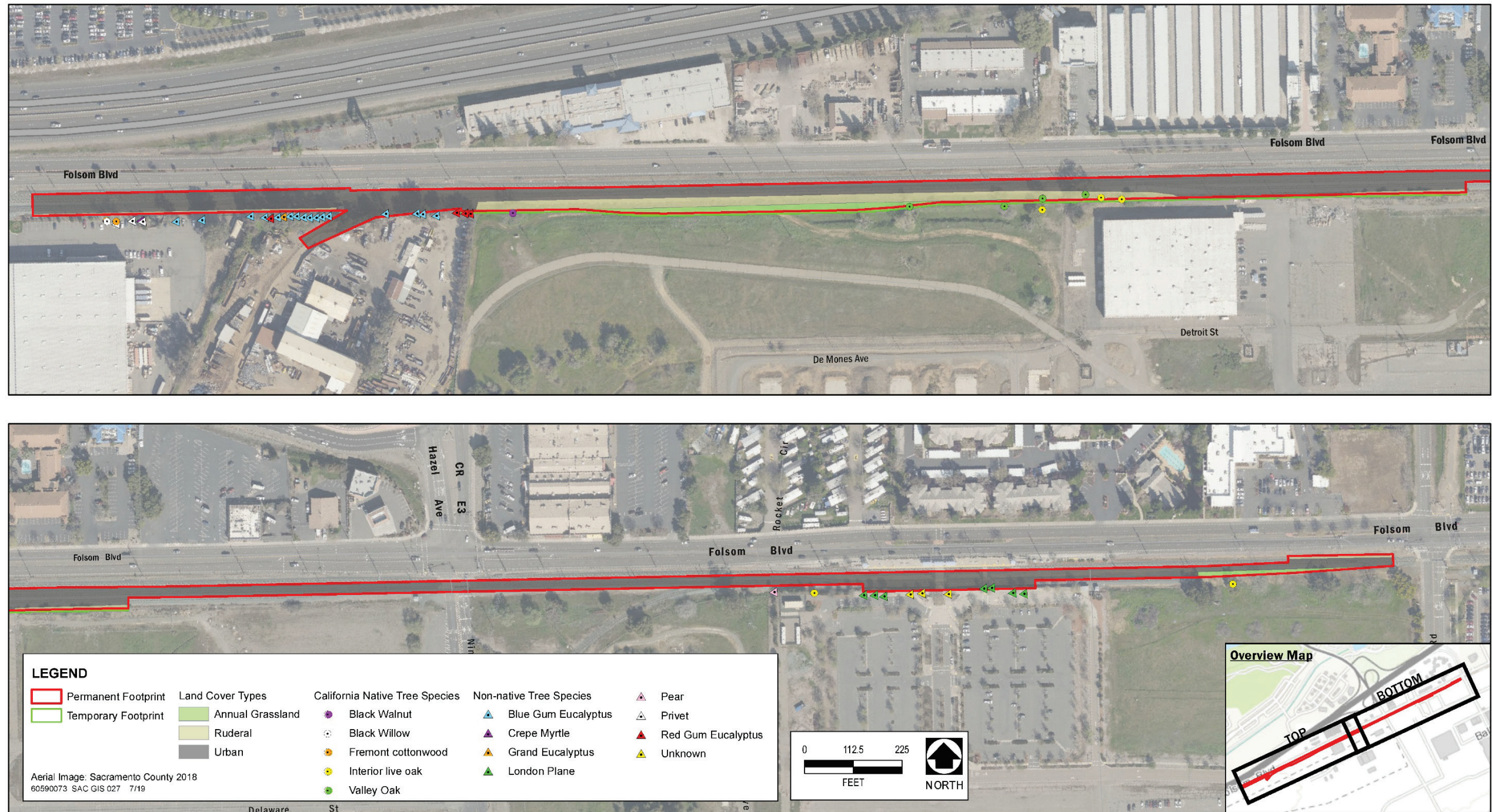


X:\GIS\Projects\60590073_SacRT_GoldLine\02_Maps\60590073_SAC_GIS_026_Folsom_Habitats.mxd 6/28/2019 clement SAC

Source: Data compiled by AECOM 2019

Figure 3.4-1 Folsom Project Segment Land Cover Types

X:\GIS\Projects\60590073_SacRT_GoldLine\02_Maps\60590073_SAC_GIS_027_RanchoCordova_Habitats.mxd 7/2/2019 dement SAC



Source: Data compiled by AECOM 2019

Figure 3.4-2 Rancho Cordova Project Segment Land Cover Types



View of urban land cover: rail ballast, tracks, and bike trail, Folsom Project Segment



View of urban land cover: rail ballast and tracks, Rancho Cordova Project Segment

Ruderal. Ruderal land cover is dominated by introduced, non-native species that thrive in disturbed places. Ruderal vegetation is common throughout the study area, in locations that previously have been filled and graded, such as along the edges of ballast, fencelines, parking lots, and pedestrian/bike trails. Both the Folsom and Rancho Cordova project segments contain approximately 1 acre of ruderal land cover. In the study area, ruderal habitat is dominated by milk thistle (*Silybum marianum*), wild geranium (*Geranium dissectum*), ripgut brome (*Bromus diandrus*), and red stemmed filaree (*Erodium cicutarium*). Other common species include poison hemlock (*Conium maculatum*), yellow star thistle (*Centaurea solstitialis*), winter vetch (*Vicia villosa*), white horehound (*Marrubium vulgare*), and field mustard (*Hirschfeldia incana*). Scattered trees and shrubs include valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), black locust (*Robinia pseudoacacia*), tree of heaven (*Ailanthus altissima*), eucalyptus (*Eucalyptus* sp.), coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), and blue elderberry (*Sambucus nigra*). Ruderal habitat provides limited foraging, roosting, resting, and nesting sites for birds and small mammals. Representative photographs of ruderal vegetation in project segments are shown below.

Annual Grassland. Approximately 0.4 acre of annual grassland habitat was mapped along the southern boundary of the Rancho Cordova project segment, adjacent to the neighboring Aerojet property. Introduced annual grasses are the dominant plant species in this habitat (CDFW 2018). The annual grassland vegetation in the study area is composed primarily of non-native annual grasses, including Italian ryegrass (*Festuca perennis*), ripgut brome, soft chess brome (*Bromus hordeaceus*), and hare wall barley (*Hordeum murinum*). Common forbs in the annual grassland vegetation include California poppy (*Eschscholzia californica*) and common bedstraw (*Galium parisiense*). A representative photograph of annual grassland land cover in the Rancho Cordova project segment study area is included below.



View of ruderal vegetation along the bike trail, Folsom Project Segment



View of ruderal vegetation along the fenceline, Rancho Cordova Project Segment



View of annual grassland vegetation south of the railroad tracks, Rancho Cordova Project Segment

Many wildlife species use annual grassland for foraging and breeding. Characteristic reptiles include western fence lizard, common garter snake, and western rattlesnake. Mammals typically found in this habitat include black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher, western harvest mouse, California vole, and coyote. Common birds known to breed in annual grassland include short-eared owl and western meadowlark. This habitat also provides important foraging habitat for raptors, including northern harrier, American kestrel, white-tailed kite, and Swainson's hawk.

Aquatic Features. Based on a review of the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory data (USFWS 2019a) and current and historic Google Earth satellite images of the project segments, and on subsequent field visits, natural aquatic features are not present in the project segments. Nearby human-made aquatic features include the Folsom South Canal and channelized Buffalo Creek, west and south of the Rancho Cordova project segment (EPA 2017), and drainage ditches installed parallel to the base of the railroad tracks.

Special-Status Species. For this analysis, special-status species are plants and wildlife that fall within any of the following categories:

- Species that are listed under the federal Endangered Species Act and/or California Endangered Species Act as rare, threatened, or endangered;
- Species considered as candidates and proposed for federal or State listing as threatened or endangered;
- Wildlife designated by the California Department of Fish and Wildlife (CDFW) as fully protected and/or species of special concern;
- Birds protected under the Migratory Bird Treaty Act and Fish and Game Code Sections 3503, 3503.5, 3800(a), and 3513; or
- Plants ranked by California Native Plant Society to be rare, threatened, or endangered in California. CDFW recommends, and local governments may require, that CEQA reviews of proposed projects address plants on Lists 1A, 1B, and 2 of the CNPS California Rare Plant Ranks (CRPRs), defined as follows:
 - List 1A—Plants presumed to be extinct in California,
 - List 1B—Plant species considered rare, threatened, or endangered in California and elsewhere,
 - List 2—Plant species considered rare, threatened, or endangered in California but more common elsewhere.

Table 3.4-2 shows the special-status species with potential to occur in project segments. Those special-status species that are not likely to occur or those with no potential to occur in the study area are not shown in Table 3.4-2, but a full list is provided in Appendix C. Based on records of special-status plants and wildlife in the Information for Planning and Conservation (USFWS 2019b) project planning tool, as well as in the Inventory of Rare and Endangered Plants of California (CNPS 2019) and California Natural Diversity Database (CDFW 2019) for the Buffalo Creek, Carmichael, Folsom SE, Roseville, Clarksville, Citrus Heights, Folsom, Rocklin, and Pilot Hill USGS 7.5 minute quadrangles (USGS 2018a–i), combined with the observations from the AECOM field reconnaissance, no special-status plant species are in the biological study area, but five special-status wildlife species have the potential to occur there (Table 3.4-1). These special-status wildlife species include one invertebrate, one songbird, and three raptor species, all of which could occur within or near the Rancho Cordova project segment, and two raptors (Swainson’s hawk and white-tailed kite) that could occur within or near the Folsom project segment.

Sensitive Habitats. Sensitive habitats are those that are of special concern to resource agencies or afforded specific consideration through the State CEQA Guidelines, California Fish and Game Code Section 1602 , Section 404 of the Clean Water Act, and the State’s Porter–Cologne Act. No project features or activities are proposed within a water body/water course. In addition, during the site reconnaissance, no riparian habitat or sensitive natural communities were observed in the study area.

**Table 3.4-2
Special-status Species with Potential to Occur in the Project Biological Study Area**

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Distribution	Potential for Occurrence ³	
		Federal	State	CDFW			Folsom North	Rancho Cordova
Insects								
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	FT	-	-	Riparian scrub. Host plant is the elderberry shrub (<i>Sambucus nigra</i>). Prefers to lay eggs in elderberries 2–8 inches in diameter; some preference shown for “stressed” elderberries.	Occurs only in the Central Valley of California.	No potential; no suitable habitat (elderberry shrubs) present.	Could occur; suitable habitat (elderberry shrubs) present. Nine records of this species are within 5 miles of the Rancho Cordova project segment (CDFW 2019). The nearest records of the species are approximately 0.5 mile west in elderberry shrubs along frontage areas and fencelines near U.S. Highway 50 (CDFW 2019).
Birds								
<i>Ammodramus savannarum</i> (nesting)	grasshopper sparrow	-	-	SSC	Valley and foothill grassland. Dense grasslands with thick herbaceous cover on rolling hills, lowland plains, valleys and on hillsides on lower mountain slopes. Favors a mix of forbs, grasses, and shrubs.	Foothills and lowlands west of the Cascade-Sierra Nevada crest from Mendocino and Trinity cos. south to San Diego Co.	No potential; no suitable habitat (dense grassland) present.	Could occur; suitable habitat (dense grassland with mix of shrubs) are present along portions of the southern boundary of the project footprint. The nearest record is 10 miles to the southeast, in rolling vernal pool grassland (CDFW 2019).
<i>Athene cunicularia</i> (burrow sites and some wintering sites)	burrowing owl	-	-	SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon burrowing mammals, most notably, the California ground squirrel, for underground nests.	Resident throughout California in suitable habitat.	No potential; no suitable habitat (burrows) present.	Could occur; suitable habitat (ground squirrel burrows) is present along portions of the southern boundary of project footprint near the Hazel Station. One record of this species is within 5 miles of the project area, along Mather Boulevard near the Mather airfield, approximately 4.9 miles to the southwest (CDFW 2019).

Table 3.4-2 (continued)
Special-status Species with Potential to Occur in the Project Biological Study Area

<i>Buteo swainsoni</i> (nesting)	Swainson's hawk	-	ST	-	Breeds in 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, or alfalfa or grain fields supporting rodent populations.	Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert.	Could occur; suitable nesting habitat (large trees) present within and adjacent to the project footprint, and limited neighboring foraging habitat (grassland) is present to the northeast. The nearest record is from 1962, in the city of Folsom (CDFW 2019).	Could occur; suitable nesting habitat (large trees) is present within project footprint, and adjacent expansive grassland areas on Aerojet property provide suitable foraging habitat. Six records of this species are within 5 miles (CDFW 2019). The nearest record is approximately 2.5 miles to the southeast, in a cottonwood tree near commercial development to the west, surrounded by open space to the north, east and south (CDFW 2019).
<i>Elanus leucurus</i> (nesting)	white-tailed kite	-	-	FP	Open grasslands, meadows, or marshes for foraging close to dense-topped trees for nesting and perching. Nest trees may be growing in isolation, or at the edge of or within a forest.	Coastal and valley lowlands, and cismontane regions of California.	Could occur; suitable nesting habitat (dense-topped trees) is present and foraging habitat (grasslands and marshes) exists on neighboring property to the north and east. Seven records of this species are within 5 miles (CDFW 2019). The nearest record is approximately 0.5 mile west of the project area, on the other side of Lake Natoma, in oak woodland habitat (CDFW 2019).	Could occur; suitable nesting habitat (dense-topped trees) is present, and suitable foraging habitat (open grasslands) is nearby on Aerojet property. Ten records of this species are within 5 miles (CDFW 2019). The nearest record is about 0.5 mile to the east, in a foothill pine plant community south of Folsom Boulevard (CDFW 2019).

Notes for Table 3.4-2
Special-status Species with Potential to Occur in the Project Biological Study Area

Notes:

¹ Regulatory Status Definitions:

Federal Status Categories

FT = Listed as threatened under Federal Endangered Species Act

California State Status Categories

ST = Listed as threatened under California Endangered Species Act

California Department of Fish and Wildlife (CDFW) Categories:

SSC = Species of Special Concern

FP = Fully Protected

² MSL = mean sea level

³ Potential for Occurrence:

Could Occur: The project site is within the species' range, and no occurrences of the species have been recorded within the project site; however, suitable habitat for the species is present and recorded occurrences of the species are generally present in the vicinity.

No Potential to Occur: The project site is outside the species' known range or suitable habitat for the species is absent from the project site and adjacent areas.

Source: CDFW 2019

3.4.2 Discussion

- a) **Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?**

Less than Significant with Mitigation Incorporated. No special-status plant or wildlife species were observed in the project segments or within the biological study area during the reconnaissance-level survey. No suitable habitat for special-status plants is present within or adjacent to either project segment. Five special-status wildlife species could occur in the Rancho Cordova project segment, two of which (Swainson's hawk and white-tailed kite) also may occur in the Folsom project segment. Suitable habitats for special-status species include the following:

- blue elderberry shrubs in the Rancho Cordova project segment, which are the host plant for the federally threatened valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*);
- large and/or dense-topped trees adjacent to grasslands in both project segments, which could provide suitable nesting substrate and foraging habitat for Swainson's hawk (*Buteo swainsoni*) and/or white-tailed kite (*Elanus leucocephalus*);
- a mixture of annual grassland and shrubs in the southeastern extent of the Rancho Cordova project segment, which could support nesting grasshopper sparrow (*Ammodramus savannarum*); and
- ground-squirrel burrows in low-growing vegetation and parking areas near the Hazel Station in the Rancho Cordova project segment, which could support nesting or wintering burrowing owl (*Athene cuniculara*).

Furthermore, the numerous shrubs, trees, ruderal areas, and structures in both the Folsom and Rancho Cordova project segments could provide suitable nesting substrate for migratory birds. Project-related disruption or destruction of migratory bird nests would be a violation of the Migratory Bird Treaty Act and California Fish and Game Code Section 3503 of the. Disruption or destruction of active raptor nests would be a violation of California Fish and Game Code Section 3503.5 .

Approximately 8.69 acre of temporary and permanent disturbance to urban, ruderal, and grassland habitats potentially could occur in the project area. This would include approximately 0.41 acre of temporary disturbance (0.14 acre in the Folsom project segment and 0.27 acre in the Rancho Cordova project segment), associated with project staging, access, and construction; and 8.28 acres of permanent disturbance (2.37 acres in the Folsom project segment and 5.91 acres in the Rancho Cordova project segment), associated with installation of project components. Temporary impacts related to project staging and laydown areas and permanent impacts related to installation of project components would result in removal or trimming of existing vegetation in ruderal and grassland habitats. A total of 91 trees (44 trees in the Folsom project segment and 47 trees in the Rancho Cordova project segment) are rooted within or adjacent to (i.e., within 20 feet of) the project footprint that may be indirectly (i.e., trimmed) or directly (i.e., removed) affected by project activities, potentially resulting in removal or destruction of nests and/or nesting birds and raptors. During project construction, temporary increases in noise levels from equipment mobilization, trenching, grading, and earth-moving, as well as increased levels of human movement could disrupt the nesting and foraging behavior of birds and raptors within the project footprint, causing adults to abandon nests or neglect young chicks. The impact would be **potentially significant**.

If elderberry shrubs occur on or within 50 meters (165 feet) of a project area, adverse effects on VELB may occur because of project implementation (USFWS 2017). Trimming or removal of up to 25 elderberry shrubs within and adjacent to (i.e., within 20 feet of) the Rancho Cordova project segment may remove or destroy VELB eggs and/or larvae, and may reduce the health and vigor of the elderberry shrub. An additional five elderberry shrubs (for a total of 30) are within the USFWS area of interest. The impact would be **potentially significant**.

Mitigation Measures. The following mitigation measures would reduce the impact to migratory birds and raptors and to special-status wildlife species that may be present in the vicinity of the project-related construction activities. Mitigation Measure BIO-1 through BIO-3 would require preconstruction surveys to identify whether active nests are present and delineate no-construction buffer zones to avoid impacts on nesting raptors and/or other birds. Mitigation Measure BIO-4 would avoid and minimize direct impacts on the valley elderberry longhorn beetle. As a result, the potentially significant impacts to protected wildlife species would be reduced to **less than significant with mitigation incorporated**.

Mitigation Measure BIO-1: Conduct preconstruction surveys for migratory birds and raptors

Trees and vegetation must be removed only outside the nesting season, September 1 through January 31. If construction occurs between February 1 and September 15, SacRT must conduct preconstruction surveys for active nests of migratory nesting birds and raptors, including special-status species (i.e., grasshopper sparrow and white-tailed kite), within 14 days before the start of any construction-related activities. Preconstruction surveys for Swainson's hawk must be carried out separately, in accordance with Mitigation Measure BIO-2, over a longer survey period in the months before the start of project-related construction.

If active nests are found, SacRT must consult with a qualified biologist to establish avoidance buffers around nests that will be sufficient so that breeding will not be likely to be disrupted or adversely affected by project activities. An avoidance buffer will consist of an area where project-related activities (i.e., vegetation removal, earth moving, and construction) will not occur. Typical avoidance buffers during the nesting season will be a radius of 100 feet for nesting passerine birds and 500 feet for nesting raptors, unless a qualified biologist determines that smaller buffers will be sufficient to avoid impacts on nesting raptors and/or other birds. Factors to be considered for determining buffer size will include the presence of existing buffers provided by vegetation, topography, and infrastructure; nest height; locations of foraging territory; and baseline levels of noise and human activity. The buffer zone must be delineated by highly visible temporary construction fencing. A qualified biologist must monitor active nests during construction, so that the species is not harmed or harassed by the noise or activity resulting from project-related activities. The buffers must be maintained until a qualified biologist has determined that the young have fledged and are no longer reliant on the nest or parental care for survival.

Mitigation Measure BIO-2: Avoid impacts on nesting Swainson's hawk through preconstruction surveys and buffer zones around active nests

SacRT must implement the following measures to avoid and minimize impacts on Swainson's hawk:

- Trees must not be removed during the breeding season for nesting raptors (March 1 through September 15), unless a survey by a qualified biologist verifies that no active nests are in the trees.
- For staging and construction activities that begin between March 1 and September 15, SacRT must retain a qualified biologist to conduct preconstruction surveys for Swainson's hawk and identify

active nests on and within 0.25 mile of the project area. The surveys will be timed in accordance with the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000). To meet the minimum level of protection for the species, the surveys will be completed for at least the two survey periods immediately before the project's implementation. Appropriate survey periods will include:

- Between January and March 20, before Swainson's hawk returns from migration, an optional survey of the project segments may be conducted to determine potential nest locations.
- Between March 20 and April 5, old nests, staging birds, and competing species will be observed. The hawks are expected to be in their territories during survey hours from sunrise to 10 a.m. and from 4 p.m. to sunset.
- Between April 5 and April 20, both males and females are expected to be actively nest-building, visiting their selected site frequently. Territorial and courtship displays and copulation will be increased. The birds will tend to vocalize often, and their nest locations will be identified most easily.
- Between June 10 and July 30 (post-fledging), from sunrise to noon and from 4 p.m. to sunset, young birds are expected to be active and visible. Both adult parents will make numerous trips to the nest and often will soar above, or will perch near or on the nest tree, allowing easy observation.

If no active nests are found, a letter report documenting the survey methods and results must be submitted to CDFW and no further mitigation will be required.

- If an active nest is found, impacts on nesting Swainson's hawks must be avoided by establishing appropriate buffers around active nest sites, identified during preconstruction Swainson's hawk surveys. CDFW guidelines recommend implementation of a 0.25-mile-wide buffer for Swainson's hawk, but the size of the buffer may be adjusted if a qualified biologist and SacRT, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest. Project construction activities will not begin within the buffer areas until a qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer will not be likely to result in nest abandonment. Nest monitoring by a qualified biologist during and after construction or staging activities will be required if the activity has the potential to adversely affect a nest.

Mitigation Measure BIO-3: Avoid impacts on burrowing owl in the Rancho Cordova project segment through preconstruction surveys and buffer zones around occupied burrows

SacRT must implement the following measures to reduce impacts on breeding or wintering burrowing owl in the Rancho Cordova project segment:

- SacRT must retain a qualified biologist to conduct focused surveys for burrowing owls in areas of suitable habitat. The surveys must be conducted before the start of construction activities and in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). If no occupied burrows are found, a letter report documenting the survey methods and results must be submitted to CDFW, and no further mitigation will be required.

- If a burrow that is occupied by a burrowing owl is found, SacRT must consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. Recommended buffers will range from a radius of 150 to 1,500 feet, depending on site conditions and burrowing owl use of the burrow. Exclusion of burrowing owls from any occupied burrows is not expected to be necessary because the staging areas may be adjusted to minimize disturbance. No exclusion of burrowing owls will be permitted during the breeding season (February 1 through August 31).

Mitigation Measure BIO-4: Avoid impacts on Valley Elderberry Longhorn Beetle (VELB) in the Rancho Cordova project segment through preconstruction surveys for VELB exit holes, restrictions on removal or trimming of elderberry shrubs, and compensatory mitigation if necessary

Before the start of project construction, SacRT must retain a qualified biologist to conduct a survey for VELB exit holes in the Rancho Cordova project segment and prepare a VELB survey report for SacRT, to be submitted to USFWS for review and consultation before project construction. The VELB survey report must include the following:

- the location of elderberry shrubs in the project segment and within 165 feet (50 meters) of the project footprint;
- the number of elderberry shrubs that will be directly affected by the project;
- a map that delineates the area that will be directly affected and the elderberry shrub locations within 165 feet (50 meters) of the project footprint;
- information regarding the quality of individual elderberry shrubs and the continuity of riparian habitat outside the project area;
- a determination of the presence of exit holes in elderberry stems, and whether or not these stems will be affected by the project;
- an evaluation of the surrounding habitat and known VELB occurrences within 2,625 feet (800 meters) of the project segment; and
- a description of surrounding land uses, including land uses that may be incompatible with VELB use or a potential barrier to VELB dispersal.

To avoid and minimize impacts on VELB and/or its habitat, SacRT must coordinate with USFWS to determine project-specific conservation measures. At minimum, SacRT must implement the following measures, which may be amended in consultation with USFWS:

- To the greatest extent feasible, damaging or removing elderberry shrubs must be avoided. Construction activities that may damage or kill an elderberry shrub (e.g., trenching, paving) may need an avoidance area of at least 20 feet (6 meters) from the dripline, depending on the type of activity. All areas to be avoided during construction activities must be fenced and/or flagged as close to construction limits as feasible.
- As much as feasible, all activities that occur within 165 feet (50 meters) of an elderberry shrub must be conducted outside the VELB flight season (March–July).
- Any trimming of elderberry shrubs must occur only between November and February. Trimming must avoid removal of any branches or stems that are greater than or equal to 1 inch in diameter.

Measures to address regular and/or large-scale maintenance (trimming) will be established in consultation with USFWS.

If adverse impacts on VELB are expected because of the project, SacRT must consult with USFWS to determine the appropriate type and amount of compensatory mitigation. Because the project segment is in a non-riparian area, compensation typically will be appropriate for occupied shrubs (USFWS 2017). Appropriate compensatory mitigation can include purchasing credits at a USFWS-approved conservation bank, providing on-site mitigation, or establishing and/or protecting habitat for VELB. At minimum, impacts on individual shrubs in nonriparian areas will be replaced through a purchase of 1 credit at a USFWS-approved bank for each shrub that will be trimmed, if exit holes are found in any shrub on or within 165 feet (50 meters) of the project area. If the occupied shrub will be completely removed by the activity, the entire shrub will be transplanted to a USFWS-approved location, in addition to a credit purchase (USFWS 2017).

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

No Impact. No riparian habitat or other sensitive natural communities are present in the study area. **No impact** on a sensitive natural community would occur as a result of the proposed project.

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. No project activities are proposed within a water body/water course; therefore, project-related activities would cause no direct fill or indirect temporary or permanent loss of State or federally protected wetlands. Equipment mobilization and staging areas for vegetation removal activities would be on existing access roads and uplands (i.e., annual grassland and ruderal areas), so that these activities would not directly affect any State or federally protected wetlands. Therefore, **no impact** would occur.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant. Wildlife movement corridors in the region typically are associated with rivers and creeks supporting riparian vegetation, which do not occur in the project site and are available elsewhere, including the neighboring American River, Lake Natoma, and Folsom Lake SRA. Project implementation temporarily would impede wildlife use of the project site; however, these project effects would be localized and would not substantially affect wildlife movements. No wildlife nursery sites are in the project site. The impact on wildlife movement and native wildlife nurseries would be **less than significant**.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant with Mitigation Incorporated. Temporary impacts related to project staging and laydown areas, and permanent impacts related to installation of project components potentially would result in direct or indirect impacts on up to 91 trees (44 trees in the Folsom project segment and 47 trees in the Rancho Cordova project segment) that were mapped within 20 feet of the project boundaries (Figures 3.4.1 and 3.4.2). Direct impacts would include major trimming of limbs and/or tree removal, while indirect impacts may result from

activities within the dripline that could require trimming of smaller limbs or may cause changes in soil texture and quality (e.g., grading, compaction), leading to a potential decline in tree health. The number of trees that are rooted within the project footprints and potentially could be removed would include 12 trees (i.e., six native trees and six non-native landscape trees) in the Rancho Cordova project segment and four native oak trees in the Folsom project segment. Tree species that were generally mapped as part of the biological survey and their locations in relation to the project footprint are shown in Table 3.4-3. Details regarding tree size, health, and actual project-related impacts on trees would be determined by an arborist survey before the start of the project (see Mitigation Measure BIO-5).

Table 3.4-3
Trees Mapped Within and Outside (within 20 feet)
the Folsom and Rancho Cordova Project Segment Footprints

Tree Species	Total Number of Trees Mapped ¹	
	Within Footprint	Outside Footprint (within 20 feet)
Folsom Project Segment		
Black Locust*	0	5
Black Walnut	0	2
Black Willow	0	1
Blue Oak	1	0
Interior Live Oak	3	29
Valley Oak	0	3
Total	4	40
Rancho Cordova Project Segment		
Black Walnut	1	0
Black Willow	0	1
Crepe Myrtle*	0	1
Fremont Cottonwood	0	2
Eucalyptus species*	4	15
Interior Live Oak	2	3
London Plane*	2	5
Pear Tree*	0	1
Privet*	0	3
Unknown species*	0	3
Valley Oak	3	1
Total	12	35

Note:

* Trees denoted with an asterisk are not native to California.

¹ Results do not represent the findings of an arborist survey; tree locations and quantities are approximate, based on a reconnaissance-level biological survey, and are subject to change following final project design and the results of an arborist survey conducted in accordance with local tree protection ordinances.

Source: Compiled by AECOM in 2019

Many of the trees within or adjacent to the project footprint are California native oaks, other native trees, or large landscape trees, all protected by local ordinances. Activities that may result in impacts on protected trees in the cities of Folsom and Rancho Cordova are governed by the Folsom Tree Preservation Ordinance (Folsom Municipal Code 2019) and the Rancho Cordova Tree Preservation and Protection Ordinance (Rancho Cordova Municipal Code 2019), respectively. Therefore, this impact would be **potentially significant**.

Mitigation Measures: The following mitigation measure would reduce the impact to protected trees that may need to be removed to accommodate the proposed project. Mitigation Measure BIO-5 would require SacRT to comply with the provisions of the local tree ordinances. As a result, the potentially significant impacts to protected trees would be reduced to **less than significant with mitigation incorporated**.

Mitigation Measure BIO-5: Conduct a preconstruction arborist survey and implement a tree replacement plan

Before project construction, SacRT must retain a certified arborist to conduct an arborist survey at the Folsom and Rancho Cordova project segments and prepare an Arborist Survey Report for each segment. To meet the requirements of both the Folsom Tree Preservation Ordinance and the Rancho Cordova Tree Preservation and Protection Ordinance, the Arborist Survey Report must include the following information:

- species identification and sub-meter accuracy locations of each tree within and near the project footprint;
- trunk diameters, measured at standard height;
- approximate tree heights;
- approximate tree dripline radii;
- a brief statement for the reasons for removal or major trimming of trees;
- identification of suitable measures to protect trees for preservation;
- evaluation of areas in which to plant replacement trees; and
- a site plan showing the accurate location, number of trees affected, species, trunk diameters, approximate heights, and approximate driplines of any trees to be removed.

In accordance with Chapter 12.16 of the Folsom Municipal Code (2019), before vegetation removal or clearing activities in the Folsom project segment, SacRT must provide the following information:

- Justification statement
- Arborist's Survey Report
- Site Map
- Tree locations
- Protected zone of protected trees
- Preservation Program
- Arborist's Survey Report

In accordance with Chapter 19.12 of the Rancho Cordova Municipal Code (2019), before project implementation in the Rancho Cordova project segment, SacRT must provide the following information:

- Statement for the reasons for removal or major trimming, written by a certified arborist
- Consent of the owner of the record of the land on which the proposed activity is to occur
- A tree inventory, including a Site Plan
- Tree Replacement Plan

Based on the information in these submittals, SacRT must meet with the cities to establish suitable tree plantings or payment of in-lieu fees. If tree plantings are selected as the preferred method of mitigation, then details regarding the location and size of the replacement trees must be incorporated into the construction specifications and plans.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The project area does not overlap with an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or State HCP. Therefore, **no impact** would occur as a result of the proposed project.

3.4.3 References

- California Department of Fish and Game (CDFG). 2012 (March 7). *Staff Report on Burrowing Owl Mitigation*.
- California Department of Fish and Wildlife (CDFW). 2018 (October 15). *California Natural Community List*. Available: <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities>. Accessed June 2019.
- . 2019. *California Natural Diversity Database (CNDDDB)*. Maps and Data, Rarefind 5 Version 5.2.14. Available: <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>. Accessed June 2019.
- California Native Plant Society (CNPS). 2019. *Inventory of Rare and Endangered Plants of California*. Online edition, v8-03 0.39, Rare Plant Program. Available: <http://www.rareplants.cnps.org>. Accessed June 2019.
- Folsom Municipal Code. 2019. *Chapter 12.16, Tree Preservation Ordinance*. Available: <https://www.codepublishing.com/CA/Folsom/html/Folsom12/Folsom1216.html>. Accessed August 2019.
- Griffith, G. E., J. M. Omernik, D. W. Smith, T. D. Cook, E. Tallyn, K. Moseley, and C. B. Johnson. 2016. *Ecoregions of California*. U.S. Geological Survey Open-File Report 2016–1021, with map, scale 1:1,100,000. Available: <http://dx.doi.org/10.3133/ofr20161021>. Accessed June 2019.
- Rancho Cordova Municipal Code. 2019. Chapter 19.12, Preservation and Protection of Private Trees. Available: <https://www.codepublishing.com/CA/RanchoCordova/html/RanchoCordova19/RanchoCordova1912.html>. Accessed August 2019.
- Swainson's Hawk Technical Advisory Committee. 2000 (May 31). *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*.

- U.S. Environmental Protection Agency (EPA). 2017 (December 15). *WATERS (Watershed Assessment, Tracking & Environmental Results System)*. WATERSKMZ Tool, a compressed Keyhole Markup Language (KML) file that provides easy access to geospatial WATERS data and services. Available: <https://www.epa.gov/waterdata/viewing-waters-data-using-google-earth>. Accessed June 12, 2019.
- U.S. Fish and Wildlife Service (USFWS). 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)*. Sacramento, CA.
- . 2019a (May 5). *National Wetlands Inventory*. Wetlands Mapper data desktop/mobile view. Available: <https://www.fws.gov/wetlands/data/Mapper.html>. Accessed June 2019.
- . 2019b. *Information for Planning and Consultation (IpaC)*. Powered by ECOS – the Environmental Conservation Online System. Available: <https://ecos.fws.gov/ipac/>. Accessed August 2019.
- U.S. Geological Survey (USGS). 2018a. Folsom Quadrangle, California, 7.5-minute series.
- . 2018b. Buffalo Creek Quadrangle, California, 7.5-minute series.
- . 2018c. Carmichael Quadrangle, California, 7.5-minute series.
- . 2018d. Folsom SE Quadrangle, California, 7.5-minute series.
- . 2018e. Roseville Quadrangle, California, 7.5-minute series.
- . 2018f. Clarksville Quadrangle, California, 7.5-minute series.
- . 2018g. Rocklin Quadrangle, California, 7.5-minute series.
- . 2018h. Pilot Hill Quadrangle, California, 7.5-minute series.
- . 2018i. Citrus Heights Quadrangle, California, 7.5-minute series.

This page intentionally left blank

3.5 Cultural Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.5.1 Environmental Setting

The project area is in the southern reaches of the Sacramento Valley in central California and is south and east of the American River, approximately 15 to 18 miles upstream from its confluence with the Sacramento River in the city of Sacramento. The project area is within dredge tailings, artificially deposited in the nineteenth and twentieth centuries (Wagner et al. 1981). The dredge tailings primarily overlies Pleistocene-age Modesto–Riverbank Formations (Meyer and Rosenthal 2008:83; Wagner et al. 1981). The soils in the Rancho Cordova project segment alignment are mapped as Urban Land–Natomas Complex and Urban Land, while soils in the Folsom project segment are mapped as Xerorthents, dredge tailings, 2 to 50 percent slopes (California Soil Resource Lab 2019).

The project area is adjacent to one of the most intensively archaeologically studied areas in California: the Sacramento and San Joaquin valleys and the adjoining Sacramento–San Joaquin River Delta. The temporal sequence for the region has been refined several times since the 1930s and, most recently, was summarized by Rosenthal et al. 2007. People have resided in the Sacramento area for at least 10,000 years, although evidence from the earliest occupation of the Central Valley (13,500 to 10,500 before present [BP]) is assumed to be present but buried under many feet of sediment. Artifacts dating to this period, consisting of basally thinned and fluted projectile points, are sparse (Rosenthal et al. 2007:151).

The project area lies within the ethnographic territory of the Nisenan, who primarily occupied lands east of the Sacramento River. The Nisenan were one of three Maiduan speaking tribelets (i.e., Maidu, Konkow, Nisenan) who inhabited the northeastern half of the Sacramento Valley and adjoining western slopes of the Sierra Nevada (Shipley 1978:82–85). The Nisenan were the southernmost of the three groups. Ethnographic village sites along the American River in Nisenan territory include Ekwo (on Sunrise Boulevard), Shiba (on Hazel Avenue), and Yodok (at Folsom) (Wilson and Towne 1978:388). These villages were on the north side of the river; no known ethnographic villages are in the project area.

During the Mexican Period, multiple land grants were issued in Sacramento County, one of which included much of today's cities of Rancho Cordova and Folsom. The project area was part of the Rancho Río de Los Americanos, awarded by Governor Manuel Micheltorena to William Leidesdorff in 1844. The 35,521-acre rancho extended from the eastern border of John Sutter's New Helvetia, along the south bank of the American River in

the present-day city of Sacramento, to the eastern end of present-day Folsom. After Leidesdorff's death in 1848, the rancho was purchased by Joseph L. Folsom in 1849. In 1855, the grid for the town of Folsom was plotted on the rancho and the town was named after him; however, the majority of the rancho remained undeveloped at this time (Hoover et al. 2002:304).

Archaeological Resources

Records Search. A records search was completed on July 12, 2019, at the North Central Information Center (NCIC) of the California Historical Resources Information System at Sacramento State University (NCIC File No. SAC-19-131). Site records and previous studies were accessed for the project area and for a 0.25-mile radius on the Buffalo Creek and Folsom USGS 7.5-minute topographic quadrangles. The National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), the California Office of Historic Preservation Historic Properties Directory (OHP HPD) data files, and historical maps also were reviewed. Eleven studies previously were conducted of the project area; four of these studies were conducted after the publication of the 2001 Final EIS/EIR for the Downtown/Sacramento-Folsom Corridor Project (FTA and RT 2000), which included the current project area. Each of the studies included a pedestrian survey. Table 3.5-1 lists the cultural resource studies completed after 2000 and a summary of findings for each study.

Resources in the Project Area. One historic-period archaeological resource previously was recorded in the project area. This resource is the American River Placer Mining District (P-34-000335), a large district that encompasses both project segments. One historic-age built environment resource, the Sacramento Valley Railroad (SVRR) (P-34-000455), previously was recorded in the project area. These two resources are discussed in detail below. One additional historic-period built environment resource, a concrete culvert that passes under Folsom Boulevard, was recorded directly adjacent to the Rancho Cordova project segment (P-34-002254).

Sacred Lands File Search. On June 13, 2019, AECOM requested a Sacred Lands File (SLF) search and CEQA Tribal Consultation List from the Native American Heritage Commission (NAHC), pursuant to Assembly Bill (AB) 52. On June 24, 2019 (in a letter dated June 21, 2019), the NAHC responded that the SLF search was negative. On August 5, 2019, AB 52 tribal consultation letters were sent by AECOM on behalf of SacRT. Native American consultation is being completed by the SacRT, pursuant to AB 52.

Field Survey. A pedestrian survey of the project area was conducted by an AECOM archaeologist on July 2, 2019. The survey consisted of walking parallel to the SacRT tracks, where sufficient space existed between the track bed and private property. Survey transects were 9.84 feet (3 meters) or less. Visibility in the project area was generally poor (50 percent or less), with the ground surface obscured by vegetation, gravel, and paving. Where possible, vegetation was scraped away to better view the ground surface, and rodent burrow backdirt piles were inspected closely for indicators of archaeological deposits. Modern trash was noted, but no archaeological sites or features were observed at either project segment.

American River Placer Mining District. The American River Placer Mining District (also known as the Folsom Mining District) is “an extensive conglomerate of historic mining features. This historic district has been recorded and studied in a largely piecemeal fashion and later subsumed under a single State trinomial designation: CA-SAC-308H [P- P-34-000335]” (City of Folsom 2018:10-8). The district measures 10 miles long by 7 miles wide and encompasses an area where “more than one billion cubic yards of earth were dredged” for gold between 1860 and 1960 (Nadolski 2007:9).

**Table 3.5-1
Post-2000 Cultural Resources Investigations in the Project Area**

Project	Relevant Location	Results	Reference
Folsom Auto Mall Expansion	Small portion overlaps with east end of Rancho Cordova project segment	No cultural resources identified.	PAR. 2005. Archaeological Survey of the Folsom Auto Mall Expansion. Report (S-7043) on file at the North Central Information Center, Sacramento.
Glenborough at Easton Development Project	Overlaps with east end of Rancho Cordova project segment	Identified Folsom Mining District and recommended evaluation under the NRHP.	Mason, Roger D. 2007. Cultural Resources Inventory, Glenborough at Easton, Sacramento County, California. Report (S-8821) on file at the North Central Information Center, Sacramento.
Folsom Boulevard Transit Oriented Development Plan	Overlaps with east end of Rancho Cordova project segment	Identified Natomas Ditch and Nimbus Winery. Determined resources were not eligible for the NRHP or CRHR. Based on developed nature of the project area, did not recommend monitoring.	Sikes, Nancy, and Cindy Arrington. 2009. Cultural Resources Survey Folsom Boulevard Transit Oriented Development Plan, Sacramento County, California. Report (S-10400) on file at the North Central Information Center, Sacramento.
Rancho Cordova Parkway Interchange	Small portion overlaps with west end of Rancho Cordova project segment	Identified Folsom Mining District. The portion of the district in the project area was not eligible for the NRHP. Other sites and isolates identified were also determined not eligible for the NRHP.	Nadolski, John. 2007. Historic Property Survey Report/Archaeological Survey Report for the Rancho Cordova Parkway Interchange. Report (S-12346) on file at the North Central Information Center, Sacramento.

Elements of the district include expansive dredge tailings piles (reflecting different dredging technologies), ponds, adits, remnants of hydraulic mining, and refuse deposits. The district has been recommended as eligible for listing in the NRHP under Criteria A, C, and D, and in the CRHR under Criteria 1, 3, and 4, although the district contains non-contributing elements where features have lost integrity through leveling and aggregate mining (Lindstrom 1995; Nadolski 2007:12). Although the project area is within the mapped boundaries of the district, no features associated with the district exist in the project area. Therefore, this potential historical resource would not be affected by the project.

Historic-Age Resources

Background Research and Records Search. The City of Rancho Cordova General Plan (2016) provides a brief summary of the historic resources setting, including sites and buildings, artifacts, and items associated with Native Americans, gold mining, historic railroad operations, the Pony Express, Mather Field, rocket testing at Aerojet, and other locally historic events such as incorporation. Although only a few sites and buildings in the Rancho Cordova planning area meet the basic criteria for designation as a State Historic Resource or State Historic Landmark, many other buildings have a significant historic value to the community. Eight structures are listed in the General Plan as important to the community, including a segment of the SVRR alignment that extended from Sacramento to Folsom near Folsom Boulevard, which highlights development of communication and transportation facilities in the Rancho Cordova area (City of Rancho Cordova 2006:4). The SVRR segment is within both the Rancho Cordova and Folsom project segments.

The records search conducted at the NCIC (NCIC 2019) indicated two extant historic-age built environment resources along the north side of Folsom Boulevard near the Rancho Cordova project segment: Nimbus Winery

(12401 Folsom Boulevard, P-34-1667), a highly modified building originally constructed in 1888; and the Sacramento County Fire Station #63 (12395 Folsom Boulevard), built in 1956. Both initially were evaluated in 1992. The winery was determined to be ineligible for listing in the NRHP, by consensus through the National Historic Preservation Act Section 106 process, but it was not evaluated for the CRHR or a local listing. The winery was evaluated again in 2007 and was found to be eligible for listing in the CRHR under Criteria 1 and 3, but lacked historic integrity, and thus is not a historical resource under CEQA. The Sacramento County Fire Station #63 was found ineligible for designation by the State Historical Resource Commission (OHP 2012) and is not a historical resource under CEQA. Additional resources are discussed in detail next.

Sacramento Valley Railroad. No historic-age (45 years and older) resources are in the Folsom project segment, other than the former SVRR. The Folsom project segment of the SVRR was recorded in 1998 (P-34-455/CA-SAC-428H). At that time, the segment was in poor condition, with removal of rails, ties, and the original berm (Peak & Associates 1998). The following historical context mainly focuses on the development of the Rancho Cordova project segment.

Three rail tracks are in the Rancho Cordova project segment. The two northerly tracks are used by the SacRT and represent a transition where the Gold Line double tracks converge to provide light rail service on a single track. A third track lies south of the two light rail tracks and provides freight service to the neighboring properties to the south. This freight track, owned by the SPTCJPA and operated by UPRR through a 20-foot-wide easement centered on the existing tracks, would be moved south, outside the existing right-of-way. The three tracks are part of the approximately 20-mile segment of the former SVRR from downtown Sacramento to Folsom, which was determined eligible for listing in the NRHP with State Historic Preservation Officer (SHPO) concurrence in September 1993 (Jones & Stokes 1993:C-30).

A 2-mile segment of the SVRR that is approximately 1.5 miles southwest of the Rancho Cordova project segment was studied in 1993 for construction of the double track light rail line, which displaced the original alignment of the SVRR (Jones & Stokes 1993). For that undertaking, the change to the rail alignment was determined not to result in an adverse effect on historic properties, because it would not disturb, destroy, or otherwise adversely affect the elements of the rail line that contributed to its significance. That project relocated the existing tracks, which did not date to the period of significance (nineteenth century), slightly to the south within the original right-of-way (OHP1999). The integrity of location for the rail property is that of the right-of-way, not the actual location of the tracks, which are not in their original alignment for more than half of the approximately 20-mile line from Folsom to Sacramento. The small segments of rail line proposed to be relocated within the existing right-of-way for the proposed project (0.6 mile in Folsom and 1.2 miles in Rancho Cordova) would continue to operate within the original right-of-way. The elements of the line that retain the integrity of location and design would not be adversely affected. All other elements of historic integrity—including materials, workmanship, feeling, association, and setting—no longer exist. In summary, the proposed project would not adversely affect the SVRR property, which is considered to be a historical resource under CEQA.

Aerojet. South of the SacRT alignment along Folsom Boulevard and west of Nimbus Road/Hazel Avenue are portions of a parcel that is proposed for acquisition to accommodate the passing track. The property with historic-age resources previously was studied in a series of cultural resources reports, prepared for the Glenborough at Easton development from 2007 to 2008. The area west of Nimbus Road and south of Folsom Boulevard was used by Aerojet for warehouses and other secondary support (Past Forward Inc. and ECORP 2007). The buildings (P-34-2183, P-34-2184, P-34-2185) are associated with U.S. Air Force and Aerojet General Corporation for rocket fuel testing and component manufacturing, and they initially were developed in the mid-1950s. Aerojet achieved national prominence in the late 1950s to 1960s for its contributions to the aeronautical industry, particularly in

rocket fuel innovation and rocket manufacture. Several of the company's leaders and researchers also achieved national attention during this time. This area south of Folsom Boulevard was a secondary and supporting area of the facility, and the buildings were used for shipping and storage warehouses, offices, and intermittent manufacturing activities (ECORP 2008:6). The significant activities in the facility were undertaken east of Nimbus Road/Hazel Avenue, within the administrative core and south in the testing facilities outside the project area.

Aerojet Nimbus Plant/Schnitzer Steel. The proposed project would shift an existing freight track within the rail right-of-way to the south and realign an existing spur track that serves the historic-age Schnitzer Steel property at 12000 Folsom Boulevard in Rancho Cordova (Assessor Parcel Number 069-0040-080-0000). The property has not been inventoried or evaluated previously. This property initially was developed in 1956 as the Nimbus plant of Air Products, Inc. Aerojet General Corporation provided the land to the government for construction of the Nimbus plant. The plant produced liquid oxygen and liquid nitrogen for use in the Sacramento installations of Aerojet General Corporation and Douglas Aircraft Company, which manufactured rockets and rocket propellants for the Air Force (Sacramento Bee 1956 Feb 6, Feb 24). The facility was one of five that produced propellants for the military by 1960 and had over 25 employees producing 330 tons a day (Sacramento Bee 1960 Feb 4). In 1964, Air Products and Chemicals, Inc. constructed another plant in Tracy, in San Joaquin County, and continued to produce liquid oxygen and nitrogen at the Nimbus plant under a government contract until fall 1968, when production ceased. Air Products and Chemicals, Inc. continued to supply liquid oxygen and nitrogen to Aerojet for testing programs under government contract, but this was trucked in from a plant outside the Sacramento area, assumedly from the Tracy plant.

The Nimbus plant was offered for sale by the federal government in May 1969 (Sacramento Bee 1964 Jan 8, 1969 Mar 27). By 1973, Schnitzer Steel Products of California had opened a recycling scrap facility at the former Nimbus plant location (Sacramento Bee 1973 Sep 9). Schnitzer Steel was started in 1906 in Portland, Oregon, by Sam Schnitzer, a Russian immigrant. In 1965, Schnitzer Steel opened a metal recycling facility at the Port of Oakland, and in 1973, opened its second California recycling facility at 12000 Folsom Boulevard. This facility continues to recycle scrap metal and cars, and Schnitzer Steel is a global company that owns facilities for metal recycling, auto recycling, steel manufacturing, and pick-and-pull automotive parts (Schnitzer Steel 2019).

The conversion of the property from liquid nitrogen and oxygen to scrap recycling included removal of plant facilities, construction of new buildings, and later a freight siding was constructed on the parcel. Four of the original five plant buildings still appear to be extant on the parcel, but the equipment that produced the liquid nitrogen and oxygen have been removed. The original plant site also was expanded along the east and southeast corner, to its present-day 7 acres (Historicaerials.com 2019). Although the development of the property is associated with Aerojet, the facility was secondary to research and development and produced fuel for testing. The significant activities at the Aerojet facility were undertaken east of the property, within the administrative core, and south in the testing facilities outside the project area. The former Aerojet Nimbus Plant and current Schnitzer Steel property at 12000 Folsom Boulevard do not appear to meet CRHR criteria as historical resources under CEQA, based on lack of significance and lack of historic integrity to any potential period of significance.

Based on a review of the previous recordation and an evaluation of the properties on file at the NCIC, combined with a reconnaissance-level survey on May 2, 2019 and background research on previously unrecorded historic-age resources that may potentially be affected by the project, an architectural historian who meets the Secretary of the Interiors' Professional Qualification Standards for history and architectural history has concluded that no CEQA-protected historical resources would be adversely affected by the proposed project.

3.5.2 Discussion

a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?

Less than Significant. The SVRR is a historical resource under CEQA. No other historical resources would be affected by the proposed project. The proposed project would install a second track in the existing rail right-of-way and would shift the existing freight tracks. The realignment of the tracks would require sliver property takes to maintain a 20-foot separation between the track centerlines. The SHPO previously has determined that changes to the rail alignment within the original right-of-way would not result in an adverse effect on historic properties, because it would not disturb, destroy, or otherwise adversely affect the elements of the rail line that contribute to its significance. The integrity of location for the rail property is that of the right-of-way and not the actual location of the tracks, which are not in their original location for more than half of the approximately 20-mile line from Folsom to Sacramento. The small segments of rail line proposed to be relocated within the existing right-of-way for the proposed project would continue to operate within the original right-of-way. The elements of the line that retain the integrity of location and design would not be adversely affected. All other elements of historic integrity—including materials, workmanship, feeling, association, and setting—no longer exist. Therefore, the proposed project would not adversely affect the SVRR property, which is considered to be a historical resource under CEQA. Because none of the elements of the proposed project would result in substantial adverse change to built environment historical resources, the impact would be **less than significant**.

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less than Significant with Mitigation Incorporated. The project area is in the mapped boundary of the American River Placer Mining District, although no features associated with the district are in the project area. No other previously recorded archaeological resources are in the project area, and the project area has been modified by development, including the construction of the existing rail line.

Soils in the project area reflect the level of previous disturbances. In the Rancho Cordova project segment, soils are partially mapped as “Urban Land” and “Urban Land-Natomas Complex,” indicating cutting and filling of the landscape. In addition, Natomas series soils are well-developed soils, dating to the Middle Pleistocene (450,000 and 100,000 years old), making them too old to contain buried archaeological resources (Meyer and Rosenthal 2008:85). Soils in the Folsom project segment are mapped as dredge tailings, although any tailings that may have been present in the project area appear to have been leveled and removed.

Despite previous disturbances, the potential for the accidental discovery of archaeological resources during project construction cannot be discounted entirely, especially if construction extends below imported fill and into intact Holocene soils. The impacts of project construction related to disturbance of archaeological resources may be **potentially significant**.

Mitigation Measures. The following mitigation measure would reduce the impact to inadvertent discovery of archaeological resources during project construction activities. Mitigation Measure CUL-1 would require SacRT to halt construction in the event such resources are uncovered, evaluate the significance of the resources, and follow recordation, data recovery, and/or salvage measures as specified by state guidelines and regulations. As a result, the potentially significant impacts to archaeological resources would be reduced to **less than significant with mitigation incorporated**.

Mitigation Measure CUL-1: Implement procedures to address unanticipated archaeological discoveries, including halting construction, evaluating the resource, and appropriate recordation and recovery if the resource is unique

If prehistoric or historic period archaeological resources are encountered during construction, work must be temporarily halted in the vicinity of the discovered materials and workers must avoid altering the materials and their context until a qualified professional archaeologist has evaluated, recorded, and determined appropriate treatment of the resource, in consultation with the SacRT. Cultural resources must be recorded on State Department of Parks and Recreation 523 historic resource recordation forms. Native American resources include chert or obsidian flakes, projectile points, mortars, and pestles; and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic-period resources include foundations or walls, refuse deposits, or bottle dumps. If the proposed development could damage a unique archaeological resource, this measure must be implemented in accordance with Public Resources Code Section 21083.2 and State CEQA Guidelines Section 15126.4, with a preference for preservation in place.

c) Disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant with Mitigation Incorporated. Archival research conducted at the NCIC indicated that the project area does not contain any previously recorded Native American sites, prehistoric-period archaeological sites, historic-period cemeteries, or human skeletal remains. However, the potential cannot be completely discounted that human remains may exist in the project area. Project construction in relation to disturbance of human remains could be **potentially significant**.

Mitigation Measure. The following mitigation measure would reduce the impact to discovery of human remains during project construction. Implementation of Mitigation Measure CUL-2 would require the SacRT to halt construction in the event that human remains are uncovered, and to comply with State guidelines and regulations. Therefore, the impact would be reduced to **less than significant with mitigation incorporated**.

Mitigation Measure CUL-2: Implement procedures to address discovery of human remains

If human remains are discovered during construction of the proposed project, SacRT must comply with state laws: Health and Safety Code Section 7050.5 et seq. relating to discovery or recognition of human remains, and Public Resources Code Section 5097 relating to the disposition of Native American burials. If any human remains are discovered in any location in the project area, SacRT must halt any further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

- The Sacramento County coroner has been informed and has determined that no investigation of the cause of death is required; and
- If the remains are of Native American origin:
 - The descendants of the deceased Native Americans have made a recommendation regarding the disposition of remains and any associated grave goods, as provided in Public Resources Code Section 5097.98; or
 - The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified.

3.5.3 References

- California Soil Resource Lab. 2019. *Soil Survey Data*. Accessed via SoilWeb app. University of California, Davis. Available: <https://casoilresource.lawr.ucdavis.edu/soilweb-apps/>. Accessed August 8, 2019.
- City of Folsom. 2018 (March). *Folsom General Plan–2035*. Adopted August 2018. Available: https://www.folsom.ca.us/community/planning/general_plan/default.asp. Accessed August 8, 2019.
- City of Rancho Cordova. 2006 (June). *Rancho Cordova General Plan—Cultural and Historic Resources Element*. Available: <https://www.cityofranhocordova.org/i-want-to-/learn-about/general-plan>. Accessed July 18, 2019.
- ECORP. 2008 (November). *Evaluation of Structures Associated with the Aerojet Complex, Glenborough at Easton*. Addendum Report.
- Federal Transit Administration (FTA) and Sacramento Regional Transit District (RT). 2000 (March). *Final Environmental Impact Statement/Environmental Impact Report, Downtown Sacramento–Folsom Corridor*.
- Historicaerials.com. 2019. *12000 Folsom Boulevard, Rancho Cordova, CA*. Aerial imagery from various years, 1952–2015. Available: <https://www.historicaerials.com/viewer>. Accessed July 18, 2019.
- Hoover, M. B., H. E. Rensch, E. G. Rensch, and W. N. Abeloe. 2002. *Historic Spots in California*. Revised by D. E. Kyle. Fifth edition. Stanford University Press.
- Jones & Stokes Associates. 1993. *Archaeological and Architectural Inventory and Determination of Eligibility and Effect of the Butterfield to Mather Field Light Rail Extension and Brighton Bridge Double Tracking Project*. Prepared for Sacramento Regional Transit District.
- Lindstrom, S. 1995. *Folsom Dredging Significance Statement*. Submitted to Jones & Stokes, Sacramento, CA. White paper (P-34-000335) on file at the NCIC, Sacramento.
- Meyer, J., and J. Rosenthal. 2008. *A Geoarchaeological Overview and Assessment of Caltrans District 3: Cultural Resources Inventory of Caltrans District 3 Rural Conventional Highways*. Far Western Anthropological Research Group, Inc., Davis, CA.
- Moratto, Michael J. 1984. *California Archaeology*. Academic Press, Orlando, Florida.
- Nadolski, J. 2007. *Historic Property Survey Report/Archaeological Survey Report for the Rancho Cordova Parkway Interchange*. Report (S-12346) on file at the North Central Information Center, Sacramento.
- North Central Information Center (NCIC). 2019 (July 12). *Folsom Light Rail Modernization Project Records Search Results*. NCIC File No. SAC-19-131.
- Office of Historic Preservation (OHP). 1999 (July 26). Letter to Federal Transit Administration re Downtown Sacramento Amtrak and Folsom Corridor Double Tracking Project. Reference FTA970129A.
- _____. 2012 (April). Sacramento County Directory of Properties in the Historic Property Data File. On file at the NCIC.

Past Forward Inc. and ECORP. 2007. *Evaluation of Structures Associated with the Aerojet Complex, Glenborough at Easton, Sacramento County, California*. Report 8821. On file at the NCIC, Sacramento, CA.

Peak & Associates. 1998. *DPR 523 Linear Feature Record, P-34-455/Trinomial CA-SAC-428H, Sacramento Valley RR*. On file at the NCIC, Sacramento, CA.

Rosenthal, J. S., G. G. White, and M. Q. Sutton. 2007. The Central Valley: A View from the Catbird's Seat. In *California Prehistory*, T. L. Jones and K. A. Klar, editors, pp. 147–163. Lanham, MD: Alta Mira Press.

Sacramento Bee

_____. 1956 Feb 6. "Plant Will Be Built At Nimbus." Page 1.

_____. 1956 Feb 24. "Douglas Aircraft Seeks Site near Sacramento for Defense Work Plant." Page 1.

_____. 1960 Feb 4. "Nimbus Unit of Air Products Cites Tonnage." Page 28.

_____. 1964 Jan 8. "Air Product Firm Plans Branch in San Joaquin." Page 31.

_____. 1969 Mar 27. "U.S. Plans Sale of Fuel-Making Plant at Nimbus." Page 1.

_____. 1973 Sep 9. "New Location for Recycling Scrap." Advertisement. Page 71.

Schnitzer Steel. 2019. *Company History*. Available: http://www.schnitzersteel.com/company_history.aspx. Accessed June 2019.

Shipley, W. F. 1978. Native Languages of California. In *California*, edited by R. F. Heizer, pp. 80–90. *Handbook of North American Indians*, Volume 8, W. C. Sturtevant, general editor. Washington, DC: Smithsonian Institution.

Wagner, D. L., C. W. Jennings, T. L. Bedrosian, and E. J. Bortugno. 1981. Geologic Map of the Sacramento Quadrangle, 1:250,000. Prepared for the California Division of Mines and Geology, Sacramento.

Wilson, N. L., and A. H. Towne. 1978. Nisenan. In *California*, edited by R. F. Heizer, pp. 387–397. *Handbook of North American Indians*, Volume 8, W. C. Sturtevant, general editor. Washington, DC: Smithsonian Institution.

This page intentionally left blank

3.6 Energy

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Energy. Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.6.1 Environmental Setting

Energy Sources

All electric services in the project area are provided by SMUD. SMUD has served Sacramento County since 1946 and is the nation's sixth largest community-owned electric utility (SMUD 2019). SMUD delivers electricity to an approximately 900-square-mile area in Sacramento County, serving 1.5 million people. The largest source of power is SMUD's 500-megawatt gas-fired Cosumnes Power Plant. SMUD's primary power sources are natural gas (36 percent), hydroelectric (33 percent), and renewables (25 percent) (SMUD 2018).

PG&E provides natural gas to the cities of Folsom and Rancho Cordova and unincorporated Sacramento County. The proposed project would not require natural gas for operations. Thus, PG&E's capacity to supply natural gas is not discussed further in this Initial Study.

Energy Conservation and Renewable Energy Programs

In 2018, California enacted ambitious clean energy and carbon reduction goals in SB 100, which mandates that the state's utilities must derive 60 percent of their power mix from renewable resources by 2030, and by 2045, all retail electricity sold must be met by carbon-free resources (SMUD 2018). In response to this legislation, SMUD set a GHG emissions reduction goal of 60 percent below 1990 emissions by 2030, and a net-zero GHG emissions position in 2040. To increase its renewables energy portfolio and meet the GHG emissions reductions goal, SMUD developed the Integrated Resource Plan. The plan guides SMUD's efforts to supply reliable electricity in an environmentally responsible and cost-effective manner. Among the key strategies in the plan is investing in local renewable energy, including the electrification of transportation (SMUD 2019).

SACOG's MTP/SCS is a plan that integrates land use and transportation to enable regional growth to occur sustainably. Among the strategies for improving air quality and reducing GHG emissions, expanding the regional transit system and optimizing the performance of the transportation system are major initiatives. The MTP/SCS calls for shifting more trips away from automobiles to transit, walking, and biking, to reduce energy consumption associated with transportation (SACOG 2016).

Energy Use for Transportation

Transportation is the largest energy-consuming sector in California, accounting approximately 40 percent of all energy use in the state (EIA 2016). More motor vehicles are registered in California than in any other state, and

commute times in California are among the longest in the country (EIA 2018). Types of transportation fuel have diversified in California and elsewhere. Historically, gasoline and diesel fuel accounted nearly all demand; now, however, numerous options are available, including ethanol, natural gas, electricity, and hydrogen. Despite advancements in alternative fuels and clean-vehicle technologies, gasoline and diesel remain the primary fuels used for transportation in California, with 15.1 billion gallons of gasoline and 4.2 billion gallons of diesel consumed in 2015 (CEC 2019a, 2019b).

SACOG prepared a regional growth forecast and determined that weekday VMT is projected to increase from 57 million in 2012 to about 63.2 million by 2020 (an 11 percent increase), and to 74.5 million by 2035 (a 30 percent increase). Population over the same periods is expected to increase by 9 percent and 36 percent, respectively (SACOG 2016). With the goal of accelerating the region's progress in transportation and air quality, the MTP/SCS focuses on shifting travel to active transportation modes, reducing traffic congestion, and making travel more efficient. The SACOG MTP/SCS supports increased, frequent, and reliable rail services (SACOG 2016) to reduce vehicle trips, VMT, and thereby, overall transportation fuel use.

3.6.2 Discussion

a) **Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?**

Construction

Less than Significant. Project construction would involve consumption of electricity, natural gas, and fossil fuels (e.g., gasoline, diesel fuel). Transportation energy use would result from the transport and use of construction equipment (off-road), delivery and haul trucks (on-road), and construction worker vehicles (on-road). Construction-related transportation energy use would depend on the type and number of trips, VMT, fuel efficiency of vehicles, and travel mode. Most construction equipment used for excavation and site work would be gas or diesel-powered. On-road and off-road vehicle fuel use would be temporary and would fluctuate according to the phase of construction.

Construction activities would include excavation, installation of underground utilities, grading, trackwork, and asphalt and concrete work. Energy in the form of fuel and electricity would be consumed by construction vehicles and equipment operating on site, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site. Based on the anticipated phasing of the proposed project, temporary nature of construction, and project type, the proposed project would not include unusual characteristics that would necessitate the use of construction equipment that is less energy-efficient than at comparable construction sites.

In addition, construction contractors are required by ARB to minimize idling time of construction equipment by shutting equipment off when not in use or limiting the idling time to 5 minutes. **Mitigation Measure AQ-1** would implement best available control technology (best management practices), including compliance with the requirements for all construction equipment to be maintained in proper working condition according to manufacturer's specification, and to be checked by a certified mechanic (SMAQMD 2017). These practices would limit wasteful and unnecessary energy consumption. Therefore, fuel consumption associated with project construction is not expected to be inefficient, wasteful, or unnecessary. The impact would be **less than significant**.

Operations

Less than Significant. The proposed improvements would allow trains to run every 15 minutes in each direction, rather than the current 30 minutes. To satisfy the 15-minute headways under the improved service, approximately 38 additional trains per day would be needed. Because the SacRT light rail system is an electric-powered system, the proposed project would increase electricity consumption. This demand would be offset by the reduced vehicle trips and associated transportation fuel use from passengers who otherwise would drive.

According to the U.S. Department of Energy, transit trains achieve a national average of 51.6 passenger-miles per gallon (pmpg), compared to cars that average 36 pmpg (DOE 2019); pmpg is a metric for comparing mass transit and rideshare with typical passenger vehicle travel. Transportation system efficiency increases as the number of passengers increases or as the vehicle fuel economy increases for each transportation mode. In addition, public transportation also provides congestion relief and reduces transportation fuel associated with idling vehicles. The use of low-floor light rail vehicles would be more efficient than SacRT's existing light rail vehicle fleet and would reduce maintenance. Therefore, because the proposed project would encourage use of public transit and reduce single passenger vehicles and the associated transportation fuel use, it would not result in a potentially significant environmental impact from wasteful, inefficient, or unnecessary consumption of energy resources. This impact would be **less than significant**.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant. As discussed in Section 3.8, "Greenhouse Gas Emissions," the 2017 Scoping Plan Update identifies the transportation sustainability sector to be a key area for fossil fuel consumption reduction strategies. ARB calls for encouraging public transit use and increasing public transportation opportunities to decrease fossil fuel demand from light-duty combustion vehicles (ARB 2017). Installation of passing tracks to enhance transit service and use of low-floor light rail vehicles would improve the Gold Line's safety, reliability, and frequency; thus, encouraging increased ridership and potentially reducing vehicle trip emissions from passengers who otherwise would drive. Therefore, the proposed project would be consistent with the energy conservation measures and strategies identified in the 2017 Scoping Plan Update. Furthermore, because the proposed project's Gold Line is an electric-powered light rail system, the proposed project also would not conflict with the Innovative Clean Transit regulation, which calls for a gradual transition to 100 percent zero-emission bus fleets by 2040 (ARB 2018).

The SACOG 2016 MTP/SCS and draft 2020 MTP/SCS incorporate principles from the Sacramento Region Blueprint (Blueprint). The Blueprint is a smart growth vision for the region that was adopted by the SACOG Board of Directors in 2004 (SACOG 2004). The Blueprint is an implementation plan for smart growth principles, including transportation choice and making transit and other active modes of transportation (e.g., walking and bicycling) more attractive options to driving, to encourage fuel conservation and trip reductions (SACOG 2016). The proposed project would be consistent with the energy conservation strategies in the SACOG MTP/SCS.

In 2011, Sacramento County approved its Climate Action Plan, which describes actions that the County already has taken or could take in the future to reduce GHG emissions and conserve energy. One goal of this plan is to reduce VMT per capita in the community and the region. The proposed project would support this goal by providing an improved transportation alternative that would reduce VMT from passenger vehicles in the Sacramento region. In addition, as part of the Folsom Light Rail Modernization Project, the proposed project would use new low-floor light rail vehicles, which are more energy-efficient than SacRT's existing light rail vehicle fleet.

Because the proposed project would encourage an alternative form of transportation that would not depend on traditional transportation fuels (i.e., diesel and gas), it would not conflict with State or local plans for renewable energy or energy efficiency. In addition, per the Renewables Portfolio Standard goals mandated by SB 100 (described in Section 3.8, “Greenhouse Gas Emissions”), SMUD (the utility provider of electricity for the SacRT) will continue to reduce the carbon content of its electricity and increase its energy supply from renewable sources. Therefore, the impact would be **less than significant**.

3.6.3 References

- California Air Resources Board (ARB). 2017. (November). *California’s 2017 Climate Change Scoping Plan*. Available: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed October 2019.
- . 2018. *Innovative Clean Transit 2018*. Available: <https://ww2.arb.ca.gov/news/california-transitioning-all-electric-public-bus-fleet-2040>. Accessed October 2019.
- . 2019a. *California Gasoline Data, Facts, and Statistics*. Available: https://www.energy.ca.gov/almanac/transportation_data/gasoline/. Accessed October 2019.
- . 2019b. *Diesel Data, Facts, and Statistics*. Available: https://www.energy.ca.gov/almanac/transportation_data/diesel.html. Accessed October 2019.
- Sacramento Area Council of Governments (SACOG). 2004. *Sacramento Region Blueprint*.
- . 2016. *Metropolitan Transportation Plan/Sustainable Communities Strategy*. Available: <https://www.sacog.org/2016-mtpscs>. Accessed October 2019.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). 2017. *CEQA Guide: Basic Construction Emission Control Practices (Best Management Practices)*. Available: http://www.airquality.org/LandUseTransportation/Documents/Ch3BasicEmissionControlPracticesBMPS%20FINAL5-2017.pdf?_sm_au_=iVVq3570P00Wk7Zf.
- . 2018. *2018 Annual Report*. Available: <https://www.smud.org/en/Corporate/About-us/Company-Information/Reports-and-Statements/2018-Annual-Report>.
- . 2019. *Company Information*. Available: <https://www.smud.org/en/Corporate/About-us/Company-Information>.
- U.S. Department of Energy (DOE). 2019. *Alternative Fuels Data Center*. Available: https://afdc.energy.gov/conserve/mass_transit.html. Accessed October 2019.
- U.S. Energy Information Administration (EIA). 2016. *California State Profile and Energy Estimates*. Available: <https://www.eia.gov/state/?sid=CA#tabs-2>. Accessed June 2019.
- . 2018. *California State Energy Profile*. Available: <https://www.eia.gov/state/print.php?sid=CA#13>. Accessed October 2019.

3.7 Geology and Soils

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Geology and Soils. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.7.1 Environmental Setting

Geology, Soils, and Seismicity

The project segments are in southern Sacramento Valley, on a flat alluvial plan composed of Pleistocene-age (2.6 million years BP to 11,700 years BP) and Holocene-age (11,700 years BP and younger) deposits (Gutierrez 2011). These sediments overlie the thick sequence of sedimentary rock units that form the deeply buried bedrock units in the mid-basin areas of the valley. Elevations at the Folsom project segment range from approximately 180 to 170 feet above mean sea level (amsl), sloping gradually from north to south. Elevations at the Rancho Cordova project segment range from approximately 160 to 130 feet amsl, sloping gradually from north to south.

No known faults are in the vicinity of either project segment. The Folsom project segment is approximately 14 miles from the Rescue Lineament in the Foothills Fault Zone. The Rescue Lineament showed evidence of movement in the late Quaternary (i.e., approximately 0.5–1 million years BP); therefore, it is considered to be potentially active. The Sacramento Valley historically has experienced a very low level of seismic activity. The nearest active faults are approximately 55 miles to the north, east, and west, near Lake Oroville, Lake Tahoe, and the Coast Ranges, respectively. (Jennings and Bryant 2010)

Table 3.7-1 shows the soil types by project segment, based on Natural Resources Conservation Service (NRCS) soil survey data (NRCS 2018).

Table 3.7-1
Soil Characteristics in the Gold Line Passing Track Segments

Folsom Project Segment	Rancho Cordova Project Segment
Xerorthents, dredge tailings, 2–50% percent slopes	Urban Land Urban Land-Natomas Complex, 0–2% slopes Xerorthents, dredge tailings, 2–50% slopes Xerorthents, dredge tailings-Urban land complex, 0–2% slopes

Source: NRCS 2018

The Folsom project segment is approximately 1,300 feet east of the American River. The Rancho Cordova project segment is within an ancestral channel of the American River. As discussed in detail in Section 3.12, “Mineral Resources,” these areas were heavily mined by dredging operations, which left behind mounds of cobble and boulders ranging from 20–30 feet high. Dredge tailings do not have a soil horizon, and therefore are not rated by the NRCS for most soil characteristics. However, based on limited NRCS (2018) ratings and decades of construction experience in the Folsom and Rancho Cordova areas, because the dredge tailings consist primarily of cobbles and boulders (with small amounts of sand), they are known to be a low wind and water erosion hazard, are highly permeable and well drained, have a low stormwater runoff potential, and have a low shrink-swell potential.

Urban land and xerorthents consist of soils that have been modified by humans to the point where the soil horizons are unknown; thus, the soil characteristics also are unknown and they are not rated by NRCS. Most areas classified as Urban Land generally consist of artificial fill.

Paleontological Resources

Based on a review of the geologic mapping prepared by Gutierrez (2011), the Folsom project segment is in recent, Historic-era dredge tailings. The western portion of the Rancho Cordova project segment, from the Folsom South Canal to Hazel Avenue, is in dredge tailings and Urban Land. However, from Hazel Avenue to Aerojet Road, the project segment is in the Pleistocene-age Riverbank Formation (Gutierrez 2011; NRCS 2018).

Paleontological Sensitivity. The potential paleontological sensitivity of a project area can be assessed by identifying the paleontological importance of rock units that are exposed there. A paleontologically sensitive rock formation is one that is rated high for potential paleontological productivity (i.e., the recorded abundance and types of fossil specimens, and the number of previously recorded fossil sites) and is known to have produced unique, scientifically important fossils. Exposures of a specific rock formation at any given project site are most likely to yield fossil remains representing particular species or quantities similar to those previously recorded from the rock formation in other locations. Therefore, the paleontological sensitivity determination of a rock

formation is based primarily on the types and numbers of fossils that have been recorded previously from that rock unit.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and if it meets one of the following criteria:

- a type specimen (i.e., the individual from which a species or subspecies has been described);
- a member of a rare species;
- a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- a skeletal element different from, or a specimen more complete than, those now available for its species; or
- a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies, depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they already have been identified and documented, and the ability to recover similar materials under more controlled conditions (e.g., for a research project). Marine invertebrates generally are common; the fossil record is well developed and well documented, and they generally are not considered to be a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils generally are considered scientifically important because they are relatively rare.

In its standard guidelines for assessment and mitigation of adverse impacts on paleontological resources, the Society of Vertebrate Paleontology (SVP 1996) established three categories of sensitivity for paleontological resources: high, low, and undetermined. Areas where fossils have been found previously are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys and mapping are performed to determine their sensitivity. In keeping with the SVP significance criteria, all vertebrate fossils generally are categorized as being of potentially significant scientific value.

Sensitivity Assessment. Table 3.7-2 shows the results of the paleontological sensitivity assessment for both project segments, based on a review of geologic maps, a literature review, and a paleontological resources records search performed at the University of California, Berkeley Museum of Paleontology (UCMP) on April 11, 2019.

Table 3.7-2
Paleontological Sensitivity Assessment of the Gold Line Passing Track Project Segments

Formation Name and Age	Composition	Fossils	Sensitivity
Dredge Tailings, Holocene (Historic)	Piles of cobbles and boulders derived from mechanical mining operations along ancestral channels of the American River.	Although these dredger mining operations took place in alluvial sediments that may have contained vertebrate fossils, the dredge mining process would have destroyed any unique paleontological resources that may have been present. Furthermore, Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered “unique” paleontological resources.	Low
Urban Land, Holocene (Historic)	Artificial fill, consisting of material imported from other areas.	During the excavation process when the fill material was obtained, and during the process of grading and compacting the fill at the imported location, any paleontological resources that may have originally been present would have been destroyed. Furthermore, Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered “unique” paleontological resources.	Low
Riverbank Formation, Pleistocene (130,000–450,000 years B.P.)	Weathered reddish gravel, sand, and silt comprising older alluvial fans and terraces of the American River and other major rivers and streams in the Sacramento Valley	Nine recorded vertebrate fossil localities are in the Sacramento area, including a Teichert Gravel Pit approximately 6 miles southwest of the project site. These localities have yielded the remains of a Rancholabrean-age mammoth, bison, camel, coyote, horse, Harlan’s ground sloth, mammoth, antelope, deer, rabbit, woodrat, fish, mole, mice, squirrel, snake, and gophers, dire wolf, frog, Pacific pond turtle, and the family Anatidae (ducks, geese, and swans). Numerous additional vertebrate fossil localities exist from the Riverbank Formation and similar unnamed Rancholabrean-age alluvial sediments in Yolo, San Joaquin, Merced, Stanislaus, Fresno, and Madera counties.	High

Note:

B.P. = Before Present

Sources: UCMP 2019; Jefferson 1991a, b; Kolber 2004; Hilton et al. 2000; Helley and Harwood 1985

3.7.2 Discussion

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)

No Impact. The closest Alquist–Priolo Earthquake Fault Zone is the West Tahoe Fault at Echo Lake (CGS 2017), approximately 55 miles east of the project segments. No other known faults are in the project vicinity. Thus, surface fault rupture is unlikely, and **no impact** would occur.

ii) Strong seismic ground shaking?

Less than Significant. The nearest potentially active fault is approximately 14 miles east in the Foothills Fault System, and the nearest active faults are 55 miles away (Jennings and Bryant 2010). Therefore, the project vicinity is unlikely to experience strong seismic ground shaking. The intensity of ground shaking

depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, and site soil conditions. Peak horizontal ground acceleration (PGA), which is a measure of the projected intensity of ground shaking from seismic events, can be estimated by probabilistic method using a computer model. The CGS Probabilistic Seismic Hazards Assessment Model (CGS 2008) indicates that a 1-in-10 probability exist for an earthquake within 50 years to result in a PGA of approximately 0.143 along the Folsom project segment and ranging from approximately 0.153–147 along the Rancho Cordova project segment. These estimates indicate that a very low level of seismic shaking is likely for both project segments.

Project design and construction would conform to a variety of industry-wide engineering design guidelines and standards that are intended to protect the users of the facilities. Primary guidelines and standards that would be incorporated as part of project design and construction to reduce risks associated with geology, soils, and seismicity are briefly summarized as follows:

- **American Railroad Engineering and Maintenance-of-Way Association (AREMA) Manual.** The AREMA guidelines deal with rail systems. These guidelines pertain to similar topics as those covered by the American Association of State Highway and Transportation Officials (AASHTO), but the AREMA guidelines are more focused on best practices for rail systems. The AREMA manual includes principles, data, specifications, plans, and economics pertaining to the engineering, design, and construction of railways. This includes railway foundations and structures, retained cuts and retained fills, at-grade segments, and buried structures. These design guidelines provide minimum specifications for evaluating the seismic response of soil and structures.
- **California Department of Transportation (Caltrans) Division of Rail and Mass Transportation Design Standards.** Caltrans has specific minimum design and construction standards for all aspects of transportation system design, ranging from geotechnical explorations to construction practices. The Division of Track and Signal Management oversees the planning, implementation, and monitoring of rail and rail-related capital projects with Class I Railroads, Amtrak, the SPTCJPA, and local transportation agencies. Caltrans helps to coordinate capital project development including design and modeling.
- **American Society for Testing and Materials (ASTM) International.** This organization has developed standards and guidelines for all types of material testing, from soil classifications to pile load testing or compaction testing through to concrete strength testing. The ASTM standards also include minimum performance requirements for materials. Most of the guidelines and standards cited above use ASTM or a corresponding series of standards from AASHTO to assure that the required and intended quality is achieved in the constructed project.

Each component of the proposed improvements would be designed to handle normal operating loads from the weight of the light rail vehicles, as well as loads from environmental conditions, such as seismic shaking and wind forces. At locations where geologic conditions may present a hazard, the guidelines and standards discussed above identify minimum requirements for characterizing the geologic conditions and then for addressing the design issue, such as the stability of slopes, the corrosion of materials, and best management practices (BMPs) for water and wind erosion, stream sedimentation, or dust control. Engineering geologists and geotechnical engineers assisting in project design would use these guidelines and standards. Therefore, the impact related to ground shaking from an earthquake would be **less than significant**.

iii) Seismic-related ground failure, including liquefaction?

Less than Significant. Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, becoming similar to quicksand. Because active seismic sources are a long distance from the project segments (i.e., approximately 50 miles) and the proposed project would not be constructed in areas of shallow groundwater (DWR 2018), the proposed project would be unlikely to be subject to seismically-induced ground failure. Therefore, the impact would be **less than significant**.

iv) Landslides?

No Impact. Both project segments are in areas that are nearly flat and are not adjacent to steep slopes that could be unstable. Thus, landslides would not represent a hazard, and **no impact** would occur as a result of the proposed project.

b) Result in substantial soil erosion or the loss of topsoil?

Less than Significant. The proposed project would require earth-moving and grading activities associated with installation of the new tracks, crossing signals, loading platforms, and drainage ditches. Other grading activities outside the current rail right-of-way would include a short segment of Folsom Boulevard immediately south of Glenn Drive and several short stretches where the Folsom Parkway Rail Trail would be shifted eastward in Folsom. The earthwork would include soil removal, grading, trenching for underground electrical power related to the crossing signals, and landscaping. Drainage improvements, which would consist of drainage lines to convey stormwater from the track bed, most likely would be installed between the mainline and the passing track. Most of the construction activities would take place in dredge tailings, which are not subject to erosion hazards and have a low stormwater runoff potential (NRCS 2018). However, some of the construction activities would take place in artificial fill, which would be likely to consist of previously compacted soil. Soil disturbed during earth-moving activities could be eroded during storm events, and subsequent soil transport could result in sedimentation both in and downstream from the project segments.

Because the proposed project would disturb more than 1 acre, the SacRT would be required legally to comply with the provisions of the State Water Resources Control Board's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-009-DWQ as amended by Order 2012-0006-DWQ) (Construction General Permit) (SWRCB 2012). The Construction General Permit would require the SacRT to prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement associated BMPs that are specifically designed to reduce construction-related erosion. Construction techniques that could be implemented to reduce the potential for stormwater runoff may include minimizing site disturbance, controlling water flow over the construction site, stabilizing bare soil, and ensuring proper site cleanup. BMPs that could be implemented to reduce erosion may include silt fences, staked straw bales/wattles, silt/sediment basins and traps, geofabric, trench plugs, terraces, water bars, soil stabilizers, and re-seeding and mulching to revegetate disturbed areas.

Furthermore, although the SacRT would not be subject to local general plan or local ordinance requirements, it generally would perform earthwork associated with the proposed project in accordance with the City of Folsom's Grading Ordinance (Folsom Municipal Code, Title 14, Chapter 14.29) and the City of Rancho Cordova's Land Grading and Erosion Control Ordinance (Rancho Cordova Municipal Code, Title 16, Chapter 16.44), which were enacted to reduce erosion and limit water quality degradation. As part of the applications for grading permits, in addition to grading plans, project applicants must provide information regarding the type, location,

implementation schedule, and maintenance schedule of all erosion control measures and sediment control measures to be implemented or constructed before, during, or after completion of the proposed activity.

Therefore, the impact related to substantial erosion from the proposed project would be **less than significant**.

- c) **Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?**

Less than Significant. Most of the proposed project would be either in artificial fill (Urban Land) or dredge tailings. The exact nature of the artificial fill material is unknown, and therefore it could be unstable. Dredge tailings are composed of pebbles, cobbles, and boulders; they do not have “soil,” and thus no materials would exist to hold the rocks together. When foundation loads are placed on dredge tailings, they would shift, causing subsidence and settlement. This instability could result in cracked foundations, ruptures in underground utility and landscape lines, and movement of railroad ties. As discussed in detail in item a) ii, the proposed facilities would be designed in accordance with a variety of different standards that govern rail projects, including the AREMA manual, the Caltrans Division of Rail design guidelines, and the ASTM materials and engineering standards. The engineering geologists and geotechnical engineers who would design the project improvements would use these guidelines and standards, which would include provisions to reduce hazards from unstable soils and geologic units. Therefore, project impacts associated with unstable geologic units or soils would be **less than significant**.

- d) **Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating direct or indirect substantial risks to life or property?**

Less than Significant. Expansive soils mainly are composed of clays, which greatly increase in volume when saturated with water and shrink when dried (referred to as “shrink-swell” potential). Soil expansion could result in cracked foundations, ruptured underground pipelines, and misaligned railroad ties. All of the Folsom project segment and portions of the Rancho Cordova project segment would be in dredge tailings, which are not expansive (NRCS 2018). However, portions of the Rancho Cordova project segment would be constructed in Urban Land and the Urban Land-Natomas Complex, for which the soil properties currently are unknown (NRCS 2018). Therefore, construction of portions of this segment could be subject to hazards from soil expansion. As discussed in detail in item a) ii, the proposed facilities would be designed in accordance with a variety of different standards that govern rail projects, including the AREMA manual, the Caltrans Division of Rail design guidelines, and the ASTM materials and engineering standards. The engineering geologists and geotechnical engineers who would design the project improvements would use these guidelines and standards, which include provisions to reduce hazards from expansive soil. Therefore, project impacts due to construction on expansive soils would be **less than significant**.

- e) **Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?**

No Impact. The proposed project would not require installation of wastewater treatment systems. Temporary portable restrooms would be provided for construction workers. Thus, there would be **no impact** to soils because of a need to support septic tanks or alternative wastewater disposal systems.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant with Mitigation Incorporated. As shown in Table 3.7-2, the project area's dredge tailings and Urban Land deposits are of Holocene age, which are too recent to contain a unique paleontological resource (i.e., a fossil more than 11,700 years old). Furthermore, any fossil specimens that may have been present in the original sediments would have been destroyed during the mining and grading processes. Therefore, construction activities in the dredge tailings and Urban Land (i.e., all of the Folsom project segment and the western portion of the Rancho Cordova project segment) would have **no impact** on unique paleontological resources.

The Riverbank Formation is considered to be of high paleontological sensitivity, because numerous vertebrate fossil specimens have been recovered from this formation in various locations throughout the greater Sacramento area and the Sacramento and San Joaquin valleys (see Table 3.7-2). Therefore, project-related construction activities in the Rancho Cordova project segment (from Hazel Avenue to Aerojet Road) could result in accidental damage to, or destruction of unique paleontological resources in the Riverbank Formation. Thus, the impact in this segment of the project would be **potentially significant**.

Mitigation Measure. The following mitigation measure would reduce project-related impacts on unique paleontological resources because construction workers would be alerted to the possibility of encountering paleontological resources and, in the event that resources were discovered, fossil specimens would be recovered and recorded and would undergo appropriate curation. As a result, the potentially significant impact to paleontological resources would be **less than significant with mitigation incorporated**.

Mitigation Measure GEO-1: Conduct construction worker education, stop work if paleontological resources are discovered, assess the significance of the find, and prepare and implement a recovery plan, as required in a portion of the Rancho Cordova project segment

Before the start of earth-moving activities in the Rancho Cordova project segment, the SacRT must require that all construction workers involved with earth-moving activities be informed regarding the possibility of encountering fossils, the appearance and types of fossils likely to be seen during construction, and proper notification procedures to be followed if such fossils are encountered. This worker training may be prepared and presented by an experienced field archaeologist at the same time as construction worker education on cultural resources, or prepared and presented separately by a qualified paleontologist.

If paleontological resources are discovered during earth-moving activities, all work within 50 feet of the find must cease immediately, and the construction contractor must notify the SacRT and Sacramento County Office of Planning and Environmental Review. The SacRT must retain a qualified paleontologist to evaluate the resource and prepare a recovery plan, based on Society of Vertebrate Paleontology (SVP) guidelines (SVP 1996). The recovery plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum curation for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the SacRT (as the CEQA lead agency) to be necessary and feasible must be implemented before construction activities resume at the site where the paleontological resources were discovered.

3.7.3 References

- California Department of Water Resources (DWR). 2018. *DWR Groundwater Information Center, Depth Below Ground Surface*. Available: https://gis.water.ca.gov/app/gicima/#bookmark_DepthBelowGroundSurface. Accessed April 10, 2019.
- California Geological Survey (CGS). 2008. *Probabilistic Seismic Hazard Analysis Ground Motion Interpolator*. Available: <https://www.conservation.ca.gov/cgs/ground-motion-interpolator-for-embedding.htm>. Accessed April 12, 2019.
- . 2017. *Alquist–Priolo Earthquake Fault Zone Maps*. Available: <http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps>. Accessed April 10, 2019.
- Gutierrez, C. I. 2011. Preliminary Geologic Map of the Sacramento 30' x 60' Quadrangle, California. California Geological Survey. Sacramento, CA.
- Helley, E. J., and D. S. Harwood. 1985. Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills, California. U.S. Geological Survey. Map MF-1790. Reston, VA.
- Hilton, R. P., D. C. Dailey, and H. G. McDonald. 2000 (April). A Late Pleistocene Biota from the Arco Arena Site, Sacramento, California. *PaleoBios Abstracts* 20(1).
- Jefferson, G. T. 1991a. *Technical Report No. 5: A Catalogue of Late Quaternary Vertebrates from California—Part One, Nonmarine Lower Vertebrate and Avian Taxa*. Natural History Museum of Los Angeles County, CA.
- . 1991b. *Technical Report No. 7: A Catalogue of Late Quaternary Vertebrates from California—Part Two: Mammals*. Natural History Museum of Los Angeles County, CA.
- Jennings, C. W., and W.A. Bryant. 2010. *2010 Fault Activity Map of California*. Available: <http://maps.conservation.ca.gov/cgs/fam/>. Accessed April 10, 2019.
- Kolber, M. 2004 (July 27). Mammoth Coup: Discovery of Huge Fossil Near Elk Grove Is a Big Deal for Northern California. Article in the Sacramento Bee.
- Natural Resources Conservation Service (NRCS). 2018 (September). *Web Soil Survey*. Available: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed April 12, 2019.
- Society of Vertebrate Paleontology (SVP). 1996. Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources—Standard Guidelines. *Society of Vertebrate Paleontology News Bulletin* 163:22–27.
- State Water Resources Control Board (SWRCB). 2012. *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2012-006-DWQ*. Available: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2012/wqo2012_0006_dwq.pdf. Accessed April 2, 2019.
- University of California, Berkeley Museum of Paleontology (UCMP). 2019. *Paleontological Collections Database*. Available: <https://ucmpdb.berkeley.edu/about.shtml>. Accessed April 11, 2019.

This page intentionally left blank.

3.8 Greenhouse Gas Emissions

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Greenhouse Gas Emissions. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.8.1 Environmental Setting

Greenhouse Gases

GHG emissions play a critical role in determining Earth's surface temperature. A portion of the solar radiation that enters Earth's atmosphere is absorbed by Earth's surface, and a smaller portion of this radiation is reflected back toward space. Infrared radiation (i.e., thermal heat) is absorbed by GHGs. Thus, infrared radiation released from Earth that otherwise would have escaped into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth.

GHGs are present in the atmosphere naturally, are released by natural sources, and are formed from secondary reactions taking place in the atmosphere. The following are GHGs that are widely seen as the principal contributors to human-induced global climate change: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO₂. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time (i.e., lifetime) that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO₂, the most abundant GHG. GHGs with lower emissions rates than CO₂ still may contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO₂ (i.e., high GWP). The concept of CO₂ equivalents (CO₂e) is used to account the different GWP potentials of GHGs to absorb infrared radiation.

Regulatory Framework

EPA is the federal agency responsible for implementing the federal CAA. The Supreme Court ruled on April 2, 2007 that EPA must consider regulation of motor vehicle emissions, and that EPA had the authority to regulate GHGs. In California, ARB is the agency responsible for coordination and oversight of State and local air pollution control programs, and for implementing the California Clean Air Act.

Executive Order S-3-05. Executive Order (EO) S-3-05, signed in June 2005, proclaimed that California is vulnerable to the impacts of climate change. EO S-3-05 declared that increased temperatures could reduce the

Sierra Nevada's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea level. To combat those concerns, the EO established total GHG emissions targets. Specifically, emissions were to be reduced to the 2000 level by 2010, and they are to be reduced to the 1990 level by 2020 and to 80 percent below the 1990 level by 2050.

Assembly Bill 32. In 2006, California enacted the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Section 38500 et seq.). AB 32 further details and puts into law the mid-term GHG reduction target established in EO S-3-05, which is to reduce statewide GHG emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. AB 32 also identifies ARB as the State agency responsible for design and implementation of emissions limits, regulations, and other measures to meet the target. AB 32 required ARB to develop a Scoping Plan, describing the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020.

Executive Order B-30-15. In April 2015, the Governor issued an EO establishing a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and the EO S-03-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In addition, the EO aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030), adopted in October 2014.

Senate Bill 32. SB 32, enacted on September 8, 2016, requires California to reduce GHG emissions to 40 percent below 1990 levels by 2030. The SB 32 2030 target represents reductions that are needed to ensure California can achieve its longer term 2050 target of a reduction of greenhouse gases to 80 percent below 1990 levels, per EO B-30-15.

Renewables Portfolio Standard. California's Renewables Portfolio Standard (RPS) was established in 2002 under SB 1078 and accelerated in 2006 under SB 107, requiring that 20 percent of electricity retail sales be served by renewable energy sources by 2010. Subsequent recommendations in California energy policy reports advocated a goal of 33 percent by 2020, and on November 17, 2008, the Governor signed Executive Order S-14-08, requiring retail sellers of electricity to serve 33 percent of their loads with renewable energy by 2020. In April 2011, SB X1-2 codified EO S-14-08, setting the new RPS targets at 20 percent by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020 for all electricity retailers. In October 2015, SB 350 extended the RPS target by requiring retail sellers to procure 50 percent of their electricity from renewable energy resources by 2030. This was followed by SB 100 in 2018, which further increased the RPS target to 60 percent by 2030, along with the requirement that all of the state's electricity come from carbon-free resources by 2045.

Sacramento County Climate Action Plan. On November 9, 2011, the County adopted a climate action plan (Sacramento County 2011). This document was the first component for climate action and laid out the County's goals and overall GHG reduction strategies. This plan set the foundation for the Sacramento Government Operations Climate Action Plan, adopted in 2012, and the Sacramento County Community-Wide Climate Action Plan, which has not been developed yet.

Sacramento Metropolitan Air Quality Management District's Guide to Air Quality Assessment in Sacramento County. The SMAQMD Guide to Air Quality Assessment in Sacramento County provides air quality guidance when preparing CEQA documents (SMAQMD 2019). This guidance presents the SMAQMD's CEQA thresholds of significance for construction and operational GHG emissions. The applicable SMAQMD-adopted threshold of significance for GHG emissions during construction related to land development is 1,100 metric tons per year of CO₂e.

The SMAQMD recognizes that although no known level of emissions exists to determine whether a single project would substantially impact overall GHG emission levels in the atmosphere, a threshold must be set to trigger a review and assessment of the need to mitigate project GHG emissions. The SMAQMD's recommended threshold was developed to ensure that at least 90 percent of new GHG emissions are reviewed and assessed for mitigation, thereby contributing to the GHG emissions reduction goals of AB 32, SB 32, the Scoping Plan, and EOs. Projects that would not exceed the SMAQMD's recommended threshold of significance would not have a cumulatively considerable contribution to a significant cumulative environmental impact (SMAQMD 2018).

3.8.2 Discussion

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant. Heavy-duty off-road equipment use, materials transport, and worker commutes during project construction would result in exhaust-related GHG emissions. Construction-related GHG emissions were estimated using the methodology discussed in Section 3.3, "Air Quality." Project construction is anticipated to occur over approximately 24 months, with an anticipated start date in October 2020.

The SMAQMD Road Construction Emissions Model (RoadMod), Version 9.0 (SMAQMD 2018) summarizes GHG emissions by phase for the entire duration of construction. The SMAQMD also recommends amortizing the level of short-term construction emissions over the expected (long-term) operational life of a project (SMAQMD 2018). The operational life of a project varies by project type; however, the SMAQMD recommends that agencies use 40 years for new residential projects and 25 years for conventional commercial projects. Similarly, other air districts (e.g., South Coast Air Quality Management District) typically assume a project lifetime to be 30 years. Although the proposed project is not a commercial project type, a project lifetime of 25 years was used to estimate the amortized construction emissions associated with it.

Table 3.8-1 shows the total and amortized GHG emissions associated with project construction by segment.

**Table 3.8-1
Project Construction-Related GHG Emissions**

Segment/Description	GHG Emissions (MT CO ₂ e)
Folsom Project Segment	968
Rancho Cordova Project Segment	1,231
Total GHG Emissions	2,199
Amortized GHG Emissions¹	88
SMAQMD Threshold	1,100

Notes:

CO₂e = carbon dioxide equivalents; MT/year = metric tons per year

Total emissions may not add due to rounding.

¹ Amortized GHG emissions calculated by dividing the total construction-related GHG emissions by 25 years.

Source: SMAQMD 2015

As shown in Table 3.8-1, the total GHG emissions resulting from project construction would be approximately 2,199 metric tons (MT) CO₂e. The amortized, project-related construction GHG emissions of 88 MT CO₂e

would be less than the SMAQMD annual threshold of 1,100 MT CO₂e for the construction phase of the Folsom and Rancho Cordova project segments.

Because the proposed project would improve the existing light rail service by installing new passing tracks and making modifications to platforms, emissions associated with operations are not anticipated to increase above existing conditions. The proposed improvements would allow trains to run every 15 minutes in each direction, rather than the current 30 minutes. To meet the 15-minute headways under the improved service, approximately 38 additional trains per day are expected to be needed to operate on the Gold Line, or double the existing scheduled runs between Sunrise and Historic Folsom Stations. Because rail propulsion is electric-powered, energy consumption (and indirect GHG emissions) is expected to increase with implementation of the proposed project. However, the proposed project would make improvements to the Gold Line's frequency, speed, reliability, and safety, thereby reducing vehicle trip emissions from passengers who otherwise would drive.

As analyzed by the FTA, light rail systems produce 62 percent less GHG emissions per passenger mile than private vehicles (DOT 2010). In addition, the proposed improvements would be part of the "Folsom Rail Modernization Project" that collectively includes new low-floor light rail vehicles, which would be more efficient, use less energy than SacRT's existing light rail vehicle fleet, and reduce maintenance. Furthermore, as described previously, California has established an RPS, requiring retail sellers of electricity to meet specific goals of providing their energy supply from renewable sources. Per SB 100, electricity retailers are required to provide at least 60 percent of their supply from renewable sources by 2030. SB 100 also added the requirement that all of the state's electricity must come from carbon-free resources by 2045. Per the 2017 Power Content Label for SMUD, 54 percent of SMUD's power mix comes from renewable sources of energy (CEC 2017).⁴ These requirements will continue to reduce the carbon content of electricity generation and will reduce GHG emissions associated with electricity consumption. Therefore, considering that project-related construction emissions would be less than the SMAQMD recommended threshold and improvements to the Gold Line service potentially would reduce emissions from motor vehicles, impacts related to GHG emissions would be **less than significant**.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant. As described in Section 3.8.1 under "Regulatory Framework," in 2016, the State Legislature passed SB 32, which established a 2030 GHG emissions reduction target of 40 percent below 1990 levels. In response to SB 32 and the companion legislation of AB 197, ARB approved the Final Proposed 2017 Scoping Plan Update: The Strategy for Achieving California's 2030 GHG Target in November 2017. The 2017 Scoping Plan draws from previous plans in presenting strategies to reach California's 2030 GHG emissions reduction target.

None of the measures listed in the Scoping Plan Update directly relate to construction activity. Although the Scoping Plan Update includes some measures that indirectly would address GHG emissions levels associated with construction activity, including the phasing in of cleaner technology for diesel engine fleets (including construction equipment) and development of a Low Carbon Fuel Standard, successful implementation of these measures will depend predominantly on development of future laws and policies at the State level, rather than

⁴ Per the SMUD Power Content Label, approximately 19 percent of SMUD's energy sources are derived from eligible renewable energy resources, such as biomass and biowaste, geothermal, eligible hydroelectric, solar, and wind. Approximately 35 percent of SMUD's energy sources are derived from large hydroelectric power. The remaining power mix is from natural gas (44 percent) and unspecified sources of power (2 percent).

separate actions by individual agencies or local governments. Thus, it is assumed that any requirements or policies formulated under the mandate of AB 32 and SB 32 that would be applicable to the project, either directly or indirectly, would be implemented consistent with statewide policies and laws.

The 2017 Scoping Plan Update identifies GHG emissions reduction strategies and actions in six key sectors: low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water (ARB 2017). In the transportation sustainability sector, ARB calls for encouraging public transit use and increasing public transportation opportunities in efforts to reduce GHG emissions from light-duty combustion vehicles (ARB 2017). Through installation of passing tracks to enhance transit service and implementation of the low-floor, light rail vehicles, the SacRT would improve the Gold Line's safety, reliability, and frequency; thus, the proposed project would encourage increased ridership and potentially would reduce vehicle trip emissions from passengers who otherwise would drive. Therefore, the proposed project would be consistent with the measures and strategies identified in the 2017 Scoping Plan Update.

In addition, the SACOG MTP/SCS includes goals to provide increased frequent and reliable rail services (SACOG 2016), in efforts to encourage public transportation and reduce vehicle trips and VMT. Furthermore, in its near-term actions, the Draft 2020 MTP/SCS Update calls for supporting transit agencies in improving transit stations and replacing light rail vehicles to offer fast, reliable, and safe travel, to foster mobility solutions and lower GHG emissions (SACOG 2019).

Therefore, the proposed project would not conflict with statewide GHG reduction plans, adopted to reduce GHG emissions. Furthermore, the proposed project would be consistent with the 2016 MTP/SCS because it would be a means for optimizing performance of the Gold Line service. The proposed project would not conflict with any applicable plan, policy, or regulation for reducing GHG emissions. The impact would be **less than significant**.

3.8.3 References

California Air Resources Board (ARB). 2017 (November). *California's 2017 Climate Change Scoping Plan*. Available: https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed October 2019.

Sacramento Area Council of Governments (SACOG). 2016. *Metropolitan Transportation Plan/Sustainable Communities Strategy*. Available: <https://www.sacog.org/2016-mtpscs>. Accessed October 2019.

Sacramento County. 2011. *Sacramento County Climate Action Plan: Strategy and Framework*.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2015. *Thresholds of Significance Table*. Available: <http://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable5-2015.pdf>. Accessed October 2019.

———. 2018 (May). *Roadway Construction Emissions Model*. Version 9.0. Available: <http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools>. Accessed October 2019.

———. 2019. *Guide to Air Quality Assessment in Sacramento County*. Available: <http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools>. Accessed October 2019.

Sacramento Municipal Utility District. 2017 *Power Content Label*. Available: https://ww2.energy.ca.gov/pcl/labels/2017_labels/SMUD_2017_PCL.pdf. Accessed October 2019.

U.S. Department of Transportation, Federal Transit Administration (DOT). 2010. *Transit's Role in Environmental Sustainability*. Available: <https://www.transit.dot.gov/regulations-and-guidance/environmental-programs/transit-environmental-sustainability/transit-role>. Accessed October 2019.

3.9 Hazards and Hazardous Materials

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.9.1 Environmental Setting

Known Sources of Hazardous Material Contamination

On behalf of the SacRT, AECOM performed a search of publicly available databases, maintained under Public Resources Code (PRC) Section 65962.5 (i.e., the “Cortese List”), to determine whether any known hazardous materials are present within 0.25 mile of the project segments. The Hazardous Waste and Substances Site List (the EnviroStor database) is maintained by the California Department of Toxic Substances Control (DTSC) as part of the requirements of PRC Section 65962.5 (DTSC 2019). The State Water Resources Control Board (SWRCB) maintains the GeoTracker database, an information management system for groundwater (SWRCB 2019). Data on leaking underground storage tanks (USTs) and other types of soil and groundwater contamination, along with associated cleanup activities, are part of the information that the SWRCB must maintain under Section 65962.5 of

the PRC. In addition, the U.S. Environmental Protection Agency (EPA) maintains an informational database for Superfund sites.⁵

Folsom Project Segment. The results of records searches from the EnviroStor and GeoTracker databases indicate that no open active cases are within 0.75 mile of the Folsom project segment. The closest site, which is closed, is approximately 1 mile east of Bidwell Street, at 701 E. Bidwell (SWRCB Site No. T0606700304). Soil and groundwater were contaminated with waste motor oil, gasoline, and diesel from leaking USTs. The tanks were removed, and the contaminated soil was excavated. The nearest operating permitted UST is approximately 0.75 mile northeast of this project segment at a Shell gasoline station, at 301 E. Bidwell Street (SWRCB 2019).

Rancho Cordova Project Segment. In 1951, Aerojet began operations related to manufacturing and testing of solid and liquid rockets at its site in Rancho Cordova. These activities used many chemicals, including solvents and solid and liquid rocket propellants. Activities at the site led to the discharge, leakage, and spillage of chemicals to the soil and groundwater, and the site eventually was added to the EPA's list of Superfund sites. The groundwater plume from the facilities contains high levels of trichloroethylene and perchlorate, and extends north across the American River, south to Morrison Creek, and west to Mather Airport. Trichloroethylene was used for cleaning and degreasing purposes; perchlorate was combined with other chemicals and used as an oxidizer in the solid rocket propellants. In 1981, Aerojet installed its first groundwater extraction and treatment (GET) facility, to treat volatile organic solvents in groundwater. Since then, Aerojet has substantially expanded its groundwater remedial system. Today, Aerojet operates 10 GET facilities and more than 100 extraction wells, enabling treatment in excess of 25 million gallons of groundwater per day. The Aerojet Superfund site has been divided into several operable units.⁶ Of particular relevance for the proposed project, the Perimeter Groundwater Operable Unit (also referred to as Operable Unit 5) was created to address containment of contaminated groundwater off the Aerojet facility, as well as remediation of contaminated soils within the operating unit.

The Rancho Cordova project segment is adjacent to the Perimeter Groundwater Operable Unit (Operable Unit 5), which extends along the length of this segment on the north and also encompasses the project footprint at its western end. This operable unit currently is undergoing remediation for volatile organic compounds and perchlorate in the groundwater, using GET.

The Rancho Cordova project segment also is adjacent to an area of Operable Unit 5 with contaminated soils. This area generally extends from the Schnitzer Steel property, along the south side of the rail corridor, to Nimbus Avenue. Within this operable unit is Area 49000, where the SacRT would require a sliver of land to accommodate the passing track and the shift of the freight track. This area includes several sumps from former buildings, where various industrial materials (such as degreasers) may have been washed into an unlined ditch that formerly drained into a culvert under Folsom Boulevard. A contaminated groundwater plume associated with Area 49000 is present, and remedial activities are ongoing (SWRCB 2019).

This operable unit is undergoing remediation for volatile organic compounds, primarily trichloroethylene in the soils, using soil vapor extraction. Data are collected from a number of soil vapor boring locations and two groundwater monitoring wells that are just south of the rail corridor on the Aerojet property. The soil vapor boring

⁵ The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 created the Superfund hazardous substance cleanup program (CERCLA, Public Law [PL] 96-510, enacted December 11, 1980). It was enlarged and reauthorized by the Superfund Amendments and Reauthorization Act of 1986 (SARA, PL 99-499). EPA compiles a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories, known as the National Priorities List. These locations are commonly referred to as "Superfund sites."

⁶ During cleanup, complex sites can be divided into separate "operable units" to facilitate treatment, considering geographic areas, specific problems, or the medium (e.g., groundwater, soil), where a specific action is required.

location closest to the Rancho Cordova project segment has shown decreased concentrations of the sampled chemicals over time, and since 2016, has shown no exceedances for any contaminants, including trichloroethylene, of risk-based performance standards for commercial/industrial uses. From this monitoring location, sampling data from June 2019 show trichloroethylene concentrations of 7,700 micrograms per cubic meter at 10 feet below the ground surface (bgs); and 9,000 micrograms per cubic meter at 35 feet bgs (Stantec 2019:Figure 3). In general, soil vapor analytical data from Area 49000 monitoring indicate contaminated groundwater occurs about 50 feet bgs. The depth-to-groundwater along the project footprint, as measured in spring 2018, ranges from approximately 60–80 feet bgs at the western end of the segment to 130–150 feet bgs at the eastern end of the segment (Geosyntec Consultants 2018; DWR 2019). The nearest operating permitted UST is approximately 130 feet north of the project footprint, at a Chevron gasoline station at 12399 Folsom Boulevard (SWRCB 2019).

Schools

Folsom Project Segment. The nearest schools are: (1) Sutter Middle School, at 715 Riley Street in Folsom, approximately 0.65 mile northeast of Bidwell Street; and (2) Natomas Station Elementary School, at 500 Turn Pike Drive in Folsom, approximately 0.5 mile south of Parkshore Drive.

Rancho Cordova Project Segment. The nearest school is W.E. Mitchell Middle School, at 2100 Zinfandel Drive in Rancho Cordova, approximately 2.5 miles to the southwest.

Airports

The nearest airport is Mather Field, which is approximately 5 miles southwest of the Rancho Cordova project segment.

Wildland Fire Hazards

Sections 4201–4204 of the PRC and Government Code Sections 51175–51189 require identification of fire hazard severity zones in the State. Fire prevention areas considered to be under State jurisdiction are referred to as SRAs. In SRAs, the California Department of Forestry and Fire Protection (CAL FIRE) is required to delineate three wildfire hazard ranges: moderate, high, and very high. “Local responsibility areas” (LRAs), which are under the jurisdiction of local entities (e.g., cities and counties), are required only to identify very high fire hazard severity zones.

Both of the project segments are in LRAs (i.e., the cities of Folsom and Rancho Cordova and Sacramento County), and no very high or high fire hazard severity zones encompass the project segments or the project area (CAL FIRE 2007, 2008). The proposed project would be constructed immediately adjacent to existing roadways in urbanized areas. The limited amount of vegetation in and near both project segments consists of native annual and perennial grasses, turf grass, a few native oak trees, urban street trees, and ornamental shrubs.

3.9.2 Discussion

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant. Project construction activities would involve the limited transport, storage, use, or disposal of hazardous materials related to on-site fueling and servicing of construction equipment and transporting fuels, lubricating fluids, and solvents. These types of materials, however, are not acutely hazardous and would be used

in small amounts. Transportation of hazardous materials on area roadways is regulated by the California Highway Patrol (CHP) and Caltrans, and use of these materials is regulated by DTSC, as outlined in Title 22 of the California Code of Regulations (CCR). Hazardous materials handling and storage procedures for rail projects are defined and regulated by the California Public Utilities Commission (CPUC). The SacRT and its construction contractors would use, store, and transport hazardous materials in compliance with applicable federal and State regulations during project construction and operation.

Regulations related to the use and disposal of hazards materials are promulgated and enforced by federal agencies, such as EPA and the Occupational Safety and Health Administration (OSHA), by State agencies, such as the SWRCB and DTSC, and at the local level by the Certified Unified Program Agency (CUPA). Workers who handle hazardous materials are required to adhere to OSHA and California Division of Occupational Safety and Health (Cal/OSHA) health and safety requirements.

During project construction, hazardous materials would be transported in compliance with the Resource Conservation and Recovery Act (RCRA), CHP, and Caltrans regulations; would be stored in accordance with the Unified Program enforced by the CUPA; and would be disposed at a facility that is permitted to accept the waste. Because the proposed project would be required to implement and comply with existing hazardous material regulations, and because each of these regulations has been designed specifically to protect public health through improved procedures for handling hazardous materials, better technology in the equipment used to transport these materials, and a more coordinated quicker response to emergencies, the impact on the public or the environment would be **less than significant**.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?

Less than Significant. Construction and operation of the proposed project would entail the use of small amounts of hazardous materials, such as fuel, oils, and solvents. Furthermore, the operation of light rail vehicles and electrical facilities—such as overhead contact wires, routine station cleaning, and herbicides to maintain weeds along the new light rail tracks—may require the use of products that could be considered hazardous materials, but all products would be applied by SacRT staff or vendors, consistent with label requirements. Furthermore, the use of these materials is heavily regulated at both the federal and State levels. These regulations are promulgated and enforced by agencies including EPA, the SWRCB, DTSC, and the local CUPA. In addition, transit safety during the proposed project’s operational phase would be regulated by the U.S. Department of Transportation Federal Railroad Administration, FTA, the CPUC, the California Public Utilities Code, the California Accidental Release Prevention program (CalARP), and the California Office of Emergency Services.

The SacRT also has its own internal System Safety Program Plan, which has been approved by the CPUC, detailing its safety policies, objectives, responsibilities, and procedures. Under the State Safety Oversight rule (49 Code of Federal Regulations [CFR] Parts 659 and 674), the State Safety Oversight Agency performs a review of the SacRT system safety program every 3 years.

Because the proposed project would disturb more than 1 acre of land, the SacRT would need to comply with the provisions of the SWRCB’s NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-009-DWQ as amended by Order 2012-0006-DWQ) (Construction General Permit) (SWRCB 2012). The Construction General Permit would require the SacRT to develop and implement an SWPPP with appropriate BMPs, such as spill prevention, contingency measures to reduce the

potential for accidental spills, and procedures for implementation of appropriate and timely cleanup activities if spills occur. Therefore, the impact from accidental releases of hazardous materials would be **less than significant**.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. No schools are within 0.25 mile of either the Folsom or Rancho Cordova project segments. Thus, **no impact** associated with possible hazardous materials emissions on an existing or proposed school would occur.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less than Significant with Mitigation Incorporated. Based on a search of hazardous waste databases, the Folsom project segment is not on the Cortese List (DTSC 2019; SWRCB 2019; EPA 2019). Thus, **no impact** would occur from potential exposure to hazardous materials for this segment.

However, the Rancho Cordova project segment is on the Cortese List (DTSC 2019; SWRCB 2019; EPA 2019), within the Aerojet Superfund site. Soil and groundwater in the project vicinity have been contaminated from chemicals that were used in former rocket manufacturing and testing. Groundwater is being remediated via a GET system, which will continue to operate for the foreseeable future. Project-related construction activities would extend up to 4 feet bgs, except for new support poles that would extend up to 30 feet bgs. Therefore, construction for Rancho Cordova project segment components are not expected to encounter contaminated groundwater, which is approximately 50 feet bgs.

Nevertheless, volatile organic compounds can volatilize off groundwater and migrate upward into the Rancho Cordova project segment, particularly at the western end of the segment, which is within the Groundwater Perimeter Operable Unit (Operable Unit 5). These vapors could affect construction workers, creating short-term dizziness, nausea, and breathing difficulties. In addition, project construction activities could come in contact with contaminated soils and interfere with ongoing soil vapor extraction activities. These activities within Area 49000 include soil vapor extraction shallow wells and network lines using above-ground piping. Therefore, disturbance of soils in the project footprint or interference with the soil vapor extraction activities or equipment could result in a **potentially significant** impact for construction workers and for cleanup of Area 49000 in the Rancho Cordova project segment.

Mitigation Measures. The following mitigation measures would reduce the impact to hazardous materials and remediation activities related to the Aerojet facility adjacent to the Rancho Cordova project segment. Mitigation Measure HAZ-1 would require SacRT to perform its due diligence to identify and characterize the environmental contamination that exists on the property to be acquired, even though extensive investigations have been undertaken since it lies within the Aerojet Superfund site. Mitigation Measure HAZ-2 would characterize the environmental contamination with the project footprint within the rail corridor and help inform measures to protect construction workers. Mitigation Measure HAZ-3 would require preparation of a Health and Safety Plan to identify the steps and actions necessary to ensure worker health. Mitigation Measure HAZ-4 would require proper handling and disposal of excavated materials and soils, and Mitigation Measure HAZ-5 would avoid interference with ongoing and planned remediation activities related to clean-up of the Aerojet facility. As a result of these recommendations, the potentially significant impacts to related to hazardous materials would be reduced to **less than significant with mitigation incorporated**.

Mitigation Measure HAZ-1: Undertake a Phase I environmental site assessment on the property to be acquired within the Aerojet Superfund site

To perform its due diligence for the acquisition of the sliver of land that currently is owned by Aerojet, the SacRT must retain a qualified environmental professional to prepare a Phase I environmental site assessment during final design, in accordance with ASTM E1527-13. The assessment must include, among other investigations, a review of the extensive documentation already prepared by Aerojet in response to requirements of U.S. Environmental Protection Agency (EPA), Department of Toxic Substance Control (DTSC), and the Central Valley Regional Water Quality Control Board (RWQCB) that define and characterize the known contamination and the type of and schedule for the remediation efforts. In addition, per the ASTM E1527-13 standards, the Phase I assessment must include an evaluation of the potential impacts from vapor migration that can adversely affect the health and safety of project construction workers. The Phase I assessment will be essential to establish the responsibility and liability for known environmental contamination and cleanup on the property to be acquired. A Phase II environmental site assessment may be recommended to further investigate the contamination, but because the site already is part of a Superfund site, the extent and characterization of the contamination has been identified, and remedies are underway, a Phase II is not expected to be necessary for the SacRT to complete its environmental due diligence for the acquisition.

Mitigation Measure HAZ-2: Undertake a Limited Phase II environmental site assessment within the ground disturbance area in the rail right-of-way adjacent to the Aerojet Superfund site to identify the extent and characterization of contamination in the unsaturated (vadose) zone, generally between the ground surface and the underlying water table, to define the potential health risks for project construction workers

The SacRT must retain a qualified environmental professional to prepare a limited Phase II environmental site assessment, to assess the environmental contamination of the surficial and subsurficial soil and any encountered groundwater in the areas where ground disturbance and excavation will occur adjacent to the Aerojet Superfund site in the Rancho Cordova project segment. The Phase II assessment must comply with ASTM E1903 standards and include sufficient sampling to identify types of chemicals and potential hazards to construction workers, and to assist in determining soil re-use or disposal requirements during construction. The Phase II assessment will be a “limited” assessment, in that it will focus on soils to the depth of ground disturbance (i.e., generally 4 feet below ground surface (bgs) where only track improvements are proposed; 10 feet where footings for passenger shelters are proposed at the loading platform; and 30 feet where foundations for the Overhead Contact System support poles are proposed). Although not expected, if groundwater is encountered, the Phase II assessment must include sampling to identify the chemicals and concentrations in the groundwater. The results from the Phase II assessment must be provided to project contractors, to inform preparation of a site-specific health and safety plan (HASP), in accordance with Mitigation Measure HAZ-3, and recommendations from the Phase II assessment regarding soil re-use or disposal must be incorporated into contractor specifications.

Mitigation Measure HAZ-3: Prepare and implement a site-specific Health and Safety Plan (HASP) to minimize impacts on public health, worker health, and the environment from project construction activities in ground disturbance areas in the Rancho Cordova project segment

Based on the Phase II assessment that is completed under Mitigation Measure HAZ-2, and on information from Aerojet and the regulatory agencies for the property to be acquired for the proposed project, the

SacRT must prepare and implement a site-specific HASP for the Rancho Cordova project segment. The HASP must be prepared in accordance with State and federal OSHA regulations (29 CFR Section 1910.120) and approved by a certified industrial hygienist. Copies of the HASP must be made available to construction workers for review during their orientation training and/or during regular health and safety meetings. The HASP must identify chemicals of concern, potential hazards, personal protective equipment and devices, decontamination procedures, the need for personal or area monitoring, and emergency response procedures. The HASP must be amended, as necessary, if new information becomes available that can affect implementation of the plan.

Mitigation Measure HAZ-4: Incorporate standards for the proper handling, transport, and disposal of excavated soils and materials into the proposed project's construction specifications

The SacRT must incorporate contract specifications and procedures to be followed by the contractor for the safe handling, transport, and disposal of the excavated soils and materials, consistent with federal and State requirements, including the Resources Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act, the Emergency Planning and Community Right-to-Know Act), the Hazardous Materials Transportation Act of 1976, the Clean Water Act, the Occupational Safety and Health Act, California Code of Regulations Title 22, and the Hazardous Waste Control Law. The following specifications must be included:

- Construction workers in the Rancho Cordova project segment who will be involved with ground disturbance must be trained in Hazardous Waste Operations and Emergency Response (HAZWOPER), if the types of contaminants and their concentrations warrant this training based on the results of the limited Phase II environmental site assessment, completed under Mitigation Measure HAZ-1, and on the HASP, completed under Mitigation Measure HAZ-3.
- Soil and materials removal must be performed by a licensed engineering contractor with a Class A license and hazardous substance removal certification. A California-licensed engineer must provide field oversight on behalf of the SacRT, to document the origin and destination of all removed materials. If necessary, removed materials must be stockpiled temporarily and covered with plastic sheeting, pending relocation, segregation, or off-site hauling.
- If excess materials are hauled off-site, waste profiling of the material must be completed and documented. Materials classified as nonhazardous waste must be transported under a bill of lading. Materials classified as non-RCRA hazardous waste must be transported under a hazardous waste manifest. All materials must be disposed at an appropriately licensed landfill or facility.
- Trucking operations must comply with Caltrans requirements and any other applicable regulations, and all trucks must be licensed and permitted to carry the appropriate waste classification. The tracking of dirt by trucks leaving the project site must be minimized by cleaning the wheels on exit, and by cleaning the loading zone and exit area as needed.
- If materials require dewatering before being hauled off-site, a dewatering plan must be prepared, specifying methods of water collection, transport, treatment, and discharge of all water produced by dewatering.

Mitigation Measure HAZ-5: Schedule project construction activities and site light rail facilities to avoid interference with the soil vapor extraction activities in the Rancho Cordova project segment

The SacRT must provide Aerojet, EPA, DTSC, and the Central Valley RWQCB with available information on the location, nature, and duration of construction activities as well as the preliminary engineering plans for the Rancho Cordova project segment during final design, to avoid disturbance to or interference of current or planned remediation activities in Operable Unit 5, including Area 49000. After sharing the available information, the SacRT, Aerojet, and the regulatory agencies must coordinate to ensure that project improvements do not interfere or adversely affect the remediation activities and treatment. Avoidance can be achieved through a variety of strategies, such as adjusting the schedule for project construction or remediation activities; shifting the location of Overhead Contact System support poles and wayside facilities to avoid treatment facilities; and protecting in-place monitoring wells, groundwater extraction and treatment facilities, and soil vapor extraction equipment. The SacRT must incorporate the agreed on measures in the construction specifications and documents that will govern the contractor's work in the Rancho Cordova project segment.

- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?**

No Impact. The nearest airport is Mather Field, approximately 5 miles southwest of the Rancho Cordova project segment. Adding a second light rail track and station platform in the vicinity of the two project segments, which would involve developed, urbanized areas next to existing rail lines and roadways, would have no effect on airport safety hazards. Thus, **no impact** on people residing or working in the project area would occur. See Section 3.13, "Noise," for discussion about airport noise hazards.

- f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

Less than Significant. Construction materials, equipment, and personnel would be staged at designated off-street locations during construction of the new tracks and station platforms. A limited amount of short-term construction would occur in the right-turn lane on northbound Folsom Boulevard onto Glenn Drive in Folsom. Both project segments would be accessible to emergency vehicles from several roadways, including Folsom Boulevard, Hazel Avenue, Parkshore Drive, Glenn Drive, and Bidwell Street. The relatively limited amount of proposed construction would result in only minor increases in short-term, temporary, construction-related traffic on local roadways. In Folsom, project construction involving the tracks, station platform, and sidewalk would require the temporary closure of the right-turn lane in the northbound direction along Folsom Boulevard at Glenn Drive and potentially a portion of the east-bound merge lane on Glenn Drive. In Rancho Cordova, track installation at the at-grade crossing of Hazel Avenue/Nimbus Road temporarily would close access. Standard traffic control procedures (e.g., signage, orange cones, and flaggers) would be used during construction at these at-grade crossings. Therefore, project-related construction activities would not substantially impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. This impact on emergency response and evacuation would be **less than significant**.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

No Impact. The project segments are in the heavily developed and urbanized areas of Rancho Cordova and Folsom, and neither segment is in a very high or high fire hazard severity zone. The project segments are not within or near a wildland fire hazard area. The limited amount of vegetation in and near both project segments consists of scattered weeds and native grasses, turf grass, and a few native and urban street trees and ornamental shrubs. Therefore, construction and operation of the proposed project would not subject people or structures in the surrounding area to an increased fire hazard, and **no impact** would occur related to wildland fires. See Section 3.20 “Wildfire,” for additional discussion related to wildland fire hazards.

3.9.3 References

- California Department of Forestry and Fire Protection (CAL FIRE). 2007 (November). *Sacramento County—Fire Hazard Severity Zones in SRA*. Available: http://www.fire.ca.gov/fire_prevention/fhsz_maps_sacramento. Accessed April 8, 2019.
- . 2008 (October). *Sacramento County—Very High Fire Hazard Severity Zones in LRA*. Available: http://www.fire.ca.gov/fire_prevention/fhsz_maps_sacramento. Accessed April 8, 2019.
- California Department of Toxic Substances Control (DTSC). 2019. *EnviroStor*. Available: <https://www.envirostor.dtsc.ca.gov/public/>. Accessed April 9, 2019.
- California Department of Water Resources (DWR). 2019. *Groundwater Information Center, Depth to Groundwater, Spring 2018*. Available: <https://gis.water.ca.gov/app/gicima/>. Accessed April 9, 2019.
- Geosyntec Consultants, Inc. 2018 (July). *Site-Wide April 2018 Potentiometric and Spring 2018 Isoconcentration Groundwater Contour Maps*. Memorandum. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/site_cleanup/aerojet/. Accessed April 9, 2019.
- Stantec. 2019 (June). *Aerojet Superfund Site Central 49000 Area Perimeter Groundwater Operable Unit (OU-5), Soil Vapor TCE Concentrations*.
- State Water Resources Control Board. 2012. *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2012-006-DWQ*. Available: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2012/wqo2012_0006_dwq.pdf. Accessed April 2, 2019.
- . 2019. *GeoTracker*. Available: <https://geotracker.waterboards.ca.gov/>. Accessed April 9, 2019.
- U.S. Environmental Protection Agency (EPA). 2019. *Superfund Site: Aerojet General Corp. Rancho Cordova*. Available: <https://cumulis.epa.gov/supercpad/cursites/csinfo.cfm?id=0901718>. Accessed April 10, 2019.

This page intentionally left blank.

3.10 Hydrology and Water Quality

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that there the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; or	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.10.1 Environmental Setting

Surface Water Hydrology

The Folsom and Rancho Cordova project segments are within the Sacramento River Basin. This basin encompasses about 27,000 square miles and is bounded by the Sierra Nevada to the east, the Coast Ranges to the west, the Cascade Range and Trinity Mountains to the north, and the Sacramento–San Joaquin Delta (Delta) to the southeast. The American River (i.e., Lake Natoma) is approximately 0.5 mile west of the Folsom project segment and approximately 0.75 mile northwest of the Rancho Cordova project segment. The three forks of the Upper American River originate high in the Sierra Nevada and drain approximately 1,875 square miles of mountainous terrain before converging at Folsom Reservoir. Folsom Dam and Reservoir regulate water releases for power generation, flood control, and protection of downstream fish and wildlife species. In addition, Folsom Reservoir serves as the primary source of water supply for the city of Folsom. Lake Natoma, which is formed by Nimbus

Dam, regulates water released from the Folsom Reservoir hydroelectric facility. Nimbus Dam also serves as a diversion dam, to direct water into the Folsom South Canal (approximately 1,300 feet south of the Rancho Cordova project segment). The canal runs approximately 27 miles south from the American River, conveying water for irrigation, industrial, and municipal water supply. The Lower American River runs from below Nimbus Dam downstream 23 miles to its confluence with the Sacramento River. This highly regulated river system is contained by natural bluffs and terraces, as well as by constructed levees. Flow in the Lower American River varies throughout the year and is controlled primarily by water releases at Folsom Dam, to reduce flooding or meet downstream water demands.

Both project segments are within the Lower American River Watershed (California Interagency Watershed Mapping Committee 2004). In Folsom, Willow Creek flows southward underneath the Parkshore Drive bridge overcrossing, approximately 800 feet east of the project footprint. The creek then flows westward underneath Folsom Boulevard approximately 800 feet south of the southern end of the project footprint, and then drains into the American River (i.e., Lake Natoma), approximately 0.70 mile further to the southwest. The northeastern end of the Rancho Cordova project segment is immediately adjacent to, but downstream from the boundaries of the Alder Creek Watershed (AECOM 2010), and is approximately 1,600 feet south of the Alder Creek channel.

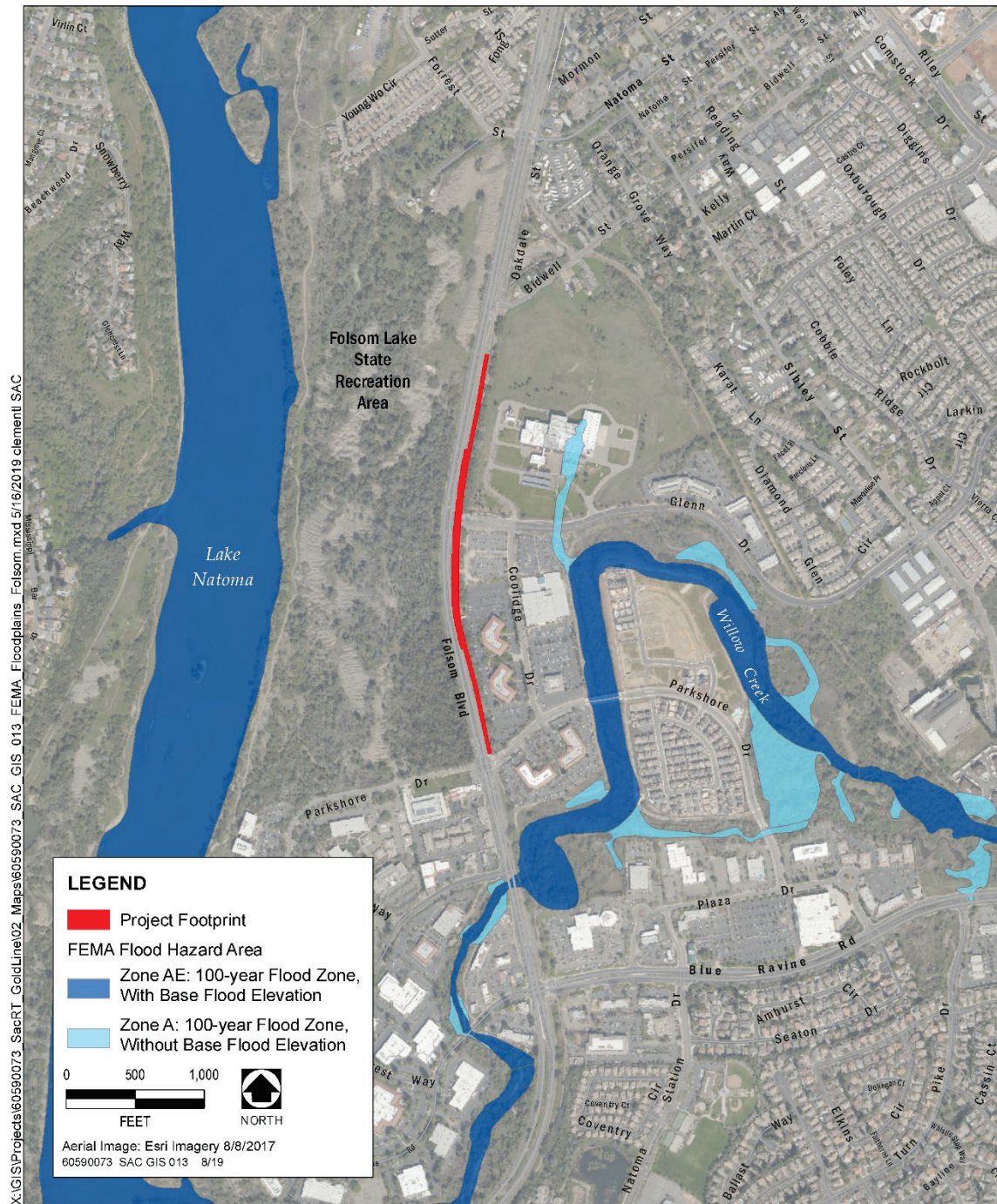
Flooding

The American River Flood Control System includes Folsom Dam, Nimbus Dam, an auxiliary dam at Mormon Island, and eight earth-filled dikes. A variety of projects have been implemented and are planned for future implementation by the U.S. Army Corps of Engineers, the Sacramento Area Flood Control Agency (SAFCA), and the U.S. Bureau of Reclamation throughout the American River system, to improve flood control and create and maintain habitat, including the American River Watershed Common Features Project (ARCF); North Sacramento Streams, Sacramento River East Levee, Lower American River, and related flood improvements project (Levee Accreditation Project); Folsom Dam Raise Project; and Folsom Dam Safety and Flood Damage Reduction Project. The ARCF and the Levee Accreditation Project include levee improvements that are designed to meet the Urban Levee Design Criteria, established by the California Department of Water Resources (DWR) in connection with the Central Valley Flood Protection Plan (CVFPP) (SAFCA 2019).

Neither of the project segments are in a Federal Emergency Management Agency (FEMA) 100-year flood hazard zone (1 percent annual exceedance probability), as shown in Figures 3.10-1 and 3.10-2 (FEMA 2016). Neither project segment is in a 200-year (0.5 percent annual exceedance probability) flood hazard area, as mapped by the U.S. Army Corps of Engineers and the Reclamation Board in 2002 (DWR 2018). The Folsom project segment is in the Folsom Dam inundation zone (City of Folsom 2018).

Surface Water Quality

The American River system supports a number of beneficial uses along its three main forks and many tributaries, and generally is considered to be an excellent source of high-quality water. Water from the upper watershed above Folsom Dam generally has excellent quality related to mineral and nutrient content, and has low concentrations of total dissolved solids. The ambient water quality in the American River is influenced by numerous natural and artificial sources, including soil erosion, discharges from industrial and residential wastewater plants, stormwater runoff, agriculture, recreation activities, mining, timber harvesting, and flora and fauna. Stormwater runoff in the vicinity of both project segments drains toward the American River. Beneficial uses of the American River between Folsom Dam and the Sacramento River, as listed in the Sacramento and San Joaquin River Basin Plan (Central Valley RWQCB 2018), are shown in Table 3.10-1.



Source: FEMA 2016

Figure 3.10-1 Folsom Project Segment Floodplain Designations

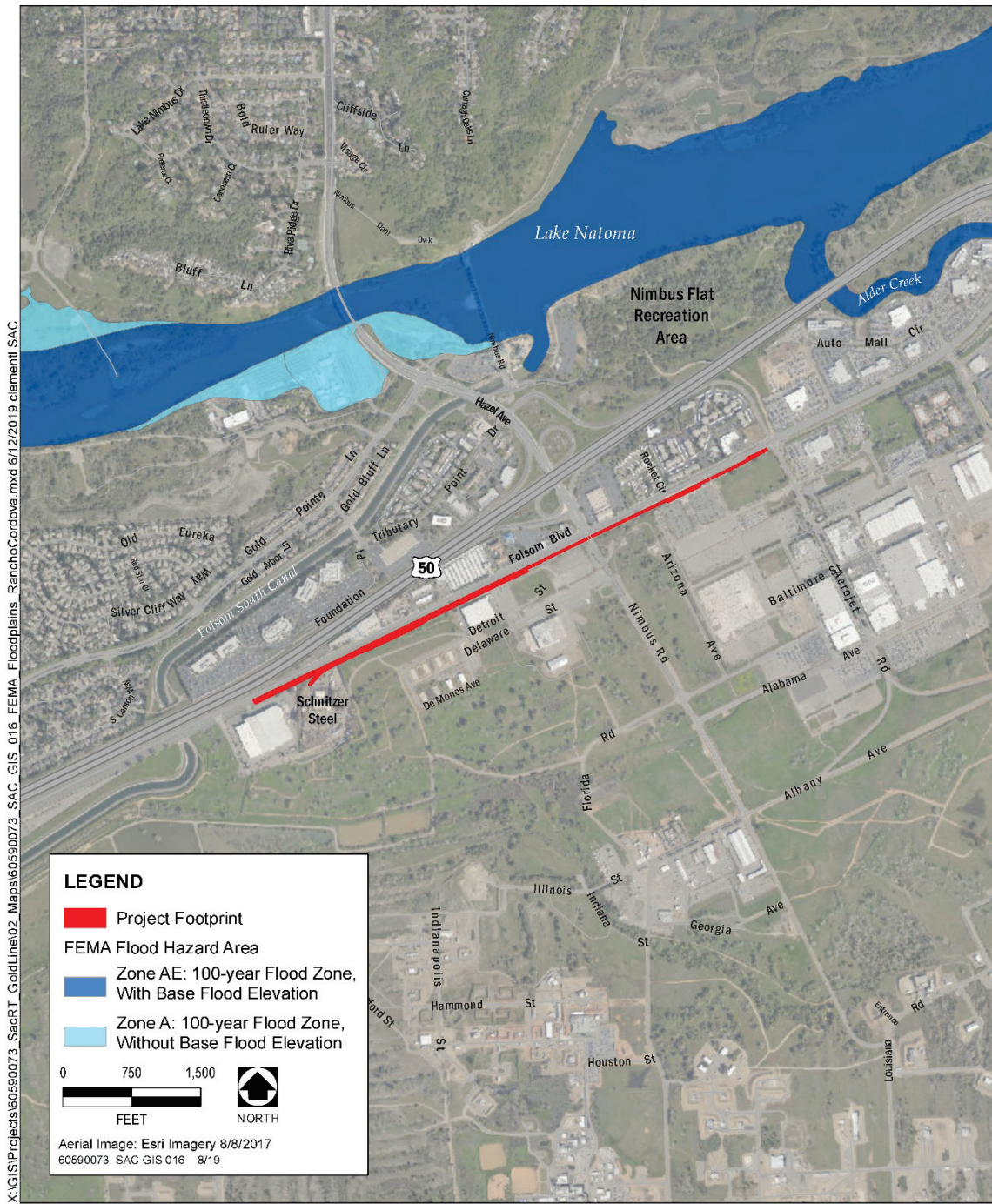


Figure 3.10-2 Rancho Cordova Project Segment Floodplain Designations

**Table 3.10-1
Beneficial Uses of the Lower American River Watershed**

Beneficial Use	Explanation (use of water for:)
Municipal and Domestic Supply	community, military, or individual water supply systems
Agricultural (Irrigation)	farming, horticulture, or ranching
Industrial Supply	industrial activities that do not depend primarily on water quality
Hydropower Generation	hydropower generation
Water Contact Recreation	recreational activities involving body contact with water
Non-contact Water Recreation	recreational activities involving proximity to water, but where there is generally no body contact with water
Warm Freshwater Habitat	support of cold water ecosystems
Cold Freshwater Habitat	support of warm water ecosystems
Wildlife Habitat	support of terrestrial or wetland ecosystems

Source: Central Valley RWQCB 2018

Applying the Central Valley RWQCB’s “tributary rule,” the beneficial uses of any specifically identified water body generally apply to all its tributaries. In addition, the Central Valley RWQCB automatically attributes a beneficial use designation of “Municipal and Domestic Supply” to any water body that does not have a designated beneficial use.

Table 3.10-2 lists impaired water bodies included in the SWRCB’s 303(d) list that could receive runoff from the project segments, the pollutants of concern, and whether they have approved Total Maximum Daily Loads (TMDLs). Even if a stream is not included in the SWRCB’s 303(d) list, any upstream tributary to a 303(d)-listed stream could contribute pollutants to the listed segment. Willow Creek (downstream from the Folsom project segment) has been assessed for pollutants but was removed from the most recent 303(d) list of impaired water bodies (SWRCB 2017).

**Table 3.10-2
Project Vicinity Section 303(d) List of Impaired Water Bodies**

Impaired Water Body	Pollutant	Pollutant Source	TMDL Status
Lake Natoma	Mercury	Legacy mining	Expected in 2010; still in process
	Bifenthrin ¹	Unknown	Expected in 2027
	Indicator Bacteria (Escherichia coli)	Unknown	Expected in 2027
Lower American River	Mercury	Legacy mining	Expected in 2010; still in process
	Polychlorinated biphenyls (PCBs)	Unknown	Expected in 2021
	Pyrethroids ²	Unknown	Expected in 2027
	Toxicity	Unknown	Expected in 2021

Notes:

TMDL = total maximum daily load

¹ A commercial pyrethroid insecticide (see note 2).

² A group of manufactured chemicals that are used as insecticides. Pyrethroids can enter water bodies from stormwater and agricultural runoff, and are extremely toxic to aquatic life. They commonly are sprayed on crops and also are sprayed in the air to control mosquitoes.

Source: SWRCB 2017

3.10.2 Discussion

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant. The Folsom project segment footprint encompasses approximately 2.5 acres, and the Rancho Cordova project segment footprint encompasses approximately 6.3 acres. Because groundwater is approximately 140 feet bgs in the Folsom project segment and ranges from approximately 60–150 feet bgs at the Rancho Cordova project segment (DWR 2018), the need for construction dewatering would be unlikely. Project construction activities would require vegetation removal, excavation, grading, material stockpiling, and staging within the project footprints that temporarily would disturb surface soils. These activities would expose soil to the erosive forces of wind and water. The soil ultimately could be transported via the storm drainage system or overland sheet flow to local drainages and/or the American River, increasing turbidity and degrading water quality.

The potential for accidental releases of chemicals also would be present during construction. After being released, substances such as fuels, oils, paints, concrete, and solvents could be transported to the storm drain system and/or groundwater in stormwater runoff, wash water, and dust-control water, potentially reducing the quality of the receiving waters. Erosion and construction-related wastes would have the potential to degrade water quality and beneficial uses, if they enter runoff and flow into waterways, potentially altering the dissolved oxygen content, temperature, pH, suspended sediment, turbidity levels, and/or nutrient content of receiving waters, or cause toxic effects on the aquatic environment. Therefore, project construction activities could violate water quality standards or otherwise substantially degrade water quality.

The proposed project would comply with the provisions of the SWRCB's NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-009-DWQ, as amended by Order 2012-0006-DWQ) (Construction General Permit) (SWRCB 2012). The Construction General Permit regulates stormwater discharges for construction activities under the federal Clean Water Act (CWA). The Construction General Permit applies to all land-disturbing construction activities that would disturb 1 acre or more. The SacRT would submit a Notice of Intent to discharge to the Central Valley RWQCB and would prepare and implement an SWPPP, including BMPs to minimize those discharges. The Central Valley RWQCB would have the authority to issue waivers to reports of waste discharge requirements (WDRs) and/or WDRs for broad categories of "low threat" discharge activities that would have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions. Project construction activities that would be subject to the Construction General Permit would include clearing, grading, stockpiling, and excavating, and pursuant to the permit, the SacRT would eliminate or reduce non-stormwater discharges to storm sewer systems and other waters; implement permanent post-construction BMPs that would remain in service to protect water quality throughout the life of the project; implement construction and operational design features and BMPs specifically intended to reduce the potential for downstream hydromodification; implement BMPs designed to prevent accidental spills of hazardous materials during the construction phase to the maximum extent practicable, and include procedures for immediate cleanup if any releases occur.

The SacRT would comply with the Central Valley RWQCB requirements to obtain WDRs (if applicable) and would comply with the provisions therein, and also would comply with the provisions of the NPDES Construction General Permit to prepare and implement a SWPPP with associated BMPs, as well as comply with the regional Basin Plan (Water Quality Control Plan for the Sacramento and San Joaquin River Basins [Central Valley

RWQCB 2018]). Because of these requirements, the proposed project's impact on water quality would be **less than significant**.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that there the project may impede sustainable groundwater management of the basin?

No Impact. As discussed in Chapter 2, "Project Description," the maximum depth of excavation would range from 3–5 feet (depending on subsurface conditions). The depth-to-groundwater is approximately 140 feet bgs in the Folsom project segment and ranges from approximately 60–150 feet bgs in the Rancho Cordova project segment (DWR 2018). Therefore, project construction activities would not encounter groundwater. Water that is necessary for construction activities (e.g., for dust control) would be supplied by trucks. Water supply for project operation would not be required. Therefore, the proposed project would have **no impact** related to a decrease in groundwater supplies or interference with groundwater recharge.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation on- or off-site;

Less than Significant. The proposed passing tracks would be constructed immediately adjacent and parallel to the existing light rail tracks, which have been constructed on an elevated bed of compacted gravel, similar to that intended for the proposed project. Furthermore, the areas where the light rail tracks would be constructed are flat, thereby reducing the potential for accelerated erosion.

The proposed new station platforms (approximately 350 feet long by 20 feet wide at a maximum) would be constructed across from, and parallel to, the existing platforms. Although the platforms would cause a minor alteration in the existing drainage pattern at those locations and would increase the impervious surfaces, both the Glenn and Hazel stations have existing stormwater drainage facilities to which runoff from the new concrete platforms would be directed.

Furthermore, as discussed in item a, the SacRT would prepare and implement an SWPPP with associated BMPs, specifically designed to reduce both on and off-site erosion and siltation. Examples of the types of BMPs that could be implemented would include detention basins, berms, swales, straw wattles, silt fencing, covering of stockpiled soils, reseeding exposed soil with vegetation, and covering exposed soil with mulch. Therefore, the proposed project's impact on alteration of drainage patterns in a manner that would substantially increase erosion or siltation would be **less than significant**.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

Less than Significant. Installation of the additional passing track would consist of steel rails set on wood ties, embedded in an elevated, narrow bed of crushed stone (referred to as the track ballast). Therefore, the passing track and associated facilities (e.g., power poles, which have a small 3-foot diameter footprint) would not substantially increase the amount of stormwater runoff. Long-term operation of the additional station platforms at Glenn Station in Folsom and Hazel Station in Rancho Cordova would create minor amounts of additional stormwater runoff from the addition of new impervious surfaces (less than 8,000 square feet for the new platform and pedestrian connections). However, both stations already

have stormwater drainage systems in place, and the runoff from the two additional platforms would be designed for conveyance into the existing systems. Furthermore, the proposed project would not be constructed in a 100- or 200-year flood zone (FEMA 2016; DWR 2018). The small amount of additional runoff that would be created would not be substantial enough to result in on or off-site flooding from alteration of drainage patterns. Therefore, the impact on the rate or amount of surface runoff would be **less than significant**.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

Less than Significant. In the city of Folsom north of US-50, storm drains collect and convey urbanized runoff into Willow Creek, Humbug Creek, Hinkle Creek, Gold Creek, and Alder Creek, all of which drain into the American River. In the southeastern portion of the city, south of the American River (where the Folsom project segment is located), storm drains direct flows into Humbug Creek and Willow Creek. As previously described, Willow Creek flows into the American River downstream from the Folsom project segment (City of Folsom 2018). Overland stormwater sheet flow in Rancho Cordova generally drains toward the southwest into local streams. Storm drainage in the vicinity of the Rancho Cordova project segment is discharged to the American River.

Long-term operational water quality effects of the proposed project would be associated with the release of pollutants (e.g., oil and grease, brake dust) from trains, routine station cleaning, and herbicides to maintain weeds along the new light rail tracks, which may require the use of products that could be considered hazardous materials. However, the SacRT would comply with the NPDES Construction General Permit (SWRCB 2012) and the MS4 permits issued by the Central Valley RWQCB (2016) to Sacramento County, Folsom, and Rancho Cordova. These permits establish conditions and requirements for discharge to the storm drainage system to reduce pollutants, prohibit non-stormwater discharges, and require preparation and implementation of SWPPPs with BMPs, designed to reduce the potential for water quality degradation. Therefore, impacts of the proposed project related to exceedance of the existing stormwater drainage system or creation of substantial additional sources of polluted runoff as a result of altered drainage patterns would be **less than significant**.

iv) Impede or redirect flood flows?

No Impact. The proposed project would not be constructed in a 100- or 200-year flood zone (FEMA 2016; DWR 2018). Furthermore, although the Folsom project segment is in the Folsom Dam inundation area, the proposed project would have no impact on the likelihood of upstream dam failure (which is considered to be very remote). Therefore, project facilities would not impede or redirect flood flows as a result of altered drainage patterns, and **no impact** would occur.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. The proposed project would not be located in a 100- or 200-year flood zone (FEMA 2016; DWR 2018), and because of the distance from the Pacific Ocean and the distance from and elevation above the American River, the proposed project would not be located in a tsunami or seiche zone. Thus, there would be **no impact** from release of pollutants due to project inundation.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. As discussed in item b, excavation associated with the proposed project would not be deep enough to encounter groundwater, and the small amounts of water that would be needed during construction activities (e.g., for dust control) would be provided by trucks. Therefore, the proposed project would not conflict with the sustainable groundwater management plan for the Sacramento Valley–South American Subbasin (Central Sacramento Groundwater Authority 2016). Project operation would not require an increase in the existing water that currently is supplied to the light rail stations, and operational water quality at the existing stations is regulated under the Sacramento County NPDES MS4 permit and the individual MS4 permits issued to the cities of Folsom and Rancho Cordova by the Central Valley RWQCB (2016). The MS4 permits require the County and the Cities to reduce pollutants in stormwater discharges to the maximum extent practicable, and to effectively prohibit non-stormwater discharges. The proposed project would comply with the Central Valley RWQCB MS4 permit requirements. Furthermore, as also described in item a, the SacRT would prepare and implement an SWPPP with associated BMPs, specifically designed to prevent degradation of water quality and protect beneficial uses of downstream water bodies, as required by the regional Basin Plan (Central Valley RWQCB 2018). Therefore, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and there would be **no impact**.

3.10.3 References

- AECOM. 2010 (February). *Alder Creek Watershed Management Action Plan*. Prepared for the City of Folsom Department of Public Works. Available: https://www.folsom.ca.us/public_works/stormwater/watershed/alder.asp. Accessed April 19, 2019.
- California Department of Water Resources (DWR). 2018. *DWR Groundwater Information Center, Depth to Groundwater Spring 2018*. Available: https://gis.water.ca.gov/app/gicima/#bookmark_DepthBelowGroundSurface. Accessed April 10, 2019.
- California Interagency Watershed Mapping Committee. 2004 (May). California Interagency Watershed Map of 1999. Calwater 2.2.1. Available: <https://www.arcgis.com/home/item.html?id=7a495cfa71ca4616aba58c5e915eef2c>. Accessed April 19, 2019.
- Central Sacramento Groundwater Authority. 2016. Groundwater Management Plan, Sacramento Valley–South American Subbasin. Available: <http://www.scgah2o.org/Pages/South-American-Subbasin-Alternative-Submittal.aspx>. Accessed July 8, 2019.
- Central Valley Regional Water Quality Control Board (RWQCB). 2016. *National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements General Permit for Discharges from Municipal Separate Storm Sewer Systems: City of Folsom, City of Rancho Cordova, County of Sacramento*. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/. Accessed April 18, 2019.
- . 2018. *The Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins*. Available: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/#basinplans. Accessed April 18, 2019.

- City of Folsom. 2018 (March). *Folsom General Plan 2035 Draft Program Environmental Impact Report—Section 14 Hydrology and Water Quality*. State Clearinghouse No. 2017082054. Available: https://www.folsom.ca.us/community/planning/general_plan/environmental_documents.asp. Accessed April 19, 2019.
- Federal Emergency Management Agency (FEMA). 2016. *Flood Insurance Rate Maps*. Available: <https://msc.fema.gov/portal/search#searchresultsanchor>. Accessed April 17, 2019.
- Sacramento Area Flood Control Agency (SAFCA). 2019. *CEQA Documents*. Available: http://www.safca.org/protection/Environmental_Public_Review.html. Accessed April 19, 2019.
- State Water Resources Control Board (SWRCB). 2012. *National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities, Order No. 2012-006-DWQ*. Available: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2012/wqo2012_0006_dwq.pdf. Accessed April 2, 2019.
- . 2017. *2014 and 2016 California Integrated Report*. Available: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml. Accessed April 2, 2019.

3.11 Land Use and Planning

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Land Use and Planning. Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.11.1 Environmental Setting

Folsom Project Segment

The Folsom project segment is in the southwestern portion of the City of Folsom in Sacramento County. The southwest area of the city, between US-50 and East Bidwell Street, has a mix of housing, shopping, schools, parks, and offices, as well as the Central Business District between Riley Street and East Bidwell Street (City of Folsom 2018a).

Folsom Boulevard is a major north-south arterial road that extends from the city of Sacramento to Greenback Lane, where it becomes Folsom Auburn Road. The project footprint in the Folsom project segment encompasses the light rail track and right-of-way, and a portion of the Glenn/Robert G Holderness Station on the east side of Folsom Boulevard from Parkshore Drive north to Bidwell Street. The proposed facilities would be constructed in an area that has been designated by the City's General Plan and zoned primarily for light industrial development, with a small area zoned for apartment housing (City of Folsom 2018b, 2018c). The west side of Folsom Boulevard is zoned as an Open Space Conservation District and is associated with the Lake Natoma sub-unit of the Folsom Lake SRA.

The west side of Folsom Boulevard is adjacent to the eastern boundary of the Folsom Lake SRA, and Lake Natoma and the American River are approximately 1,200 feet west of the project footprint. The California Department of Parks and Recreation and the U.S. Bureau of Reclamation manage this land, including the dredge tailings that cover most of the site (City of Folsom 2018b). The American River Bike Trail is approximately 0.25 mile west of Folsom Boulevard, parallel to Lake Natoma.

Areas east of Folsom Boulevard are developed with office, industrial, and manufacturing land uses. The Folsom Parkway Rail Trail, which begins at Bidwell Street and travels south along Folsom Boulevard to the Iron Point Light Rail Station, is south and east of the project segment. Two office buildings with associated parking lots are adjacent to and east of the Folsom Parkway Rail Trail between Parkshore Drive and Glenn Drive, and the Maximus California Healthy Family offices are beyond them. The Kikkoman Foods manufacturing facility is between Glenn Drive and Bidwell Street. Vacant parcels surrounding the facility are designated in the General Plan for industrial and office park uses (City of Folsom 2018b).

The Glenn/Robert G Holderness Station is at the intersection of Folsom Boulevard and Glenn Drive. The station's park-and-ride lot is on the east side of the station. The station is within 0.5 mile of commercial and retail establishments and restaurants north of Blue Ravine Road and west of Folsom Boulevard; existing and proposed

industrial and office uses as well as parks east of and along Folsom Boulevard; and single-family and multi-family housing adjacent to and in the vicinity of Parkshore Drive, Glenn Drive, and Bidwell and Sibley Streets.

Rancho Cordova Project Segment

The portion of the Rancho Cordova project segment west of Nimbus Road is in the city of Rancho Cordova, and the portion of the project segment east of Nimbus Road is in unincorporated Sacramento County. Folsom Boulevard in the Rancho Cordova project segment is a major four-lane road, oriented generally north-south. The project footprint in this segment encompasses the light rail right-of-way and a portion of the Hazel Station, from Aerojet Road to the southern end of the Schnitzer Steel facility. The proposed facilities would be constructed on the south side of Folsom Boulevard, within a general plan-designated and zoned transportation corridor adjacent to areas designated and zoned for commercial and industrial/manufacturing uses as well as planned transit-oriented development (Sacramento County 2017; City of Rancho Cordova 2018, 2019).

Both sides of Folsom Boulevard in the Rancho Cordova project segment are heavily developed with commercial and industrial land uses, particularly on the north side. Stretches of undeveloped land owned by Aerojet are on the south side of Folsom Boulevard, east and west of the Hazel Station. At the western end of the Rancho Cordova project segment, west of Nimbus Road, commercial and industrial development (including the Aerojet facilities on the south side of Folsom Boulevard) are on both sides of Folsom Boulevard.

Easton Place, a mixed-use, transit-oriented community, fronts onto the south side of the rail corridor and consists of 183 acres, centered on the Hazel Station. The majority of Easton Place is within a half-mile radius of the Hazel Station (City of Folsom 2018b). Easton Place is close to US-50, Hazel Avenue, and Folsom Boulevard. Easton Place has been approved by Sacramento County for 1,644 housing units, approximately 3.5 million square feet of commercial and office uses, and 7.5 acres of parks and open space (City of Folsom 2018b).

The proposed Westborough Planning Area is in the southwestern part of the Folsom project segment, on the south side of Folsom Boulevard and immediately west of Easton Place. The Westborough Planning Area will feature primarily residential development, focused around a regional town center at the new Rancho Cordova Parkway/US-50 interchange. Westborough is proposed to include office and mixed-use property in the northern portion of the planning area along Folsom Boulevard, with access to the Hazel Station (City of Rancho Cordova 2018).

Hazel Station is between Hazel Drive and Aerojet Drive. A park-and-ride lot is on the south side of the station. Apartment buildings and a mobile home park are immediately north of the Hazel Station, across Folsom Boulevard.

Regulatory Framework

2016 Metropolitan Transportation Plan/Sustainable Communities Strategy. In 2016, SACOG approved the 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy (2016 MTP/SCS). The 2016 MTP/SCS includes a land use strategy to improve mobility and reduce travel demand from passenger vehicles by prioritizing compact and transit-oriented development, and by reducing the growth in vehicle miles traveled and associated greenhouse gas emissions. The 2016 MTP/SCS also includes projections for the location of growth in the region, between jurisdictions and among housing place types (i.e., infill and greenfield development).

The proposed project supports the “Complete Streets” concept for Folsom Boulevard, as envisioned in the 2016 MTP/SCS (SACOG 2016).⁷ Land uses along both project segments and at the stations are identified as Center and Corridor Communities, which typically (1) are targeted for higher density, (2) are more mixed than other areas, (3) are benefitting or expected to benefit from frequent transit service (either bus or rail), and (4) have pedestrian and bicycling infrastructure that is more supportive of walking and bicycling (SACOG 2016). In addition, the areas adjacent to the Rancho Cordova project segment and the Glenn and Hazel stations are within a Transit Priority Area, which is defined as an area of the region within 0.5 mile of a major transit stop (existing or planned light rail, street car, or train station) or an existing or planned high-quality transit corridor included in the 2016 MTP/SCS. Growth in Sacramento Transit Priority Areas is balanced between housing and employment growth, in part because of the extensive geographic coverage of the Transit Priority Areas, which include regional job centers (e.g., downtown Sacramento and Rancho Cordova) as well as residential and commercial areas (SACOG 2016).

City of Folsom General Plan. The Folsom General Plan 2035 was adopted by the City Council on August 28, 2018 (City of Folsom 2018b). The primary objective of the general plan is to provide policy guidelines for the future physical development, urban service and amenity delivery, economy, and conservation of natural resources in Folsom. The following goal and policies are applicable to the proposed project:

Goal M 3.1: Support and maintain a comprehensive, safe, and integrated transit system that responds to the needs of all residents and allow frequent and convenient travel throughout the city and region.

- **Policy M 3.1.1: Access to Public Transit.** Strive to ensure that all residents have access to safe and convenient public transit options.
- **Policy M 3.1.3: Regional Transit Connectivity.** Coordinate with Sacramento Regional Transit and neighboring jurisdictions on fixed route connectivity and transfers to improve the transit system.
- **Policy M 3.1.4: Light Rail Double-Tracking.** Coordinate with Sacramento Regional Transit on possibilities for improving light rail headways through double-tracking.

City of Rancho Cordova General Plan. The City of Rancho Cordova General Plan was adopted by the City Council on June 26, 2006; however, several elements have been updated more recently including land use, housing, natural resources, and safety. This General Plan establishes a land use development pattern consisting of a series of walkable neighborhoods, villages, and districts. The City envisions that development will provide a mix of housing, jobs, commercial activities and services, connected through a series of streets and contiguous open space areas. The General Plan is intended to reinvent Rancho Cordova as a regional destination, providing a full range of retail services and entertainment venues (City of Rancho Cordova 2018). The following goal and policy from the Circulation Element of the General Plan is applicable to the proposed project:

Goal C.3: Establish a viable transit system that connects all parts of the city and links with regional destinations.

- **Policy C.3.1:** Advocate and develop transit services which meet the needs of residents and employees in Rancho Cordova.

Sacramento County General Plan of 2005–2030. The Sacramento County General Plan of 2005–2030 (County General Plan) was adopted by the County Board of Supervisors on November 9, 2011 (Sacramento County 2017). The County General Plan provides an inventory of land supply in the county and projects the amount and location

⁷ Complete streets are streets designed to respond to the needs of users at a particular location. Complete streets may include sidewalks, bike lanes, transit lanes, frequent crossings, narrow automobile lanes, median islands, curb extensions, and other transportation facilities that provide transportation modes other than a vehicle.

of land and density, and intensity of development that is expected to be required to accommodate future populations and economic growth through 2030. The following goal and policy of the County General Plan are applicable to the project:

Goal: Promote a balanced and integrated transit system to maximize mobility in a safe and efficient manner.

- **Policy CI-19:** Collaborate with transit service providers to provide transit services within the County that are responsive to existing and future transit demand.

3.11.2 Discussion

a) **Physically divide an established community?**

No Impact. The proposed project would install new passing tracks, modify existing station platforms to accommodate the new vehicles, and construct a new side-boarding station platform at the Glenn/Robert G Holderness Station and at the Hazel Station. A modification to the right-turn lane from northbound Folsom Boulevard to eastbound Glenn Drive also is planned. None of these project components would result in displacement of existing land uses. The project footprints in both the Folsom and Rancho Cordova project segments encompass the existing light rail track, rights-of-way, and portions of the stations.

Access to commercial, industrial, and residential land uses along Folsom Boulevard would be maintained during construction. Although the staging areas have not been identified yet, undeveloped lands and parking lots, including the park-and-ride lots at Glenn and Hazel stations, are adjacent to the alignment and could be used for construction staging areas. Use of these areas would not physically divide the community. The outside eastbound lane of Folsom Boulevard would require temporary closure in the Folsom project segment, to allow construction of the intersection improvements at Glenn Drive. However, no extended closure of this lane is anticipated that would substantially affect access to residential land uses along Glenn Drive. Therefore, access would be affected during construction, but this effect would not result in a physical division of an established community because it would affect only a small portion of Glenn Drive, the effect would be short term, and other nearby roadways could be used for travel through this area of Folsom.

Project operation would increase service and reliability to existing and planned commercial, industrial, and residential uses in the project area and vicinity, and to historic Folsom. Therefore, the proposed project would have **no impact** related to physically dividing an established community during construction or operation of the proposed project.

b) **Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?**

Folsom Project Segment

No Impact. The SacRT Gold Line light rail service in Folsom and the Glenn/Robert G Holderness Station are identified in the Folsom General Plan and the 2016 SACOG MTP/SCS as an important part of Folsom's transit-oriented development strategy. These facilities support the "Complete Streets" concept for Folsom Boulevard as envisioned in the Folsom General Plan (City of Folsom 2018b) and the 2016 MTP/SCS (SACOG 2016).

The proposed project would be consistent with the City of Folsom General Plan Policy M 3.1.1, which strives to ensure that all residents have access to public transit options, and Policies M 3.1.3 and M 3.1.4, which encourages coordination with SacRT to improve the transit system through fixed route connectivity and transfers, and to improve light rail headways through double-tracking. Installing a passing track would allow SacRT to modernize

its light rail system and increase service and reliability to historic Folsom—the second track would enable light rail trains to operate outbound and inbound between the Sunrise and Historic Folsom stations with little or no delay. In addition, at the Glenn/Robert G Holderness Station, the existing passenger loading platform would be modified to accommodate SacRT’s new low-floor vehicles, and a new platform would be constructed so that one platform would be used for inbound passengers and the second platform would be used for outbound passengers. The track and station enhancements as well as updated train signaling would allow light rail trains to operate every 15 minutes from the Sunrise Station to downtown Folsom, rather than the current 30 minutes (see Chapter 2, “Project Description,” for additional details).

The project footprint in the Folsom project segment encompasses the light rail track and right-of-way, along with a portion of the Glenn/Robert G Holderness Station. The proposed project would not include new land uses that would conflict with land use designations or zoning of areas adjacent to the project footprint.

Thus, the proposed project would not conflict with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Instead, the proposed project would support the goals and policies of the City of Folsom General Plan and the 2016 MTP/SCS. Therefore, **no impact** related to land use planning would occur.

Rancho Cordova Project Segment

No Impact. The SacRT Gold Line light rail service in Rancho Cordova and the Hazel Station are identified in the Rancho Cordova and Sacramento County general plans and the 2016 SACOG MTP/SCS as an important part of Rancho Cordova’s transit-oriented development strategy (SACOG 2016).

The proposed project would be consistent with the City of Rancho Cordova’s General Plan Policy C.3.1, which encourages development of transit services, meeting the needs of residents and employees in Rancho Cordova, and Sacramento County’s General Plan Policy CI-9, which encourages collaboration with transit service providers to provide transit services in the county that are responsive to existing and future transit demand. In addition, the Circulation Element of the Rancho Cordova General Plan identifies the needs to foster north-south and east-west connectivity, encouraging residents to leave their cars at home and use an attractive transit system; simplify current and future transit routes, to provide more frequent and efficient services; and make transit service fun, fast, and frequent so that it attracts riders (City of Rancho Cordova 2018).

Installing a passing track would allow SacRT to modernize its light rail system and increase service and reliability to historic Folsom—the second track would enable light rail trains to operate outbound and inbound between the Sunrise and Historic Folsom stations with little or no delay. In addition, at the Hazel Station, the existing passenger loading platform would be modified to accommodate SacRT’s new low-floor vehicles, and a new platform would be constructed so that one platform would be used for inbound passengers and the other platform would be used for outbound passengers. The track and station enhancements as well as updated train signaling would allow light rail trains to operate every 15 minutes from the Sunrise Station to downtown Folsom, rather than the current 30 minutes (see Chapter 2, “Project Description,” for additional details).

The project footprint in the Rancho Cordova project segment encompasses the light rail track and right-of-way, along with a portion of the Hazel Station. The proposed project would not include new land uses that would conflict with general plan land use designations or city zoning of areas adjacent to the project footprint. The sliver of land that the SacRT proposes to acquire from Aerojet along the south side of the right-of-way would not conflict with the plans for the Westborough community, which envision commercial uses along the rail right-of-way.

Thus, the proposed project would not conflict with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. Instead, the proposed project would support the goals and policies of the City of Rancho Cordova General Plan, Sacramento County General Plan, and 2016 MTP/SCS. Therefore, **no impact** related to land use planning would occur.

3.11.3 References

- City of Folsom. 2018a (May). *Folsom General Plan 2035 Final Program Environmental Impact Report*. Available: https://www.folsom.ca.us/community/planning/general_plan/environmental_documents.asp. Accessed August 19, 2019.
- . 2018b (August). *Folsom General Plan 2035*. Available: https://www.folsom.ca.us/community/planning/general_plan/2035_general_plan.asp. Accessed August 19, 2019.
- . 2018c (May). Zoning Map. Available: <https://assist.folsom.ca.us/civicax/filebank/blobdload.aspx?blobid=33316>. Accessed August 19, 2019.
- City of Rancho Cordova. 2018 (December). *Rancho Cordova General Plan*. Adopted June 2006, updated December 2018. Available: <https://www.cityofranhocordova.org/government/planning/general-plan#a4>. Accessed June 24, 2019.
- . 2019. Zoning Map. Available: <https://www.cityofranhocordova.org/government/planning/most-used-documents/maps>. Accessed June 24, 2019.
- Sacramento Area Council of Governments (SACOG). 2016 (February). Metropolitan Transportation Plan/Sustainable Communities Strategy. Available: <https://www.sacog.org/2016-mtpscs>. Accessed August 19, 2019.
- Sacramento County. 2017 (December). *Sacramento County General Plan of 2005–2030*. Planning and Development Department. Adopted 2005, amended 2017. Available: <http://www.per.saccounty.net/PlansandProjectsIn-Progress/Pages/GeneralPlan.aspx>. Accessed August 23, 2019.

3.12 Mineral Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.12.1 Environmental Setting

Under the Surface Mining and Reclamation Act of 1975 (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The Board's decision to designate an area is based on a classification report, prepared by the California Geological Survey (CGS), and on input from agencies and the public. The project segments lie within the designated Sacramento–Fairfield Production–Consumption Region for portland cement concrete aggregate.

In compliance with SMARA, CGS has established a classification system (Table 3.12-1) to indicate the location and significance of key extractive resources.

**Table 3.12-1
California Geological Survey Mineral Land Classification System**

Classification	Description
MRZ-1	Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence
MRZ-2	Areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists
MRZ-3	Areas containing mineral deposits, the significance of which cannot be evaluated from existing data
MRZ-4	Areas where available data are inadequate for placement in any other mineral resource zone

Note:

MRZ = Mineral Resource Zone

Source: Dupras 1999

The Folsom project segment is near the active channel of the American River, and the Rancho Cordova project segment is adjacent to an ancient channel of the American River. Over many thousands of years, weathering eroded various gold-bearing formations in the Sierra Nevada, allowing gold flakes, nuggets, and gold-bearing rocks to be carried along in glacial meltwater and river channels. Depending on the volume of water and the rate of flow, the gold eventually was deposited on the surfaces of ancient river channels. Gold-bearing rocks were deposited at the mouths of rivers as alluvial fans. Areas around Folsom, Prairie City, and Rancho Cordova, where the American River emptied into the Sacramento Valley, became well known locations for gold miners.

Within weeks after gold was found at Sutter's Mill on the South Fork of the American River in 1848, Mormon Island (now buried underneath Folsom Lake) was being mined. Subsequent gold discoveries and mining operations developed at Beal's Bar, Rattlesnake Bar, Negro Bar, Whiskey Bar, and Prairie City. When the Natomas Water and Mining Company began supplying water to the area around Prairie City in 1853, miners began staking claims along the company's canal. When those claims were exhausted, the Natomas Company (as it later was called) began dredging the nearby ancient American River deposits. Dredging operations in the project vicinity occurred between 1915 and 1962. Today, dredge tailings are found throughout the Folsom area, in the Rancho Cordova area south of US-50, and in Sacramento County near SR 16 and east of Grant Line Road.

Sand and gravel that are mined in Sacramento County and in Rancho Cordova are used for construction throughout the project region. Construction aggregates are an important building material used in portland cement concrete, asphalt concrete, plaster, and stucco, and as a road base material. Several active mining operations are in Rancho Cordova and Sacramento County, south and east of the Rancho Cordova project segment, where dredge tailings are present. In terms of volume and price, no economically feasible substitute exists for aggregate products in the construction industry. However, the Rancho Cordova and Sacramento County General Plans each recognize that aggregate mining is an interim land use rather than a final use, and they also recognize the importance of balancing aggregate-mining needs with those of urban development (Rancho Cordova 2016; Sacramento County 2017).

The entirety of the Folsom project segment is classified as MRZ-2 (Dupras 1999). The western end of the Rancho Cordova project segment near the Folsom South Canal to Hazel Avenue is classified by CGS as MRZ-3. Between Hazel Avenue and Aerojet Road, it is classified as MRZ-2 (Dupras 1999).

3.12.2 Discussion

a) **Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**

Less than Significant. Although the entire Folsom project segment is classified as MRZ-2, the requirements of SMARA must be met by the local lead agency with the permitting responsibility for proposed mining projects. In 2003, the City of Folsom determined that because it did not have any active mining operations, and because none were expected in the future, it would not update its SMARA ordinance. Therefore, mining activities are not allowed in Folsom.

The portion of the Rancho Cordova project segment along Folsom Boulevard from Hazel Avenue northeast to Aerojet Road is in unincorporated Sacramento County and is classified by CGS as MRZ-2, an area where regionally important mineral deposits are present or where it is judged that a high likelihood for their presence exists (Dupras 1999). This area was classified as MRZ-2 based on the presence of dredge tailings from former mining activities along an ancestral channel of the American River. Dredge tailings in this area are an important source of aggregate mineral resources. However, this stretch of Folsom Boulevard has been heavily developed with commercial and light industrial uses, along with roadways and the existing light rail and freight rail lines. South of the rail right-of-way, the Easton Development Corporation has prepared an extensive master plan for a mix of uses and has received approval from Sacramento County for the 183-acre Easton Place and for the 1,208-acre Glenborough at Easton community. Furthermore, it is seeking approval from the City of Rancho Cordova for the 1,665-acre Westborough community. Because of the existing land uses and proposed land uses, mining activities could not occur along this portion of the project segment. Furthermore, in the MRZ-2 area, the proposed project would occur almost entirely within the existing rail right-of-way. Based on the plan drawings (Appendix A), the Rancho Cordova project segment would encompass about 1.45 acres of MRZ-2 designated

lands. Therefore, even if aggregate mineral resources are present, construction in the unincorporated portion of the Rancho Cordova project segment would not result in a substantial loss or availability of known, regionally important mineral resources. Therefore, the impact on mineral resources would be **less than significant**.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Less than Significant. US-50 runs in an east-west direction through Folsom. Most of the city (including the Folsom project segment) is north of US-50; only the Folsom South of US-50 Specific Plan Area is south of the highway. The City of Folsom does not have a SMARA mining ordinance, and those portions of the city that are north of US-50, where the Folsom project segment is located, have been effectively removed from future mining because of extensive urbanization and the presence of the American River Parkway/Folsom Lake SRA (City of Folsom 2014). Aggregate mineral resources in the Folsom South of US-50 Specific Plan Area, if any are present, may be used by construction contractors during development of the Specific Plan Area.

The City of Rancho Cordova and Sacramento County (2017) have designated the same locally important mineral resource recovery sites as those classified by CGS (City of Rancho Cordova 2016). Although the project footprint along Folsom Boulevard from Hazel Avenue northeast to Aerojet Road is classified as containing locally important mineral resources, for the same reasons stated in item a, the proposed project would not result in the loss of availability of a locally important mineral resource recovery site. Therefore, the impact would be **less than significant** as a result of the proposed project.

3.12.3 References

City of Folsom. 2014 (April). *City of Folsom General Plan Update, Existing Conditions Report*. Available: https://www.folsom.ca.us/community/planning/general_plan.asp. Accessed March 28, 2019.

City of Rancho Cordova. 2016 (July). *Rancho Cordova General Plan—Natural Resources Element*. Adopted June 2006, updated July 2016. Available: <https://www.cityofranchocordova.org/i-want-to-/learn-about/general-plan>. Accessed March 28, 2019.

Dupras, D. 1999. *Mineral Land Classification: Portland Cement Concrete-Grade Aggregate and Kaolin Clay Resources in Sacramento County, California*. Open-File Report 99-09. California Geological Survey. Sacramento, CA.

Sacramento County. 2017 (September). *Sacramento County 2030 General Plan Conservation Element*. Available: <http://www.per.saccounty.net/PlansandProjectsIn-Progress/Pages/GeneralPlan.aspx>. Accessed July 8, 2019.

This page intentionally left blank.

3.13 Noise

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Noise. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.13.1 Environmental Setting

Noise Fundamentals and Descriptors

Noise from transit systems is expressed in terms of a source, path, and receiver. The source generates noise levels that depend on the type of source (e.g., a light rail train versus a bus) and its operating characteristics (e.g., speed and type of power used to propel the vehicle). The receiver is the noise-sensitive land use (e.g., residence, hospital, or school) exposed to noise from the source. In between the source and the receiver is the path, where the noise is reduced by distance, intervening buildings, and topography. Environmental noise impacts are assessed at the receiver. Noise criteria are established for the various types of receivers because not all receivers have the same noise sensitivity.

Noise is unwanted sound. Sound is measured in terms of sound pressure level and usually is expressed in decibels (dB). The human ear is less sensitive to higher and lower frequencies than it is to mid-range frequencies. All noise ordinances and this noise analysis use the A-weighted decibel (dBA) system, which measures what humans hear in a more meaningful way because it reduces the sound levels of higher and lower frequency sounds—similar to what humans hear. Figure 3.13-1 shows typical maximum A-weighted sound pressure levels (L_{max}) for transit and non-transit sources.

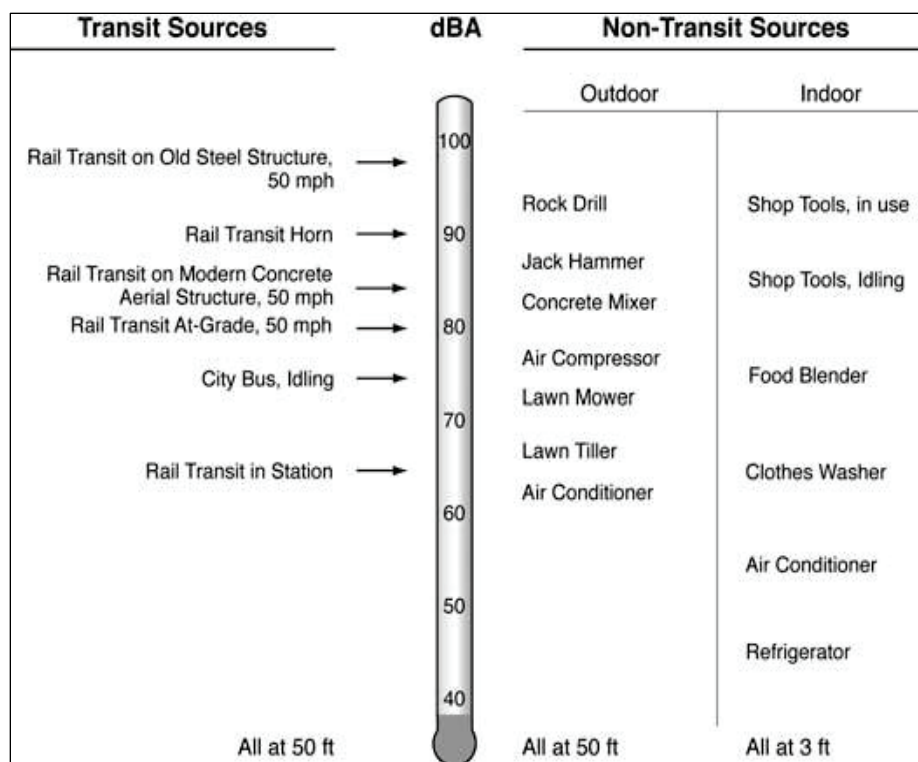


Figure 3.13-1 Typical A-weighted Sound Levels

Three primary noise measurement descriptors are used commonly to assess noise impacts from traffic and transit projects. They are the equivalent sound level (L_{eq}), the day-night sound level (L_{dn}), and the sound exposure level (SEL), described as follows:

- **L_{eq} :** The level of a constant sound for a specified period of time that has the same sound energy as an actual fluctuating noise over the same period of time. The peak-hour L_{eq} is used for all traffic and commuter rail noise analyses at locations with daytime use, such as schools and libraries.
- **L_{dn} :** The L_{dn} is equivalent to the L_{eq} over a 24-hour period, with 10 Db added to nighttime sound levels (between 10 p.m. and 7 a.m.) to account the greater sensitivity and lower background sound levels during this time. The L_{dn} is the primary noise-level descriptor for rail noise at residential land uses. Figure 3.12-2 shows typical L_{dn} noise exposure levels.
- **SEL:** The SEL is the primary descriptor of a single noise event (e.g., noise from a train passing a specific location along the track). SEL is an intermediate value in the calculation of both L_{eq} and L_{dn} . It represents a receiver's cumulative noise exposure from an event and the total A-weighted sound during the event normalized to a 1-second interval.

In addition to the L_{eq} , L_{dn} , and SEL, another descriptor is used to describe noise. The loudest 1 second of noise over a measurement period, or L_{max} , is used in many local and State ordinances for noise emitted from private land uses and for construction noise impact evaluations.

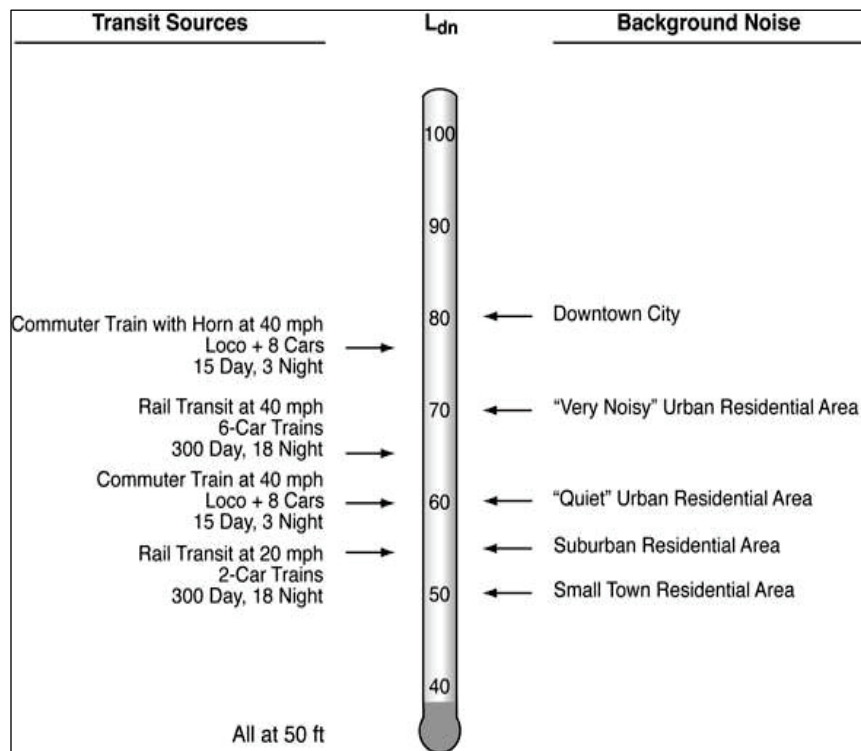


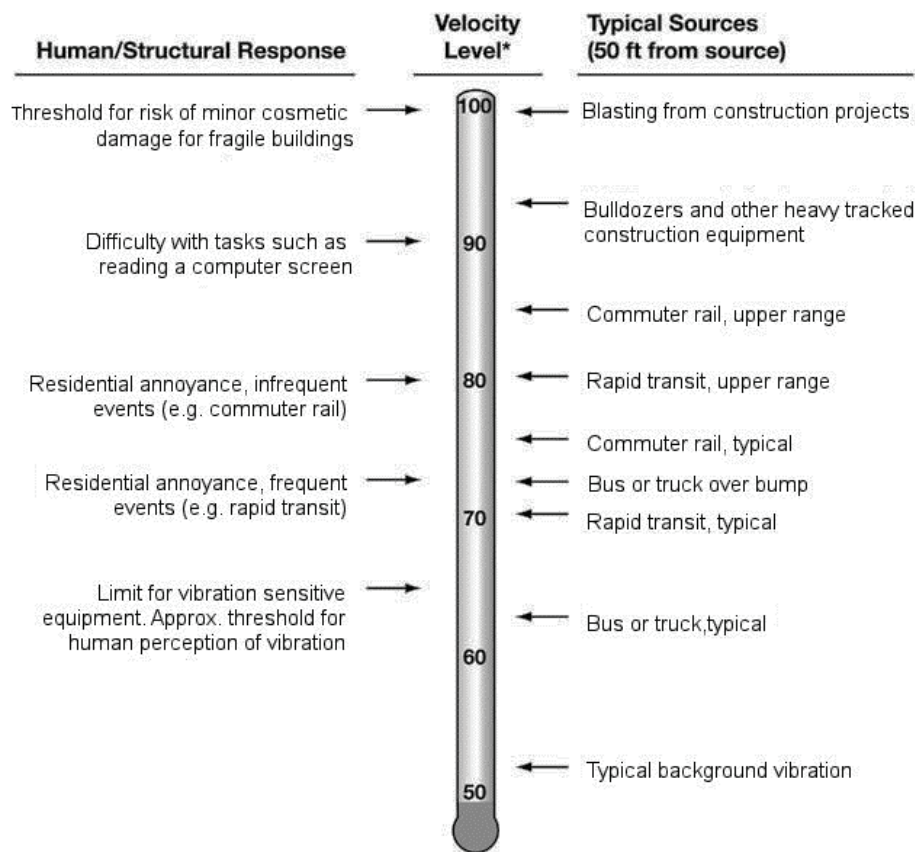
Figure 3.13-2 Typical L_{dn} Noise Exposure Levels

Vibration Fundamentals and Descriptors

Vibration from a transit system also is expressed in terms of a source, path, and receiver. The source is the train rolling on the tracks, which generates vibration energy transmitted through the supporting structure under the tracks and into the ground. After the vibration gets into the ground, it propagates through the various soil and rock strata—the path—to the foundations of nearby buildings—the receivers. Groundborne vibrations generally are reduced with distance, depending on the local geological conditions. A receiver is a vibration-sensitive building (e.g., residence, hospital, or school) where the vibrations may cause perceptible shaking of the floors, walls, and ceilings and a rumbling sound inside rooms. Not all receivers have the same vibration sensitivity. Consequently, vibration criteria are established for the various types of receivers. Groundborne noise occurs as a perceptible rumble and is caused by the noise radiated from the vibration of room surfaces.

Vibration above certain levels can damage buildings, disrupt sensitive operations, and cause annoyance to people in buildings. The response of people, buildings, and equipment to vibration is most accurately described using velocity or acceleration. In this analysis, vibration velocity (VdB) is the primary measure to evaluate the effects of vibration.

Figure 3.13-3 shows typical groundborne vibration velocity levels for common sources and thresholds for human and structural response to groundborne vibration. As shown, the range of interest is from approximately 50 to 100 VdB in terms of vibration velocity level (i.e., from imperceptible background vibration to the threshold of damage). Although the threshold of human perception to vibration is approximately 65 VdB, annoyance usually does not occur unless the vibration exceeds 70 VdB.



* RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second

Figure 3.13-3 Typical Levels of Groundborne Vibration

Existing Noise Levels

Noise and vibration sensitive receivers were identified using the FTA transit noise and vibration impact assessment manual's definitions of noise- and vibration-sensitive land uses (FTA 2018). Existing noise-sensitive and vibration-sensitive receivers in the Gold Line corridor include single-family and multifamily residences, a mobile home park, offices, and recreational facilities, including trails. Sensitive receivers were analyzed as "clusters." Some clusters were individual properties and others were groups of properties. The list included receivers potentially sensitive to train noise and vibration.

Noise measurements were conducted to characterize the ambient noise in the project area. Table 3.13-1 summarizes the existing noise measurements. Figure 3.13-4 shows all the measurement locations in the project area. LT-01 was selected to describe ambient conditions near the multifamily residences across from Hazel Station. LT-02 was selected to characterize noise levels near office space, residences, and the Folsom Parkway Rail Trail in the Folsom project segment, south of Glenn Station. LT-03 was used in the SacRT Glenn Station park-and-ride lot to characterize noise exposure near the Folsom Parkway Rail Trail, a public seating area used by recreationists on the trail and SacRT passengers, and the Folsom Lake State Recreation Area across Folsom Boulevard to the west.

**Table 3.13-1
Existing Noise Measurements in the Project Corridor**

Site	Location	Date		Duration	Start Time	Daytime		Nighttime		L _{dn} (dBA)
		From	To			L _{eq}	L _{max}	L _{eq}	L _{max}	
LT-01	Oak Brook Apartments, 12499 Folsom Blvd., Sacramento County (Rancho Cordova Project Segment)	Tuesday, August 20, 2019	Wednesday, August 21, 2019	24 hours	20:00	52.8	73.3	47.8	61.6	55.4
LT-02	Oak Villas Pond, 229 Pacific Oak Ct, Folsom (Folsom Project Segment)			24 hours	21:00	57.9	73.9	52.1	66.7	59.9
LT-03	Glenn Station Park-And-Ride Lot, Folsom (Folsom Project Segment)			24 hours	21:00	61.6	77.5	57.2	72.4	64.6

Notes:

dBA = A-weighted decibels

L_{dn} = day-night noise level

L_{eq} = equivalent sound level

Existing Rail Operations

Heavy Rail. The old Southern Pacific rail lines (Placerville branch railroad) through Folsom, unincorporated Sacramento County, and Rancho Cordova now are managed by the SPTC-JPA and are not operational, except for SacRT's Gold Line and occasional freight traffic on freight rail line in Rancho Cordova. That line would be shifted to the south as part of the proposed project.

SacRT Light Rail. Within the project limits, SacRT light rail trains operate in the Gold Line corridor (within the SPTC-JPA right-of-way) adjacent to Folsom Boulevard through Folsom, portions of unincorporated Sacramento County, and Rancho Cordova. Based on the current schedule between the Sacramento Valley Station and the Historic Folsom Station for Monday through Friday, 30 daytime (7 a.m. to 10 p.m.) light rail runs and eight nighttime (10 p.m. to 7 a.m.) runs occur. On Saturdays, 33 runs are scheduled between the Sacramento Valley Station and Historic Folsom Station, of which 29 operate during daytime and four during the nighttime; on Sundays and holidays, 24 runs are scheduled between these stations, all during the daytime hours.

Noise levels from light rail operations were quantified as part of the City of Folsom General Plan update, through noise level measurements that were conducted 100 feet from the tracks in December 2017. Figure 15-3 in the City's 2035 General Plan (City of Folsom 2018) shows the noise measurement locations. Table 3.13-2 summarizes computed L_{dn} noise levels at 100 feet from the light rail tracks. The City's General Plan Noise Element thresholds for single-family and multifamily residential uses are 60 and 65 L_{dn}, respectively. Distances from the center of the tracks to the 60 and 65 L_{dn} noise contours also are shown in Table 3.13-2.

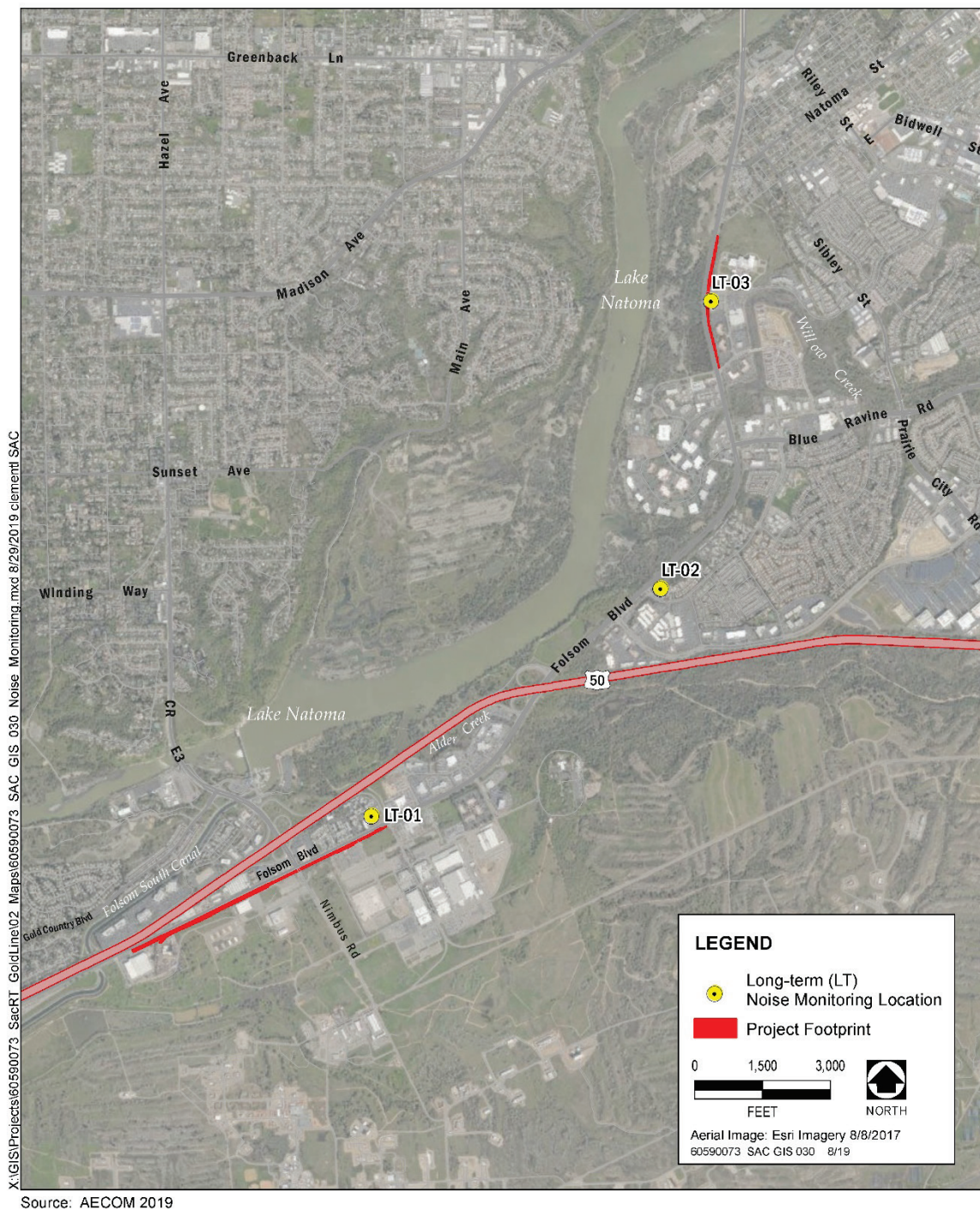


Figure 3.13-4 Measurement Locations for Existing Conditions in the Project Corridor

Table 3.13-2
Computed Noise from Light Rail Operations in Folsom

Period	L _{dn} at 100 feet	Distance to 60 dB L _{dn} Contour	Distance to 65 dB L _{dn} Contour
Weekday	52	31	14
Saturday	48	15	7
Sunday and Holidays	47	13	6

Source: City of Folsom 2018

The City of Rancho Cordova General Plan EIR includes a table of average noise levels at a distance of 100 feet from the tracks and 500 feet from the at-grade crossings (City of Rancho Cordova 2006). Table 3.13-3 shows the computed light rail train noise levels in terms of L_{dn} at a distance of 100 feet from the center line of the tracks and the predicted distances to the light rail 60 dBA L_{dn} noise contours in feet. The City’s General Plan Noise Element (2015) thresholds for single-family and multifamily residential as well as office building uses is 60 L_{dn}. The table is divided into three categories, corresponding to locations where no warning horns were applied (approximately 500 feet from the at-grade crossings), locations where warning horns were applied but sufficiently removed from warning bells (approximately 100 to 500 feet from the intersection), and locations affected by both warning horns and warning bells (within 100 feet from the at-grade crossings).

Table 3.13-3
Computed Noise from Light Rail Operations in Rancho Cordova and Unincorporated Sacramento County

Light Rail Operations	L _{dn} at 100 feet from the center line of the tracks, within various proximities to at-grade crossings (G/C)					
	0–100 feet from G/C		100–500 feet from G/C		500+ feet from G/C	
	L _{dn} at 100 feet	Distance to 60 dB L _{dn}	L _{dn} at 100 feet	Distance to 60 dB L _{dn}	L _{dn} at 100 feet	Distance to 60 dB L _{dn}
East of Hazel Avenue	62	140	60	100	58	75
Hazel Avenue to Watt Avenue	67	270	65	200	63	150

Source: City of Rancho Cordova 2006

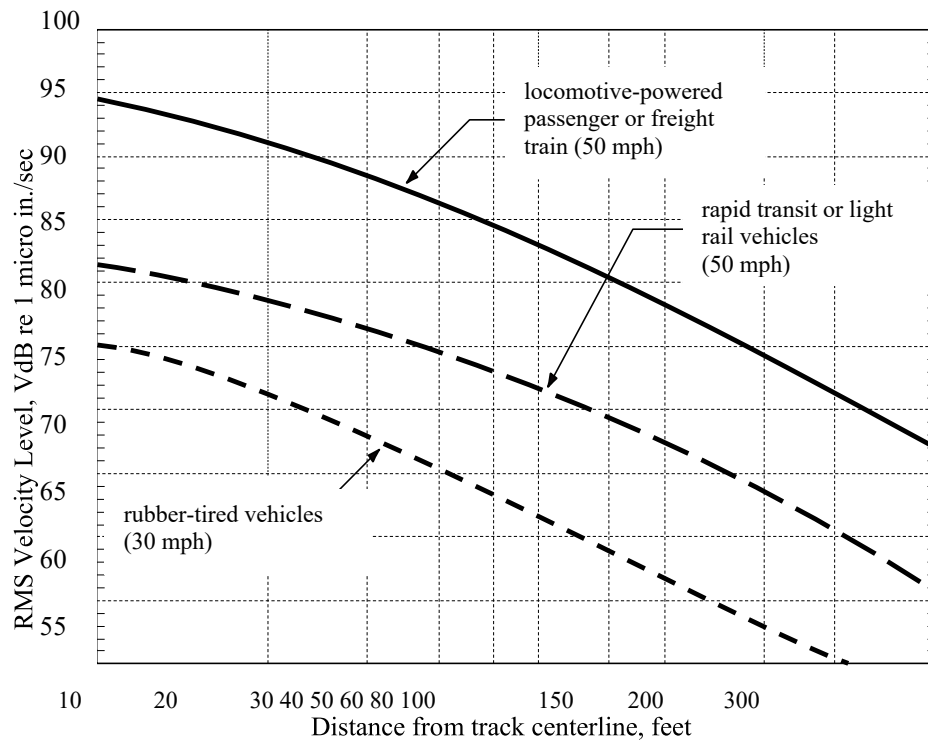
Existing Vibration Levels

The existing vibration environment, like the noise environment, is dominated by transportation sources. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, and pavement conditions. However, groundborne vibration levels generated from vehicular traffic typically are not perceptible outside the road right-of-way. The other source of groundborne vibration in the project vicinity is the existing railroad line.

Vibration monitoring of single-event SacRT light rail train passbys were conducted by the City of Folsom at the site shown as “LR” in Figure 15.3 of the City’s 2035 General Plan (City of Folsom 2018). The measurements consisted of vibration monitoring of eight separate light rail passbys from a measurement position at 100 feet from the train tracks. The measured vibration levels were 55–67 (average 59) VdB and were below the threshold of perception at each measurement location. These results indicate that vibration levels are not significant in the typical park and residential areas in the city of Folsom (City of Folsom 2018).

The closest building to the project corridor that would be considered vibration sensitive is in Rancho Cordova south of Folsom Boulevard and west of Folsom South Canal, approximately 90 feet from the existing railroad

tracks. Vibration levels are not reported in any known Sacramento County and City of Rancho Cordova planning or environmental documents in the project vicinity. In the absence of vibration data from these communities, the FTA manual (FTA 2018) was used to estimate vibration levels. According to FTA’s ground-surface vibration curves, shown in Figure 3.13-5, light rail vehicles operating at 50 miles per hour (mph) generate groundborne vibration of approximately 0.03 peak particle velocity (PPV) (78 VdB) at a distance of 50 feet and approximately 0.01 PPV (67 VdB) at a distance of 90 feet from the track’s centerline. SacRT Gold Line trains typically travel at less than 50 mph, resulting in vibration levels less than 0.01 PPV (67 VdB) at the nearest sensitive uses.



Source: FTA 2006; adapted by AECOM in 2015

Figure 3.13-5 Generalized Ground-Surface Vibration Curves

Regulatory Framework

FTA Operational Noise and Vibration Impact Assessment Criteria. For transit projects, FTA has prepared a noise and vibration manual that describes the methodology for identifying impacts and criteria in determining the severity of the noise exposure for both construction and operations. The following discussion is an abstract from the 2018 manual (FTA 2018).

FTA Impact Criteria for Noise. The FTA noise impact criteria are based on the best available research on community response to noise. This research shows that characterizing the overall noise environment using measures of noise exposure provides the best correlation with human annoyance.

FTA provides different thresholds for different land uses. Table 3.13-4 lists the three FTA land use categories and the applicable noise metric for each category. For Category 2 land uses (residential areas where people sleep), noise exposure is characterized using L_{dn} . In calculating L_{dn} , noise generated during nighttime hours is weighted more heavily than daytime noise to reflect residents’ greater sensitivity to noise during those hours. For Category 1 and Category 3 land uses (areas with primarily daytime use), noise exposure is characterized using the

peak hour L_{eq} , which is a time-averaged sound level over the noisiest hour of transit-related activity. Other land uses, such as commercial and industrial land uses not identified, are not considered noise sensitive by FTA, and thus standards have not been defined for those land uses. Background information on the L_{dn} and L_{eq} noise descriptors is provided in the discussion of “Noise Fundamentals and Descriptors” at the beginning of this section.

Table 3.13-4
FTA Land Use Categories and Noise Metrics

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor $L_{eq}(h)^a$	Land where quiet is an essential element of its intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheaters and concert pavilions, and national historic landmarks with considerable outdoor use. Recording studios and concert halls also are included in this category.
2	Outdoor L_{dn}^b	This category is applicable for all residential land use and buildings where people normally sleep, such as hotels and hospitals.
3	Outdoor $L_{eq}(h)^a$	This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities also are included in this category.

Notes:

^a L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.

^b L_{dn} is a measure that counts for a full 24 hours of noise, with penalties for noise at night, which is defined as being between 10 p.m. and 7 a.m.

Source: FTA 2018

The FTA noise impact threshold is a sliding scale, based on existing noise exposure and land use of sensitive receivers. In areas where existing noise exposure is higher, the allowable increase above the existing noise exposure decreases. For example, in an area with an existing noise level of 55 dBA, the allowable increase in noise level is 3 dBA, resulting in a total future noise impact threshold of 58 dBA. For an area with an existing noise level of 60 dBA, the allowable increase in noise level is only 2 dBA, resulting in a total future noise impact threshold of 62 dBA. The FTA defines two levels of noise impact: moderate and severe.

The FTA noise impact criteria are shown graphically in Figure 3.13-6 for the different categories of land use, defined in Table 3.13-4, along with an example of how the criteria are applied. The two graphs on the left are for nonresidential land uses where $L_{eq}(h)$ represents the noise exposure metric, and the top right graph is for residential land uses where L_{dn} represents the noise exposure metric. In Figure 3.13-6, the existing noise is shown on the horizontal axis, and the amount of new noise that a project could create is shown on the vertical axis. The lower curve (blue) defines the threshold for moderate impact, and the upper curve (red) defines the threshold for severe impact.

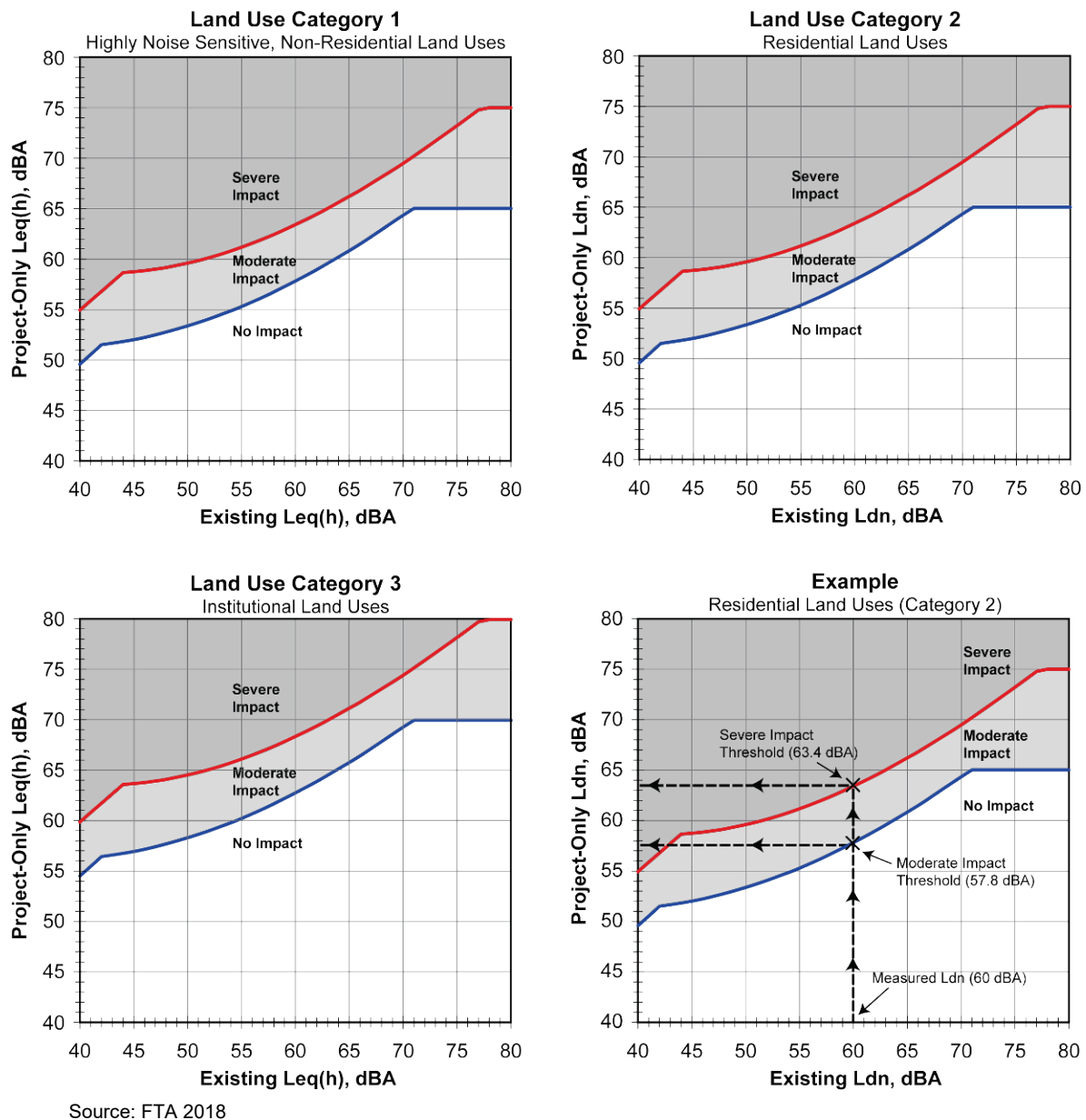


Figure 3.13-6 FTA Impact Criteria for Noise

The sample graph in the bottom right corner of Figure 3.13-6 clarifies the concept of a sliding scale for noise impact. Assuming that the existing noise has been measured at 60 dBA L_{dn} (i.e., based on the noise measurement, this level represents the total noise from all existing noise sources over a 24-hour period, including traffic, aircraft, lawnmowers, children playing, and birds chirping). Following the vertical line from the measured 60 dBA on the horizontal axis, the intersection with the moderate and severe impact curves identifies the noise thresholds for moderate and severe impacts along the vertical axis: 57.8 dBA L_{dn} for moderate impact and 63.4 dBA L_{dn} for severe impact.

The curves that are shown in Figure 3.13-6 are defined in terms of project-only noise (on the vertical axes) and existing noise (on the horizontal axes). The project-only noise is the noise that would be introduced into the environment by a project; it is not the future noise levels with the project. The project-only noise does not include

noise from existing noise sources in the area that would not change because of the project, such as automobile traffic and airplanes.

Table 3.13-5 shows the FTA noise assessment criteria for construction. The 8-hour L_{eq} noise exposure from construction noise calculations use the noise emission levels of the construction equipment, equipment location, and operating hours. The construction noise limits normally are assessed at the noise-sensitive receiver property line.

**Table 3.13-5
FTA Construction Noise General Assessment Criteria**

Land Use	8-hour L_{eq} , dBA	
	Day	Night
Residential	90	80
Commercial	100	100
Industrial	100	100

Notes:

L_{eq} = equivalent sound level

dBA = A-weighted decibel

dB = decibels

Source: FTA 2018

FTA Impact Criteria for Groundborne Vibration. The potential adverse effects of rail transit groundborne vibration include perceptible building vibration, rattle noises, re-radiated noise (groundborne noise), and cosmetic or structural damage to buildings. The vibration generated by modern light rail operations is well below levels that are considered to be necessary to damage buildings. Therefore, the criteria for building vibration caused by transit operations are concerned only with potential annoyance of building occupants.

The FTA vibration impact criteria are based on the maximum indoor vibration level as a train passes. No impact criteria exist for outdoor spaces, such as parks, because outdoor groundborne vibration does not provoke the same adverse human reaction as indoor vibration. For projects like the Folsom Light Rail Modernization Project that are in the early design phases, when construction details are based on reasonable assumptions, the FTA manual describes a “general vibration assessment” methodology that identifies impacts using an overall vibration velocity level.

The criteria for groundborne vibration for land use categories 1–3 are shown in Table 3.13-6. The criteria are presented in terms of acceptable indoor groundborne vibration levels, expressed in terms of RMS velocity levels in VdB.

The FTA vibration thresholds do not account existing vibration specifically. Although substantial volumes of vehicular traffic are in the project area, rubber-tired vehicles rarely generate perceptible ground vibration unless irregularities occur in the roadway surface, such as potholes or wide expansion joints.

Historic structures that do not fall into the FTA land use categories are not included in the assessment for vibration impact from light rail operations. The vibration impact thresholds are based on annoyance, and the primary concern for historic structures is the risk of damage. The recommended limit in the FTA manual for buildings that are extremely susceptible to damage is 90 VdB, which is 18 dB higher than the limit for Category 2 (residential) land uses. Vibration from the new light rail operations would be well below the limit for buildings that are extremely susceptible to damage, for all historic resources.

Table 3.13-6
FTA General Vibration Assessment Impact Criteria for Groundborne Vibration

Land Use Category	Groundborne Vibration Impact Levels (VdB re 1 micro Pascals)		
	Frequent Event ^a	Occasional Event ^b	Infrequent Event ^c
Category 1: Buildings where vibration would interfere with interior operations (Typical land uses in this category are vibration-sensitive research and manufacturing facilities.)	65 VdB	65 VdB	65 VdB
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB

Notes:

^a "Frequent Events" is defined as more than 70 vibrations of the same source per day.

^b "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

^c "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

Source: FTA 2018

Operation of project construction equipment would cause ground vibrations to spread through the ground and would diminish in strength with distance. Buildings founded on the soil near the construction site would respond to these vibrations with varying results, ranging from no perceptible effects at the lowest levels, low rumbling sounds and perceptible vibrations at moderate levels, and slight damage at the highest levels.

Building damage criteria recommended by FTA are shown in Table 3.13-7. These limits were used to estimate potential problems that should be addressed during final design. The vibration limits that are shown are the levels at which a risk for damage would exist for each building category, not the level at which damage would occur. These limits should be viewed as criteria to be used during the impact assessment phase, to identify problem locations.

Table 3.13-7
FTA Construction Vibration Damage Criteria

Building Category	PPV (inch/second)	Approximate RMS Vibration Velocity Level ^a
I. Reinforced concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Notes:

^a RMS vibration velocity level in VdB relative to 1 micro-inch/second.

PPV = peak particle velocity

RMS = root-mean-square

Source: FTA 2018

To avoid temporary annoyance to building occupants during construction or construction interference with vibration-sensitive equipment inside special-use buildings, such as that from a magnetic resonance imaging machine, FTA recommends comparing the project construction-related VdB to the criteria shown in Table 3.13-8

for frequent, occasional, and infrequent events. FTA defines frequent events as more than 70 events per day, occasional events as 30–70 events per day, and infrequent events as fewer than 30 events per day. It was conservatively assumed that the construction-related, vibration-generating activities under the proposed project would fall under occasional events as defined by FTA. The vibration annoyance criteria for vocational events because of construction are shown in Table 3.13-8 with 75 VdB for land use Category 1 and 78 VdB for land use Category 2.

**Table 3.13-8
FTA Construction Vibration Annoyance Criteria**

Land Use Category	Impact Levels (VdB; relative to 1 micro-inch/second)		
	Frequent Events ^a	Occasional Events ^b	Infrequent Events ^c
Category 1: Buildings where vibration would interfere with interior operations	65 ^d	65 ^d	65 ^d
Category 2: Residences and buildings where people normally sleep	72	75	80
Category 3: Institutional land uses with primarily daytime uses	75	78	83

Notes:

^a “Frequent events” is defined as more than 70 vibration events from the same source per day.

^b “Occasional events” is defined as 30 to 70 vibration events from the same source per day.

^c “Infrequent events” is defined as fewer than 30 vibration events from the same source per day.

^d This criterion limit is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define the acceptable vibration levels.

Source: FTA 2018

City of Folsom General Plan. The following goals and policies from the proposed 2035 General Plan address noise and vibration.

Goal SN 6.1: Protect the citizens of Folsom from the harmful effects of exposure to excessive noise and to protect the economic base of Folsom by preventing the encroachment of incompatible land uses within areas affected by existing noise-producing uses.

Policy SN 6.1.1, Noise Mitigation Strategies. Develop, maintain, and implement strategies to abate and avoid excessive noise exposure in the city by requiring that effective noise mitigation measures be incorporated into the design of new noise-generating and new noise-sensitive land uses.

Policy SN 6.1.4, Noise and Project Review. Develop, maintain, and implement procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are implemented as part of the project review and building permit processes. The appropriate time for requiring an acoustical analysis would be as early in the project review process as possible so that noise mitigation may be an integral part of the project design.

Policy SN 6.1.7, Noise Barriers. If noise barriers are required to achieve the noise level standards contained within this Element, the City shall encourage the use of these standards:

1. Noise barriers exceeding six feet in height relative to the roadway should incorporate an earth berm so that the total height of the solid portion of the barrier (such as masonry or concrete) does not exceed 6 feet.
2. The total height of a noise barrier above roadway elevation should normally be limited to 12 feet.

3. The noise barriers should be designed so that their appearance is consistent with other noise barriers in the project vicinity.

Policy SN 6.1.8, Vibration Standards. Require construction projects and new development anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby noise-sensitive uses based on Federal Transit Administration criteria as shown in GP Table SN-3.

City of Folsom Noise Ordinance. In 1993, the City of Folsom adopted a Noise Control Ordinance that was codified as Chapter 8.42 in the Municipal Code. Unlike the General Plan Noise Element, the Noise Ordinance is oriented toward the regulation of individual noise events rather than community background noise levels of concern to the Noise Element. The Noise Ordinance specifies noise measurement criteria, allowable exterior and interior noise standards, noise source exemptions and special situations, and penalties for violation.

The City has established Standard Construction Specifications, General Requirements. The standard construction specifications require adherence by any contractor constructing a public or private project in the city. Standard Construction Specifications regarding the noise environment are summarized as follows:

6.09 Sound Control – Requires that all construction work comply with all noise level rules, regulations, and ordinances, and that all construction vehicles be equipped with a muffler to control sound levels.

7.23 Weekend, Holiday, and Night Work – Prohibits construction work during evening hours, or on Sunday or holidays, to reduce noise and other construction nuisance effects.

Chapter 8.42.060 of the Noise Ordinance exempts noise sources associated with construction, provided that such activities do not take place before 7 a.m. or after 6 p.m. on any day except Saturday or Sunday, or before 8 a.m. or after 5 p.m. on Saturday or Sunday.

Sacramento County General Plan. The Sacramento County General Plan Noise Element (Sacramento County 2017) provides several policies related to land use and noise compatibility, including the follows:

Policy NO-8 requires that noise associated with construction activities shall adhere to the County Code requirements. Specifically, Section 6.68.090(e) addresses construction noise in the County.

Policy NO-9 requires that for capacity enhancing roadway or rail projects, or the construction of new roadways or railways, a noise analysis shall be prepared in accordance with the General Plan Noise Element Table 3 requirements. If projected post-project traffic noise levels at existing uses exceed the noise standards of the General Plan Noise Element Table 1, then feasible methods of reducing noise to levels consistent with the General Plan Noise Element Table 1 standards shall be analyzed as part of the noise analysis.

In the case of existing residential uses, sensitive outdoor areas shall be mitigated to 60 dB, when possible, through the application of feasible methods to reduce noise. If 60 dB cannot be achieved after the application of all feasible methods of reducing noise, then noise levels up to 65 dB are allowed.

If pre-project traffic noise levels for existing uses already exceed the noise standards of General Plan Noise Element Table 1 and the increase is significant as defined below, feasible methods of reducing noise to levels consistent with the General Plan Noise Element Table 1 standards should be applied. In no case shall the long-term noise exposure for non-industrial uses be greater than 75 dB; long-term noise exposure above this level has the potential to result in hearing loss.

A significant increase is defined as follows:

Pre-Project Noise Environment (L_{dn})	Significant Increase
• Less than 60 dB	5+ dB
• 60–65 dB	3+ dB
• Greater than 65 dB	1.5+ dB

Policy NO-10 requires that for interim⁸ capacity enhancing roadway or rail projects, or construction of new interim roadways or railways, and it may not be practical or feasible to provide mitigation if the ultimate roadway or railway design would render the interim improvements ineffective or obsolete. An example would be a noise barrier that was constructed for an interim project, which would need to be removed to accommodate the ultimate project.

The following factors should be considered in determining whether or not noise mitigation will be implemented for interim projects, but in general, noise mitigation for interim projects would not be provided:

- the severity of the impact;
- the cost and effectiveness of the mitigation;
- the number of properties that would benefit from the mitigation;
- the foreseeable duration between interim and ultimate improvements; and
- aesthetic, safety, and engineering considerations.

Policy NO-12. All noise analyses prepared to determine compliance with the noise level standards contained within this Noise Element shall be prepared in accordance with Table 3.

Policy NO-13. Where noise mitigation measures are required to satisfy the noise level standards of this Noise Element, emphasis shall be placed on the use of setbacks and site design to the extent feasible, prior to consideration of the use of noise barriers.

The County shall have the flexibility to consider the application of 5 dB less restrictive exterior noise standards than those prescribed in General Plan Noise Element Tables 1 and 2 in cases where it is impractical or infeasible to reduce exterior noise levels within infill projects to a state of compliance with the General Plan Noise Element Table 1 or 2 standards. In such cases, the rationale for such consideration shall be clearly presented and disclosure statements and noise easements should be included as conditions of project approval. The interior noise level standards of General Plan Noise Element Tables 1 and 2 still would apply. The maximum allowable long-term noise exposure permissible for non-industrial uses is 75 dB.

Sacramento County Code. The Noise Control Ordinance in the Sacramento County Code contains performance standards for preventing unnecessary, excessive, and offensive noise levels in the county. Section 6.68.090 of the Sacramento County Code establishes that noise associated with construction, repair, remodeling, demolition, paving, or grading is exempt from the Noise Ordinance, provided said activities do not take place between the hours of 8 p.m. and 6 a.m. on weekdays and Friday commencing at 8 p.m. through and including 7 a.m. on

⁸ For a roadway, interim improvements are chosen when traffic exceeds existing capacities but has yet to reach the need for the future project (full roundabout or intersection rebuild). Interim improvements last for at least 5 to 10 years.

Saturday; Saturdays commencing at 8 p.m. through and including 7 a.m. on the next following Sunday; and on each Sunday after 8 p.m.

City of Rancho Cordova General Plan. The following policies and actions from the City’s General Plan address noise and vibration:

Policy N.1.1 – Establish standards and policies consistent with those in Tables N-2 (Maximum Transportation Noise Exposure; reproduced below as Table 3.13-9) to govern maximum sound levels in new development.

**Table 3.13-9
Rancho Cordova Maximum Transportation Noise Exposure**

Land Use	Outdoor Activity	Interior Spaces	
	Areas ¹ L _{dn} /CNEL, dB	L _{dn} /CNEL, dB	L _{eq} , dB
Residential	60 ³	45	--
Residential, subject to noise from railroad tracks, aircraft overflights, or similar noise sources that produce clearly identifiable, discrete noise events (e.g., the passing of a single train)	60 ³	40 ⁵	
Transient lodging	60 ⁴	45	--
Hospitals, nursing homes	60 ³	45	--
Theaters, auditoriums, music halls	--	--	35
Churches, meeting halls	60 ³	--	40
Office buildings	--	--	45
Schools, libraries, museums	--	--	45
Playgrounds, neighborhood parks	70	--	--

Notes:

- ¹ Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use. Where it is not practical to mitigate exterior noise levels at patio or balconies of apartment complexes, a common area such as a pool or recreation area may be designated as the outdoor activity area.
- ² As determined for a typical worst-case hour during periods of use.
- ³ Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.
- ⁴ In the case of hotel/motel facilities or other transient lodging, outdoor activity areas such as pool areas may not be included in the project design. In these cases, only the interior noise level criterion will apply.
- ⁵ The intent of this noise standard is to provide increased protection against sleep disturbance for residences located near railroad tracks.

Source: City of Rancho Cordova 2015:Table N-2

Policy N.1.3 – Ensure that proposed non-residential land uses likely to exceed the City’s standards do not create noise disturbances in existing noise-sensitive areas.

Policy N.1.5 – Mitigate noise created by the construction of new transportation noise sources (such as new roadways or new light rail service) to the maximum extent feasible to comply with the City’s standards.

Policy N.1.7 – To the extent feasible and appropriate, the City shall require the use of temporary construction noise control measures for public and private project that may include the use of temporary noise barriers, temporary relocation of noise-sensitive land uses or other appropriate measures.

Policy N.2.1 – Strategically locate grade separations on existing or future light rail lines so that they will not result in adverse noise impacts to adjacent residential areas.

- Action N.2.1.1 – Encourage placement of light rail lines below the grade of the roadway in order to reduce noise impacts.

Policy N.2.3 - Emphasize mitigation methods other than soundwall installation to reduce noise to acceptable levels in residential areas originally constructed without soundwalls.

City of Rancho Cordova Noise Ordinance. The City’s noise ordinance, which is based on the County’s noise ordinance, establishes maximum allowable exterior and interior noise levels for affected land uses. The ordinance generally limits exterior noise levels (measured at residential land and agricultural land uses) to a maximum of 55 dBA during any cumulative 30-minute period during daytime hours (7 a.m.–10 p.m.), and 50 dBA during any cumulative 30-minute period during nighttime hours (10 p.m.–7 a.m.). The ordinance sets somewhat higher noise limits for noise of shorter duration; however, noise is not to exceed 75 dBA during the day and 70 dBA at night. Activities generally considered to be exempt from the noise standards include construction activities (provided that they occur between daytime hours of 7 a.m.–6 p.m., Monday through Saturday, and 9 a.m.–6 p.m. on Sunday), school athletic and entertainment events, activities conducted in public parks and on playgrounds, and transportation noise.

3.13.2 Discussion

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?**

Construction Noise

Less than Significant with Mitigation Incorporated. Project construction for the various Phase I elements would include three basic activities: (1) site work, (2) rail work and platform work, and (3) light rail train (LRT) track/OCS and signals work. Depending on the Phase I elements, site work is expected to occur over 8 months; rail and platform work are expected to occur over 10 months; and LRT track/OCS and signals work is expected to occur over 6 months. The local noise ordinances along the SacRT corridor generally limit construction noise to particular times during weekday, weekend, and holiday daytime hours. Nighttime construction work generally is prohibited. However, nighttime work could occur when the SacRT needs to construct improvements when light rail is not in service. An example of this is when power is “cut-over” from the from the main track to the passing track.

Table 3.13-10 summarizes the estimated construction noise levels and residential noise impact screening distances for each of the planned construction activities. The screening distances identify the distance within which the specified land use could be exposed to noise levels above the local or FTA criteria. As shown in Table 3.13-10, local noise ordinances generally exempt construction noise with special considerations required for nighttime and weekend work. As a result, impact distances based on local thresholds are not applicable for this assessment. The impact distances relevant to the FTA criteria from Table 3.13-5 reflect the types of equipment anticipated to be used. To be conservative, the impact distance estimates do not assume any topography or ground effects. The results of the analysis indicate that nighttime noise could affect residences within approximately 138 feet and daytime noise could affect residences within approximately 44 feet (there are none within the daytime impact distance). Commercial uses would need to be sited within approximately 14 feet to be affected by construction noise (there are none in the project corridor). The potential for noise impact would be greatest during rail and platform work.

Table 3.13-10
Noise Impact Assessment for Construction Activities

Construction Activity and Equipment	Noise Level at 50 feet (L_{eq} , dBA)	Threshold (dBA)		Approximate Noise Impact Distance (feet)	
		Local	FTA	Based on Local Threshold	Based on FTA Threshold
Site Work	85	Daytime construction - Exempt Nighttime construction - Not permitted generally but may be permitted upon request and in advance of intended work	Residential: Daytime - 90 Nighttime - 80 Commercial: Daytime - 100 Nighttime - 100	Not applicable	Residential: Daytime - 27 Nighttime - 85 Commercial: 9
Grader	81				
Excavator	77				
Compactor	76				
Auger/Bore Drill Rig	77				
Backhoe	74				
Rail Work and Platform Work	89			Not applicable	Residential: Daytime - 44 Nighttime - 138 Commercial: 14
Dozer	88				
Grader	85				
Tamper	85				
Aligner	84				
Swinger	83				
Welders	85				
Crane	85				
Wheel Loader	74				
Paver	84				
Concrete Pump	75				
Ballast Regulator	75				
Rail grinder	83				
LRT Track/OCS and signals	82			Not applicable	Residential: Daytime - 20 Nighttime - 65 Commercial: 6
Generator	78				
Crane	73				
Concrete Pump	74				
Wheel Loader	75				
Air Compressor	74				
Welder	78				

Notes:

dBA = A-weighted decibel

L_{eq} = equivalent sound level

OCS = Overhead Contact System

Source: FHWA and DOT 2006; FTA 2018

Existing noise sensitive receptors are located throughout the project area in Rancho Cordova (commercial and industrial uses), in Folsom (residential, offices and trails), and in the unincorporated portion of the County within the project boundaries (residential uses). Construction activities would be considered to have a potentially significant impact if they would generate noise exposure in excess of the FTA thresholds.

As stated in Section 3.13.1 under “Regulatory Framework,” Folsom, Rancho Cordova, and Sacramento County exempt daytime construction noise from applicable standards. However, if construction activities were to occur during the more noise-sensitive evening and nighttime hours, project-generated noise levels would not be exempt and could disturb nearby sensitive receivers. Nighttime work would be needed and could be completed over a weekend starting Friday night and continuing through Sunday night. Because of the type of construction equipment, the anticipated duration of construction, and the proximity of sensitive receivers (particularly residential areas across from the Hazel Station), the construction noise impacts would be **potentially significant**.

Mitigation Measures. Implementation of Mitigation Measure NOI-1 would reduce project construction noise by requiring implementation of best management practices. Therefore, the level of noise impact during construction would be reduced to **less than significant with mitigation incorporated**.

Mitigation Measure NOI-1: Prepare and implement a construction noise control plan

The SacRT must include a requirement in the project construction specifications and documents to prepare a noise control plan that incorporates, at a minimum, the following best practices to reduce the impact of temporary construction-related noise on nearby noise-sensitive receptors:

- Install temporary construction site sound barriers near noise sources.
- Use moveable sound barriers at the source of the construction activity.
- Locate stationary construction equipment as far as possible from noise-sensitive sites.
- Re-route construction-related truck traffic along roadways so as to cause the least disturbance to residents.
- Use low noise emission equipment.
- Implement noise-deadening measures for truck loading and operations.
- Line or cover storage bins, conveyors, and chutes with sound-deadening material.
- Use acoustic enclosures, shields, or shrouds for equipment and facilities.
- Use high-grade engine exhaust silencers and engine-casing sound insulation.
- Use specialty equipment, such as vehicles with enclosed engines and/or high-performance mufflers.
- Minimize the use of generators to power equipment.
- Limit unnecessary idling of equipment.
- Monitor and maintain equipment to meet noise limits.
- Establish an active community liaison program to keep residents, offices, and other noise-sensitive uses informed about construction, and provide a procedure for addressing complaints.

Although the measures specified in **Mitigation Measure NOI-1** would reduce the construction noise levels below the 90 dBA (residential) and 100 dB (commercial) limits during the day, the measure would not necessarily guarantee that sensitive residential receptors would not be exposed to noise levels exceeding the 80 dBA limit at night. Despite these noise levels, the nighttime work, if needed, could be completed over a weekend, the duration of noise exposure would be confined, and the number of sensitive receivers that would be affected would be limited to those residents with direct line of sight to the construction. The mobile home and RV park is surrounded by a masonry wall that would screen most residents of the park, except those near the park's two driveways (approximately six RVs/mobile homes would have direct line of sight within the impact distance of 140 feet). The adjacent Oak Brook Apartments is a 300-unit complex, but fewer than 20 units front onto Folsom Boulevard and could be exposed to the nighttime construction noise. Because of the limited exposure (one weekend), the relatively few affected residents, and the proposed notifications to the local agencies and property owners, this impact would be less than significant with mitigation incorporated.

Operational Noise

Less than Significant. Operation of the Gold Line improvements would increase new passenger rail service while generating both mobile and stationary source noise. The improvements to Gold Line service—increasing service from every 30 minutes to every 15 minutes between Sunrise and Folsom—would allow twice as many trains to operate along this segment, from 38 to 76 per day. Thus, train crossing safety devices, such as the warning bells and gates, would be activated twice as frequently at each of the street crossings from Mercantile Road in Rancho Cordova to Sutter Street in Folsom. Under existing operations, the train signaling system (a “single-track circuit”) activates the safety equipment at multiple street crossings, rather than one at a time. Consequently, even if the trains are crossing Blue Ravine Road or Parkshore Drive, for example, the crossing gates also lower at other intersections “upstream” and “downstream” along the Gold Line. This applies to any train approaching a crossing or after it has passed through the crossing, resulting in the gates being in the down position long after the train has passed through the crossing.

The SacRT noise impact evaluation was performed in accordance with FTA general assessment methodology. The assessment of railroad operation noise considered noise from the type of train, track, and stationary noise sources at intersection locations. Operational noise source that were calculated included rail transit vehicles, crossing signals, and transit warning devices. Appendix D for operational rail noise calculations. The existing noise level and the project calculated noise level were combined to compute the noise exposure at the receiving locations. Table 3.13-11 summarizes the results. As shown, moderate noise impacts would occur in the residential

Table 3.13-11
Summary of SacRT Operational Noise Levels

Site	Land Use	Noise Level (L_{dn}/L_{eq} dBA)		FTA Noise Level Criteria				CEQA	
		Existing	Project	Existing + Project	Moderate Impact ²	Severe Impact ²	Impact ²	Increase over Existing	Significant Impact?
LT-01	Residential	55.4	59.8	61.2	55.3	61.2	Moderate Impact	5.8	No
LT-02	Office/Trails	59.9	56.9	61.7	62.2	67.9	None	1.8	No
LT-03	Office/Trails	64.6	56.9	65.2	60.2	65.6	None	0.7	No

Notes:

CEQA = California Environmental Quality Act; dBA = A-weighted decibels; FTA = Federal Transit Administration; L_{eq} = equivalent sound level; LTS = less than significant

¹ L_{dn} is used for Category 2 (residential) land use and L_{eq} is used for Category 3 (institutional) land use.

² Based on Figure 3.13-6.

Source: Data compiled by AECOM in 2019

areas of the Rancho Cordova project segment; receptors in the Folsom project segment would not experience substantial noise impacts (below the moderate threshold). Therefore, the operational noise impact would be a **less than significant**.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Construction Vibration

Less than Significant. Construction activities under the proposed project could generate vibration levels at 25 feet, as high as 0.2 PPV (94 VdB) from compactors during site work and 0.09 PPV (87 VdB) from bulldozers during rail and platform work. Vibration levels that would be generated during LRT track/OCS and signals work would be negligible. Construction activities would be considered to have a significant impact if they would

generate vibration in excess of FTA thresholds. The nearest vibration-sensitive structure is approximately 90 feet from project construction activities; it is an engineered concrete and masonry building. The proposed project construction activities would generate groundborne vibration of approximately 0.031 PPV (77 VdB) at a distance of 90 feet. This level of vibration would be below the threshold of impact criteria of 0.3 PPV inches/second (Table 3.13-7) for structural damage resulting from vibration. Therefore, project-related construction would not have any damage effects. The impact would be **less than significant**.

In terms of vibration annoyance effects at vibration sensitive uses, the closest vibration sensitive uses (residential uses) to project construction sites would be approximately 150 feet away (Oak Brook Apartments and the mobile park residential uses). The resulting construction vibration level at these locations would be 64 to 71 VdB. These levels are below the FTA's impact threshold of 72 VdB. Therefore, the construction vibration annoyance impact would be **less than significant**.

Operational Vibration

No Impact. Vibration caused by trains is caused by the wheels rolling on the rails. This energy then is transmitted through the track support system into the ballast, through the ground to the foundations of nearby buildings, and finally throughout the remainder of the building structure. The level of vibration received at the building is a function of the type of trains, their speeds, track system, structure, support and condition, distance from the tracks, geological condition, and the receiving structure. Groundborne vibration typically does not annoy people who are outdoors. Impacts were assessed based on a comparison of the predicted project vibration level with the FTA impact criterion of 75 VdB for Category 2 and 78 VdB for Category 3 land uses. The vibration sensitive uses adjacent to the SacRT proposed improvements, along with the likely vibration level during train passage, are shown in Table 3.13-12.

**Table 3.13-12
Summary of SacRT Operational Vibration Impact Assessment**

Land Use Category	Distance to Near Track (feet)	Vibration Levels (VdB)		Impacts
		Project Operation	FTA Criteria	
Category 2: Residences and buildings where people normally sleep	140	64.3*	72 VdB	None
Category 3: Institutional land uses with primarily daytime use	140	64.3	75 VdB	None

Notes:

* Calculated using FTA's Equation 6-2 and Figure 6-4 (Figure 3.13-4).

Source: FTA 2018; data compiled by AECOM in 2019

Based on the vibration significance criterion, vibration sensitive receptors along the proposed project would not be exposed to perceptible vibration, and buildings would not be exposed to vibration levels with possible structural effects. These results indicate that the vibration criterion would not be exceeded (i.e.; vibration impacts would not occur) at vibration sensitive use more than 65 feet from the centerline of the nearest light rail track. No vibration sensitive uses are known or expected to be within 65 feet of the proposed project tracks. Therefore, **no impact** related to operational vibration would occur.

- c) **For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?**

No Impact. The Mather Air Force Base airport, the closest airport to the project area, is more than 5 miles from the project segments. The proposed project would not locate new or additional sensitive receptors in the area of influence of any airports. Therefore, **no impact** would occur.

3.13.3 References

City of Folsom. 2018. *City of Folsom General Plan Noise Element*.

City of Rancho Cordova. 2006. City of Rancho Cordova General Plan EIR.

———. 2015. *City of Rancho Cordova General Plan Noise Element*.

Federal Highway Administration (FHWA) and U.S. Department of Transportation (DOT). 2006 (January). *Roadway Construction Noise Model User's Guide*. FHWA-HEP-05-054. Washington, DC.

Federal Transit Administration (FTA). 2006 (May). *Transit Noise and Vibration Impact Assessment*. FTA Report FTA-VA-90-1003-06.

———. 2018 (September). *Transit Noise and Vibration Impact Assessment*. FTA Report No. 0123.

Sacramento County. 2017. *Sacramento County General Plan Noise Element*.

3.14 Population and Housing

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Population and Housing. Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.14.1 Environmental Setting

Population

Table 3.14-1 shows historical, current, and projected population trends for Sacramento County and the cities of Folsom and Rancho Cordova. The California Department of Finance (DOF) estimates that Sacramento County's total population increased from 1,223,499 in 2000 to 1,546,174 in 2019, representing a 26.4 percent increase over the 19-year period (DOF 2012, 2019a). Folsom grew at a much higher rate than Sacramento County from 2000 to 2019, with a growth rate of 53.9 percent. The population of Rancho Cordova also increased; however, Rancho Cordova was only incorporated as a city in Sacramento County in 2003, and thus population data collection only began in 2010. In the 9-year period (2010 to 2019), Rancho Cordova's population increased by 9.9 percent. The populations of Folsom and Rancho Cordova are expected to increase by 86.7 and 86.1 percent, respectively, between 2020 and 2035.

**Table 3.14-1
Population in Sacramento County, Folsom, and Rancho Cordova, 2010–2035**

Location	Historic/Current Trends			Projected Conditions		
	2010	2019	Percent Change 2010–2018	2020	2035	Percent Change 2019–2035
Sacramento County	1,418,788	1,546,174	26.4	1,572,886	1,850,265	51.2
Folsom	72,203	79,835	53.9	81,064	96,852	86.7
Rancho Cordova	67,776	74,471	9.9	79,310	126,110	86.1

Sources: DOF 2012, 2019a, 2019b; City of Folsom 2013; City of Rancho Cordova 2006, Sacramento County 2013

Housing

Table 3.14-2 shows housing trends as well as the percentage of single-family dwellings, vacancy rates, and average household size for Sacramento County and the cities of Folsom and Rancho Cordova. According to the DOF, the total number of housing units in Sacramento County was 574,449 in 2019, with single-family homes making up approximately 66 percent of the housing units. Sacramento County had an average household size of 2.89 persons and a vacancy rate of 2.89 percent. Folsom had a larger percentage of single-family homes (75 percent), a smaller number of persons per household (2.78 persons), and a lower vacancy rate (5.16 percent)

than Sacramento County as a whole. Rancho Cordova had a larger percentage of single-family homes (71 percent, slightly more people per household (2.93 persons), and a higher vacancy rate (9.55 percent) than Sacramento County (DOF 2019a).

Table 3.14-2
Housing Trends and Characteristics in Sacramento County, Folsom, and Rancho Cordova, 2010–2019

Location	Trends		Characteristics (2019)		
	2010	2019	Single Family (%)	Vacancy (%)	Average Persons per Household
Sacramento County	555,932	574,449	66	8.29	2.89
Folsom	26,109	28,053	75	5.13	2.78
Rancho Cordova	25,479	28,021	71	9.55	2.93

Sources: DOF 2012, 2019a

3.14.2 Discussion

- a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

Construction

No Impact. Project construction activities would generate temporary and short-term employment. Because the project area is within large urban centers, the proposed project is expected to draw from the existing local workforce and not generate relocation of workers from other areas in the region. Therefore, construction of the proposed improvements is not anticipated to cause substantial population growth or a substantial increase in housing demand in the region. Furthermore, project construction would not require temporary worker housing. **No impact** on population growth would occur as a result of project construction.

Operation

No Impact. The proposed project would not involve constructing new homes or businesses that would generate new population growth or remove any obstacle to population growth. Typical growth-inducing factors may be the extension of urban services or transportation infrastructure to a previously unserved or underserved area, or the removal of major barriers to development. However, the proposed project would not be extending its infrastructure to underserved areas, rather it would be making improvements to existing facilities, with operations that would allow light rail trains to operate every 15 minutes from the Sunrise Station to downtown Folsom, rather than the current 30 minutes.

The project segments are in highly urbanized areas. Although the track modifications are necessary for the SacRT to improve its light rail service, the proposed project would not have the potential to cause land use changes that would support new or intensified development in the project vicinity or remove a barrier to growth in the area. The land use designations and zoning in the project vicinity are established in the general plans of Folsom, Rancho Cordova, and Sacramento County. The proposed improvements would not cause the redistribution or intensification of planned land uses that could induce unplanned growth around the project area. Thus, the proposed project would not directly or indirectly induce substantial unplanned population growth. **No impact** on population growth would occur as a result of project operations.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. All improvement associated with the proposed project would occur either in the existing right-of-way used by the SacRT Gold Line or directly adjacent to the existing right-of-way. The proposed project would not remove any existing housing. **No impact** on existing people or housing would occur as a result of the project.

3.14.3 References

- California Department of Finance (DOF). 2012. E-8 Historical Population and Housing Estimates for Cities, Counties, and the State, 2000–2010. Available: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-8/2000-10/>. Accessed June 10, 2019.
- . 2019a. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011–2018, with 2010 Census Benchmark. Available: <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/>. Accessed June 19, 2019.
- . 2019b. *Total Estimated and Projected Population for California and Counties: July 1, 2010 to July 1, 2060 in 1-year Increments*. Available: <http://www.dof.ca.gov/Forecasting/Demographics/Projections/>. Accessed June 10, 2019.
- City of Folsom. 2013 (October 22). *Housing Element*. Available: https://www.folsom.ca.us/community/planning/citywide_planning_documents.asp Accessed June 10, 2019.
- City of Rancho Cordova. 2006 (updated in 2018). *Rancho Cordova General Plan*. Available: <https://www.cityofranhocordova.org/i-want-to-/learn-about/general-plan>. Accessed June 10, 2019.
- Sacramento County. 2013. Housing Element of 2013–2021. Available: http://www.per.saccounty.net/Plans_and_Projects_In-Progress/Pages/GeneralPlan.aspx. Accessed June 10, 2019.

This page intentionally left blank.

3.15 Public Services

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.15.1 Environmental Setting

SacRT Police Services

Security for the existing light rail system is managed by SacRT police services and consists of a combination of contract support and SacRT staff (SacRT 2019). Currently, SacRT has a security team consisting of Sacramento City Police Department officers, Sacramento County Sheriff's Department deputies, 6 transit officers, 6 transit ambassador leads, 28 transit ambassadors, and 35 to 40 contracted guards. These law enforcement officers work closely with other law enforcement agencies, to prevent and respond to crimes and address quality-of-life issues at park-and-ride facilities, at stations, and on light rail and bus vehicles.

SacRT police services respond to emergency calls and patrol the transit system. Security forces also are contracted to ride on SacRT vehicles as well as patrol at stations and in park-and-ride lots, to serve as a deterrent to criminal activities and provide customer service. Security on light rail and bus vehicles is provided in the evenings, 7 days a week. SacRT regularly provides training to police, fire, and local emergency room personnel before a new light rail line goes into revenue service.

Folsom Project Segment

Fire Protection Services. The Folsom Fire Department (FFD) provides fire protection and suppression services in Folsom. The FFD serves approximately 78,525 residents in a 30-square-mile service area. The FFD currently provides fire/rescue and emergency medical services from five stations and is equipped with four fire engine, one ladder truck, and three medic ambulances, under the control of a chief officer. In 2017, the FFD responded to

4,477 medical and 168 fire emergencies. The nearest station to the project segment is Station 35, at 535 Glenn Drive, approximately 1.2 miles east of the Glenn/Robert G Holderness Station (City of Folsom 2019a).

Police Protection Services. The Folsom Police Department (FPD) provides police protection services to Folsom. The FPD Patrol Operations Bureau, which provides law enforcement services to Folsom, is staffed with one division commander, three lieutenants, seven sergeants, 45 patrol officers, and one community service officer. The Patrol Operations Bureau also includes one officer who is partially funded by and assigned to the SacRT. The patrol officers use a five-beat system, designed to spread officers throughout the city and reduce response times. The Glenn/Robert G Holderness Station is in Beat 4 (City of Folsom 2019b).

Schools. Folsom is served by a community college district and two K–12 school districts (City of Folsom 2018). The nearest schools to the project segment are (1) Sutter Middle School, at 715 Riley Street in Folsom, approximately 0.65 mile northeast of Bidwell Street, and (2) Natomas Station Elementary School, at 500 Turn Pike Drive in Folsom, approximately 0.5 mile south of Parkshore Drive.

Parks. The Folsom Parks and Recreation Department maintains 46 developed parks throughout the Folsom area; however, none are within or adjacent to the project segment. The closest park, approximately 1,800 feet northeast of Glenn Drive, is Granite Mini Park (City of Folsom 2019c). See Section 3.16 “Recreation,” for further discussion on recreational facilities in the Folsom project segment.

Rancho Cordova Project Segment

Fire Protection Services. The Sacramento Metropolitan Fire District (Metro Fire) provides fire protection and suppression services to Rancho Cordova, including unincorporated portions of Sacramento and Placer counties and the city of Citrus Heights. Metro Fire serves approximately 745,000 residents in a 359-square-mile service area. Metro Fire’s Operations Division oversees the district’s all-hazard emergency services, which are delivered from 40 stations with daily shift staffing of 160 personnel. The Operations Branch answered more than 80,000 calls for service in 2012. These calls for service were answered by five battalion chiefs, 36 first-out engine companies, seven truck companies, 14 fire-based medics, and nine single-role paramedic units. The nearest station to the project segment is Station 63, at 12395 Folsom Boulevard, approximately 0.3 mile west of the Hazel Station (Metro Fire 2019a). Three other stations in Rancho Cordova also would be available to respond to calls for service: Stations 61, 65, and 68. The four fire stations in Rancho Cordova responded to 15,165 calls for service in 2014, the most recent date for run statistics provided by Metro Fire (Metro Fire 2019b).

Police Protection Services. The City of Rancho Cordova contracted with the Sacramento County Sheriff’s Department to form the City of Rancho Cordova Police Department (RCPD), to provide police protection services to Rancho Cordova. The RCPD has 55 sworn staff and seven non-sworn staff, who work solely in the city. The Patrol Operations Bureau uses a beat system in addition to assigning officers to specific neighborhood areas, to provide quicker response time. The Hazel Station is in the Sunrise Industrial RCPD-assigned neighborhood (RCPD 2019).

Schools. Four K–12 school districts provide educational facilities in the Rancho Cordova Planning Area, which extends beyond city limits (City of Rancho Cordova 2006). The nearest school is W.E. Mitchell Middle School, at 2100 Zinfandel Drive in Rancho Cordova, approximately 2.5 miles southwest of the project segment.

Parks. The Cordova Recreation and Park District administers 49 parks throughout the developed area of Rancho Cordova, west and south of Hazel Avenue; however, none are in or adjacent to the project segment. The nearest park is Prospect Hill Community Park, at 11840 Prospect Hill Drive, approximately 0.85 mile southwest of the

project segment on the north side of Folsom Boulevard and US-50 (Cordova Recreation and Park District 2019). See Section 3.16 “Recreation,” for further discussion on recreational facilities in the Hazel Avenue area.

3.15.2 Discussion

- a) **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for the public services.**

No Impact. The proposed project would add a new platform to the existing Glenn/Robert G Holderness Station and new tracks within the existing rail right-of-way in the Folsom project segment. Similarly, in the Rancho Cordova project segment, the proposed project would add a new platform to the Hazel Station and new tracks within the existing rail right-of-way. The new platforms would be designed and constructed in accordance with SacRT design criteria and station standards, which would include the California Fire Code and surveillance and security measures. Thus, the proposed project would not involve construction of new housing or other land uses that could increase local population and demand for governmental facilities and services, such as fire protection, police protection, schools, or parks. Improved light rail service would increase activity and use of the stations and their associated park-and-ride lots, but it is not expected to generate an increased number of calls for police or fire protection services that would result in new or altered police or fire stations. Therefore, the proposed project would not affect FFD, FPD, Metro Fire, or RCPD response times or other performance objectives, local schools, or parks, and thus would not require eventual construction of new, or expansion of existing fire or police protection facilities. **No impact** on public services and facilities would occur as a result of the proposed project.

3.15.3 References

City of Folsom. 2018. *City of Folsom 2035 General Plan Update, Public Services and Recreation*. Available: <https://www.folsom.ca.us/civicax/filebank/blobdload.aspx?blobid=32596>. Accessed June 2019.

_____. 2019a. *Fire Department*. Available: <https://www.folsom.ca.us/fire/default.asp>. Accessed June 2019.

_____. 2019b. *Patrol Operations*. Available: https://www.folsom.ca.us/police/about_fpd/divisions_and_units/patrol.asp. Accessed June 2019.

_____. 2019c. *About Us*. Available: https://www.folsom.ca.us/parks/events/about_parks_and_recreation.asp. Accessed June 2019.

City of Rancho Cordova. 2006. *City of Rancho Cordova General Plan, Draft Environmental Impact Report*. Available: <https://www.cityofranchocordova.org/home/showdocument?id=746>. Accessed June 2019.

Cordova Recreation and Park District. 2019. *Parks and Facilities*. Available: <https://crpd.com/parks-facilities/>. Accessed June 2019.

Rancho Cordova Police Department (RCPD). 2019. *RCPD, History, and Background*. Available: <http://www.ranchocordovapd.com/about.php>. Accessed June 2019.

Sacramento Metropolitan Fire District (Metro Fire). 2019a. *About Us*. Available: <https://www.metrofire.ca.gov/index.php/about-us>. Accessed June 2019.

_____. 2019b. *Serving You – Fire Stations 61, 63, 65, 68* Available:
<https://www.metrofire.ca.gov/index.php/serving-you/fire-stations/>. Accessed August 26, 2019.

SacRT (Sacramento Regional Transit). 2019. *Sacramento Regional Transit District Police Services*. Available:
<http://www.sacrt.com/safety/rtpolice.aspx>. Accessed July 2019.

3.16 Recreation

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Recreation.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.16.1 Environmental Setting

Folsom Project Segment

Bicycle and Pedestrian Trails. As shown in Figure 3.16-1, the City of Folsom has a planned, integrated network consisting of more than 50 miles of pedestrian and bicycle trails (City of Folsom 2018). The League of American Bicyclists awarded a “Silver” rating to the City of Folsom in 2016 as a bicycle friendly community, particularly for the City’s engineering of its bicycle network and network connectivity. The City’s trail network also provides linkages to the 32-mile-long Jedediah Smith Memorial Trail, which is a paved multi-use trail along the American River Parkway and Lake Natoma. Folsom has hosted the start of a stage of the Amgen Tour of California, which is America’s longest cycling race, in 2014, 2016, and 2018.



The Folsom Parkway Rail Trail, a paved, Class I multi-use bicycle and pedestrian trail, begins at Bidwell Street and travels south along the east side of Folsom Boulevard to the Iron Point Station. This trail runs along the existing light rail tracks in the Folsom project segment, immediately adjacent

to and east of the project footprint. The trail, which is in the same parcel as the rail corridor, has been intentionally designed with meanders, and thus the distance from the existing light rail right-of-way varies from approximately 10–35 feet. In addition, Class II on-street bicycle lanes are along Folsom Boulevard, Parkshore Drive, and Glenn Drive.

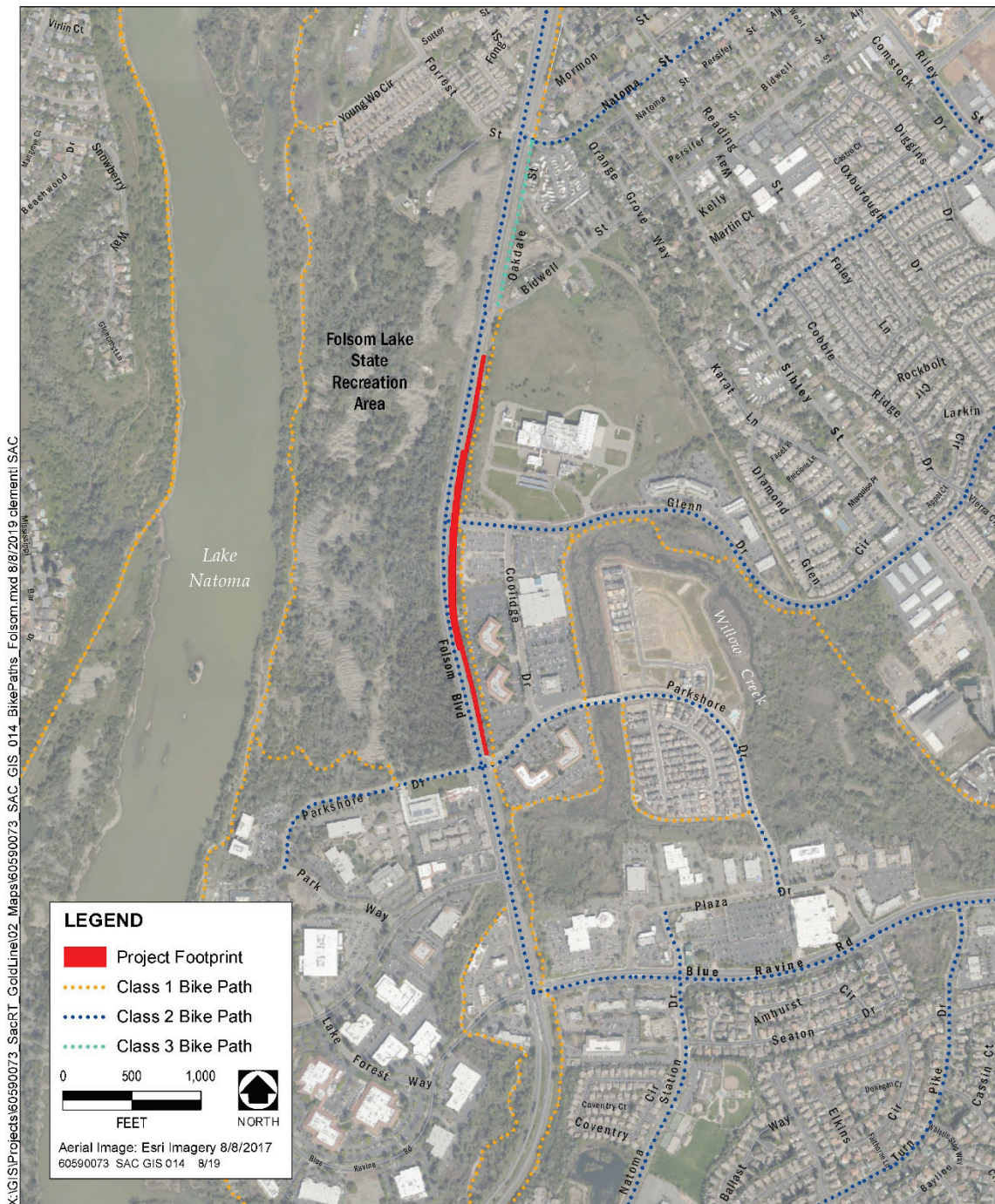


Figure 3.16-1 Folsom Bicycle and Pedestrian Trails

The Glenn/Robert G Holderness Station in the Folsom project segment includes both short and long-term bicycle parking and lockers for bicycle commuters. To encourage bicycle commuting, all SacRT light rail trains are equipped for bicycles in their interiors.

The City of Folsom Bikeway Master Plan (City of Folsom 2007) emphasizes the continued planning and development of complete streets, with an integrated bicycle network throughout the city to link residential development with employment, parks, open space, schools, shopping centers, and neighboring communities. The plan also includes goals to improve bicycle safety, increase ridership (including bicycle commuting), and encourage community involvement.

The City of Folsom Pedestrian Master Plan (City of Folsom 2014) is intended to guide continuing development of pedestrian trails in the City, and to provide consistency with the City of Folsom Bikeway Master Plan and the Sacramento Area Council of Governments (SACOG) regional planning efforts. The City's Pedestrian Master Plan includes a list of high-priority projects, including construction of 700 linear feet of sidewalk on Parkshore Drive southwest of Folsom Boulevard, to provide connectivity with the Jedediah Smith Memorial Trail. This proposed pedestrian improvement would be approximately 125 feet west of the project footprint at Parkshore Drive.

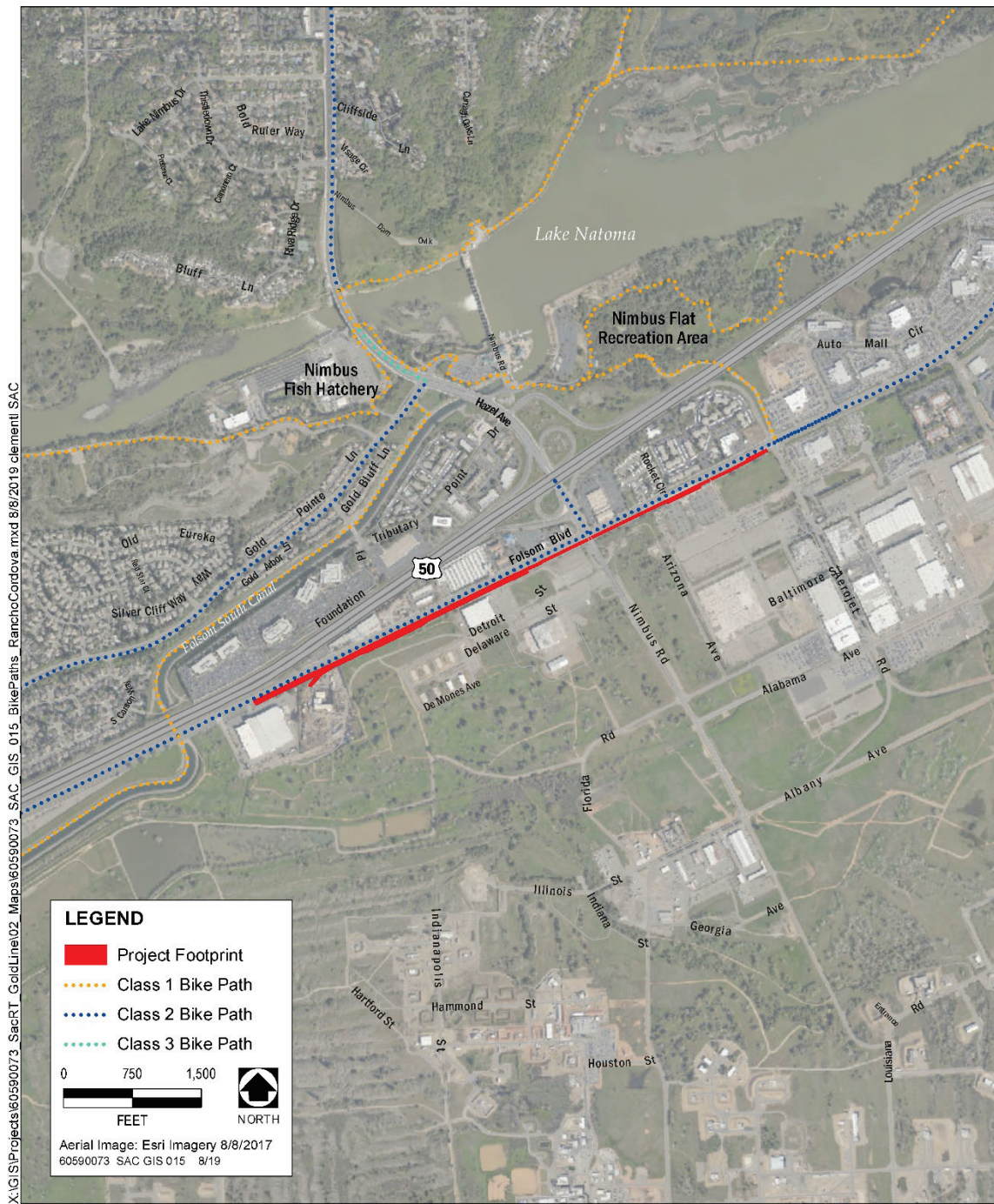
SACOG's Regional Bicycle, Pedestrian, and Trails Master Plan (SACOG 2015) is intended to help coordinate the local trail planning efforts in the six-county SACOG region, to provide non-motorized travel connections between communities and to other areas outside the region. The Regional Master Plan, which was updated in 2018 to include the most recent existing and proposed trail network throughout the region, includes a prioritized list of projects that are anticipated over the next 20 years. Currently, no future trails are planned in the Folsom project segment.

Local, Community, and Regional Parks. The City of Folsom has 46 developed parks throughout the Folsom area; however, none are within or adjacent to the project footprint. The nearest park, approximately 1,800 feet northeast of Glenn Drive, is Granite Mini Park. Residential and commercial land uses are between the project footprint and Granite Mini Park. The Ernie Sheldon Youth Sports Complex, approximately 1 mile southeast of Parkshore Drive, is the nearest community park. (City of Folsom 2019)

A portion of the 32-mile-long Jedediah Smith Memorial Trail, which runs through the Folsom Lake SRA and the American River Parkway, is approximately 1,100 feet west of the project footprint, parallel to Lake Natoma (Sacramento County 2008). In addition, the Lake Natoma sub-unit of the Folsom Lake SRA is between Hazel Avenue and Folsom Dam. Lake Natoma is approximately 1,250 feet west of the project footprint. Recreation at Lake Natoma is managed by the California Department of Parks and Recreation, under an agreement with the U.S. Bureau of Reclamation (DPR and Reclamation 2010). The eastern boundary of the Folsom Lake SRA is immediately adjacent to the west side of Folsom Boulevard, approximately 130 feet west of the project footprint.

Rancho Cordova Project Segment

Bicycle and Pedestrian Trails. As shown in Figure 3.16-2, the City of Rancho Cordova has approximately 31 miles of bikeways, half of which are Class I multi-use pedestrian/bicycle paths and the other half are Class II bike lanes. In 2019, Rancho Cordova hosted the start of Stage Two of the Amgen Tour of California. Most of the City's bikeways are in developed areas west of Sunrise Boulevard. However, a paved Class I pedestrian/bicycle path—the Folsom South Canal Recreation Trail—is approximately 1,300 feet south of the project footprint.



Source: SACOG 2017

Figure 3.16-2 Rancho Cordova Bicycle and Pedestrian Trails

This 15-mile-long trail runs north-south along the Folsom South Canal from the Nimbus Fish Hatchery and crosses underneath US-50 and Folsom Boulevard via a tunnel (City of Rancho Cordova 2016). A Class II bike lane also is on both sides of Folsom Boulevard in the Rancho Cordova project segment. The Jedediah Smith Memorial Trail in the American River Parkway and the Folsom Lake SRA can be accessed via Class II bicycle lanes from Hazel Avenue.

The City of Rancho Cordova Bicycle Master Plan (City of Rancho Cordova 2016) outlines a strategy to expand and develop a safer, more comfortable bikeway network with appropriate support facilities for both commuters and recreationists. The Rancho Cordova project segment is in an area that is planned for future development on the south side of Folsom Boulevard. A Class II bike lane is planned for Nimbus Road, from Folsom Boulevard (in this project segment) south to the city limits. Bicycle/pedestrian improvements to the Hazel Avenue crossing over US-50 are included in both the City's Bicycle Master Plan and Pedestrian Master Plan (City of Rancho Cordova 2011). In addition, future bikeways are planned throughout the Glenborough at Easton, Easton Place, and Westborough at Easton specific plan areas. A Class II bike lane and a Class I pedestrian/bicycle path are planned for Hazel Avenue, and a Class II bike lane is planned for Aerojet Road, in the project area (Easton Development Company 2009).

The Folsom Boulevard Complete Street Master Plan (Sacramento County DOT et al. 2016) includes plans to transform Folsom Boulevard from an automobile-oriented corridor into a compact, mixed-use transit rail corridor. This planning effort is included in SACOG's Regional Bicycle, Pedestrian, and Trails Master Plan (SACOG 2015), which was updated in 2018 to include the most recent existing and proposed trail network throughout the region. From Hazel Avenue north to the Folsom city limits, the Complete Street Master Plan includes plans for landscaped medians, sidewalks, and Class II bike lanes on both sides of Folsom Boulevard, additional light rail service, additional light rail stations and track, and new lighting. The Rancho Cordova project segment from Hazel Avenue north to Aerojet Drive is within the area covered by the Complete Street Master Plan.

In addition to the Complete Street Master Plan, several other improvements to the City's bicycle network are included in SACOG's Regional Master Plan (SACOG 2015) in the Rancho Cordova project segment, including bicycle signal detection for traffic lights, and striping and signing along Class II bike lanes.

Community and Regional Parks. The Cordova Recreation and Park District administers 49 parks throughout the developed area of Rancho Cordova, west and south of the Rancho Cordova project segment; however, none are within or adjacent to the project footprint. The nearest park is Prospect Hill Community Park, at 11840 Prospect Hill Drive, approximately 0.85 mile southwest of the project footprint on the north side of Folsom Boulevard and US-50. (Cordova Recreation and Park District 2019)

The Upper Sunrise portion of the American River Parkway Regional Park and the Jedediah Smith Memorial Trail are approximately 1,800 feet northwest of the project footprint (Sacramento County 2008). The Nimbus Fish Hatchery, operated by CDFW, is approximately 0.9 mile northwest of the project site. The fish hatchery visitor center is open to the public, and the facility includes a short nature trail along the American River (CDFW 2018). The Jedediah Smith Memorial Trail and the Folsom South Canal Trail can be accessed from the fish hatchery, which provides parking for cyclists and pedestrians. Class II bike lanes along Folsom Boulevard and Hazel Avenue provide access to these facilities.

Lake Natoma is approximately 2,500 feet northwest of the project footprint. The Nimbus Flat Recreation Area and the southeastern boundary of the Folsom Lake SRA are approximately 1,200 feet northwest of the project footprint. The Nimbus Flat Recreation Area includes one group campground, 11 miles of paved bicycle trails,

6 miles of multi-use trails, and year-round bank or boat fishing for both cold and warm-water species. Two launch ramps and a car-top boat launch area provide continuous boat launching access year-round (Recreation.gov 2019).

The Lower American River, approximately 0.75 mile northwest of the project footprint, runs from below Nimbus Dam downstream 23 miles to its confluence with the Sacramento River. The Lower American River is designated as “Recreational” under both the California Wild and Scenic Rivers Act and the National Wild and Scenic Rivers Act (California Wilderness Coalition 2019).

3.16.2 Discussion

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

No Impact. The proposed project would improve the SacRT’s light rail service along the Gold Line by enabling trains to operate more frequently and better serve the community. The proposed project would not include construction of new housing or new job-generating land uses that could result in new residents who would, in turn, increase the use of existing nearby trails, parks, and recreation areas. Therefore, the proposed project would not result in an increase use of existing recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. **No impact** on recreational facilities would occur as a result of the proposed project.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?

Less than Significant. Portions of the paved Folsom Parkway Rail Trail in the Folsom project segment are near the existing light rail track, as the trail meanders along its route. At its nearest points, the trail is approximately 10–15 feet from the rail bed; however, immediately north of Glenn Drive, the trail comes even closer. To protect bicyclists and pedestrians, and to avoid shifting the trail, the proposed project would include a retaining wall to separate the light rail service and the recreational and commuting activities on the trail. During construction of the retaining wall, temporary interference with trail use could occur, and this would be addressed by the SacRT in coordination with the Folsom Parks and Recreation Department, using signage and barriers to alert and protect trail users from construction, public service announcements from the SacRT and the City about construction activities, duration, and schedules, and possible detours if necessary. These same actions would be implemented at the Glenn Drive/Folsom Boulevard intersection, where street, curb, gutter, and signal modifications to accommodate the passing track could interfere with the Class 2 bike paths along Glenn Drive and Folsom Boulevard.

Although a temporary disturbance to use of the Folsom Parkway Rail Trail and the Class 2 bike paths could occur, the proposed project would not involve construction or expansion of recreational facilities that would result in a significant adverse physical impact on the environment. The impact would be **less than significant** with respect to the construction or expansion of recreational facilities.

3.16.3 References

California Department of Fish and Wildlife (CDFW). 2018. *Nimbus Fish Hatchery*. Available: <https://www.wildlife.ca.gov/fishing/hatcheries/nimbus>. Accessed April 19, 2019.

- California Department of Parks and Recreation (DPR) and U.S. Bureau of Reclamation (Reclamation). 2010 (June). *Folsom Lake State Recreation Area and Folsom Powerhouse State Historic Park Final General Plan and Resource Management Plan*. Volume I: Chapters I–III. Available: https://www.parks.ca.gov/pages/21299/files/FLSRA_GP_RMP_Vol1_Final_Plan.pdf. Accessed April 30, 2019.
- California Wilderness Coalition. 2019. *Lower American Wild and Scenic River, Fact Sheet*. Available: <https://www.calwild.org/portfolio/fact-sheet-lower-american-wsr/>. Accessed April 16, 2019.
- City of Folsom. 2007. *Bikeway Master Plan*. Available: https://www.folsom.ca.us/parks/parks_n_trails/trails/bikeway_master_plan.asp. Accessed April 11, 2019.
- . 2014 (June). *Pedestrian Master Plan*. Draft. Prepared by K. Horn. Available: <https://www.folsom.ca.us/civicax/filebank/blobdload.aspx?blobid=21543>. Accessed April 16, 2019.
- . 2018. *City of Folsom Trails and Bikeways Map*. Available: https://www.folsom.ca.us/parks/parks_n_trails/trails/trails_maps.asp. Accessed August 26, 2019.
- . 2019. Park Information. Available: https://www.folsom.ca.us/city_hall/depts/parks/parks_n_trails_inl_districts/parks/parks/default.asp. Accessed April 16, 2019.
- City of Rancho Cordova. 2011 (March). *Pedestrian Master Plan*. Available: <https://www.cityofranchocordova.org/government/public-works/alternative-transportation/bicycle-and-pedestrian-master-plans>. Accessed April 11, 2019.
- . 2016 (April). *Bicycle Master Plan*. Available: <https://www.cityofranchocordova.org/government/public-works/alternative-transportation/bicycle-and-pedestrian-master-plans>. Accessed April 11, 2019.
- Cordova Recreation and Park District. 2019. *Parks and Facilities*. Available: <https://crpd.com/parks-facilities/>. Accessed April 17, 2019.
- Easton Development Company. 2009 (January). *Easton Place Land Use Master Plan*. Approved by the Sacramento County Board of Supervisors on January 28, 2009. Ordinance No. SZC-2009-0001.
- Recreation.gov. 2019. *Lake Natoma—Nimbus Flat*. Available: <https://www.recreation.gov/camping/gateways/2280>. Accessed April 19, 2019.
- Sacramento Area Council of Governments (SACOG). 2015 (April). *Regional Bicycle, Pedestrian, and Trails Master Plan*. Available: <https://www.sacog.org/post/regional-bicycle-pedestrian-and-trails-master-plan>. Accessed April 11, 2019.
- Sacramento County. 2008. *American River Parkway Plan 2008*. Available: http://www.regionalparks.saccounty.net/Parks/Documents/Parks/ARPP06-092617_sm.pdf. Accessed April 16, 2019.
- Sacramento County Department of Transportation (DOT), Echelon Transportation Group, and Walk Sacramento. 2016 (April). *Folsom Boulevard Complete Street Master Plan*. Available: <http://www.sacdot.com/Documents/Projects/Folsom%20Boulevard%20Complete%20Street%20MP/Master%20Plan%20Documents%204-16/FINAL%20-%20Folsom%20Blvd%20Complete%20Street%20Master%20Plan%204-12-16.pdf>. Accessed April 16, 2019.

This page intentionally left blank.

3.17 Transportation and Traffic

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<i>Transportation. Would the project:</i>				
a) Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Would the project conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.17.1 Environmental Setting

Local Roads

The proposed project is in the city of Folsom, in unincorporated Sacramento County, and in Rancho Cordova within the SPTCJPA right-of-way along Folsom Boulevard. Folsom Boulevard is a four-lane arterial road that extends from the city of Sacramento to Greenback Lane, where it becomes Folsom Auburn Road. Within the project limits, Folsom Boulevard is a four-lane arterial, except for a segment between the eastbound US-50 off ramp and Iron Point Road in the city of Folsom where the road widens to six lanes. Traffic volumes along Folsom Boulevard within the Folsom project segment range from 34,300 to 45,600 vehicles per day (City of Folsom 2018a), and within the Rancho Cordova project segment, from 13,300 to 13,700 vehicles per day (City of Rancho Cordova 2015).

Between the Sunrise Station in Rancho Cordova and the Historic Folsom Station in Folsom, 14 at-grade crossings of Gold Line tracks and Folsom Boulevard occur on local arterial or collector streets: nine in Folsom, two in unincorporated Sacramento County, and three in Rancho Cordova. Major crossings include Iron Point Road, Natoma Station Drive, Blue Ravine Road, Birkmont Drive, and Glenn Drive in Folsom; Hazel Avenue/Nimbus Road and Aerojet Road in unincorporated Sacramento County; and Mercantile Drive in Rancho Cordova.

Key study intersections within the project segments are shown in Figures 3.17-1 and 3.17-2. The level of service (LOS)⁹ at study intersections operate at “acceptable levels,” meaning that traffic movements through the intersections and the degree of congestion or delays experienced by motorists are within the desired thresholds identified by Folsom, unincorporated Sacramento County, and Rancho Cordova (see Table 3.17-1).

⁹ In general, the capacity of a local jurisdiction’s street network is controlled by the capacities of its signalized intersections. LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, freedom to maneuver, traffic volumes, density, and intersection capacity. Six levels are defined, from LOS A as the best operating conditions, to LOS F or the worst operating conditions. LOS E represents “at-capacity” operating conditions. When volumes exceed capacity, stop-and-go conditions result, and operations are designated to be LOS F.

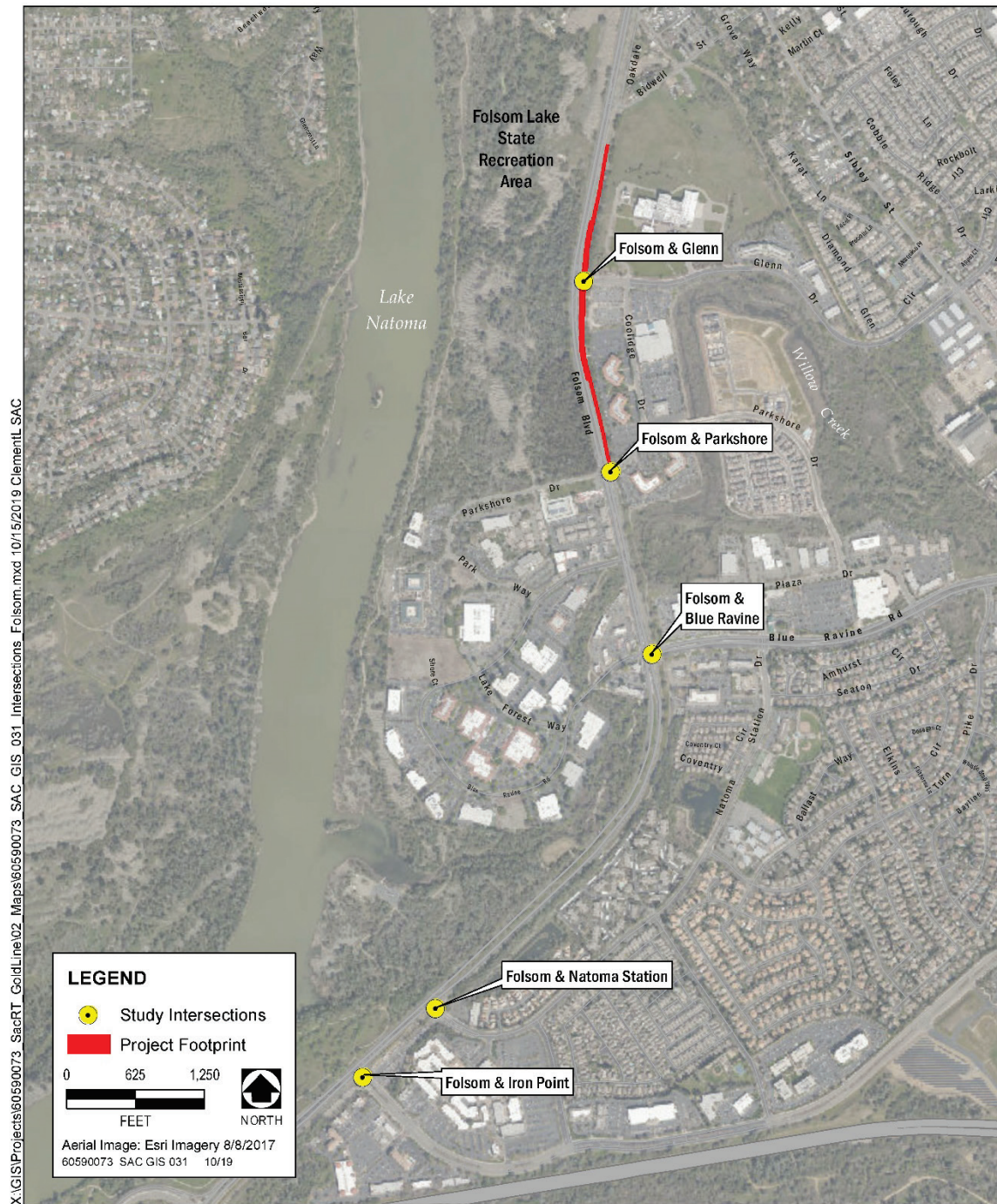


Figure 3.17-1 Key Intersections, Folsom Project Segment

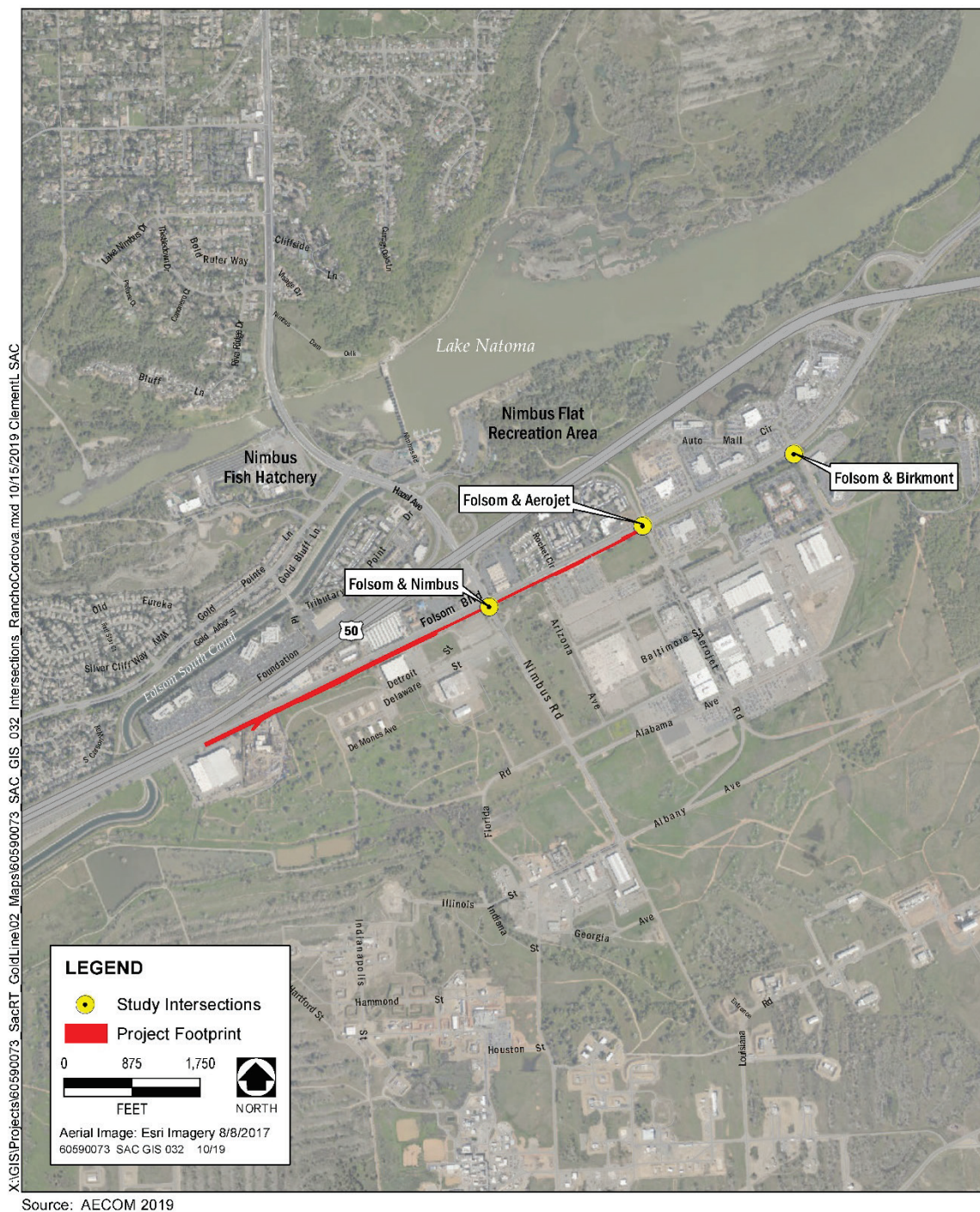


Figure 3.17-2 Key Intersections, Rancho Cordova Project Segment

**Table 3.17-1
Existing Intersection Level of Service along Project Alignment**

Jurisdiction	Affected Streets (signalized/unsignalized intersection with Folsom Boulevard)	Existing LOS during AM/PM Peak Hour¹	LOS Standard²
Folsom	Birkmont Drive (S) Iron Point Road (S) Natoma Station Drive (S) Blue Ravine Road (S) Parkshore Drive (S) Glenn Drive (S) Bidwell Street (S) Natoma Street (S) Sutter Street (S)	Not reported AM: LOS B; PM: LOS C AM and PM: LOS A AM and PM: LOS D Not reported AM and PM: LOS B Not reported AM and PM: LOS B Not reported	LOS D throughout the city, but LOS E can be acceptable because of costs of mitigation or when other unacceptable impacts would occur, such as right-of-way acquisition or degradation of the pedestrian environment because of increased crossing distances or unacceptable crossing delays. LOS E also may be accepted during peak commute periods at major intersections, within 0.25 mile of a freeway interchange or river crossing. (Policy M 4.1.3)
Sacramento County	Hazel Avenue/Nimbus Road (S) Aerojet Road (S)	AM: LOS B; PM: LOS D Not reported; however, Folsom Boulevard roadway (not intersection) LOS from Hazel Avenue to Aerojet Road and to US-50 is LOS A	LOS E on urban roadways, unless it is infeasible to implement project alternatives with mitigation measures that would achieve this LOS. (Policy CI-9)
Rancho Cordova ¹	Mercantile Road (S) Mine Shaft Lane (U) Marketplace Lane (S)	Intersection LOS not reported; however, Folsom Boulevard roadway (not intersection) LOS from Sunrise Boulevard through Mercantile Drive to Hazel Avenue is LOS A	LOS D or better on roadways and intersections. (Policy C.1.2)

Notes: LOS = Level of Service; S = Signalized; U = Unsignalized

¹ Source for Folsom: City of Folsom 2018b:Table 17-3;

Source for Rancho Cordova and Sacramento County: USACE 2010:Table 3A.15-8

² Sources: City of Folsom 2018b:Table 17-3. March 2018; Sacramento County 2017; City of Rancho Cordova 2015

Bicycle and Pedestrian Facilities

Folsom Project Segment. Bikeways are classified as Class I (bike paths), Class II (bike lanes), Class III (bike routes), and Class IV (bikeways). According to the City of Folsom’s Bikeway Master Plan (City of Folsom 2007), bikeways are planned in the project vicinity along Folsom Boulevard and surrounding the project site. According to the City’s Pedestrian Master Plan, no sidewalk is along Folsom Boulevard within the project boundaries (City of Folsom 2014). As shown in Figure 3.16-1, Class I, Class II, and Class II bicycle facilities are along Folsom Boulevard within the project boundaries.

Rancho Cordova Project Segment. According to Sacramento County’s Pedestrian Master Plan (Sacramento County 2007), Folsom Boulevard is a “pedestrian district,” emphasizing pedestrian needs. The only pedestrian facility along Folsom Boulevard within the Rancho Cordova project segment is between Hazel Avenue and Aerojet Road on the north side of Folsom Boulevard and on the south side in front of Hazel Station. A crosswalk connects residents along the north side of Folsom Boulevard to Hazel Station. Limited sidewalks are elsewhere in this project segment. As shown in Figure 3.16-1, Class II bicycle facilities are along both sides of

Folsom Boulevard throughout the project segment and also along Hazel Avenue/Nimbus Road between Folsom Boulevard and US-50 to the north. The County's Folsom Boulevard Complete Street Master Plan (Sacramento County 2015) targets the stretch between Rancho Cordova and Folsom for a series of improvements, including a well-lit separated walk on the south side along the Gold Line, continuous bicycle lanes in both directions, a raised planted median, and safer pedestrian crossings. In addition, the Hazel Avenue/US-50 interchange project being proposed by the County would extend Hazel Avenue further south to a proposed intersection with a future street, a grade separation of Hazel Avenue over Folsom Boulevard and the Gold Line, and modifications to US-50. The project would improve 2,300 feet of Folsom Boulevard with sidewalks, street lighting, and landscaping.

Similar to the County, the City of Rancho Cordova has targeted its portion of Folsom Boulevard west of Sunrise Boulevard as a vibrant transportation thoroughfare, business center, and pedestrian destination using Complete Street Principles. Three phases already have been completed and two others are underway. According to the City of Rancho Cordova's Circulation Element (City of Rancho Cordova 2015), the American River Parkway, the most scenic and heavily used off-street bikeways in the region, follows the American River in the northern part of Rancho Cordova and provides recreation opportunities for residents and visitors. The Folsom South Canal, which runs generally east-west north of Folsom Boulevard and US-50 in the Rancho Cordova project segment, includes a bicycle path that is separated from traffic, with both at-grade and grade-separated crossings at major roads. This bicycle path is used lightly. Sidewalks and bicycle facilities throughout the city provide connections to services and recreational areas (City of Rancho Cordova 2015). As shown in Figure 3.16-2, Class II bicycle facilities are on both sides of Folsom Boulevard throughout the Rancho Cordova project segment.

Transit Services

SacRT operates bus and light rail service throughout Sacramento County. Light rail service on the Gold Line operates between downtown Sacramento and the Historic Folsom Station. The portions of the alignment in the Folsom and Rancho Cordova project segments operate within the SPTCJPA right-of-way, which was acquired from the former Southern Pacific Railroad in 1991. Light rail stations are at Hazel Avenue, Iron Point Road, Glenn Drive, and Historic Folsom within the segment that would be improved by the proposed project. During peak periods, service runs every half-hour east of Sunrise Station and every 15 minutes west of Sunrise Station. The trains run from 5 a.m. to 7 p.m. east of Sunrise Station and from 5 a.m. to 12 a.m. west of Sunrise Station.

Buses connect light rail passengers with the office/retail and residential areas of Folsom and Rancho Cordova, as well as other communities in the region. SacRT bus routes operating in Folsom include:

- Route 10, which connects to Iron Point Station and Historic Folsom Station, as well as with Route 24 at Main and Madison Avenues. Weekday service is provided between 5:30 a.m. and 7:00 p.m. on 60-minute headways.
- Route 20, which services Empire Ranch Road, East Natoma, Vista del Lago High School, and Folsom Lake College, and transfers to Folsom Stage Line Route 10. Weekday service on this route consists of one bus in the morning and one in the afternoon.
- Route 30, which serves Folsom State Prison, City Hall, and Woodmere Drive during peak hours (6 a.m.–8:10 a.m. and 2:35 p.m.–4:55 p.m.).

SacRT operates five bus routes in Rancho Cordova, connecting the city with destinations in Carmichael, Fair Oaks, Citrus Heights, and Rosemont. All of these intercity routes also connect with light rail stations.

Regulatory Framework

Sacramento Area Council of Governments 2016 Metropolitan Transportation Plan/Sustainable Communities Strategy. The SACOG is responsible for preparation of, and updates to the 2016 MTP/SCS (SACOG 2016) and the corresponding Metropolitan Transportation Improvement Program (MTIP) for the six-county Sacramento region. The 2016 MTP/SCS provides a 20-year transportation vision and corresponding list of projects. The MTIP identifies short-term projects (7-year horizon) in more detail. SACOG updates its MTP/SCS on a regular basis, and the next update is scheduled to be adopted in February 2020. This update is expected to refine the land use forecasts, update the transportation project lists, and extend the planning horizon to 2040 (from the current horizon year of 2036). The emphasis of this regional plan is to implement smart growth principles, including housing choice, compact development, mixed-use development, natural resource conservation, use of existing assets, quality design, and transportation choice. If a city, county, or public agency in the Sacramento region wants to use federal transportation funding for transportation projects or programs, those projects must be included in the MTP/SCS project list. The MTP/SCS includes transportation improvements and investments that will serve the Sacramento region's projected land use pattern and population growth. The proposed project is not included specifically in the 2016 MTP/SCS, but it is included in the Draft Preferred Transportation Project List for the Draft 2020 MTP/SCS.

City of Folsom General Plan. The 2035 General Plan includes the following policies regarding the city's circulation system:

- Policy M 2.1.14, "Intersections," requires ensuring new intersections are designed to safely accommodate pedestrians and bicyclists, along with all other transportation modes.
- Policy M 3.1.4, "Light Rail Double-Tracking," requires coordinating with Sacramento Regional Transit on possibilities for improving light rail headways through double-tracking.
- Policy M 3.1.5, "Extended Light Rail Service," requires coordinating with Sacramento Regional Transit on possibilities for extending light rail hours into the evening. Policy M 4.1.3, "Level of Service," requires striving to achieve at least LOS D (or better) for local streets and roadways throughout the city. LOS E conditions may be acceptable because of costs of mitigation or when other unacceptable impacts may occur, such as right-of-way acquisition or degradation of the pedestrian environment because of increased crossing distances or unacceptable crossing delays. LOS E also may be acceptable during peak commute periods at major intersections within 0.25 mile of a freeway interchange or river crossing.

The City of Folsom has developed quantifiable significance thresholds for its roadway, transit, bicycle, and pedestrian system. Specifically, a significant impact would occur if implementation of a project would result in traffic operations that would increase the average delay by 5 seconds or more at an existing intersection in Folsom north of US-50 that currently operates at an unacceptable LOS.

City of Rancho Cordova General Plan. The City's General Plan includes Policy C.1.2, which recommends maintaining operations on all roadways and intersections at LOS D or better at all times, including peak travel times, unless maintaining this LOS would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals. Congestion in excess of LOS D may be acceptable in these cases, provided that provisions are made to improve traffic flow and/or promote non-vehicular transportation as part of a development project or a City-initiated project.

3.17.2 Discussion

a) Conflict with a program plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant with Mitigation Incorporated. With implementation of the proposed project improvements, SacRT would be able to operate more trains on the Gold Line between Sunrise and Historic Folsom Stations. The proposed project would improve transit mobility for riders, connect major employment and commercial districts, and provide fast, convenient, and reliable transit service for Folsom and Rancho Cordova. The proposed project would improve mobility and systemwide operating efficiency and would increase the attractiveness of non-motorized travel modes, thus reducing automobile (i.e., motorized) travel, which would be beneficial in reducing GHG emissions and improving air quality. Because the proposed project would improve transit service by increasing the use of light rail service in the project area, it would be consistent with and supportive of local circulation and mobility plans and the Complete Streets plans along Folsom Boulevard, as well as with the priorities and strategies of the regional plan, as articulated in the SACOG's 2035 MTP/SCS. The enhancement of light rail service to Folsom is included in the Draft 2020 MTP/SCS, scheduled for adoption in February 2020. Therefore, the impact would be **less than significant** in terms of a conflict with a local or regional plan or policy.

In terms of local circulation effects, the additional train service (38 more scheduled runs inbound and outbound per day) would result in more frequent crossings of the 14 streets between Sunrise and Historic Folsom Stations, which would result in increased delays for motorists, pedestrians, and bicyclists seeking to cross the light rail tracks and Folsom Boulevard. Existing delays at the street crossings of the single-track segment of the Gold Line varies from approximately 1 minute to 3 minutes. Doubling the number of trains at the 14 crossings between Mercantile Road in Rancho Cordova and Sutter Street in Folsom would increase the delays experienced by travelers waiting to cross the light rail tracks but would not result in a doubling of the length of time that they are delayed. The proposed project would include additional track circuits that would detect when the train passes through the crossing and immediately would send a signal to raise the gates. This feature would eliminate the long, single-track circuits and the delays at upstream and downstream crossings.

In addition, at specific stations, SacRT proposes to install on-board "call" activators, to lower the crossing gates only when the train is ready to leave the station. Therefore, the net change in delay would be a maximum of an additional 14 seconds per train and 10 seconds per train in the best case, as estimated by SacRT. Under a worst-case scenario, the additional gate downtime per crossing per day would be:

$$\begin{aligned} \text{Additional gate downtime (in minutes) per day} &= 38 \text{ trains} \times 14 \text{ seconds} / 60 \text{ seconds/minute} = \\ &8.86 \text{ minutes per day} \end{aligned}$$

Of this additional delay, the number of trains that would cross intersections during the AM/PM peak hour would be two, according to the current SacRT schedule. Thus, the additional delay that would be expected during the peak travel times would be:

$$\text{Additional gate downtime (in seconds) per AM/PM peak hour} = 2 \text{ trains} \times 14 \text{ seconds} = 28 \text{ seconds}$$

Therefore, the additional delay during the peak periods would be less than the equivalent of a single signal cycle. Although the change in intersection delay would have a minor effect on local circulation and movement during the critical AM/PM peak hours, until SacRT performs more design of its signaling system, and until Folsom, Rancho Cordova, and the County (each of whom have plans for upgrades and modifications to Folsom Boulevard) have clarified their signal phasing and timing, unacceptable delays (5 seconds or more) may occur at

intersections with Folsom Boulevard in the corridor. The impact is conservatively assumed to be **potentially significant**.

Mitigation Measure. Implementation of Mitigation Measure TR-1 would reduce project-related impacts on intersection delays by adjusting the signal timing for light rail trains and automobiles where intersection LOS may operate at unacceptable levels as defined by the local public agency with jurisdiction over the signals. Therefore, the impact to Folsom Boulevard intersections would be reduced to **less than significant with mitigation incorporated**.

Mitigation Measure TR-1: Adjust traffic and train signaling to reduce intersection delays to acceptable levels

SacRT must coordinate with the City of Folsom, City of Rancho Cordova, and Sacramento County during final design to synchronize and implement train and automobile traffic controllers to maintain acceptable LOS at the street crossings of the Gold Line light rail tracks and Folsom Boulevard. Specifically, the signal adjustments must be made so that either: (1) intersection LOS does not deteriorate to LOS E or worse if operating acceptably (LOS D or better), or (2) if already operating at an unacceptable LOS (LOS E or F), to reduce the additional delay resulting from light rail operations at signalized intersections so that the additional delay is less than 5 seconds. Implementation of this mitigation measure must occur during final design, and signal operations must be adjusted if necessary during implementation and testing, before starting revenue service.

b) Would the project conflict or be inconsistent with State CEQA Guidelines Section 15064.3, subdivision (b)?

Less-than-Significant. The City of Folsom, City of Rancho Cordova, and Sacramento County have not adopted methodologies yet for performing transportation project vehicle miles traveled (VMT) analysis, pursuant to Senate Bill (SB) 743, enacted in 2013 and adopted in the State CEQA Guidelines in December 2018. The thrust of SB 743 was to acknowledge that the LOS metric should not be used to determine the significance of a transportation impact, but a more appropriate metric: a project's effect on VMT. This requirement is to become mandatory statewide by July 2020.

Section F of the Governor's Office of Planning and Research Technical Advisory (OPR 2018) provides a comprehensive list of transportation projects that are not likely to lead to a substantial or measurable increase in VMT, and therefore should not require an induced travel analysis. Relevant to the proposed project, the Technical Advisory's guidelines regarding transit projects state that transit and active transportation projects generally reduce VMT, and therefore are presumed to cause a less-than-significant impact on transportation. This presumption may apply to all passenger rail projects, bus and bus rapid transit projects, and bicycle and pedestrian infrastructure projects. Streamlining transit and active transportation projects would align with each of the three statutory goals in SB 743 by reducing GHG emissions, increasing multimodal transportation networks, and facilitating mixed-use development.

SACOG's MTP/SCS contains a number of projects, described in detail in Chapter 4 of the MTP/SCS, to address capacity needs and congestion on commute corridors through 2036. These projects collectively would offer more transit service hours and routes. The land uses and transportation network improvements discussed in the MTP/SCS would help reduce total congested VMT per capita by nearly 7 percent and household-generated congested VMT per capita by more than 10 percent by 2036, compared to 2008. These improvements would help support worker and business productivity as the economy improves, while maintaining roadway conditions and capacity for rural residents and goods movement, discussed in more detail below (SACOG 2016). As indicated

previously, the proposed project is included in the update to the current 2016 MTP/SCS (i.e., the Draft 2020 MTP/SCS) and would be an integral component in the region's strategies to reduce VMT.

Therefore, the proposed project would not conflict with the CEQA provisions to evaluate a project's effects in terms of VMT. The impact on VMT would be **less than significant**.

c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Construction

Less than Significant with Mitigation Incorporated. The maneuvering of project construction vehicles and equipment among the general-purpose vehicles on local roads could cause safety hazards. Haul trucks and other on-road vehicles used during project construction could increase the hazard risk on existing roadways, as could off-road earth-moving equipment. Traffic safety hazards could increase because of: conflicts where construction vehicles enter a public right-of-way from the project work site; conflicts where road width is narrowed or a roadway is closed during construction activities, resulting in delays to emergency vehicles passing through the project area; or increased truck traffic (and the slower speed and wider turning radius of the trucks) during construction.

In addition to these impacts, the use of large trucks to transport equipment and material to and from the work site could affect road conditions on access routes by increasing the rate of road wear. The degree to which this impact would occur would depend on the design (pavement type and thickness) and the existing condition of the roadway. Major arterials and collectors are designed to accommodate a mix of vehicle types, including heavy trucks. The potential impacts are expected to be negligible on those roads. However, lower capacity roadways could be affected substantially if used by construction equipment.

Because of the temporary disruption to traffic flow, roadway wear and tear, the removal or reduction of lanes, the presence of construction equipment in the public right-of-way, and the localized increase in traffic congestion, drivers would be presented with unexpected driving conditions and obstacles, which could result in an increased occurrence of automobile or haul-truck accidents. The impact from the increased traffic hazard risk created by project construction would be **potentially significant**.

Mitigation Measure. Implementation of **Mitigation Measure TR-2** would reduce project construction impacts on circulation hazards by requiring preparation and implementation of a traffic control plan, addressing road closures, detours, and safety for motorists, bicyclists, and pedestrians. Therefore, the impact would be reduced to **less than significant with mitigation incorporated**.

Mitigation Measure TR-2: Prepare and implement a traffic control plan

Before the start of project construction, the SacRT and/or its contractor must prepare and implement a traffic control plan, to minimize construction-related traffic safety hazards on public roads, sidewalks, bicycle facilities, and non-motorized pathways, and ensure adequate access for emergency responders. The SacRT and/or its contractor must coordinate development and implementation of this plan with the City of Folsom, City of Rancho Cordova, and Sacramento County, and solicit their input on practices and

procedures to enhance safety and minimize hazards. The traffic control plan must, at minimum, identify and include:

- number of truck trips, time, and day of street closures;
- time of day of arrival and departure of trucks;
- limitations on size and type of trucks;
- provision of staging areas, with a limitation on the number of trucks that can be waiting;
- a truck circulation pattern and identification of haul routes;
- manual traffic control when necessary;
- a driveway access plan so that safe vehicular, pedestrian, and bicycle movements are maintained (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas);
- safe and efficient access routes for emergency vehicles;
- establishment of manual traffic control when necessary;
- requirements for construction workers to park personal vehicles at approved staging areas and take only necessary project vehicles to the work sites;
- a plan for notifications and a process for communication with affected residents, businesses, and landowners about construction activities, schedule, and duration before the start of construction (Public notification must include posting of notices and signage of construction activities at visible locations in the project area. Notifications must be distributed to residents, businesses, and landowners to describe the construction schedule, the exact location and duration of activities on each street [e.g., which roads/lanes and access points/driveways will be blocked on which days and for how long], suggestions for alternative routes, and contact information for questions and complaints. This same information must be posted on the SacRT website for the project.);
- posting warning signs before the start of construction activities, alerting bicyclists and pedestrians to any closures or temporary modifications of non-motorized facilities (This information must be shared with local agencies and active transportation organizations to ensure widespread notification of interruption to pedestrian, bicycle, and other non-motorized vehicular pathways.);
- pedestrian and bicycle safety measures (e.g., buffers, vertical delineation, signage), subject to review and approval by the cities and the County traffic departments;
- notification of police and fire personnel, ambulance service providers, other emergency responders, and recreational facility managers of the timing, location, and duration of construction activities, and the locations of detours and lane closures, where applicable;
- maintenance of access for emergency vehicles in and/or adjacent to roadways affected by construction activities at all times; and
- repair and restoration of affected roadway rights-of-way to preconstruction conditions after construction is completed, other than permanent changes called for in the construction plans and specifications.

A copy of the construction traffic management plan must be submitted to local emergency response agencies, and these agencies are to be notified at least 14 days before the start of construction that will partially or fully obstruct roadways.

Operations

Less than Significant. The proposed project would be implemented almost entirely within the SPTCJPA right-of-way. The trackwork, station platforms, and signaling would be designed in accordance with SacRT design criteria and California Public Utility Commission (CPUC) safety requirements. Specifically, the CPUC promulgates General Orders (GO) that set protocols for railroad safety. CPUC's Rules 3.7 to 3.11 address rail crossings, including public road access, railroad across railroad, railroad across public road, and alteration or relocation of existing railroad crossings. CPUC GO related to railroad safety include the following:

- GO 26-D: sets regulations related to clearances on railroads and street railroads to side and overhead structures, parallel tracks, and crossings
- GO 72-B: sets regulations governing construction and maintenance for crossings at grade of railroads with public streets, roads, and highways
- GO 75-D: sets regulations governing warning devices for at-grade highway-railroad crossings to reduce hazards associated with at-grade crossings
- GO 88-B: establishes criteria for alterations of existing public highway–rail crossings
- GO 143-B: sets safety rules and regulations governing design, construction, and operation of light rail transit systems to reduce hazards to patrons, employees, and the public
- GO 145: sets regulations governing railroad grade crossings to be classified exempt from the mandatory stop requirements of Section 22452 of the Vehicle Code
- GO 164-E: sets regulations governing State Safety Oversight of Rail Fixed Guideway Systems, which include any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, cable car, automatic people mover, or automated guideway transit system used for public transit and not regulated by the Federal Railroad Administration or not specifically exempted by statute from CPUC oversight

The proposed project would modify the intersection at Glenn Drive and Folsom Boulevard by narrowing the northbound right-turn lane onto Glenn Drive and adjusting the curb return to accommodate the passing track and the new platform. The intersection modifications would not impede northbound right turns off Folsom Boulevard by large trucks seeking access to the businesses to the east and would be designed in accordance with Folsom design standards.

Therefore, the proposed project would have a **less-than-significant impact** related to a substantial hazard due to a geometric design feature or an incompatible use.

d) Result in inadequate emergency access?

Construction

Less than Significant with Mitigation Incorporated. As described under item c, emergency access in the project area could be affected by delays from construction activities and truck movements along Folsom

Boulevard and at the 14 crossings of the light rail tracks. Although multiple pathways exist to respond to calls for service, construction activities, including traffic lane closures or detours, truck movements, and maneuvering construction equipment, could impede emergency access, resulting in a **potentially significant impact** for emergency responders.

Mitigation Measure. Implementation of **Mitigation Measure TR-2** would reduce project construction impacts on emergency response by providing advance notice to police, fire, and other emergency responders of construction activities, enabling them to use alternate routes for priority and emergency calls for service. Furthermore, this mitigation measure would require preparation and implementation of a traffic control plan, addressing road closures, detours, and safety issues for motorists, bicyclists, and pedestrians. The impact on emergency access during construction would be reduced to **less than significant with mitigation incorporated**.

Operations

Less than Significant with Mitigation Incorporated. With respect to project operation, traffic signal preemption (traffic signal prioritization) in the project area would allow the normal operation of traffic lights to be preempted. Traffic signal preemption would manipulate traffic signals in the path of an emergency vehicle, halting conflicting traffic and allowing the emergency vehicle right-of-way, to help reduce response times and enhance traffic safety. Nevertheless, the impact would be **potentially significant**.

Mitigation Measure. As part of implementation of **Mitigation Measure TR-1**, SacRT will meet with the City of Folsom, City of Rancho Cordova, and Sacramento County to coordinate train and automobile traffic signals, which could include, where feasible, integration of the traffic signal preemption system with the train network. An integrated preemption system could extend control of traffic from the typical crossing gates and warning lights to the next traffic intersections, to prevent excessive automobile traffic from approaching the crossing, while also obtaining the right-of-way for road traffic that may be in the way, to quickly clear the crossing. In addition, the train operations must comply with the CPUC GOs (identified under item c), including safety measures at railroad crossings. The impact on emergency access during project operations would be reduced to **less than significant with mitigation incorporated**.

3.17.3 References

California Public Utilities Commission (CPUC). General Order Index page. n.d. Available:
<https://www.cpuc.ca.gov/generalorders/>. Accessed October 14, 2019.

City of Folsom. 2007. *Bikeway Master Plan*. Available:
https://www.folsom.ca.us/parks/parks_n_trails/trails/bikeway_master_plan.asp.

———. 2014. *Pedestrian Master Plan*. Available:
<https://www.folsom.ca.us/civicax/filebank/blobdload.aspx?blobid=21543>.

———. 2018a. *Folsom General Plan–Mobility Element*. Available:
<https://www.folsom.ca.us/civicax/filebank/blobdload.aspx?blobid=34197>.

———. 2018b (March). *Folsom 2035 General Plan EIR*.

City of Rancho Cordova. 2015 (May). *General Plan–Circulation Element*. Available:
<https://www.cityofranchocordova.org/home/showdocument?id=13135>.

Governor's Office of Planning and Research (OPR). 2018 (December). *Technical Advisory on Evaluating Transportation Impacts in CEQA*.

Sacramento Area Council of Governments (SACOG). 2016 (February). *Metropolitan Transportation Plan/Sustainable Communities Strategy* [MTP/SCS]. Available: <https://www.sacog.org/2016-mtpscs>. Accessed April 23, 2019.

Sacramento County. 2007. *Pedestrian Master Plan*. Available:
https://sacdot.saccounty.net/Documents/A%20to%20Z%20Folder/Pedestrian%20Master%20Plan/SAC_PED_PLAN_FINAL__042807_Small.pdf.

———. 2015. *Folsom Boulevard Complete Street Master Plan*. Available:
<https://sacdot.saccounty.net/Documents/Projects/Folsom%20Boulevard%20Complete%20Street%20MP/Folsom%20Blvd%20Complete%20Streets%20Plan%20-%20Sac%20County%20%2012-16-15.pdf>.

———. 2017. *General Plan–Circulation (Transportation) Element*. Available:
<https://planning.saccounty.net/PlansandProjectsIn-Progress/Documents/6.%20Circulation%20Element%20Amended%2012-13-17.pdf>.

U.S. Army Corps of Engineers (USACE). 2010. *Folsom South of U.S. Highway 50 Specific Plan DEIR/DEIS*. Available: http://ftp.folsom.ca.us/soi/folsom_deir-deis_draft.pdf?_sm_au_=iVV31Ztjv52StJW6. Accessed October 13, 2019.

This page intentionally left blank

3.18 Tribal Cultural Resources

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Tribal Cultural Resources. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.18.1 Environmental Setting

Section 3.5, “Cultural Resources,” contains a more detailed description of the environmental setting for the project segments, relating to cultural and tribal resources. Pertinent details relating to tribal cultural resources are highlighted in this section.

Ethnography

The project area lies within the ethnographic territory of the Nisenan, who primarily occupied lands east of the Sacramento River. The Nisenan were one of three Maiduan speaking tribelets (i.e., Maidu, Konkow, Nisenan) who inhabited the northeastern half of the Sacramento Valley and adjoining western slopes of the Sierra Nevada (Shipley 1978:82–85). Ethnographic village sites along the American River in Nisenan territory include Ekwo (on Sunrise Boulevard), Shiba (on Hazel Avenue), and Yodok (at Folsom) (Wilson and Towne 1978:388). Nisenan villages varied considerably in size, with a large village containing from 40 to 50 domed earthen houses and more than 500 people. A typical settlement in the lowland areas of Nisenan territory would be situated on natural rises along the major rivers and streams (Kroeber 1925:395; Wilson and Towne 1978:388). The Nisenan were organized like many California Indian communities; a certain territory was identified as belonging to a group, and that group recognized themselves as a unit (i.e., tribelet). Several affiliated villages may have existed in the tribelet territory. Each village, and often a group of allied villages, had a headman, whose duty was to advise the members of the community. No larger levels of political organization occurred beyond these village affiliations (Kroeber 1925:396–398; Wilson and Towne 1978:393).

The Nisenan were affected little by the early Spanish and Mexican incursions into California's interior. They were, however, greatly affected by a malaria epidemic that ravaged parts of California during the 1830s, believed to have been spread by fur trappers. The disease often killed entire villages, and 75 percent of the population is estimated to have died because of the epidemic (Wilson and Towne 1978:396). The Nisenan who survived the epidemic were among the California groups most affected by the Gold Rush of 1849. In 1948, John Marmust discovered gold at Coloma, in Nisenan territory. Soon afterwards, fortune seekers descended on the Nisenan and adjoining territories and, within a short timespan, Nisenan lands were overrun (Wilson and Towne 1978:396). Descendants of the Nisenan who survived those harsh times are thriving today as part of the greater Sacramento community.

Sacred Lands File Search

On June 13, 2019, AECOM requested an SLF search and CEQA Tribal Consultation List from the NAHC, pursuant to AB 52. On June 24, 2019 (in a letter dated June 21, 2019), the NAHC responded that the SLF search was negative. On August 5, 2019, AB 52 tribal consultation letters were sent by AECOM on behalf of the SacRT. Native American consultation is being completed by the SacRT, pursuant to AB 52.

Records Search

A records search of the project area and environs was completed on July 12, 2019, at the NCIC (NCIC File No. SAC-19-131). A summary of the records search results is presented in Section 3.5, "Cultural Resources." No tribal cultural resources or prehistoric archaeological resources were identified in the project area during the records search. One isolated prehistoric artifact was found within 0.25 mile of the project site. P-34-001384 is an isolated artifact that was identified 100 feet (30 meters) east of Lake Natoma. It is a shaped granitic pestle/mano with polished facets on one side and battering on one end (EDAW 2002).

3.18.2 Discussion

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).

Less than Significant with Mitigation Incorporated. As discussed in Section 3.5, "Cultural Resources," no tribal cultural resources that are listed or eligible for listing in the CRHR or local register of historical resources were identified during background research at the NCIC or NAHC. However, records maintained by the NCIC and NAHC are not exhaustive, and negative results do not preclude the presence of tribal cultural resources in the project area. The impact of project construction related to the disturbance of tribal cultural resources may be **potentially significant**.

Mitigation Measure. Implementation of Mitigation Measure CUL-1 (see item b in Section 3.5, "Cultural Resources") would reduce the impact on prehistoric archaeological sites that may be considered tribal cultural resources. The impact would be **less than significant with mitigation incorporated**.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency must consider the significance of the resource to a California Native American tribe.

Less than Significant with Mitigation Incorporated. As of July 1, 2015, AB 52 (enacted in 2014) amended CEQA and established requirements for tribal consultation. The law applies to all projects that have a Notice of

Preparation or Notice of Negative Declaration/Mitigated Negative Declaration. It also broadly defines the category of “tribal cultural resource” as part of the State’s recommended Environmental Checklist and establishes a more robust process for meaningful consultation that includes the following:

- prescribed notification and response timelines;
- consultation on alternatives, resource identification, significance determinations, an impact evaluation, and mitigation measures; and
- documentation of all consultation efforts to support CEQA findings.

The SacRT, as lead agency, is required to coordinate with Native American tribes through the AB 52 Tribal Consultation process. On August 5, 2019, the SacRT notified the following eight tribes of the proposed project, in accordance with AB 52:

- Buena Vista Rancheria of Me-Wuk Indians
- Colfax-Todds Valley Consolidated Tribe
- Ione Band of Miwok Indians
- Nashville Enterprise Miwok–Maidu–Nishinam Tribe
- Shingle Springs Band of Miwok Indians
- Tsi Akim Maidu
- United Auburn Indian Community of the Auburn Rancheria
- Wilton Rancheria

To date, only the United Auburn Indian Community has responded to indicate that the project would not likely affect cultural resources of importance to the tribe, and to request receipt of the environmental documents (Starkey 2019). However, the opportunity for consultation will extend throughout the CEQA process, per PRC Section 21080.3.2 (b) (1) and (2). Despite previous disturbances in the project segments, the potential for the accidental discovery of tribal cultural resources during project construction cannot be discounted entirely. Therefore, impacts of project construction related to disturbance of these resources may be **potentially significant**.

Mitigation Measure. Implementation of Mitigation Measure CUL-1 (see item b in Section 3.5, “Cultural Resources”) would ensure that the impact on tribal cultural resources would be reduced. Therefore, the impact would be **less than significant with mitigation incorporated**.

3.18.3 References

EDAW, Inc. 2002. *DPR 523 forms for P-34-001384*. On file at the NCIC, Sacramento, CA.

Kroeber, A. 1925. Republished 1976. *Handbook of the Indians of California*. New York: Dover, Inc.

Shipley, W. F. 1978. Native Languages of California. In *California*, edited by R. F. Heizer, pp. 80–90. *Handbook of North American Indians*, Volume 8, W. C. Sturtevant, general editor. Washington, DC: Smithsonian Institution.

Starkey, Anna, M.A., RPA. 2019 (October 16). Email communications from Anna Starkey, Cultural Regulatory Specialist, Tribal Historic Preservation Department, UAIC, to Jennifer Redmond, AECOM archeologist re Native American consultation for the Folsom Light Rail Modernization Project.

Wilson, N. L., and A. H. Towne. 1978. Nisenan. In *California*, edited by R. F. Heizer, pp. 387–397. *Handbook of North American Indians*, Volume 8, W. C. Sturtevant, general editor. Washington, DC: Smithsonian Institution.

3.19 Utilities and Service Systems

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Utilities and Service Systems. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.19.1 Environmental Setting

Utilities providing service throughout the project area include:

- Sacramento Municipal Utility District (SMUD) - electricity;
- Pacific Gas and Electric Company (PG&E) - underground gas lines;
- City of Folsom – water, wastewater, and storm drainage; and
- Keifer Landfill, operated by Sacramento County - solid waste disposal.

Water Supply. The City of Folsom is the primary water purveyor for the Folsom and Rancho Cordova project segments, although the San Juan Water District (SJWD) wholesales water to the city, which in turn distributes the water to users via city infrastructure. the city obtains its surface water supply at two diversion points: the Folsom Reservoir and Folsom South Canal.

Wastewater Collection and Treatment. The City of Folsom's Environmental and Water Resources Department provides water and wastewater services to residents and businesses in Folsom. The city's wastewater collection system discharges into the Sacramento Regional County Sanitation District sewer system and treatment ultimately occurs at the district's wastewater treatment plant in Elk Grove. The City of Rancho Cordova relies solely on Sacramento Regional County Sanitation District sewer systems for wastewater conveyance, with treatment at the district's wastewater treatment plant in Elk Grove.

Stormwater Collection and Treatment. The City of Folsom Public Works Department handles all stormwater management issues for the city, including design and construction of the storm drain system and activities to prevent urban runoff pollution. The Streets Division of the Public Works Department operates and maintains the extensive storm drainage system, including about 200 miles of pipe, 23 miles of natural drainage channels/creeks, 60 flood control and/or water quality detention basins, and more than 200 outfalls to creeks/rivers. The City of Rancho Cordova provides drainage maintenance and operations services for the Rancho Cordova project section.

In the city of Folsom north of US-50, storm drains collect and convey urbanized runoff to Willow Creek, Humbug Creek, Hinkle Creek, Gold Creek, and Alder Creek, all of which drain into the American River. In the southeastern portion of the city, south of the American River (where the Folsom project segment is located), storm drains direct flows to Humbug Creek and Willow Creek. Willow Creek flows to the American River, downstream from the Folsom project segment (City of Folsom 2018). Overland stormwater sheet flow in Rancho Cordova generally drains toward the southwest to local streams. Storm drainage in the vicinity of the Rancho Cordova project segment is discharged to the American River.

Electric Power. The project area is in SMUD's service area. No power lines are parallel to the proposed tracks and within the SacRT right-of-way. Any power lines crossing the right-of-way would be high enough to clear the OCS for the new tracks because they span the entire width of the rail right-of-way. Currently, SMUD distributes electricity to the SacRT traction power substations that feed the OCS and power the light rail vehicles. The only traction power substation in the project area is near the Glenn Station in the Folsom project segment.

Natural Gas. Underground gas lines in the project area are owned and operated by PG&E.

Solid Waste Collection. Most refuse that is collected in Folsom and Rancho Cordova is transported to Keifer Landfill, a Class III (non-hazardous solid waste) landfill at 12701 Kiefer Boulevard in Sloughhouse, about 10 miles southeast of Rancho Cordova. Kiefer Landfill is the primary solid waste disposal facility in Sacramento County and is operated by the county. It operates 7 days a week and is permitted to accept household waste from the public, businesses, and private waste haulers. The landfill is permitted to receive a maximum of 10,815 tons per day.

3.19.2 Discussion

- a) **Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?**

Less than Significant with Mitigation Incorporated. Storm drains, sanitary sewer, and gas lines are within the Glenn Drive and Nimbus Road rights-of-way in Folsom and Rancho Cordova/Sacramento County, respectively. These are the only two locations where the proposed passing tracks would cross public rights-of-way. In addition, street, curb, and sidewalk modifications are proposed at the Folsom Boulevard/Glenn Drive intersection to accommodate the proposed passing track, second loading platform, and relocation of warning devices. Utilities within these street rights-of-way are below the depth of excavation needed for the proposed project (3–5 feet) and would be protected in place, as necessary, either with steel pipes or concrete covers, as described in Chapter 2, "Project Description." Construction for relocated poles to support the overhead contact system, which are estimated to extend 30 feet below the surface, would not occur at these street crossings and thus would not affect public or private underground utilities. No other public water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities are known to be within the project footprint. Thus,

the proposed project would not require or result in the relocation of existing water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities. During the next phase of design, the SacRT would contact the utilities, confirm the presence/absence and depth of underground utility lines within the construction footprint, and determine the appropriate method for protection of the utilities.

Construction of utilities needed for the proposed project include replacement of the existing overhead electrical lines that provide power for the light rail trains. Power is supplied already for existing Gold Line service, and the increased service would require a minor increase in electrical demand. The SacRT routinely communicates and coordinates with SMUD, and the proposed project would not require an expansion of SMUD's generating, transmission, or distribution facilities. The proposed project would not include restroom facilities, so that water supplies or wastewater collection and treatment facilities would not be affected. There could be minimal watering of the landscaped planters that could be included as part of the station design improvements, but the associated water use would be negligible and would not require new or expanded facilities. The project would include new underdrains to collect stormwater runoff that would then either percolate into the underlying soils or be conveyed to the existing storm drains in the vicinity. The small volume of runoff would not be expected to require expansion of the existing storm drains (see Item c)iii in Section 3.10, "Hydrology and Water Quality"). Construction of the underground drainage lines within the rail right-of-way would occur on previously disturbed land, the effects of which are covered in other sections of this report, primarily Section 3.4, "Biological Resources," Section 3.5, "Cultural Resources," and Section 3.9, "Hazards and Hazardous Materials." Because there is a potential for significant impacts to occur from ground disturbance within the rail right-of-way, impacts related to utility construction or relocation would be considered **potentially significant**.

Mitigation Measures. Mitigation measures are identified for other project construction activities within the right-of-way. These measures include Mitigation Measures BIO-1 through BIO-5 in Section 3.4, "Biological Resources;" Mitigation Measures CUL-1 through CUL-2 in Section 3.5, "Cultural Resources;" Mitigation Measure GEO-1 in Section 3.7, "Geology and Soils;" Mitigation Measures HAZ-1 through HAZ-5 in Section 3.9, "Hazards and Hazardous Materials;" and Therefore, impacts from utility construction or relocation would be **less than significant with mitigation incorporated**.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant. As described in item a, the proposed project would not require or result in relocation or construction of new or expanded water facilities. Water may be required for construction activities (to clean equipment, assist with dust suppression during ground disturbance, and wash streets and sidewalks); however, this water would be supplied by trucks. The proposed project may require some water during the operational phase, if the new platforms include landscaping. Because the water that would be necessary for construction activities would be supplied by trucks and the proposed project could require limited water use for landscaping that could be installed at the two new platforms during operation, water supplies would be adequate during normal, dry, and multiple dry years. Therefore, the impact on water supplies would be **less than significant**.

c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?

No Impact. The proposed project would not result in a change in wastewater generation or conveyance, because no restrooms or other uses would be installed that could affect demand for wastewater services or facilities. Because no change would occur in wastewater generation or conveyance, the proposed project would not affect

the local wastewater treatment provider's ability to handle projected wastewater flows. Therefore, **no impact** would occur.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant. Solid waste that would be generated by the proposed project would be limited to excavated soils and construction debris, including asphalt and concrete, during project construction. As described in Chapter 2, "Project Description," the SacRT would encourage, and construction contractors would have an incentive to re-use excavated materials for other project construction needs. Based on experience with other light rail construction projects, approximately 75 percent of the excavated material are expected to be re-used. Kiefer Landfill has sufficient capacity to meet demand through 2092, based on current fill rates of about 2,200 tons per day (Sacramento County 2017). Based on this available capacity, local goals to divert construction and debris wastes from the landfill, and a financial incentive for the SacRT to recycle and sell broken pavement as recycled aggregate, the proposed project would not generate a need for new solid waste facilities. The impact would be **less than significant**.

e) Comply with federal, State, and local management and reduction statutes and regulations related to solid waste?

No Impact. The proposed project would comply with the federal Resource Conservation and Recovery Act, California Integrated Waste Management Act, and Sacramento County Integrated Waste Management Plan regarding proper waste disposal. Proposed project compliance with the City of Folsom's Municipal Code Chapter 8.30, City of Rancho Cordova's Municipal Code Chapter 6.20, and City of Rancho Cordova's General Plan Goal NR.8 would promote waste reduction, re-use, recycling, and composting efforts. As a result, the proposed project would not adversely affect the attainment of solid waste reduction goals. Therefore, **no impact** related to compliance with solid waste statutes and regulations would occur.

3.19.3 References

City of Folsom. 2018 (March). *Folsom General Plan 2035 Draft Program Environmental Impact Report—Section 14 Hydrology and Water Quality*. State Clearinghouse No. 2017082054. Available: https://www.folsom.ca.us/community/planning/general_plan/environmental_documents.asp. Accessed August 24, 2019.

Sacramento County. 2017 (December). *Sacramento County General Plan of 2005–2030*. Planning and Development Department. Adopted 2005, amended 2017. Available: <http://www.per.saccounty.net/PlansandProjectsIn-Progress/Pages/GeneralPlan.aspx>. Accessed August 24, 2019.

3.20 Wildfire

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Wildfire. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.20.1 Environmental Setting

Fire hazard severity zones are measured qualitatively, based on vegetation, topography, weather, crown fire potential (a fire's tendency to burn upward into trees and tall brush), and ember production and movement within the area in question. Fire prevention areas that are considered to be under State jurisdiction are referred to as SRAs, and CAL FIRE is responsible for vegetation fires in SRA lands.¹⁰ In general, SRA lands contain trees producing, or capable of producing, forest products; timber, brush, undergrowth, and grass, whether of commercial value or not, that provide watershed protection for irrigation or for domestic or industrial use; or lands in areas that are principally used, or are useful for, range or forage purposes. Neither project segment is within an SRA (CAL FIRE 2007).

PRC Sections 4201–4204 and Government Code Sections 51175–51189 require identification of fire hazard severity zones in California. In SRAs, CAL FIRE is required to delineate three wildfire hazard ranges: moderate, high, and very high. The nearest SRA lands to the project segments are southeast of White Rock Road, approximately 7 miles east of the Rancho Cordova project segment, and are rated as a Moderate Fire Hazard Severity Zone. The nearest Very High Fire Hazard Severity Zone is in the vicinity of Deer Creek Road, approximately 11 miles southeast of the Folsom project segment and approximately 13 miles east of the Rancho Cordova project segment (CAL FIRE 2007).¹¹

¹⁰ PRC Sections 4125–4127 define an SRA as lands in which the financial responsibility for preventing and suppressing wildland fire resides with the State of California.

¹¹ CAL FIRE's Online Fire Hazard Severity Zone viewer was accessed on June 21, 2019, to confirm the hazard severity zone rating for the project area (<http://egis.fire.ca.gov/FHSZ/>).

LRAs, which are under the jurisdiction of local entities (e.g., cities and counties), are required to identify only very high fire hazard severity zones. Both of the project segments are in LRAs (i.e., the cities of Folsom and Rancho Cordova), and no very high or high fire hazard severity zones encompass the project segments or are in the project area (CAL FIRE 2008).

3.20.2 Discussion

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. Neither project segment is within an SRA or Very High Fire Hazard Severity Zone. Therefore, the proposed project would not impair an adopted emergency response plan or emergency evacuation plan for areas in an SRA or Very High Fire Hazard Severity Zone. **No impact** on an emergency response or evacuation plan from a wildfire would occur as a result of the proposed project.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

No Impact. The project segments are in developed, urbanized areas of Rancho Cordova and Folsom and are flat, with limited wildfire fuel sources. The limited amount of vegetation in and near both project segments consists of native annual and perennial grasses, turf grass, and a few native oak trees and urban street trees and ornamental shrubs. Neither project segment is in an SRA or Very High Fire Hazard Severity Zone. The nearest Very High Fire Hazard Severity Zone is in the vicinity of Deer Creek Road, approximately 11 miles southeast of the Folsom project segment and approximately 13 miles east of the Rancho Cordova project segment (CAL FIRE 2007). Therefore, construction and operation of the proposed project would have **no impact** related to exacerbating wildfire risks and exposing project occupants to pollutant concentrations from a wildfire or uncontrolled spread of a wildfire.

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. See response to item b. The proposed project would involve new light rail tracks, station platforms, and upgrades to signals at at-grade street crossings. Installing and maintaining these improvements to Gold Line light rail operations would not exacerbate fire risks, because these light rail facilities are identical to other rail infrastructure in the project area, and the area is not in an SRA or Very High Fire Hazard Severity Zone. Therefore, the proposed project would have **no impact** in terms of exacerbating wildfire risks due to infrastructure installation or maintenance.

d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. See response to item b. The proposed project would not expose people or structures to significant risks from downstream flooding, landslides, slope instability or drainage changes (see Section 3.10, “Hydrology and Water Quality,” and Section 3.7, “Geology and Soils”). Therefore, the proposed project would have **no impact** on wildfire risks that contribute to downslope or downstream flooding or landslides.

3.20.3 References

- California Department of Forestry and Fire Protection. 2007 (November). *Sacramento County—Fire Hazard Severity Zones in SRA*. Available: http://www.fire.ca.gov/fire_prevention/fhsz_maps_sacramento. Accessed June 21, 2019.
- . 2008 (October). *Sacramento County—Very High Fire Hazard Severity Zones in LRA*. Available: http://www.fire.ca.gov/fire_prevention/fhsz_maps_sacramento. Accessed June 21, 2019.

This page intentionally left blank

3.21 Mandatory Findings of Significance

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Mandatory Findings of Significance. Would the project:				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>a) As discussed in Section 3.4, “Biological Resources,” project construction could have an adverse effect on one or more special-status species that have the potential to occur in the two project segments. Habitat for the following listed species are present in the project area: valley elderberry longhorn beetle (federally threatened), Swainson’s hawk (State threatened), white-tailed kite (State fully protected), grasshopper sparrow and burrowing owl (State species of concern), and nesting birds (protected by the Migratory Bird Treaty Act). These impacts would be reduced to a less-than-significant level with implementation of the following mitigation measures:</p> <ul style="list-style-type: none"> • Mitigation Measure BIO-1: Conduct preconstruction surveys for migratory birds and raptors. • Mitigation Measure BIO-2: Avoid impacts on nesting Swainson’s hawk through preconstruction surveys and buffer zones around active nests. • Mitigation Measure BIO-3: Avoid impacts on burrowing owl in the Rancho Cordova project segment through preconstruction surveys and buffer zones around occupied burrows. • Mitigation Measure BIO-4: Avoid impacts on Valley Elderberry Longhorn Beetle (VELB) in the Rancho Cordova project segment through preconstruction surveys for VELB exit holes, restrictions on removal or trimming of elderberry shrubs, and compensatory mitigation if necessary. • Mitigation Measure BIO-5: Conduct a preconstruction arborist survey and implement a tree replacement plan. 				

Furthermore, the project improvements would occur in a narrow, linear corridor that is used for light rail service. The total disturbed area would be 2.5 acres in the Folsom project segment, of which 1.5 acres are urban, and 6.2 acres in the Rancho Cordova project segment, of which 4.8 acres are urban. Therefore, project impacts would be reduced to **less than significant with mitigation incorporated**. Because the impacts would be mitigated and the affected area is relatively small, the proposed project would not substantially degrade the environment for sensitive wildlife or plant species.

As discussed in Section 3.5, “Cultural Resources,” the only identified or recorded historical resource within the project corridor is the Sacramento Valley Railroad, which is eligible for listing in the National Register of Historic Places. The railroad lies within the same right-of-way that is used by the SacRT’s Gold Line and is where the proposed project improvements would be implemented. Similar to other previous projects that have made rail improvements or alterations to the rail lines, the proposed project would not disturb, destroy, or otherwise adversely affect the elements of the rail line that contributed to its significance. The integrity of location for the rail property is that of the right-of-way, not the actual location of the tracks, which are not in their original alignment for more than half of the approximately 20-mile line from Folsom to Sacramento. Therefore, the proposed project would not substantially affect the resource so that it could no longer convey its significance.

Based on archival research, a pedestrian survey, and consultation with Native American tribes, no recorded historic archeological, prehistoric archeological, Native American tribal cultural resources, or human remains exist within the project boundaries. However, despite previous disturbance in the project corridor, the potential for the accidental discovery of archaeological resources during project construction cannot be discounted. Thus, two mitigation measures are proposed to reduce the impacts of an inadvertent discovery of these resources during construction to a less-than-significant level:

- Mitigation Measure CUL-1: Implement procedures to address unanticipated archaeological discoveries, including halting construction, evaluating the resource, and appropriate recordation and recovery if the resource is unique.
- Mitigation Measure CUL 2: Implement procedures to address human remains.

Therefore, the impacts would be **less than significant with mitigation incorporated**.

- b) The proposed project passes through Folsom, unincorporated Sacramento County, and Rancho Cordova along Folsom Boulevard. Review of the cities’ active planning projects did not identify land development projects, the impacts of which would be cumulative with those of the proposed project. In the long term, the South of 50 development (Folsom Plan Area Specific Plan) and the Easton development plans for 6,100 acres spanning all three jurisdictions would substantially alter the land use, visual landscape, circulation network, and natural setting. Environmental documents for these projects, as well as for the Folsom Boulevard Specific Plan (Rancho Cordova and Sacramento County) and the Hazel Avenue at US-50 Interchange (Sacramento County) identify significant impacts for most of the environmental topics. The proposed project would contribute to these impacts, resulting in a significant cumulative impact. However, the proposed project would be implemented within an existing, operating rail corridor, would affect a relatively small area (2.5 acres in the Folsom project segment and 6.2 acres in the Rancho Cordova project segment), and would help reduce regional VMT, air emissions, and energy consumption that could offset the traffic, air quality, energy, and noise impacts from the cumulative projects. In addition, the majority of the impacts that have been identified for the proposed project would occur

during the relatively short-term, 2-year construction schedule. Therefore, although the proposed project would contribute to significant cumulative impacts, its contribution would be less than cumulatively considerable. The impact would be **less than significant**.

- c) Environmental resource topics that discuss the potential of the proposed project to adversely affect human health and safety include air quality (Section 3.3), geology and soils (Section 3.7), hazardous and hazardous materials (Section 3.9), hydrology and water quality (Section 3.10), noise (Section 3.13), and transportation (Section 3.17). Geotechnical and seismic hazards, flood hazards, and deterioration of water quality were evaluated and are expected to result in less than significant or no impacts. However, the proposed project's short-term, construction-related air emissions and exposure of people to hazardous materials, noise, and traffic could affect health, disrupt sleep, and impede emergency access. These following mitigation measures would reduce these effects to less than significant:

- Mitigation Measure AQ-1. Implement basic construction emission control practices (Best Management Practices).
- Mitigation Measure HAZ-1: Undertake a Phase I environmental site assessment on the property to be acquired within the Aerojet Superfund Site.
- Mitigation Measure HAZ-2: Undertake a Limited Phase II environmental site assessment within the ground disturbance area in the rail right-of-way adjacent to the Aerojet Superfund site to identify the extent and characterization of contamination in the unsaturated (vadose) zone, generally between the ground surface and the underlying water table, to define the potential health risks for project construction workers.
- Mitigation Measure HAZ-3: Prepare and implement a site-specific Health and Safety Plan (HASP) to minimize impacts on public health, worker health, and the environment from project construction activities in ground disturbance areas in the Rancho Cordova project segment.
- Mitigation Measure HAZ-4: Incorporate standards for the proper handling, transport, and disposal of excavated soils and materials into the proposed project's construction specifications.
- Mitigation Measure HAZ-5: Schedule project construction activities and site light rail facilities to avoid interference with the soil vapor extraction activities in the Rancho Cordova project segment.
- Mitigation Measure NOI-1: Prepare and implement a construction noise control plan.
- Mitigation Measure TR-2: Prepare and implement a traffic control plan.

Other environmental resource topics that also discuss how the proposed project potentially could affect people by contributing to community safety, enjoyment, and quality of life include: aesthetics (Section 3.1), biology (loss of trees) (Section 3.4), land use (community division) (Section 3.11), public services (Section 3.15), recreation (Section 3.16), transportation (mobility and circulation) (Section 3.17), and utilities (Section 3.19). The analyses in the identified sections indicate that the proposed project would have less-than-significant impacts related to these topics, except possible impacts from loss of trees and on local circulation because of increased delays along streets that cross the Gold Line right-of-way. The following mitigation measures would be implemented to reduce these impacts to a less-than-significant level:

- Mitigation Measure BIO-5: Conduct a preconstruction arborist survey and implement a tree replacement plan.
- Mitigation Measure TR-1: Adjust traffic and train signaling to reduce intersection delays to acceptable levels.

Therefore, the impacts on human beings, directly and indirectly, would be **less than significant with mitigation incorporated**.

4 Determination

On the basis of this Initial Study:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

Darryl Abansado
Director, Engineering and Construction
Sacramento Regional Transit District

DATE

This page intentionally left blank

5 List of Preparers

Project Sponsors: Sacramento Regional Transit District

Darryl Abansado	Director, Civil and Track Design
Sangita Arya	Project Manager; Senior Systems Engineer

Environmental Consultant: AECOM Technical Services, Inc.

Rod Jeung	Project Manager
Emily Biro	Environmental Planner: Public Services
Wendy Copeland	Environmental Scientist: Aesthetics, Geology, Hazardous Materials, Hydrology, Minerals, Recreation
Jasmine Greer	Environmental Scientist: Biology
Charlotte Hummer	Environmental Planner: Energy, Population and Housing
Jenifer King	Environmental Planner: Agriculture/Forestry, Land Use, Wildfire
Issa Mahmodi	Environmental Scientist: Noise, Transportation
Geoff Mahley	Environmental Planner: Utilities
Chandra Miller	Environmental Planner: Cultural Resources
Paola Pena	Environmental Scientist: Air Quality, Energy, Greenhouse Gas Emissions
Jennifer Redmond	Environmental Planner: Cultural Resources
Lisa Clement	GIS/Graphics
Bryn Montgomery	GIS/Graphics
Sayaka Araki	GIS/Graphics
Beth Duffey	Senior Editor, Environment
Deborah Jew	Word Processor, Document Production

Engineering Consultant: AECOM Technical Services, Inc.

Alan Boone	Lead Engineer
Angela Shields	Senior Engineer, Transit/Rail

Rail Operations/Simulation Consultant: Jacobs (CH2M Hill)

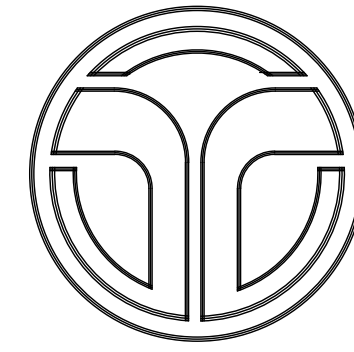
Matt Franck	Project Manager
Rick Newton	Systems Engineer

Public Outreach Consultant: CirclePoint

Patti Ransdell	Project Manager
Tracy Cook	Senior Associate
Mukta Kelkar	Project Coordinator

Appendix A

**Folsom Light Rail Modernization Project
Plans and Profiles**

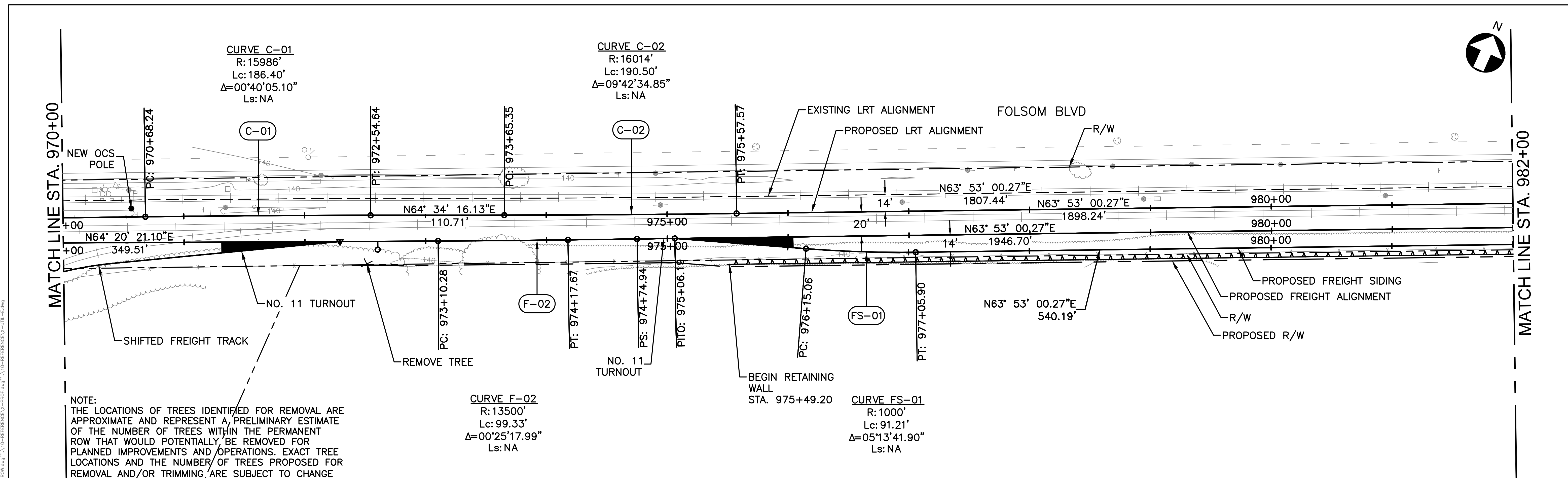


SACRAMENTO REGIONAL TRANSIT DISTRICT

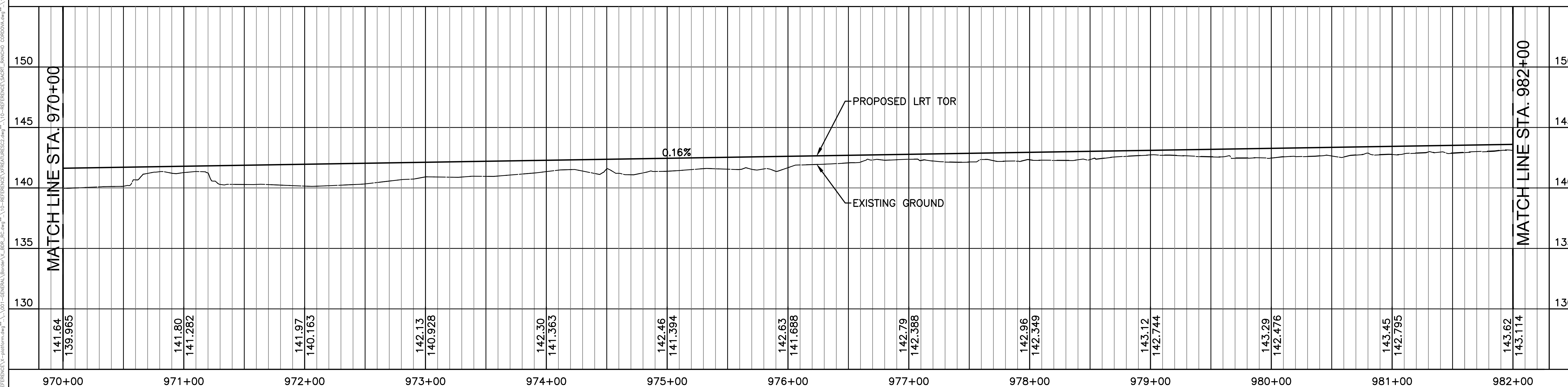
FOLSOM LIGHT RAIL MODERNIZATION DOUBLE TRACKING PROJECT SACRAMENTO COUNTY DRAFT PRELIMINARY ENGINEERING OCTOBER 2019

DRAWING INDEX

RC-01 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - PLAN & PROFILE - STA. 965+00 TO STA. 970+00
RC-02 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - PLAN & PROFILE - STA. 970+00 TO STA. 982+00
RC-03 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - PLAN & PROFILE - STA. 982+00 TO STA. 994+00
RC-04 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - PLAN & PROFILE - STA. 994+00 TO STA. 1005+00
RC-05 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - PLAN & PROFILE - STA. 1005+00 TO STA. 1018+00
RC-06 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - PLAN & PROFILE - STA. 1018+00 TO STA. 1024+76.92
F-01 - FOLSOM PASSING TRACK - PLAN & PROFILE - STA. 1169+80.08 TO STA. 1171+50
F-02 - FOLSOM PASSING TRACK - PLAN & PROFILE - STA. 1171+50 TO STA. 1182+50
F-03 - FOLSOM PASSING TRACK - PLAN & PROFILE - STA. 1182+50 TO STA. 1190+36.66
TS-01 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - TRACK - TYPICAL SECTIONS
TS-02 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - TRACK - TYPICAL SECTIONS
TS-03 - FOLSOM PASSING TRACK - TRACK - TYPICAL SECTIONS
TS-04 - FOLSOM PASSING TRACK - TRACK - TYPICAL SECTIONS
TS-05 - FOLSOM PASSING TRACK - TRACK - TYPICAL SECTIONS
GC-01 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - NIMBUS ROAD - GRADE CROSSING MODIFICATIONS
GC-02 - FOLSOM PASSING TRACK - GLENN DRIVE - GRADE CROSSING MODIFICATIONS
SP-01 - RANCHO CORDOVA DOUBLE TRACK EXTENSION - HAZEL STATION - PLATFORM PLAN
SP-02 - FOLSOM PASSING TRACK - GLENN STATION - PLATFORM PLAN



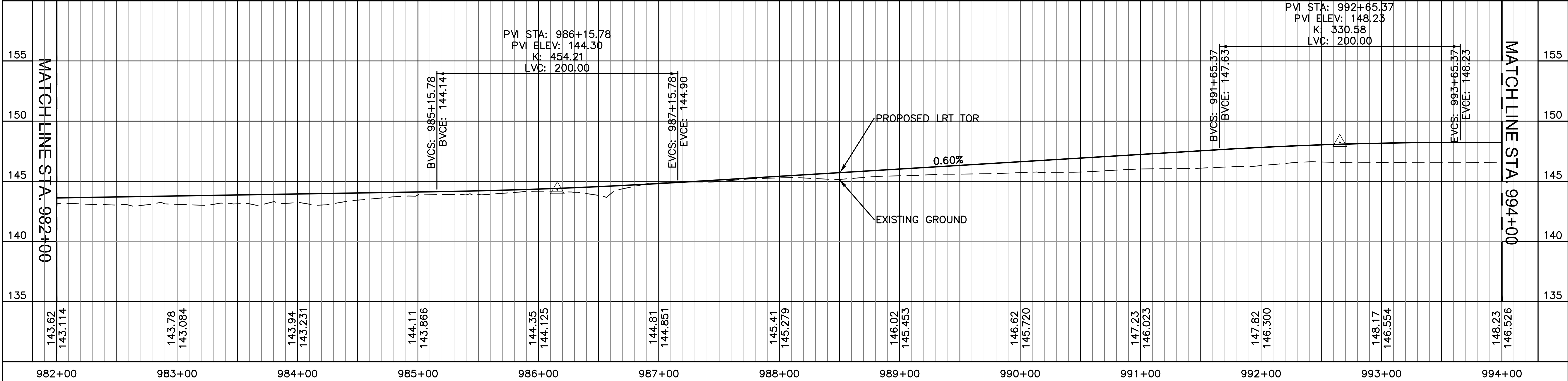
NOTE: THE LOCATIONS OF TREES IDENTIFIED FOR REMOVAL ARE APPROXIMATE AND REPRESENT A PRELIMINARY ESTIMATE OF THE NUMBER OF TREES WITHIN THE PERMANENT ROW THAT WOULD POTENTIALLY BE REMOVED FOR PLANNED IMPROVEMENTS AND OPERATIONS. EXACT TREE LOCATIONS AND THE NUMBER OF TREES PROPOSED FOR REMOVAL AND/OR TRIMMING ARE SUBJECT TO CHANGE FOLLOWING FINAL PROJECT DESIGN AND THE RESULTS OF A PROJECT-SPECIFIC PRE-CONSTRUCTION ARBORIST SURVEY CONDUCTED IN ACCORDANCE WITH LOCAL TREE PROTECTION AND PRESERVATION ORDINANCES."



PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS					SCALE: VERTICAL: 1"=40' HORIZONTAL: 1"=4'	PROJECT ENGINEER: A. SHIELDS DESIGNED BY: A. SHIELDS DRAWN BY: A. SHIELDS CHECKED BY: A. BOONE	DATE	<div><div>AECOM</div><div>AECOM USA, Inc. 2020 L Street, Suite 300 Sacramento, CA 95811 T 916.414.5800 F 916.414.1557</div></div>	CI: FILE: #####.DWG SUBMITTAL:	<div><div><div></div></div><div>Regional Transit</div></div>	FOLSOM RAIL MODERNIZATION PROJECT RANCHO CORDOVA DOUBLE TRACK EXTENSION PLAN & PROFILE STA. 970+00 TO STA. 982+00	RC-00 SHEET ##### OF #####
MARK	DATE	DESCRIPTION	BY	CHKD								
△												
△												
△												
△												

P:\3e-rv\0500072_Cold Line_Era\001_040-050\010_007_061_V0-05\HEETS\RC-03.dwg Time: 06/20/19 11:40am User: shields.dlmisc: 40 13Scale: 1"=40' Images: 1
P:\3e-rv\0500072_Cold Line_Era\001_040-050\010_007_061_V0-05\HEETS\RC-03.dwg Time: 06/20/19 11:40am User: shields.dlmisc: 40 13Scale: 1"=40' Images: 1
P:\3e-rv\0500072_Cold Line_Era\001_040-050\010_007_061_V0-05\HEETS\RC-03.dwg Time: 06/20/19 11:40am User: shields.dlmisc: 40 13Scale: 1"=40' Images: 1



PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				

SCALE: VERTICAL: 1"=40'
HORIZONTAL: 1"=4'
ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: A. SHIELDS	DATE
DESIGNED BY: A. SHIELDS	
DRAWN BY: A. SHIELDS	
CHECKED BY: A. BOONE	

AECOM

AECOM USA, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811
T 916.414.5800 F 916.414.1557

CI:
FILE: RC-03.DWG
SUBMITTAL:



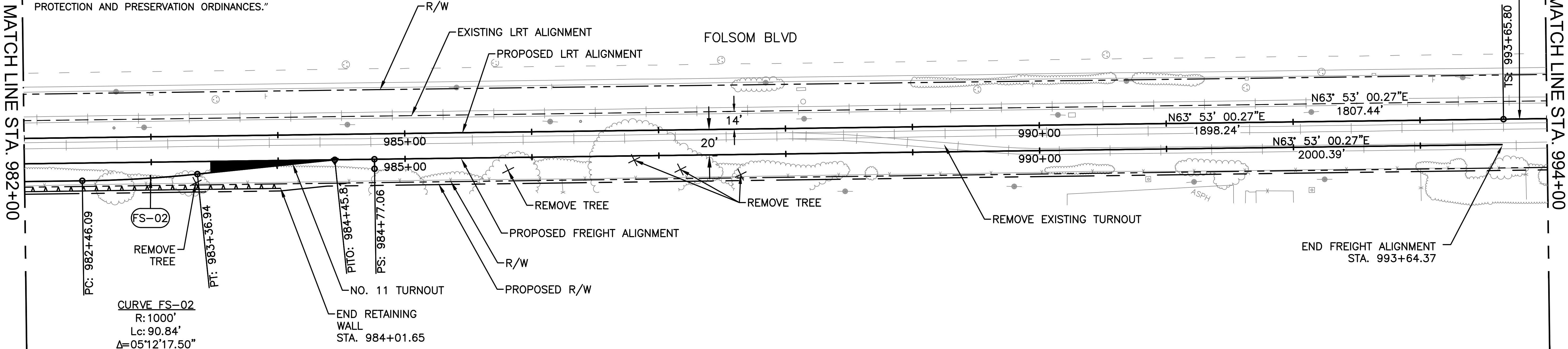
FOLSOM RAIL MODERNIZATION PROJECT
RANCHO CORDOVA DOUBLE TRACK EXTENSION

PLAN & PROFILE
STA. 982+00 TO STA. 994+00

RC-03
SHEET #### OF ####

NOTE:
THE LOCATIONS OF TREES IDENTIFIED FOR REMOVAL ARE APPROXIMATE AND REPRESENT A PRELIMINARY ESTIMATE OF THE NUMBER OF TREES WITHIN THE PERMANENT ROW THAT WOULD POTENTIALLY BE REMOVED FOR PLANNED IMPROVEMENTS AND OPERATIONS. EXACT TREE LOCATIONS AND THE NUMBER OF TREES PROPOSED FOR REMOVAL AND/OR TRIMMING ARE SUBJECT TO CHANGE FOLLOWING FINAL PROJECT DESIGN AND THE RESULTS OF A PROJECT-SPECIFIC PRE-CONSTRUCTION ARBORIST SURVEY CONDUCTED IN ACCORDANCE WITH LOCAL TREE PROTECTION AND PRESERVATION ORDINANCES."

CURVE C-03
Ls1: 90'
Ls2: 90'



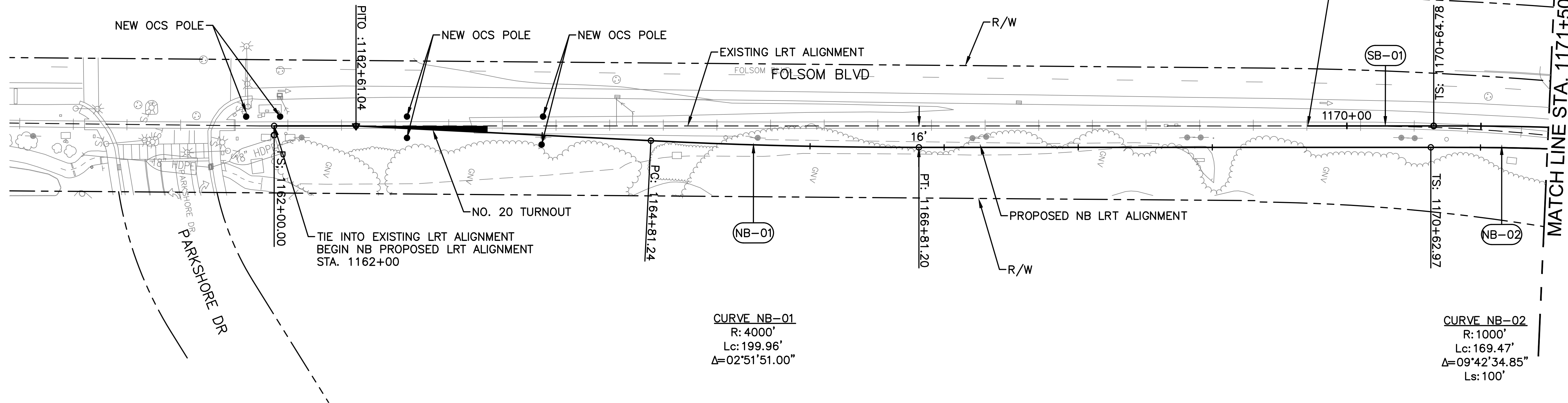


NOTE:
THE LOCATIONS OF TREES IDENTIFIED FOR REMOVAL ARE APPROXIMATE AND REPRESENT A PRELIMINARY ESTIMATE OF THE NUMBER OF TREES WITHIN THE PERMANENT ROW THAT WOULD POTENTIALLY BE REMOVED FOR PLANNED IMPROVEMENTS AND OPERATIONS. EXACT TREE LOCATIONS AND THE NUMBER OF TREES PROPOSED FOR REMOVAL AND/OR TRIMMING ARE SUBJECT TO CHANGE FOLLOWING FINAL PROJECT DESIGN AND THE RESULTS OF A PROJECT-SPECIFIC PRE-CONSTRUCTION ARBORIST SURVEY CONDUCTED IN ACCORDANCE WITH LOCAL TREE PROTECTION AND PRESERVATION ORDINANCES.

CURVE_SB-01
R: 1000'
Lc: 169.46'
 $\Delta = 09^{\circ}42'34.96''$

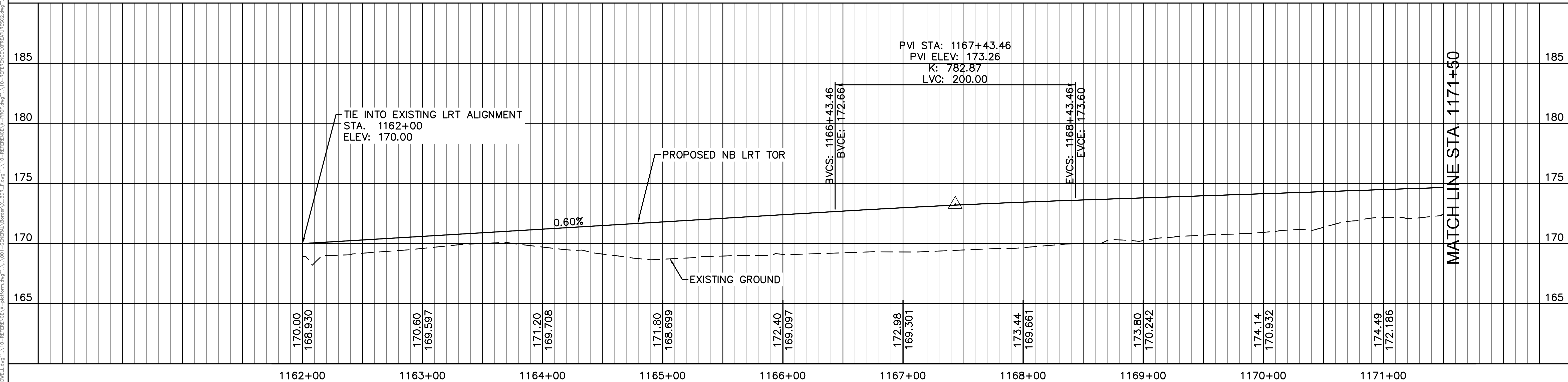


TIE INTO EXISTING LRT ALIGNMENT
PROPOSED SB STA. 1169+70.80



CURVE_NB-01
R: 4000'
Lc: 199.96'
 $\Delta = 02^{\circ}51'51.00''$

CURVE_NB-02
R: 1000'
Lc: 169.47'
 $\Delta = 09^{\circ}42'34.85''$
Ls: 100'



PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				

SCALE: VERTICAL: 1"=40'
HORIZONTAL: 1"=4'
ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: A. SHIELDS
DESIGNED BY: A. SHIELDS
DRAWN BY: A. SHIELDS
CHECKED BY: A. BOONE

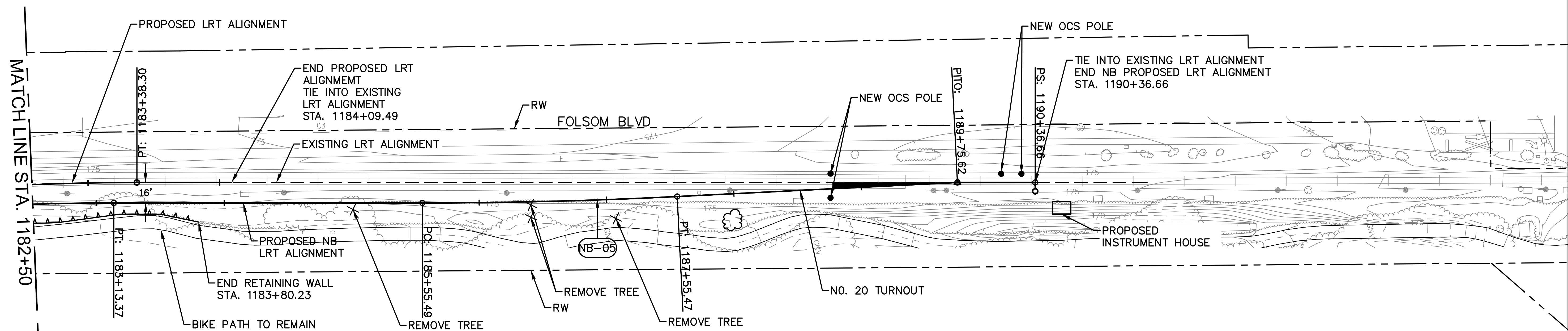
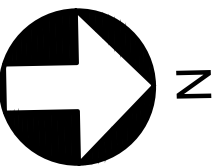
DATE
AECOM
AECOM USA, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811
T 916.414.5800 F 916.414.1557

CI:
FILE:
F-01.DWG
SUBMITTAL:



FOLSOM RAIL MODERNIZATION PROJECT
FOLSOM PASSING TRACK
PLAN & PROFILE
STA. 1169+80.08 TO STA. 1171+50
F-01
SHEET

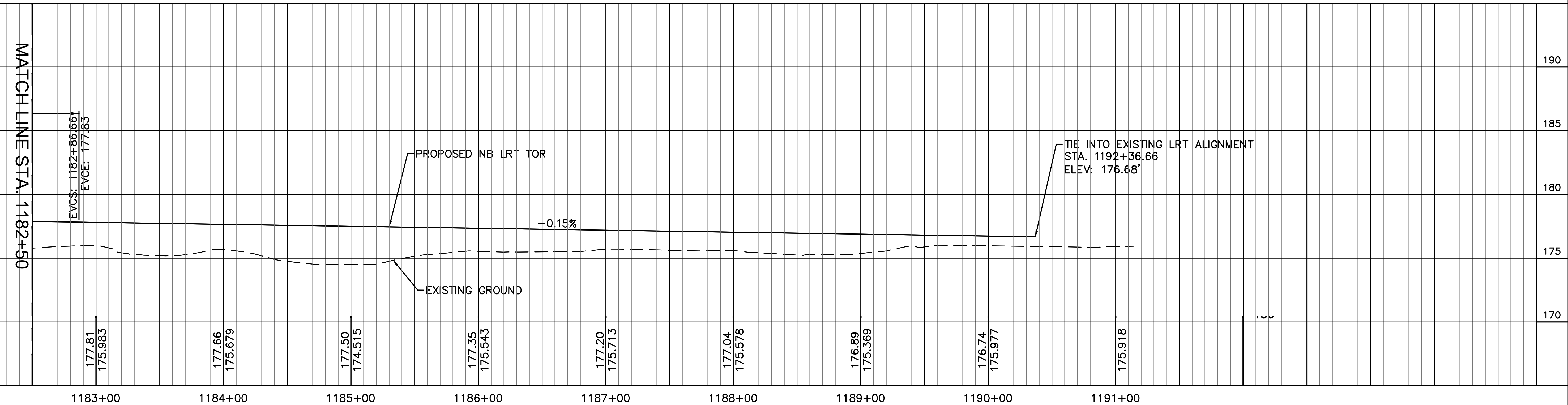
OF
####



NOTE:
THE LOCATIONS OF TREES IDENTIFIED FOR REMOVAL ARE APPROXIMATE AND REPRESENT A PRELIMINARY ESTIMATE OF THE NUMBER OF TREES WITHIN THE PERMANENT ROW THAT WOULD POTENTIALLY BE REMOVED FOR PLANNED IMPROVEMENTS AND OPERATIONS. EXACT TREE LOCATIONS AND THE NUMBER OF TREES PROPOSED FOR REMOVAL AND/OR TRIMMING ARE SUBJECT TO CHANGE FOLLOWING FINAL PROJECT DESIGN AND THE RESULTS OF A PROJECT-SPECIFIC PRE-CONSTRUCTION ARBORIST SURVEY CONDUCTED IN ACCORDANCE WITH LOCAL TREE PROTECTION AND PRESERVATION ORDINANCES."

CURVE NB-05
R: 4000'
Lc: 199.57'
Δ=02°51'51.00"

MATCH LINE STA. 1182+50



PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				

SCALE: VERTICAL: 1"=40'
HORIZONTAL: 1"=4'
ORIGINAL SCALE IN INCHES FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: A. SHIELDS	DATE
DESIGNED BY: A. SHIELDS	
DRAWN BY: A. SHIELDS	
CHECKED BY: A. BOONE	

AECOM

AECOM USA, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811
T 916.414.5800 F 916.414.1557

CI:
FILE: F-03.DWG
SUBMITTAL:

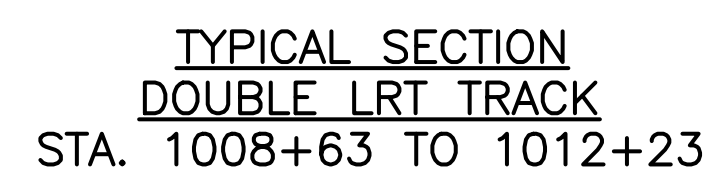
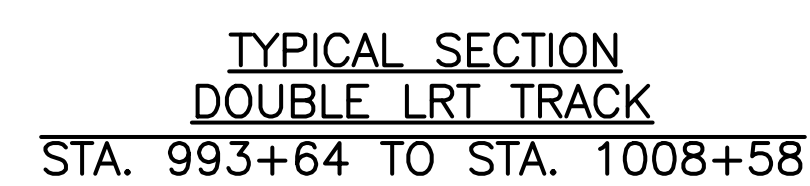
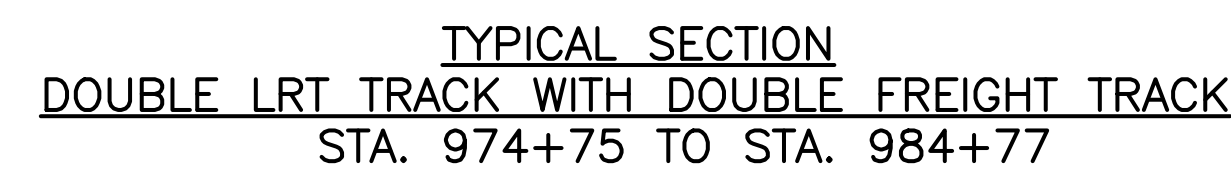
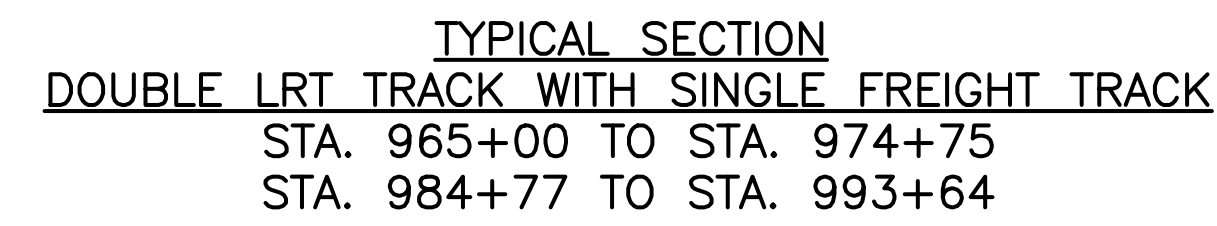


FOLSOM RAIL MODERNIZATION PROJECT
FOLSOM PASSING TRACK

PLAN & PROFILE
STA. 1182+50 TO STA. 1190+36.66

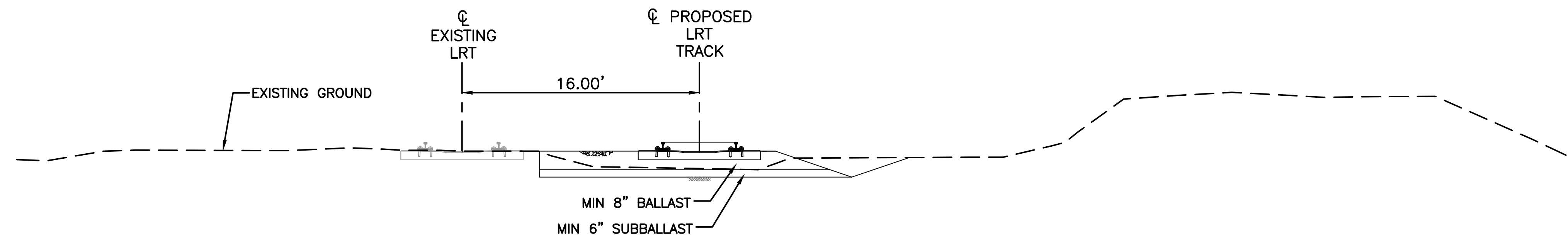
F-03
SHEET

OF
####

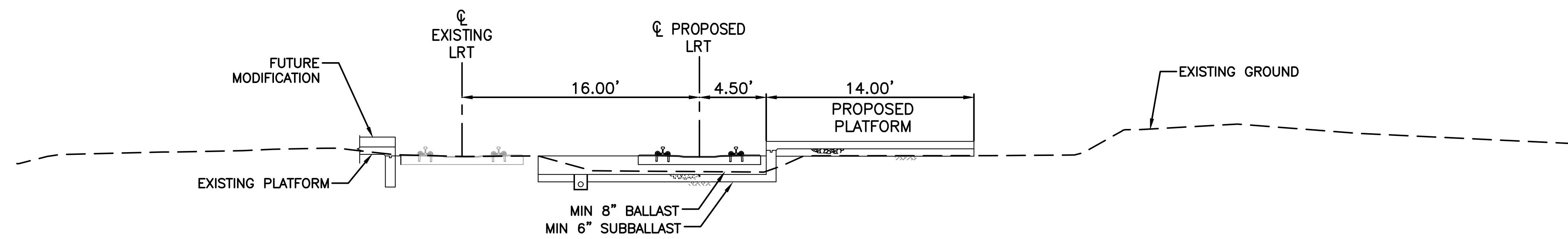


SHEET

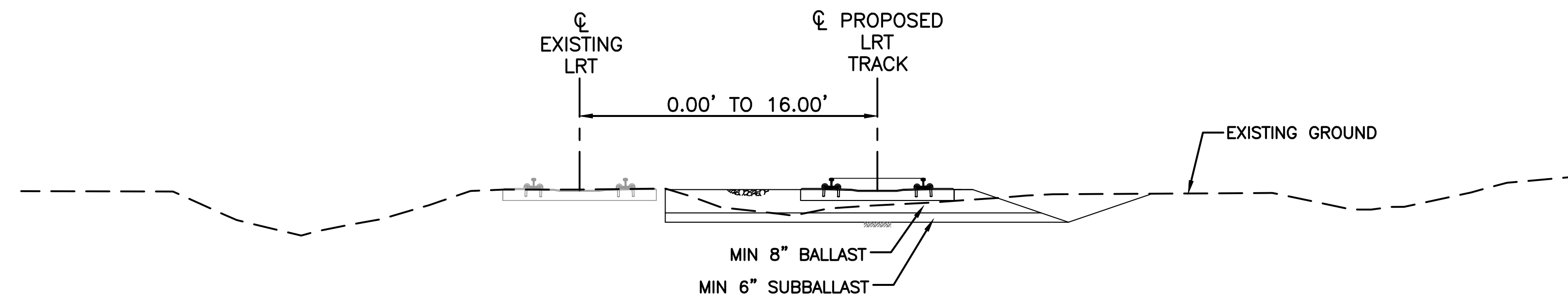
OF
#####



TYPICAL SECTION
DOUBLE LRT TRACK
STA. 1012+23 TO STA. 1012+68



TYPICAL SECTION
HAZEL STATION
STA. 1012+68 TO STA. 1015+98



TYPICAL SECTION
DOUBLE LRT TRACK
STA. 1015+98 TO STA. 1024+77

PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=5'
HORIZONTAL: 1"=5'
ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: A. SHIELDS
DESIGNED BY: A. SHIELDS
DRAWN BY: A. SHIELDS
CHECKED BY: A. BOONE

DATE
AECOM
AECOM USA, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811
T 916.414.5800 F 916.414.1557

CI:
FILE:
TS-02.DWG
SUBMITTAL:



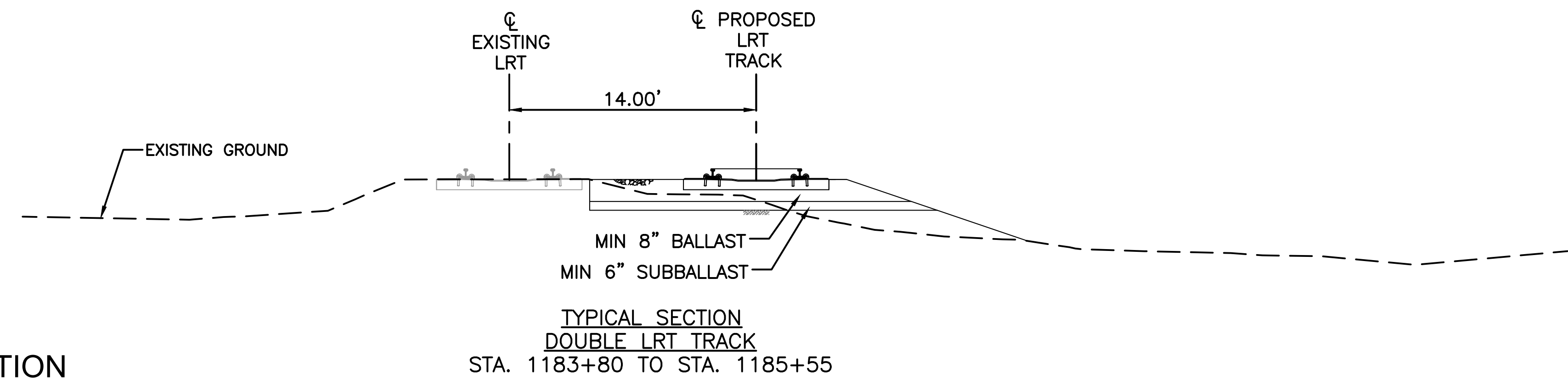
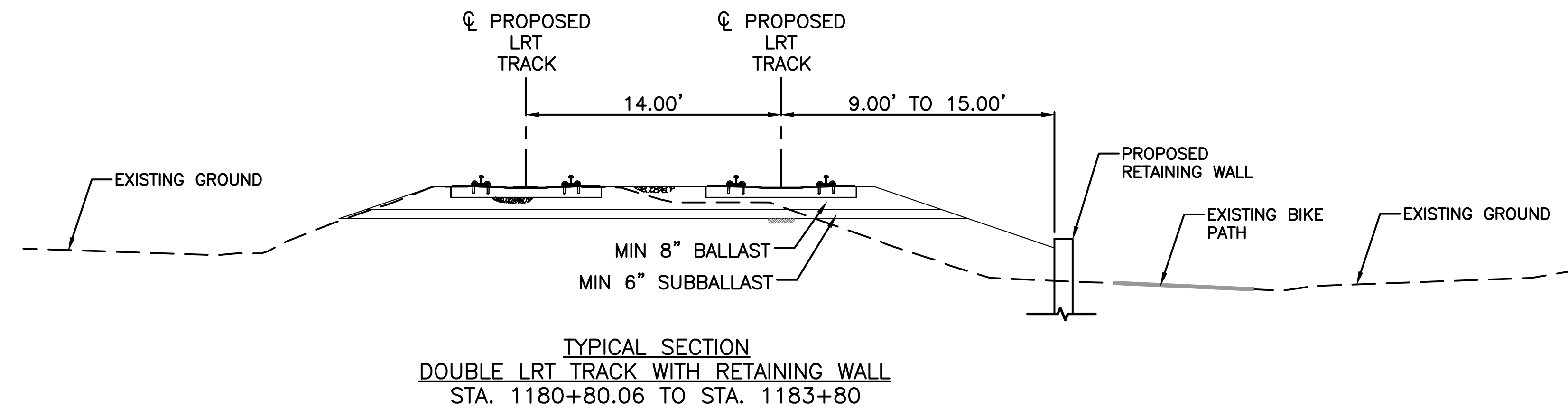
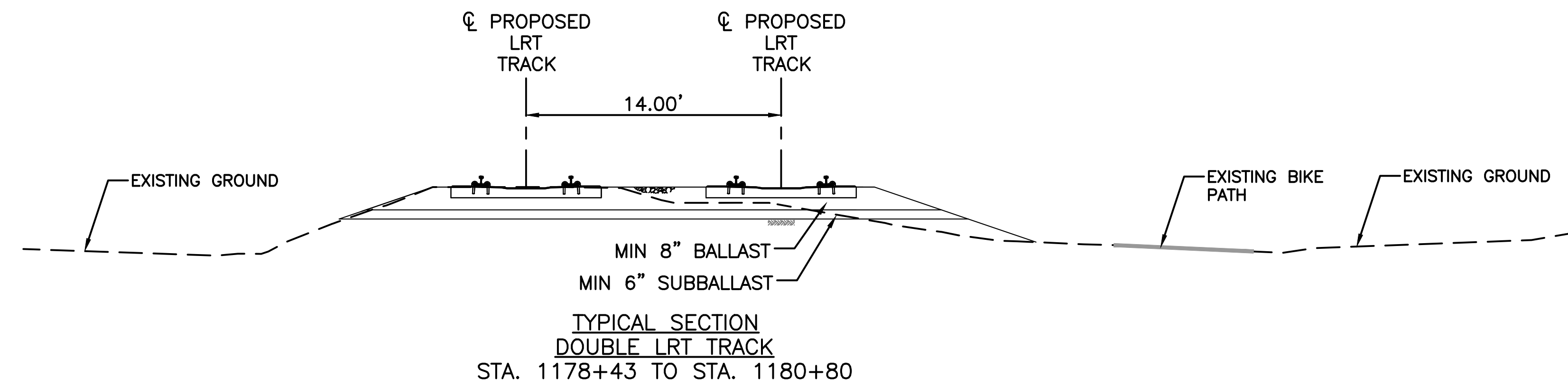
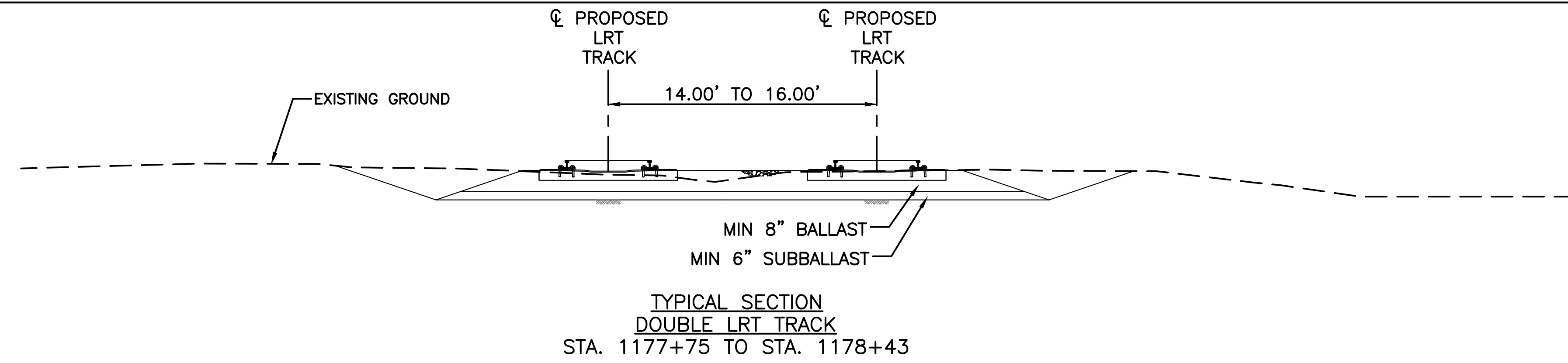
FOLSOM RAIL MODERNIZATION PROJECT
RANCHO CORDOVA DOUBLE TRACK EXTENSION
TRACK
TYPICAL SECTIONS
TS-02
SHEET

OF
####



TS-03
SHEET

OF
####



PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=5'
HORIZONTAL: 1"=5'

ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN

PROJECT ENGINEER: A. SHIELDS

DESIGNED BY: A. SHIELDS

DRAWN BY: A. SHIELDS

CHECKED BY: A. BOONE

DATE

AECOM

AECOM USA, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811
T 916.414.5800 F 916.414.1557

CI:

FILE:
#####.DWG

SUBMITTAL:



FOLSOM RAIL MODERNIZATION PROJECT
FOLSOM PASSING TRACK

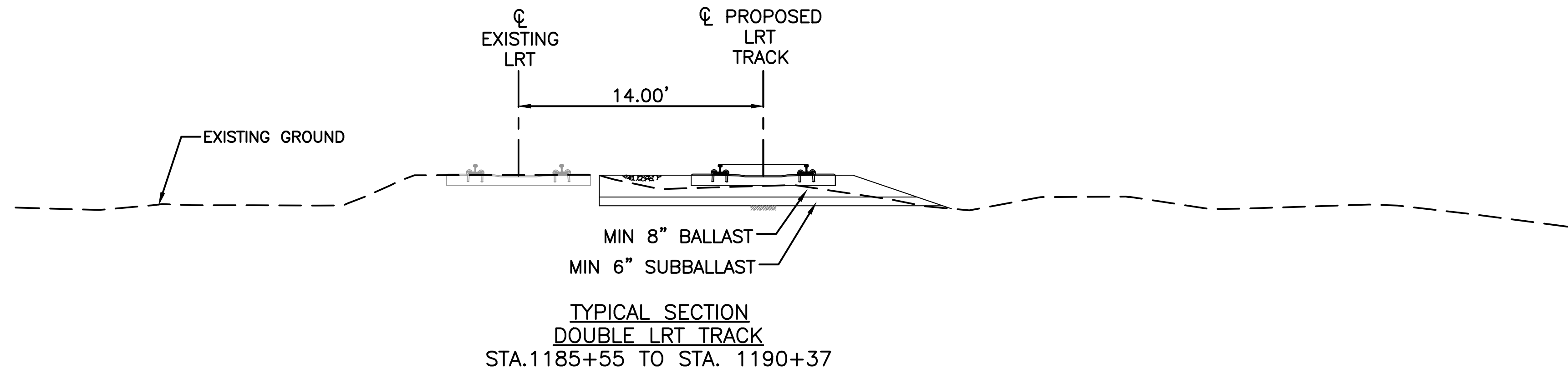
TRACK
TYPICAL SECTIONS

TS-04

SHEET

OF
###

P:\360-RTV\05090075_Cadd_Lines_EPA\360-240-050\360-240-007-RAIL_V30-SHEETS\TS-04.dwg Time: 05/10/2019 11:08am Login: ShieldsA DimScale: 0.68333333 LTScale: 1 Images: P:\360-RTV\05090075_Cadd_Lines_EPA\360-240-050\360-240-007-RAIL_V30-SHEETS\TS-04.dwg



P:\360-RTV\05090075_Coord Line_EPA\360-240-255\910_CAD\007_BALL\360-SHIELDS\TS-05.dwg Time: Oct 10, 2019 - 11:06am Login: ShieldsA Dimstyle: 0.68333333 LTScale: 1 Images: 1

PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=5'
HORIZONTAL: 1"=5'

ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN

PROJECT ENGINEER: A. SHIELDS	DATE
DESIGNED BY: A. SHIELDS	
DRAWN BY: A. SHIELDS	
CHECKED BY: A. BOONE	

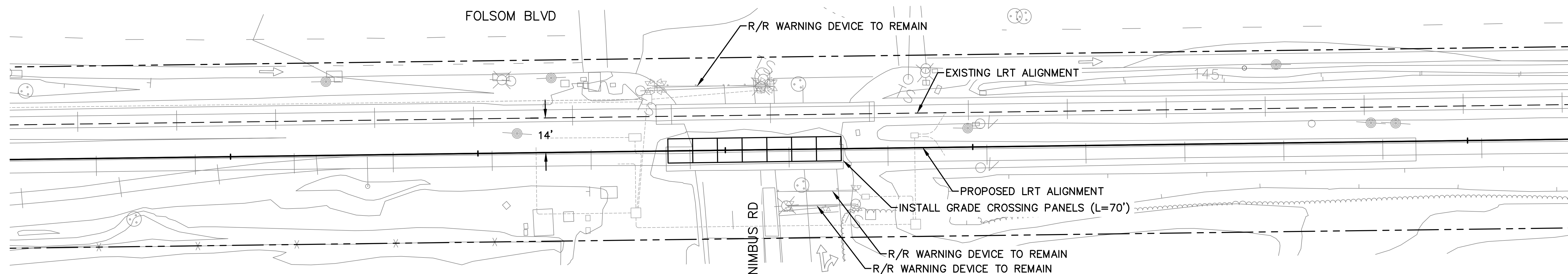
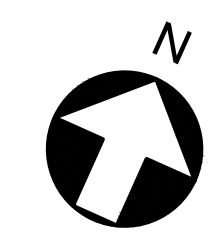


AECOM USA, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811
T 916.414.5800 F 916.414.1557

CI:
FILE: #####.DWG
SUBMITTAL:



FOLSOM RAIL MODERNIZATION PROJECT FOLSOM PASSING TRACK	TS-05
TRACK TYPICAL SECTIONS	SHEET ### OF ###



PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=20'
HORIZONTAL: NA

ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN

PROJECT ENGINEER: A. SHIELDS	DATE
DESIGNED BY: A. SHIELDS	
DRAWN BY: A. SHIELDS	
CHECKED BY: A. BOONE	

AECOM

AECOM USA, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811
T 916.414.5800 F 916.414.1557

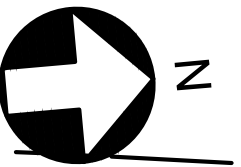
CI:
FILE: GC-01.DWG
SUBMITTAL:



FOLSOM RAIL MODERNIZATION PROJECT
RANCHO CORDOVA DOUBLE TRACK EXTENSION

NIMBUS ROAD
GRADE CROSSING MODIFICATIONS

GC-01
SHEET ### OF ###



FOLSOM BLVD

RELOCATED R/R
WARNING DEVICE

INSTALL CONCRETE CROSSING
PANELS (L=130')

PROPOSED LRT ALIGNMENT

INSTALL BARRIER

PROPOSED PLATFORM

INSTALL CONCRETE CROSSING
PANELS (L=120')

CONFORM TO EXISTING
6.5' SIDEWALK

EXISTING STREET LIGHT TO BE RELOCATED

RELOCATED R/R WARNING DEVICE

RELOCATED R/R WARNING DEVICE

CROSSWALK

GLENN DR

GLENN STATION

EXISTING LRT ALIGNMENT

PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=20'
HORIZONTAL: NA
ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: A. SHIELDS
DESIGNED BY: A. SHIELDS
DRAWN BY: A. SHIELDS
CHECKED BY: A. BOONE

DATE

AECOM

AECOM USA, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811
T 916.414.5800 F 916.414.1557

CI:

FILE:
GC-02.DWG

SUBMITTAL:



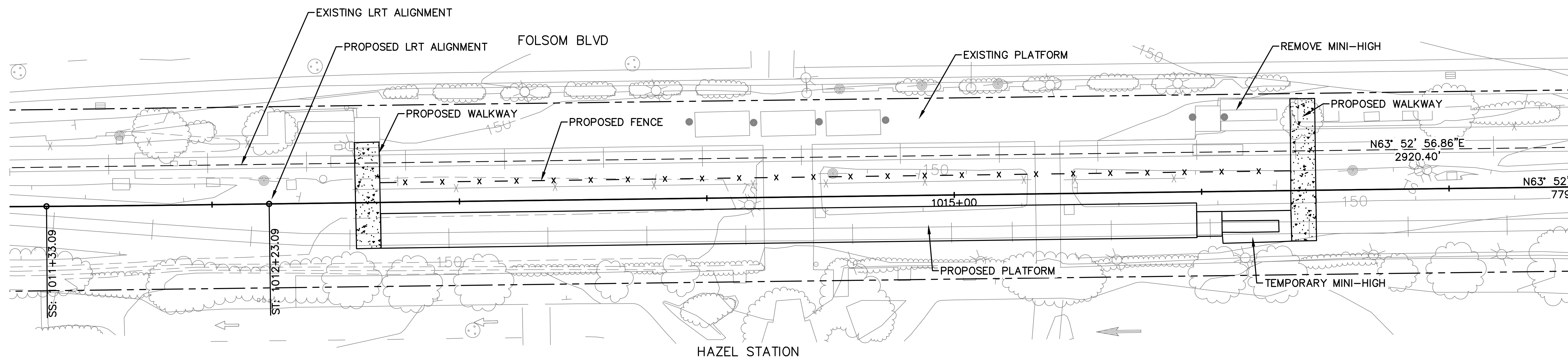
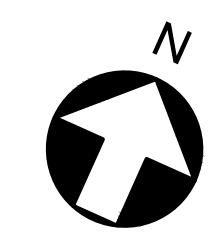
FOLSOM RAIL MODERNIZATION PROJECT
FOLSOM PASSING TRACK

GLENN DRIVE
GRADE CROSSING MODIFICATION

GC-02

SHEET

OF
###



PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

REVISIONS				
MARK	DATE	DESCRIPTION	BY	CHKD
△				
△				
△				
△				

SCALE: VERTICAL: 1"=20'
HORIZONTAL: NA
ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN
0 1 2 3

PROJECT ENGINEER: A. SHIELDS	DATE
DESIGNED BY: A. SHIELDS	
DRAWN BY: A. SHIELDS	
CHECKED BY: A. BOONE	

AECOM
AECOM USA, Inc.
2020 L Street, Suite 300
Sacramento, CA 95811
T 916.414.5800 F 916.414.1557

CI:
FILE: SP-01.DWG
SUBMITTAL:

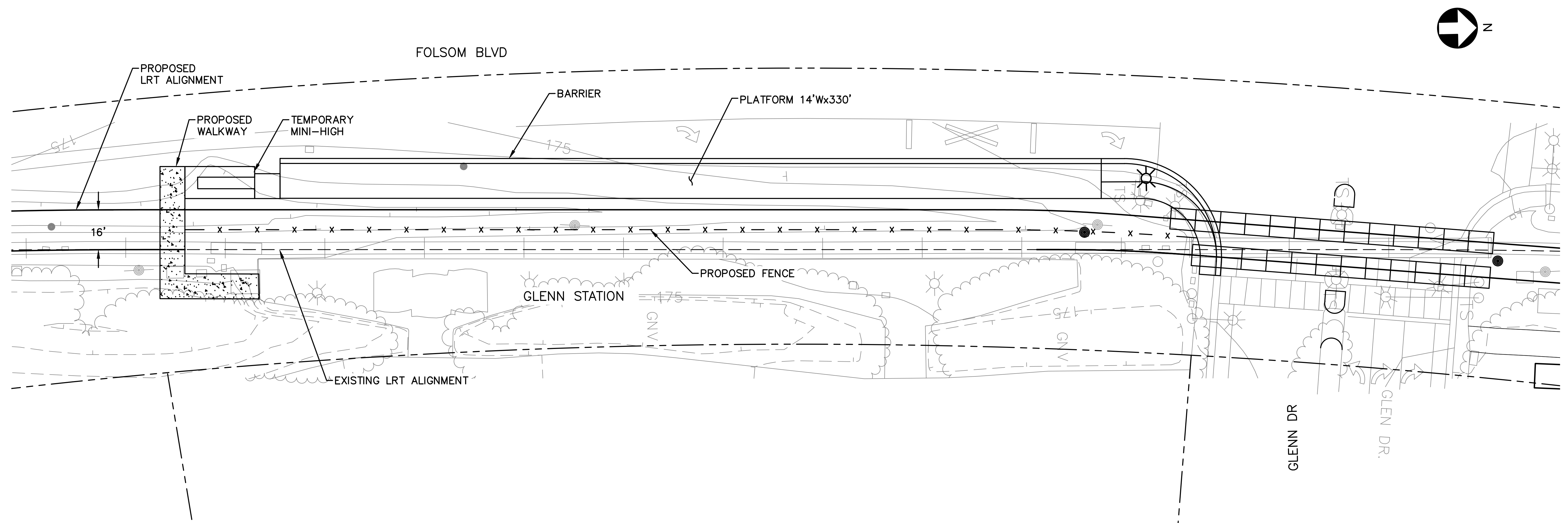


FOLSOM RAIL MODERNIZATION PROJECT
RANCHO CORDOVA DOUBLE TRACK EXTENSION

HAZEL STATION
PLATFORM PLAN

SP-01
SHEET

OF
###



PRELIMINARY ENGINEERING - NOT FOR CONSTRUCTION

SCALE: VERTICAL: 1"=20'
HORIZONTAL: NA

ORIGINAL SCALE IN INCHES
FOR REDUCED PLAN

PROJECT ENGINEER: <u>A. SHIELDS</u>	DATE
DESIGNED BY: <u>A. SHIELDS</u>	
DRAWN BY: <u>A. SHIELDS</u>	
CHECKED BY: <u>A. BOONE</u>	



CI:
FILE: SP-02.DWG
SUBMITTAL:

FOLSOM RAIL MODERNIZATION PROJECT
FOLSOM PASSING TRACK

SP-02
SHEET

OF
#####

Appendix B

Air Quality Modeling Assumptions and Results

Folsom Light Rail Modernization Project - Emission Estimates

Project Phases	ROG	CO	NOx	PM10	PM2.5	SOx
Folsom Segment						
Grubbing/Land Clearing	1.74	16.12	17.69	0.94	0.81	0.04
Grading/Excavation	1.6	15.91	15.61	0.83	0.72	0.03
Drainage/Utilities/Sub-Grade	3.67	28.54	33.48	1.66	1.50	0.05
Paving	1.96	18.2	16.79	0.84	0.81	0.03
RoadMod Results Max Daily (pounds/day)	3.67	28.54	33.48	1.66	1.50	0.05
Material Deliveries	0.14	0.55	4.82	1.80	0.47	0.01
Total Maximum Daily	3.81	29.09	38.30	3.46	1.97	0.06
Total (tons/segment)	0.68	5.75	6.27	0.32	0.29	0.01

Project Phases	ROG	CO	NOx	PM10	PM2.5	SOx
Rancho Cordova Segment						
Grubbing/Land Clearing	2.10	20.25	21.17	1.21	0.97	0.05
Grading/Excavation	1.91	19.82	18.12	1.03	0.85	0.04
Drainage/Utilities/Sub-Grade	4.32	32.59	36.73	1.92	1.67	0.06
Paving	2.93	28.49	24.6	1.25	1.19	0.05
RoadMod Results Max Daily (pounds/day)	4.32	32.59	36.73	1.92	1.67	0.06
Material Deliveries	0.11	0.45	3.92	1.46	0.38	0.01
Total Maximum Daily	4.43	33.04	40.65	3.38	2.05	0.07
Total (tons/segment)	0.85	7.23	7.41	0.40	0.34	0.01

Phase	Metric Tons CO ₂ e
Folsom	
Grubbing/Land Clearing	140.71
Grading/Excavation	118.43
Drainage/Utilities/Sub-Grade	517.54
Paving	188.19
Total RoadMod GHG Results	964.87
Material Deliveries	2.69
Total GHG Emissions (metric tons)	967.56

Phase	Metric Tons CO ₂ e
Rancho Cordova	
Grubbing/Land Clearing	200.36
Grading/Excavation	144.54
Drainage/Utilities/Sub-Grade	599.04
Paving	282.51
Total RoadMod GHG Results	1226.45
Material Deliveries	4.92
Total GHG Emissions (metric tons)	1,231.37

Total GHG Emissions (MT CO ₂ e)	
Folsom Segment	967.56
Rancho Cordova Segment	1,231.37
Total GHG Emissions	2,198.94
Amortized GHG Emissions (25 years)	87.96

Truck Delivery Days - Folsom	Days
Aggregate Base	5
Track Ballast	6
Rail	2
Ties	2
Total Days For Rail and Ties	4

Truck Delivery Days - Rancho Cordova	Days
Aggregate Base	10
Track Ballast	13
Rail	4
Ties	5
Total Days For Rail and Ties	9

On-Road Emission Estimates during Construction - Material Deliveries

Segment	Length	
Folsom Segment	2937.063	32%
Rancho Cordova Segment	6231.593	68%
Folsom and RC Segment	9,168.66	feet

Folsom Segment				Emission Factors (g/mi)									Emissions (lbs)									GHG Emissions			
Delivery Trips	Total Trucks	Distance	Total Mileage (miles)	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O			MT CO2e	
Plastic Drain Pipes	8	20	320	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.11	0.43	3.77	0.09	0.04	0.01	1,159.59	0.00	0.00			0.53	
Rail Materials	6	20	243	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.08	0.33	2.87	0.07	0.03	0.01	882.22	0.00	0.00			0.40	
Ties	17	20	679	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.23	0.92	8.00	0.19	0.09	0.02	2,460.93	0.01	0.01			1.12	
Concrete Trucks	15	6.5	195	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.07	0.26	2.30	0.05	0.03	0.01	706.63	0.00	0.00			0.32	
Concrete Panel Deliveries	3	20	120	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.04	0.16	1.41	0.03	0.02	0.00	434.85	0.00	0.00			0.20	
OCS Poles	1	20	40	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.01	0.05	0.47	0.01	0.01	0.00	144.95	0.00	0.00			0.07	
OCS Wire	1	20	40	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.01	0.05	0.47	0.01	0.01	0.00	144.95	0.00	0.00			0.07	
Total													0.56	2.21	19.30	7.21	1.89	0.06	5,934.11	0.02	0.02			2.69	
												tons/year													
												0.00	0.00	0.01	0.00	0.00	0.00								

Rancho Cordova Segment				Emission Factors (g/mi)										Emissions (lbs)										GHG Emissions	
Delivery Trips	Total Trucks	Distance	Total Mileage (miles)	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O			MT CO2e	
Plastic Drain Pipes	16	20	640	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.22	0.86	7.54	0.18	0.09	0.02	2,319.18	0.01	0.01			1.05	
Rail Materials	13	20	517	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.18	0.70	6.09	0.14	0.07	0.02	1,871.81	0.01	0.01			0.85	
Ties	36	20	1,441	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.49	1.95	16.98	0.40	0.20	0.05	5,221.37	0.02	0.02			2.37	
Concrete Trucks	15	6.5	195	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.07	0.26	2.30	0.05	0.03	0.01	706.63	0.00	0.00			0.32	
Concrete Panel Deliveries	3	20	120	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.04	0.16	1.41	0.03	0.02	0.00	434.85	0.00	0.00			0.20	
OCS Poles	1	20	40	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.01	0.05	0.47	0.01	0.01	0.00	144.95	0.00	0.00			0.07	
OCS Wire	1	20	40	0.15448	0.612547	5.344889	0.12676	0.063224	0.015682	1643.694	0.0051	0.0048	0.01	0.05	0.47	0.01	0.01	0.00	144.95	0.00	0.00			0.07	
Total													1.02	4.04	35.26	13.18	3.45	0.10	10,843.74	0.03	0.03			4.92	
												tons/year													
												0.00	0.00	0.02	0.01	0.00	0.00								
				Paved Road Dust Emissions (lbs)		Emissions (tons)																			

		Paved Road Dust Emissions (lbs)		Emissions (tons)	
Paved Road Dust Emissions	Total Mileage	PM10	PM2.5	PM10	PM2.5
Folsom Segment	1,638	6.76		1.66	0.00
Rancho Cordova Segment	2,992	12.35		3.03	0.00

Source: AP-42 Section 13.2.1 (Paved Roads) - <http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf>
 $EF_{DUST} = [(K(sL)^{0.91} \times (W)^{1.02}) (1 - P/4N)]$

Variable	Value	Description
k (PM10)	0.0022	particle size multiplier for particle size range and units of interest (lb/VMT)
k (PM2.5)	0.00054	particle size multiplier for particle size range and units of interest (lb/VMT)
sL	0.1	road surface silt loading (g/m ²)
W	2.4	average weight (tons) of vehicles (2.4 tons)
W	14.75	haul truck tons
P	30	number of "wet" days with at least 0.254 mm of precipitation during the averaging period
N	365	number of days in averaging period

EF (PM10)	0.004126423	lb/VMT
EF (PM2.5)	0.001012849	lb/VMT

Conversion Units	
grams	lbs
453.5922	1
GWP	N2O
265	
GWP	CH4
28	
lbs	MT
2204.62	1
lbs	ton
2000	1

Sources:
EMFAC 2014 Web Database for ROG, CO, NOx, PM10, PM2.5, SOx, CO2
EPA Emission Factors for GHG Inventories for CH4 and N2O factors (March 2018)
Assumes default CalEEMod haul truck trip length of 20 miles
Concrete trucks assumed to be vendor trips, default trip length consistent with CalEEMod (C-NW): 6.5 miles

Daily Emission Estimates for -> Folsom Rail Modernization Project - Folsom Segment														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust (lbs/day)	Fugitive Dust (lbs/day)	PM2.5 (lbs/day)	Exhaust (lbs/day)	Fugitive Dust (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	1.74	16.12	17.69	0.94	0.89	0.05	0.81	0.80	0.01	0.04	3,488.64	0.91	0.05	3,525.11
Grading/Excavation	1.60	15.91	15.61	0.83	0.78	0.05	0.72	0.71	0.01	0.03	2,935.88	0.91	0.03	2,966.89
Drainage/Utilities/Sub-Grade	3.67	28.54	33.48	1.66	1.62	0.05	1.50	1.49	0.01	0.05	5,138.80	1.22	0.06	5,186.26
Paving	1.96	18.20	16.79	0.84	0.84	0.00	0.81	0.81	0.00	0.03	3,122.87	0.49	0.03	3,143.07
Maximum (pounds/day)	3.67	28.54	33.48	1.66	1.62	0.05	1.50	1.49	0.01	0.05	5,138.80	1.22	0.06	5,186.26
Total (tons/construction project)	0.68	5.75	6.26	0.32	0.31	0.01	0.29	0.28	0.00	0.01	1,054.06	0.25	0.01	1,063.58
Notes: Project Start Year -> 2020														
Project Length (months) -> 24														
Total Project Area (acres) -> 2														
Maximum Area Disturbed/Day (acres) -> 0														
Water Truck Used? -> Yes														
Total Material Imported/Exported Volume (yd³/day)														
Daily VMT (miles/day)														
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck								
Grubbing/Land Clearing	30	0	160	0	80	13								
Grading/Excavation	0	0	0	0	80	13								
Drainage/Utilities/Sub-Grade	0	10	0	128	140	13								
Paving	0	0	0	0	120	13								
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 -> Folsom Rail Modernization Project - Folsom Segment														
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	0.08	0.71	0.78	0.04	0.04	0.00	0.04	0.04	0.00	0.00	153.50	0.04	0.00	140.71
Grading/Excavation	0.07	0.70	0.69	0.04	0.03	0.00	0.03	0.03	0.00	0.00	129.18	0.04	0.00	118.43
Drainage/Utilities/Sub-Grade	0.40	3.14	3.68	0.18	0.18	0.01	0.16	0.16	0.00	0.01	565.27	0.13	0.01	517.54
Paving	0.13	1.20	1.11	0.06	0.06	0.00	0.05	0.05	0.00	0.00	206.11	0.03	0.00	188.19
Maximum (tons/phase)	0.40	3.14	3.68	0.18	0.18	0.01	0.16	0.16	0.00	0.01	565.27	0.13	0.01	517.54
Total (tons/construction project)	0.68	5.75	6.26	0.32	0.31	0.01	0.29	0.28	0.00	0.01	1054.06	0.25	0.01	964.87
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.														

Daily Emission Estimates for -> Folsom Rail Modernization Project - Rancho Cordova Segment														
Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	Exhaust (lbs/day)	Fugitive Dust (lbs/day)	PM2.5 (lbs/day)	Exhaust (lbs/day)	Fugitive Dust (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	2.10	20.25	21.17	1.21	1.09	0.13	0.97	0.94	0.03	0.05	4,968.63	1.08	0.08	5,019.50
Grading/Excavation	1.91	19.82	18.12	1.03	0.91	0.13	0.85	0.82	0.03	0.04	3,583.79	1.08	0.03	3,621.00
Drainage/Utilities/Sub-Grade	4.32	32.59	36.73	1.92	1.79	0.13	1.67	1.64	0.03	0.06	5,950.15	1.28	0.07	6,002.92
Paving	2.93	28.49	24.60	1.25	1.25	0.00	1.19	1.19	0.00	0.05	4,687.73	0.74	0.04	4,718.30
Maximum (pounds/day)	4.32	32.59	36.73	1.92	1.79	0.13	1.67	1.64	0.03	0.06	5,950.15	1.28	0.08	6,002.92
Total (tons/construction project)	0.85	7.23	7.39	0.39	0.37	0.02	0.34	0.34	0.01	0.01	1,340.21	0.28	0.02	1,351.91
Notes: Project Start Year -> 2020														
Project Length (months) -> 24														
Total Project Area (acres) -> 6														
Maximum Area Disturbed/Day (acres) -> 0														
Water Truck Used? -> Yes														
		Total Material Imported/Exported Volume (yd³/day)		Daily VMT (miles/day)										
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck								
Grubbing/Land Clearing	76	0	400	0	200	13								
Grading/Excavation	0	0	0	0	200	13								
Drainage/Utilities/Sub-Grade	0	21	0	192	360	13								
Paving	0	0	0	0	280	13								
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 -> Folsom Rail Modernization Project - Rancho Cordova Segment														
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	0.09	0.89	0.93	0.05	0.05	0.01	0.04	0.04	0.00	0.00	218.62	0.05	0.00	200.36
Grading/Excavation	0.08	0.87	0.80	0.05	0.04	0.01	0.04	0.04	0.00	0.00	157.69	0.05	0.00	144.54
Drainage/Utilities/Sub-Grade	0.48	3.59	4.04	0.21	0.20	0.01	0.18	0.18	0.00	0.01	654.52	0.14	0.01	599.04
Paving	0.19	1.88	1.62	0.08	0.08	0.00	0.08	0.08	0.00	0.00	309.39	0.05	0.00	282.51
Maximum (tons/phase)	0.48	3.59	4.04	0.21	0.20	0.01	0.18	0.18	0.00	0.01	654.52	0.14	0.01	599.04
Total (tons/construction project)	0.85	7.23	7.39	0.39	0.37	0.02	0.34	0.34	0.01	0.01	1340.21	0.28	0.02	1,226.45
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

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.

Version 8.1.0

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.



Input Type

Project Name	Folsom Rail Modernization Project - Folsom Segment		
Construction Start Year	2020	Enter a Year between 2014 and 2025 (inclusive)	
Project Type	4	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	24.00	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)	3	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	0.56	miles	
Total Project Area	2.37	acres	
Maximum Area Disturbed/Day	0.00	acres	
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	8.00		29.88
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade	8.00	10.41	
	Paving			

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

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	4.00	2.40	10/1/2020	1/1/2020
Grading/Excavation	4.00	12.00	2/1/2021	5/2/2020
Drainage/Utilities/Sub-Grade	10.00	6.00	6/3/2021	9/1/2020
Paving	6.00	3.60	4/4/2022	7/3/2021
Totals (Months)		24		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT					
User Input											
Miles/round trip: Grubbing/Land Clearing		40.00			4	160.00					
Miles/round trip: Grading/Excavation					0	0.00					
Miles/round trip: Drainage/Utilities/Sub-Grade					0	0.00					
Miles/round trip: Paving					0	0.00					
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.07	0.37	1.45	0.10	0.04	0.01	1,568.35	0.00	0.05	1,583.80
Grading/Excavation (grams/mile)		0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Draining/Utilities/Sub-Grade (grams/mile)		0.07	0.37	1.42	0.10	0.04	0.01	1,556.24	0.00	0.05	1,571.58
Paving (grams/mile)		0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Hauling Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.02	0.13	0.51	0.04	0.01	0.01	553.22	0.00	0.02	558.67
Tons per const. Period - Grubbing/Land Clearing		0.00	0.01	0.02	0.00	0.00	0.00	24.34	0.00	0.00	24.58
Pounds per day - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project		0.00	0.01	0.02	0.00	0.00	0.00	24.34	0.00	0.00	24.58

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
User Input						
Miles/round trip: Grubbing/Land Clearing					0	0.00
Miles/round trip: Grading/Excavation					0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		64.00			2	128.00
Miles/round trip: Paving					0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.45	0.10	0.04	0.01	1,568.35	0.00	0.05	1,583.80
Grading/Excavation (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.42	0.10	0.04	0.01	1,556.24	0.00	0.05	1,571.58
Paving (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.02	0.10	0.40	0.03	0.01	0.00	439.16	0.00	0.01	443.49
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.01	0.04	0.00	0.00	0.00	48.31	0.00	0.00	48.78
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.01	0.04	0.00	0.00	0.00	48.31	0.00	0.00	48.78

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker																			
User Input		Commute Default Values		Default Values																	
Miles/ one-way trip	10			Calculated	Calculated																
One-way trips/day	2			Daily Trips	Daily VMT																
No. of employees: Grubbing/Land Clearing	4			8	80.00																
No. of employees: Grading/Excavation	4			8	80.00																
No. of employees: Drainage/Utilities/Sub-Grade	7			14	140.00																
No. of employees: Paving	6			12	120.00																
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e										
Grubbing/Land Clearing (grams/mile)	0.02	1.05	0.11	0.05	0.02	0.00	368.58	0.01	0.00	370.16											
Grading/Excavation (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48											
Draining/Utilities/Sub-Grade (grams/mile)	0.02	0.97	0.10	0.05	0.02	0.00	356.43	0.01	0.00	357.84											
Paving (grams/mile)	0.02	0.92	0.09	0.05	0.02	0.00	348.29	0.01	0.00	349.59											
Grubbing/Land Clearing (grams/trip)	0.98	2.48	0.19	0.00	0.00	0.00	83.49	0.01	0.01	86.21											
Grading/Excavation (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35											
Draining/Utilities/Sub-Grade (grams/trip)	0.91	2.21	0.17	0.00	0.00	0.00	81.18	0.01	0.01	83.56											
Paving (grams/trip)	0.87	2.06	0.16	0.00	0.00	0.00	79.59	0.01	0.01	81.77											
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e											
Pounds per day - Grubbing/Land Clearing	0.02	0.23	0.02	0.01	0.00	0.00	66.48	0.00	0.00	66.80											
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.00	0.00	0.00	0.00	2.93	0.00	0.00	2.94											
Pounds per day - Grading/Excavation	0.02	0.21	0.02	0.01	0.00	0.00	64.94	0.00	0.00	65.24											
Tons per const. Period - Grading/Excavation	0.00	0.01	0.00	0.00	0.00	0.00	2.86	0.00	0.00	2.87											
Pounds per day - Drainage/Utilities/Sub-Grade	0.03	0.37	0.04	0.01	0.01	0.00	112.52	0.00	0.00	113.03											
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.04	0.00	0.00	0.00	0.00	12.38	0.00	0.00	12.43											
Pounds per day - Paving	0.03	0.30	0.03	0.01	0.01	0.00	94.25	0.00	0.00	94.65											
Tons per const. Period - Paving	0.00	0.02	0.00	0.00	0.00	0.00	6.22	0.00	0.00	6.25											
Total tons per construction project	0.01	0.08	0.01	0.00	0.00	0.00	24.38	0.00	0.00	24.49											

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated
User Input		Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT
Grubbing/Land Clearing - Exhaust		1		13.00		13.00
Grading/Excavation - Exhaust		1		13.00		13.00
Drainage/Utilities/Subgrade		1		13.00		13.00
Paving		1		13.00		13.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.45	0.10	0.04	0.01	1,568.35	0.00	0.05	1,583.80
Grading/Excavation (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.42	0.10	0.04	0.01	1,556.24	0.00	0.05	1,571.58
Paving (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.01	0.04	0.00	0.00	0.00	44.95	0.00	0.00	45.39
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	1.98	0.00	0.00	2.00
Pounds per day - Grading/Excavation	0.00	0.01	0.04	0.00	0.00	0.00	44.70	0.00	0.00	45.14
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.97	0.00	0.00	1.99
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.01	0.04	0.00	0.00	0.00	44.60	0.00	0.00	45.04
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	4.91	0.00	0.00	4.95
Pounds per day - Paving	0.00	0.01	0.04	0.00	0.00	0.00	44.39	0.00	0.00	44.82
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00	0.00	2.96
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	11.78	0.00	0.00	11.90

Grading/Excavation	Default		Mitigation Option		Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type											
Override of Default Number of Vehicles		Program-estimate			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
1.00			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.24	1.93	2.82	0.09	0.08	0.01	850.16	0.28	0.01	859.35	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.47	6.75	4.44	0.22	0.20	0.01	1,032.04	0.33	0.01	1,043.17	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.64	4.50	6.12	0.34	0.31	0.01	605.56	0.20	0.01	612.07	0.00
1.00			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.28	1.92	0.11	0.10	0.00	304.00	0.10	0.00	307.27	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
User-Defined Off-road Equipment															
If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Number of Vehicles		Equipment Tier			Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
							</								

Drainage/Utilities/Subgrade	Default		Mitigation Option		Default	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier												
Override of Default Number of Vehicles		Program-estimate					pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
				Model Default Tier	Aerial Lifts		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Air Compressors		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Bore/Drill Rigs		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Cement and Mortar Mixers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Concrete/Industrial Saws		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Cranes		0.39	1.91	4.55	0.17	0.01	546.67	0.18	0.00	0.00	552.56
				Model Default Tier	Crawler Tractors		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Crushing/Proc. Equipment		0.35	2.11	1.72	0.08	0.08	0.00	234.54	0.03	0.00	235.90
				Model Default Tier	Excavators		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Forklifts		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Generator Sets		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Graders		0.61	4.48	5.85	0.33	0.30	0.01	605.57	0.20	0.01	612.08
				Model Default Tier	Off-Highway Tractors		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Off-Highway Trucks		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Other Construction Equipment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Other General Industrial Equipment		0.30	1.74	2.99	0.10	0.09	0.01	709.43	0.23	0.01	717.07
				Model Default Tier	Other Material Handling Equipment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Pavers		0.23	2.81	2.37	0.11	0.10	0.00	441.12	0.14	0.00	445.87
				Model Default Tier	Paving Equipment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Plate Compactors		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Pressure Washers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Pumps		0.37	3.74	3.14	0.17	0.17	0.01	623.04	0.03	0.00	625.26
				Model Default Tier	Rollers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Rough Terrain Forklifts		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Rubber Tired Dozers		0.88	7.19	8.99	0.41	0.38	0.01	861.86	0.28	0.01	871.12
				Model Default Tier	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Signal Boards		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Skid Steer Loaders		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Surfacing Equipment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Sweepers/Scrubbers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Tractors/Loaders/Backhoes		0.18	2.28	1.85	0.11	0.10	0.00	304.11	0.10	0.00	307.38
				Model Default Tier	Trenchers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00				Model Default Tier	Welders		0.29	1.71	1.49	0.07	0.07	0.00	207.48	0.03	0.00	208.65
User-Defined Off-road Equipment																
If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab																
	Number of Vehicles		Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	1.00		Default			pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
	1.00		Default	Aligner	Tamper	0.00	0.04	0.03	0.00	0.00	0.00	3.40	0.00	0.00	3.44	
	1.00		Default	Swinger		0.00	0.04	0.03	0.00	0.00	0.00	3.40	0.00	0.00	3.44	
	0.00		N/A			0.00	0.02	0.02	0.00	0.00	0.00	1.90	0.00	0.00	1.92	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		Drainage/Utilities/Sub-Grade		pounds per day		3.62	28.06	33.01	1.57	1.47	0.05	4,542.52	1.22	0.04	4,584.71	
		Drainage/Utilities/Sub-Grade		tons per phase		0.40	3.09	3.63	0.17	0.16	0.01	499.68	0.13	0.00	504.32	

Paving	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default	Type										
					pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	1.00		Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.27	2.42	1.88	0.11	0.11	0.00	375.26	0.02	0.00	376.72
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Model Default Tier	Cranes	0.36	1.85	4.09	0.17	0.16	0.01	546.73	0.18	0.00	552.63
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Model Default Tier	Generator Sets	0.33	3.68	2.93	0.15	0.15	0.01	623.04	0.03	0.00	625.17
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Model Default Tier	Pumps	0.35	3.73	2.97	0.16	0.16	0.01	623.04	0.03	0.00	625.23
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2.00		Model Default Tier	Tractors/Loaders/Backhoes	0.33	4.52	3.39	0.18	0.17	0.01	608.69	0.20	0.01	615.24
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.00		Model Default Tier	Welders	0.28	1.70	1.46	0.06	0.06	0.00	207.48	0.02	0.00	208.62
User-Defined Off-road Equipment														
If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Number of Vehicles		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.00		N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Paving		pounds per day	1.93	17.90	16.72	0.83	0.80	0.03	2,984.24	0.48	0.02	3,003.60
		Paving		tons per phase	0.13	1.18	1.10	0.05	0.05	0.00	196.96	0.03	0.00	198.24
Total Emissions all Phases (tons per construction period) =>					0.67	5.65	6.17	0.30	0.28	0.01	945.25	0.25	0.01	953.83

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment	30.00	85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment	250.00	88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET


Road Construction Emissions Model

Data Entry Worksheet

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.

Version 8.1.0

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.



Input Type

Project Name	Folsom Rail Modernization Project - Rancho Cordova Segment		
Construction Start Year	2020	Enter a Year between 2014 and 2025 (inclusive)	
Project Type	4	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	24.00	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)	3	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	1.18	miles	
Total Project Area	6.08	acres	
Maximum Area Disturbed/Day	0.01	acres	
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	8.00		76.04
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade	8.00	21.48	
	Paving			

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

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	4.00	2.40	10/1/2020	1/1/2020
Grading/Excavation	4.00	12.00	2/1/2021	5/2/2020
Drainage/Utilities/Sub-Grade	10.00	6.00	6/3/2021	9/1/2020
Paving	6.00	3.60	4/4/2022	7/3/2021
Totals (Months)		24		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT				
User Input										
Miles/round trip: Grubbing/Land Clearing		40.00			10	400.00				
Miles/round trip: Grading/Excavation					0	0.00				
Miles/round trip: Drainage/Utilities/Sub-Grade					0	0.00				
Miles/round trip: Paving					0	0.00				
Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.45	0.10	0.04	0.01	1,568.35	0.00	0.05	1,583.80
Grading/Excavation (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.42	0.10	0.04	0.01	1,556.24	0.00	0.05	1,571.58
Paving (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Hauling Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.06	0.32	1.28	0.09	0.04	0.01	1,383.05	0.00	0.05	1,396.67
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.06	0.00	0.00	0.00	60.85	0.00	0.00	61.45
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.01	0.06	0.00	0.00	0.00	60.85	0.00	0.00	61.45

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions		User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
User Input						
Miles/round trip: Grubbing/Land Clearing					0	0.00
Miles/round trip: Grading/Excavation					0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		64.00			3	192.00
Miles/round trip: Paving					0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.45	0.10	0.04	0.01	1,568.35	0.00	0.05	1,583.80
Grading/Excavation (grams/mile)	0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.42	0.10	0.04	0.01	1,556.24	0.00	0.05	1,571.58
Paving (grams/mile)	0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Emissions	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.03	0.16	0.60	0.04	0.02	0.01	658.74	0.00	0.02	665.23
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.02	0.07	0.00	0.00	0.00	72.46	0.00	0.00	73.18
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.02	0.07	0.00	0.00	0.00	72.46	0.00	0.00	73.18

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions		User Override of Worker Commute Default Values		Default Values							
User Input		10		Calculated Daily Trips	Calculated Daily VMT						
Miles/ one-way trip		2									
One-way trips/day		10		20	200.00						
No. of employees: Grubbing/Land Clearing		10		20	200.00						
No. of employees: Grading/Excavation		10		20	200.00						
No. of employees: Drainage/Utilities/Sub-Grade		18		36	360.00						
No. of employees: Paving		14		28	280.00						
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.02	1.05	0.11	0.05	0.02	0.00	368.58	0.01	0.00	370.16
Grading/Excavation (grams/mile)		0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48
Draining/Utilities/Sub-Grade (grams/mile)		0.02	0.97	0.10	0.05	0.02	0.00	356.43	0.01	0.00	357.84
Paving (grams/mile)		0.02	0.92	0.09	0.05	0.02	0.00	348.29	0.01	0.00	349.59
Grubbing/Land Clearing (grams/trip)		0.98	2.48	0.19	0.00	0.00	0.00	83.49	0.01	0.01	86.21
Grading/Excavation (grams/trip)		0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35
Draining/Utilities/Sub-Grade (grams/trip)		0.91	2.21	0.17	0.00	0.00	0.00	81.18	0.01	0.01	83.56
Paving (grams/trip)		0.87	2.06	0.16	0.00	0.00	0.00	79.59	0.01	0.01	81.77
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.05	0.57	0.06	0.02	0.01	0.00	166.20	0.00	0.00	167.01
Tons per const. Period - Grubbing/Land Clearing		0.00	0.03	0.00	0.00	0.00	0.00	7.31	0.00	0.00	7.35
Pounds per day - Grading/Excavation		0.05	0.54	0.05	0.02	0.01	0.00	162.36	0.00	0.00	163.11
Tons per const. Period - Grading/Excavation		0.00	0.02	0.00	0.00	0.00	0.00	7.14	0.00	0.00	7.18
Pounds per day - Drainage/Utilities/Sub-Grade		0.09	0.94	0.09	0.04	0.02	0.00	289.33	0.01	0.00	290.64
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.01	0.10	0.01	0.00	0.00	0.00	31.83	0.00	0.00	31.97
Pounds per day - Paving		0.06	0.69	0.07	0.03	0.01	0.00	219.91	0.00	0.00	220.85
Tons per const. Period - Paving		0.00	0.05	0.00	0.00	0.00	0.00	14.51	0.00	0.00	14.58
Total tons per construction project		0.02	0.20	0.02	0.01	0.00	0.00	60.80	0.00	0.00	61.07

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions		User Override of Default # Water Trucks		Program Estimate of Number of Water Trucks		User Override of Truck Miles Traveled/Vehicle/Day		Default Values Miles Traveled/Vehicle/Day		Calculated Daily VMT	
User Input											
Grubbing/Land Clearing - Exhaust		1				13.00				13.00	
Grading/Excavation - Exhaust		1				13.00				13.00	
Drainage/Utilities/Subgrade		1				13.00				13.00	
Paving		1				13.00				13.00	
Emission Rates		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)		0.07	0.37	1.45	0.10	0.04	0.01	1,568.35	0.00	0.05	1,583.80
Grading/Excavation (grams/mile)		0.07	0.37	1.43	0.10	0.04	0.01	1,559.57	0.00	0.05	1,574.93
Draining/Utilities/Sub-Grade (grams/mile)		0.07	0.37	1.42	0.10	0.04	0.01	1,556.24	0.00	0.05	1,571.58
Paving (grams/mile)		0.07	0.37	1.39	0.10	0.04	0.01	1,548.71	0.00	0.05	1,563.97
Emissions		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Pounds per day - Grubbing/Land Clearing		0.00	0.01	0.04	0.00	0.00	0.00	44.95	0.00	0.00	45.39
Tons per const. Period - Grubbing/Land Clearing		0.00	0.00	0.00	0.00	0.00	0.00	1.98	0.00	0.00	2.00
Pounds per day - Grading/Excavation		0.00	0.01	0.04	0.00	0.00	0.00	44.70	0.00	0.00	45.14
Tons per const. Period - Grading/Excavation		0.00	0.00	0.00	0.00	0.00	0.00	1.97	0.00	0.00	1.99
Pounds per day - Drainage/Utilities/Sub-Grade		0.00	0.01	0.04	0.00	0.00	0.00	44.60	0.00	0.00	45.04
Tons per const. Period - Drainage/Utilities/Sub-Grade		0.00	0.00	0.00	0.00	0.00	0.00	4.91	0.00	0.00	4.95
Pounds per day - Paving		0.00	0.01	0.04	0.00	0.00	0.00	44.39	0.00	0.00	44.82
Tons per const. Period - Paving		0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00	0.00	2.96
Total tons per construction project		0.00	0.00	0.01	0.00	0.00	0.00	11.78	0.00	0.00	11.90

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust		User Override of Max Acreage Disturbed/Day		Default Maximum Acreage/Day		PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing						0.13	0.01	0.03	0.00
Fugitive Dust - Grading/Excavation						0.13	0.01	0.03	0.00
Fugitive Dust - Drainage/Utilities/Subgrade						0.13	0.01	0.03	0.00

Values in cells D183 through D216, D234 through D267, D285 through D318, and D336 through D369 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions															
Grubbing/Land Clearing	Default	Mitigation Option		Default	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of													
		Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)													
	Override of Default Number of Vehicles	Program-estimate		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
1.00				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Bore/Drill Rigs	0.25	1.94	3.17	0.08	0.08	0.01	848.59	0.27	857.76	
				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3.00				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Excavators	0.75	10.12	7.26	0.35	0.32	0.02	1,547.89	0.50	0.01	
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Graders	0.70	4.56	6.78	0.38	0.35	0.01	605.09	0.20	0.01	
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2.00				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Plate Compactors	0.08	0.42	0.50	0.02	0.02	0.00	68.96	0.01	69.31	
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.00				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Tractors/Loaders/Backhoes	0.21	2.30	2.07	0.13	0.12	0.00	303.90	0.10	307.17	
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment						ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab						pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
Number of Vehicles		Equipment Tier		Type											
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A			0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Grading/Excavation	Default		Mitigation Option		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default	Type											
Override of Default Number of Vehicles		Program-estimate		Equipment Tier	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
				Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Bore/Drill Rigs	0.24	1.93	2.82	0.09	0.08	0.01	850.16	0.28	0.01	859.35
				Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3.00				Model Default Tier	Excavators	0.71	10.13	6.66	0.32	0.30	0.02	1,548.06	0.50	0.01	1,564.76
				Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Graders	0.64	4.50	6.12	0.34	0.31	0.01	605.56	0.20	0.01	612.07
				Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2.00				Model Default Tier	Plate Compactors	0.08	0.42	0.50	0.02	0.02	0.00	68.96	0.01	0.00	69.31
				Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Tractors/Loaders/Backhoes	0.19	2.28	1.92	0.11	0.10	0.00	304.00	0.10	0.00	307.27
				Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
User-Defined Off-road Equipment															
If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab					ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
Number of Vehicles					Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
0.00				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.00				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				N/A	0	0.00	0.00	0							

Drainage/Utilities/Subgrade	Default		Mitigation Option		Default	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e	
	Number of Vehicles	Override of	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default													
																	Override of Default Number of Vehicles
							pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
				Model Default Tier	Aerial Lifts		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Air Compressors		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Bore/Drill Rigs		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Cement and Mortar Mixers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Concrete/Industrial Saws		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Cranes		0.39	1.91	4.55	0.17	0.01	546.67	0.18	0.00	0.00	552.56	
				Model Default Tier	Crawler Tractors		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Crushing/Proc. Equipment		0.35	2.11	1.72	0.08	0.08	0.00	234.54	0.03	0.00	235.90	
				Model Default Tier	Excavators		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Forklifts		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Generator Sets		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Graders		0.61	4.48	5.85	0.33	0.30	0.01	605.57	0.20	0.01	612.08	
				Model Default Tier	Off-Highway Tractors		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Off-Highway Trucks		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Other Construction Equipment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Other General Industrial Equipment		0.30	1.74	2.99	0.10	0.09	0.01	709.43	0.23	0.01	717.07	
				Model Default Tier	Other Material Handling Equipment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Pavers		0.23	2.81	2.37	0.11	0.10	0.00	441.12	0.14	0.00	445.87	
				Model Default Tier	Paving Equipment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Plate Compactors		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Pressure Washers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Pumps		0.37	3.74	3.14	0.17	0.17	0.01	623.04	0.03	0.00	625.26	
				Model Default Tier	Rollers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Rough Terrain Forklifts		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Rubber Tired Dozers		0.88	7.19	8.99	0.41	0.38	0.01	861.86	0.28	0.01	871.12	
				Model Default Tier	Rubber Tired Loaders		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Scrapers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Signal Boards		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Skid Steer Loaders		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Surfacing Equipment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
				Model Default Tier	Sweepers/Scrubbers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.00				Model Default Tier	Tractors/Loaders/Backhoes		0.18	2.28	1.85	0.11	0.10	0.00	304.11	0.10	0.00	307.38	
				Model Default Tier	Trenchers		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3.00				Model Default Tier	Welders		0.88	5.14	4.48	0.21	0.21	0.01	622.43	0.08	0.01	625.96	
User-Defined Off-road Equipment																	
If non-default vehicles are used, please provide information in "Non-default Off-road Equipment" tab						ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e		
						pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	
Number of Vehicles		Equipment Tier			Type												
1.00		Default			Swinger	Tamper	0.00	0.04	0.03	0.00	0.00	0.00	3.40	0.00	0.00	3.44	
1.00		Default				Aligner		0.00	0.04	0.03	0.00	0.00	0.00	3.40	0.00	0.00	3.44
1.00		Default						0.00	0.02	0.02	0.00	0.00	0.00	1.90	0.00	0.00	1.92
0.00		N/A					0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A					0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A					0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A					0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00		N/A					0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		Drainage/Utilities/Sub-Grade				pounds per day	4.20	31.48	36.00	1.71	1.61	0.05	4,957.48	1.27	0.04	5,002.01	
		Drainage/Utilities/Sub-Grade				tons per phase	0.46	3.46	3.96	0.19	0.18	0.01	545.32	0.14	0.00	550.22	

User-Defined Off-road Equipment		If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab										
Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Paving	pounds per day	2.87	27.79	24.49	1.22	1.18	0.05	4,423.44	0.74	0.04	4,452.62
	Paving	tons per phase	0.19	1.83	1.62	0.08	0.08	0.00	291.95	0.05	0.00	293.87
Total Emissions all Phases (tons per construction period) ==>			0.82	7.00	7.24	0.35	0.33	0.01	1,134.32	0.28	0.01	1,144.31

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment	30.00	85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment	250.00	88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

[illegible][illegible][illegible]

You have Entered a non-default vehicle type, please provide number of vehicles, engine tier, horsepower, load factor, operation hours per day and emission factors of the vehicle type.

[illegible]

[illegible][illegible][illegible]

You have Entered a non-default vehicle type, please provide number of vehicles, engine tier, horsepower, load factor, operation hours per day and emission factors of the vehicle type.

[illegible]

Appendix C

Biological Resources Supplement

APPENDIX C

BIOLOGICAL RESOURCES SUPPLEMENT

Project Setting and Biological Study Area

The Project area covers approximately 8.7 acres of SacRT-owned property spanning two RT segments (or sites) along the Gold Line in Sacramento County, California:

1. Folsom Project Segment (2.5 acres)
2. Rancho Cordova Project Segment (6.2 acres)

The biological study area encompasses the locations of the SacRT facilities subject to project-related actions (the project sites), as well as adjacent lands (i.e., up to a 50-foot buffer from project boundaries, where accessible) that were surveyed by biologists as part of this evaluation (i.e., the study area). Biological surveys were conducted within and adjacent to each project site for vegetation type, wetlands and other waters, riparian habitat, wildlife habitats, and general observations of wildlife usage. The project sites are situated in an urban setting and are part of a highly disturbed and managed landscape with little to no remaining natural vegetation. Each project site location is briefly described below.

Folsom Project Segment

The Folsom Project Segment is in the City of Folsom and includes the Glenn/Robert G. Holderness Station. Elevations range from approximately 166 to 174 feet above mean sea level (amsl). Soils are dredge tailings, 2-50% slopes, consisting primarily of cobble, boulders, and sand (NRCS 2018). Surrounding land uses include various industrial, retail, and recreational facilities. The Folsom Project Segment is immediately bounded to the north by Bidwell Street; to the east by a business park; to the south by the Lake Forest Industrial Park; and to the west by Folsom Boulevard. The American River (Lake Natoma) and Willow Creek Recreation Area are approximately 1,300 feet to the west.

Rancho Cordova Project Segment

The Rancho Cordova Project Segment is in the City of Rancho Cordova and unincorporated Sacramento County and includes the Hazel Station. Soils are dredge tailings and urban land xerotherants, which typically consist of artificial fill (NRCS 2018). Elevations in the Rancho Cordova Project Segment range from approximately 138 to 154 feet amsl. Surrounding land uses include various industrial, retail, and recreational facilities. The Rancho Cordova Project Segment is immediately bounded to the north by Folsom Boulevard; to the east by car dealerships; to the south by the Aerojet Rocketdyne facility; and to the southeast by Schnitzer Steel and a furniture wholesale warehouse. The American River (Lake Natoma) and Nimbus Dam Recreation Area are approximately 2,500 feet to the north.

Research/Survey Methods

Before the biological resources survey, AECOM biologists searched the following sources for records of special-status species occurring within a nine-quadrangle area containing and surrounding the study area, which includes Buffalo Creek, Carmichael, Folsom SE, Roseville, Clarksville, Citrus Heights, Folsom, Rocklin, and Pilot Hill

USGS 7.5 minute quadrangles (USGS 2018a–i); California Native Plant Society (CNPS 2019a), California Natural Diversity Database (CDFW 2019), and the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation project planning tool (USFWS 2019a).

AECOM biologists Jasmine Greer and Chris Beck conducted a field reconnaissance survey on April 4, 2019 for the entire proposed project footprints and adjacent buffers. Weather conditions were clear and sunny with temperatures ranging from 39° to 64° Fahrenheit and winds of 0 to 6 miles per hour (NOAA 2019). Plant communities in the study area were characterized and evaluated for their potential to support the special-status species identified during the pre-field investigation. Every plant encountered in the study area was identified to the taxonomic level necessary to determine if it was a special-status species. Wildlife observations included an inventory of all species encountered.

Survey Results

Land Cover Types

Land cover types are summarized in Table 1 and described below. Land cover types mapped in the biological study area include urban (i.e., developed), ruderal, and annual grassland. All three of these land cover types also contain scattered landscape plantings and patches of native trees and shrubs.

Table 1. Land Cover Types Mapped within the Proposed SacRT Folsom Modernization Project

Project Segment	Land Cover Type (acres)			Total (acres)
	Urban	Ruderal	Annual Grassland	
Folsom	1.54	0.97	0.00	2.51
Rancho Cordova	4.78	0.96	0.42	6.19
GRAND TOTAL (ACRES)	6.34	1.93	0.42	8.69
Source: AECOM 2019				

Urban

Urban land cover is defined as areas developed by humans, and is either generally lacking in vegetation or only contains highly maintained landscape plantings. In the study area, urban areas include rail lines, ballast, paved areas, landscape planters, concrete sidewalks, parking areas, and station platforms, accumulating approximately 1.5 acres in the Folsom Project Segment and 4.8 acres at the Rancho Cordova Project Segment.

Wildlife observed utilizing urban areas included: California ground squirrels (*Otospermophilus beecheyi*) foraging near the Hazel Station parking lot and adjacent empty lot; numerous killdeer (*Charadrius vociferus*) calling from rail ballast at both project sites; and American crow (*Corvus brachyrhynchos*) foraging near bike trails and parking lots near the Glenn/Robert G. Holderness Station. Other wildlife that may utilize urban areas for cover and foraging include western fence lizard (*Sceloporus occidentalis*) and eastern fox squirrel (*Sciurus niger*).

Ruderal

Ruderal land cover is dominated by introduced, non-native species characteristic of disturbed places. Ruderal vegetation is common throughout the study area in locations that have been previously filled and graded, such as along the edges of ballast, fencelines, parking lots, and pedestrian/bike trails, accumulating approximately 0.97

acre in the Folsom Project Segment and 0.96 acre at the Rancho Cordova Project Segment. In the study area, ruderal habitat is dominated by milk thistle (*Silybum marianum*), wild geranium (*Geranium dissectum*), ripgut brome (*Bromus diandrus*), and red stemmed filaree (*Erodium cicutarium*). Other common species include poison hemlock (*Conium maculatum*), yellow star thistle (*Centaurea solstitialis*), winter vetch (*Vicia villosa*), white horehound (*Marrubium vulgare*), and field mustard (*Hirschfeldia incana*). Scattered trees and shrubs include valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), black locust (*Robinia pseudoacacia*), tree of heaven (*Ailanthus altissima*), eucalyptus (*Eucalyptus* sp.), coyote brush (*Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), and blue elderberry (*Sambucus nigra*).

Ruderal habitat within the project area provides foraging, roosting, resting and nesting sites for a variety of birds and small mammals. Wildlife species observed utilizing ruderal habitat during the survey included white-crowned sparrow (*Zonotrichia leucophrys*), black phoebe (*Sayornis nigricans*), Anna's hummingbird (*Calypte anna*), bushtit (*Psaltiriparus minimus*), yellow-rumped warbler (*Dendroica coronata*), tree swallow (*Tachycineta bicolor*), red-shouldered hawk (*Buteo lineatus*), and eastern fox squirrel.

Annual Grassland

Approximately 0.42 acre of annual grassland habitat was mapped along the southern boundary of the Rancho Cordova Project Segment, adjacent to the neighboring Aerojet property. Introduced annual grasses are the dominant plant species in this habitat (CDFW 2019a). The annual grassland vegetation in the study area is composed primarily of nonnative annual grasses, including ripgut brome, Italian ryegrass (*Festuca perennis*), soft chess brome (*Bromus hordeaceus*), and hare wall barley (*Hordeum murinum*). Common forbs in the annual grassland vegetation include California poppy (*Eschscholzia californica*) and common bedstraw (*Galium parisiense*).

Wildlife species observed utilizing annual grassland habitat at the time of the survey included turkey vulture (*Cathartes aura*) and white-crowned sparrow. This habitat could provide important foraging habitat for raptors, including American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), and Swainson's hawk (*Buteo swainsonii*).

Special-Status Species

No special-status species were observed on or adjacent to the study area during the reconnaissance survey. Tables 2 and 3 provide a list of special-status species that were determined to have potential to occur in the general project region based on the pre-field investigation (database and literature review). For the purpose of this analysis, special-status species are plants and animals that fall within any of the following categories:

- ▶ Species that are listed under the federal Endangered Species Act (FESA) and/or California Endangered Species Act (CESA) as rare, threatened, or endangered;
- ▶ Species considered as candidates and proposed for federal or state listing as threatened or endangered;
- ▶ Wildlife designated by California Department of Fish and Wildlife (CDFW) as fully protected and/or species of special concern;
- ▶ Birds protected under the Federal Migratory Bird Treaty Act and/or California Fish and Game Code Sections 3503, 3503.5, 3800(a), and 3513; or

- ▶ Plants ranked by the California Native Plant Society to be rare, threatened, or endangered in California, including plants on Lists 1A, 1B, and 2 of the CNPS California Rare Plant Ranks (CRPRs), defined as follows:
 - List 1A—Plants presumed to be extinct in California
 - List 1B—Plant species considered rare, threatened, or endangered in California and elsewhere
 - List 2—Plant species considered rare, threatened, or endangered in California but more common elsewhere
- ▶ Each CRPR category may include an extension indicating the level of endangerment in California:
 - 1—Seriously endangered in California (more than 80 percent of occurrences are threatened and/or high degree and immediacy of threat)
 - 2—Fairly endangered in California (20–80 percent of occurrences are threatened)
 - 3—Not very endangered in California

The following criteria were applied to assess the potential for species occurrence at the Project site:

- ▶ **Known to Occur:** The project site is within the species' range, suitable habitat for the species is present, and the species has been recorded from within the project site.
- ▶ **Could Occur:** The project site is within the species' range, and no occurrences of the species have been recorded within the project site; however, suitable habitat for the species is present and recorded occurrences of the species are generally present in the vicinity.
- ▶ **Not Likely to Occur:** No occurrences of the species have been recorded within or immediately adjacent to the project site, and either habitat for the species is marginal or potentially suitable habitat may occur, but the species' current known range is restricted to areas far from the project site.
- ▶ **No Potential to Occur:** The project site is outside the species' range or suitable habitat for the species is absent from the project site and adjacent areas.

Special-Status Plant Species

The database searches identified above resulted in 20 special-status plant species being evaluated for their potential to occur in the proposed project sites or vicinity (Table 2). Based on the reconnaissance survey, no special-status plant species have potential to occur within the project sites because of a lack of suitable habitat or the project sites are outside the known elevation range of the species. No special-status plant species were observed in the study area during the reconnaissance survey.

Special-Status Wildlife Species

Of the 20 special-status wildlife species that may occur in the vicinity of the Project (Table 3), the site survey identified suitable habitat for five species – one special-status invertebrate and four special-status birds. Most wildlife species were eliminated from further consideration because of a lack of suitable habitat, or because the study area is outside of the species' known elevation or geographical range. No special-status wildlife species were observed in the study area during the reconnaissance survey.

Table 2. Special-status Plant Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Elevation Range (feet above MSL) ²	Blooming Period	Potential for Occurrence ³	
		Federal	State	CRPR				Folsom	Rancho Cordova
<i>Balsamorhiza macrolepis</i>	big-scale balsamroot	None	None	1B.2	Slopes in chaparral, cismontane woodland, and valley and foothill grassland; sometimes on serpentine soils.	145 – 5,100	Mar – Jun	No potential; no suitable habitat (slopes) present.	No potential; no suitable habitat (slopes) present.
<i>Calystegia stebbinsii</i>	Stebbins' morning-glory	FE	SE	1B.1	Red clay soils of the Pine Hill formation; in open areas on gabbro or serpentine soils in cismontane woodland and chaparral.	605 – 3,575	Apr – Jul	No potential; no suitable habitat (Pill Hill formation soils) present.	No potential; no suitable habitat (Pill Hill formation soils) present.
<i>Carex xerophila</i>	chaparral sedge	None	None	1B.2	Gabbro or serpentine soils, often in historically disturbed areas, in chaparral, cismontane woodland, and lower montane coniferous forest.	1,440 – 2,225	Mar – Jun	No potential; no suitable habitat (gabbro or serpentine soils) present.	No potential; no suitable habitat (gabbro or serpentine soils) present.
<i>Ceanothus roderickii</i>	Pine Hill ceanothus	FE	SR	1B.1	Gabbro or serpentine soils in chaparral and cismontane woodland.	800 – 3,575	Apr – Jun	No potential; no suitable habitat (gabbro or serpentine soils) present.	No potential; no suitable habitat (gabbro or serpentine soils) present.
<i>Chlorogalum grandiflorum</i>	Red Hills soaproot	None	None	1B.2	Usually on gabbro or serpentine soils, and often on historically disturbed sites, in chaparral, cismontane woodland, and lower montane coniferous forest.	800 – 5,545	May – Jun	No potential; no suitable habitat (gabbro or serpentine soils) present.	No potential; no suitable habitat (gabbro or serpentine soils) present.

Table 2. Special-status Plant Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Elevation Range (feet above MSL) ²	Blooming Period	Potential for Occurrence ³	
		Federal	State	CRPR				Folsom	Rancho Cordova
<i>Chloropyron molle</i> ssp. <i>hispidum</i>	hispid salty bird's-beak	None	None	1B.1	In damp alkaline soils, especially alkaline meadows and alkali sinks/playas, in valley and foothill grassland.	0 – 510	June – Sep	No potential; no suitable habitat (alkaline soils) present.	No potential; no suitable habitat (alkaline soils) present.
<i>Downingia pusilla</i>	dwarf downingia	None	None	2B.2	Vernal pool and vernal lake margins in valley and foothill grassland.	0 – 1,460	Mar – May	No potential; no suitable habitat (vernal pools) present.	No potential; no suitable habitat (vernal pools) present.
<i>Eryngium pinnatisectum</i>	Tuolumne button-celery	None	None	1B.2	Vernal pools/mesic sites on volcanic soils in cismontane woodland and lower montane coniferous forest.	225 – 3,000	May – Aug	No potential; no suitable habitat (vernal pools) present.	No potential; no suitable habitat (vernal pools) present.
<i>Fremontodendron decumbens</i>	Pine Hill flannelbush	FE	SR	1B.2	Gabbro or serpentine soils on rocky ridges in chaparral and cismontane woodland.	1,390 – 2,495	Apr – Jul	No potential; no suitable habitat (gabbro or serpentine soils) present.	No potential; no suitable habitat (gabbro or serpentine soils) present.
<i>Galium californicum</i> ssp. <i>sierrae</i>	El Dorado bedstraw	FE	SR	1B.2	Gabbro or serpentine soils in chaparral and cismontane woodland.	325 – 1,920	May – Jun	No potential; no suitable habitat (gabbro or serpentine soils) present.	No potential; no suitable habitat (gabbro or serpentine soils) present.
<i>Gratiola heterosepala</i>	Boggs Lake hedge-hyssop	None	SE	1B.2	Clay soils in vernal pools, sometime lake margins.	30 – 7,790	Apr – Aug	No potential; no suitable habitat (vernal pools) present.	No potential; no suitable habitat (vernal pools) present.
<i>Juncus leiospermus</i> var. <i>ahartii</i>	Ahart's dwarf rush	None	None	1B.2	Restricted to the edges of vernal pools in valley and foothill grassland.	95 – 750	Mar – May	No potential; no suitable habitat (vernal pools) present.	No potential; no suitable habitat (vernal pools) present.

Table 2. Special-status Plant Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Elevation Range (feet above MSL) ²	Blooming Period	Potential for Occurrence ³	
		Federal	State	CRPR				Folsom	Rancho Cordova
<i>Juncus leiospermus</i> var. <i>leiospermus</i>	Red Bluff dwarf rush	None	None	1B.1	Vernally mesic sites, sometimes edges of vernal pools, chaparral, cismontane woodland, and valley and foothill grassland.	110 – 4,100	Mar – Jun	No potential; no suitable habitat (vernal pools or vernal mesic sites) present.	No potential; no suitable habitat (vernal pools or vernal mesic sites) present.
<i>Legenere limosa</i>	legenere	None	None	1B.1	In beds of vernal pools.	0 – 2,885	Apr – Jun	No potential; no suitable habitat.	No potential; no suitable habitat.
<i>Navarretia myersii</i> ssp. <i>myersii</i>	pincushion navarretia	None	None	1B.1	Clay soils in vernal pools in grassland.	65 – 1,085	Apr – May	No potential; no suitable habitat (vernal pools) present.	No potential; no suitable habitat (vernal pools) present.
<i>Orcuttia tenuis</i>	slender Orcutt grass	FT	SE	1B.1	Vernal pools, often in gravelly substrate.	110 – 5,775	May – Sep(Oct)	No potential; no suitable habitat (vernal pools) present.	No potential; no suitable habitat (vernal pools) present.
<i>Orcuttia viscida</i>	Sacramento Orcutt grass	FE	SE	1B.1	Vernal pools	95 – 330	Apr – Jul(Sep)	No potential; no suitable habitat (vernal pools) present.	No potential; no suitable habitat (vernal pools) present.
<i>Packera layneae</i>	Layne's ragwort	FT	SR	1B.2	Rocky serpentine or gabbro soils, occasionally along streams, in chaparral and cismontane woodland.	605 – 2,065	Apr – Aug	No potential; no suitable habitat (gabbro or serpentine soils) present..	No potential; no suitable habitat (gabbro or serpentine soils) present.
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	None	None	1B.2	In standing or slow-moving freshwater ponds, marshes, and ditches.	0 – 2,135	May – Oct(Nov)	No potential; no suitable habitat (ponds, marshes, or ditches) present.	No potential; no suitable habitat (ponds, marshes, or ditches) present..

Table 2. Special-status Plant Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Elevation Range (feet above MSL) ²	Blooming Period	Potential for Occurrence ³	
		Federal	State	CRPR				Folsom	Rancho Cordova
<i>Wyethia reticulata</i>	El Dorado County mule ears	None	None	1B.2	Stony red clay and gabbro soils, often in openings, in chaparral, cismontane woodland, and lower montane coniferous forest.	605 – 2,065	Apr – Aug	No potential; no suitable habitat (stony red clay or gabbro soils) present.	No potential; no suitable habitat (stony red clay or gabbro soils) present.
<p>¹Regulatory Status:</p> <p>Federal Status Categories: FE = Listed as endangered under Federal Endangered Species Act FT = Listed at threatened under Federal Endangered Species Act</p> <p>California State Status Categories: SE = Listed as endangered under California Endangered Species Act SR = Listed as rare under California Endangered Species Act</p> <p>California Rare Plant Rank (CRPR) Categories: 1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA) 2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)</p> <p>CRPR Threat Rank Extensions: .1 Seriously endangered in California (>80% of occurrences are threatened and/or high degree and immediacy of threat) .2 Fairly endangered in California (20 to 80% of occurrences are threatened) .3 Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)</p> <p>²MSL = mean sea level</p> <p>³Potential for Occurrence:</p> <p>No Potential to Occur: The project site is outside the species' elevational range or suitable habitat for the species is absent from the project site and adjacent areas.</p> <p>Sources: CDFW 2019b, CNPS 2019, Baldwin et al. 2012</p>									

Table 3. Special-status Wildlife Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Distribution	Potential for Occurrence ²	
		Federal	State	CDFW			Folsom	Rancho Cordova
Insects								
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	FT	-	-	Riparian scrub. Host plant is the elderberry shrub (<i>Sambucus nigra</i>). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	Occurs only in the Central Valley of California.	No potential; no suitable habitat (elderberry shrubs) present.	Could occur; suitable habitat (elderberry shrubs) present. Nine records of this species are within 5 miles of the Rancho Cordova Project Segment (CDFW 2019).
Crustaceans								
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	FT	-	-	Vernal pools in valley and foothill grassland. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains.	No potential; no suitable habitat (vernal pools) present.	No potential; no suitable habitat (vernal pools) present.
<i>Lepidurus packardii</i>	vernal pool tadpole shrimp	FE	-	-	Inhabits vernal pools and swales containing clear to highly turbid water.	The Sacramento Valley.	No potential; no suitable habitat (vernal pools) present	No potential; no suitable habitat (vernal pools) present
Fish								
<i>Oncorhynchus mykiss irideus</i> pop. 11	Steelhead – Central Valley Distinct Population Segment	FT	-	-	Sacramento/San Joaquin flowing waters.	The Sacramento and San Joaquin Rivers and their tributaries.	No potential; no suitable habitat (riverine) present	No potential; no suitable habitat (riverine) present
Amphibians and Reptiles								

Table 3. Special-status Wildlife Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Distribution	Potential for Occurrence ²	
		Federal	State	CDFW			Folsom	Rancho Cordova
<i>Emys marmorata</i>	western pond turtle	-	-	SSC	Ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation. Needs basking sites and suitable upland habitat (i.e., sandy banks or grassy open fields) up to 0.5 km from water for egg-laying.	Below 6000 ft elevation.	No potential; no suitable aquatic habitat present.	No potential; no suitable aquatic habitat present.
<i>Thamnophis gigas</i>	giant gartersnake	FT	ST	-	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches.	California's Central Valley. Relies heavily on rice fields in the Sacramento Valley, and also uses managed marsh areas.	No potential; no suitable aquatic habitat present.	No potential; no suitable aquatic habitat present.
<i>Rana boylei</i>	foothill yellow-legged frog	-	SCT	SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks of permanent water to attain metamorphosis.	Below 6000 ft elevation. Most abundant on the north coast and in the northern Sierra Nevada.	No potential; no suitable aquatic habitat present.	No potential; no suitable aquatic habitat present.

Table 3. Special-status Wildlife Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Distribution	Potential for Occurrence ²	
		Federal	State	CDFW			Folsom	Rancho Cordova
<i>Rana draytonii</i>	California red-legged frog	FT	-	SSC	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. Must have access to estivation habitat.	Few drainages in Sierra Nevada foothills, and in the San Francisquito Canyon on the Angeles National Forest.	No potential; no suitable aquatic habitat present.	No potential; no suitable aquatic habitat present.
<i>Spea hammondi</i>	western spadefoot	-	-	SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Ranges throughout the Central Valley and adjacent foothills.	No potential; no suitable habitat (vernal pools) present	No potential; no suitable habitat (vernal pools) present
Birds								
<i>Agelaius tricolor</i> (nesting colony)	tricolored blackbird	-	ST	SSC	Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Largely endemic to California; most numerous in Central Valley & vicinity.	No potential; no suitable nesting habitat present.	No potential; no suitable nesting habitat present.
<i>Ammodramus savannarum</i> (nesting)	grasshopper sparrow	-	-	SSC	Valley and foothill grassland. Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of forbs, grasses, and shrubs.	Foothills and lowlands west of the Cascade-Sierra Nevada crest from Mendocino and Trinity cos. South to San Diego Co.	No potential; no suitable nesting habitat present.	Could occur; suitable habitat (dense grassland with mix of shrubs) along southern boundary

Table 3. Special-status Wildlife Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Distribution	Potential for Occurrence ²	
		Federal	State	CDFW			Folsom	Rancho Cordova
<i>Athene cunicularia</i> (burrow sites and some wintering sites)	burrowing owl	-	-	SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon burrowing mammals, most notably, the California ground squirrel, for underground nests.	Resident throughout California in suitable habitat.	No potential; no suitable habitat (burrows) present.	Could occur; suitable habitat (burrows) present immediately south of project footprint. There is one record of this species within 5 miles, along Mather Boulevard (CDFW 2019).
<i>Buteo swainsoni</i> (nesting)	Swainson's hawk	-	ST	-	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert.	No potential; no suitable nesting habitat (large trees) present, and no suitable adjacent foraging habitat.	Could occur; suitable nesting habitat (large trees) present within project footprint, and adjacent grassland areas provide suitable foraging habitat. There are six records of this species within 5 miles (CDFW 2019).
<i>Elanus leucurus</i> (nesting)	white-tailed kite	-	-	FP	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Coastal and valley lowlands, usually near agricultural areas, and cismontane regions of California.	Could occur; suitable nesting habitat (dense-topped trees) present, and suitable foraging habitat (marsh) in nearby Willow Creek. There are 7 records of this species within 5 miles.	Could occur; suitable nesting habitat (dense-topped trees) present, and suitable foraging habitat (open grasslands) nearby in Aerojet property. There are 10 records of this species within 5 miles.

Table 3. Special-status Wildlife Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Distribution	Potential for Occurrence ²	
		Federal	State	CDFW			Folsom	Rancho Cordova
<i>Haliaeetus leucocephalus</i> (nesting and wintering)	bald eagle	FD	SE	FP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Permanent resident and uncommon winter migrant in lower elevations; breeds mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties.	No potential; no suitable habitat (ocean, lake, or river margin) present, and no trees large enough for nesting within project footprint.	No potential; no suitable habitat (ocean, lake, or river margin) present, and no trees large enough for nesting within project footprint.
<i>Laterallus jamaicensis coturniculus</i>	California black rail	-	ST	FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays.	San Francisco Bay area, Sacramento-San Joaquin Delta, coastal southern California at Morro Bay and a few other locations, the Salton Sea, and lower Colorado River area.	No potential; no suitable habitat (tidal marsh) present.	No potential; no suitable habitat (tidal marsh) present.

Table 3. Special-status Wildlife Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Distribution	Potential for Occurrence ²	
		Federal	State	CDFW			Folsom	Rancho Cordova
<i>Progne subis</i> (nesting)	purple martin	-	-	SSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, and Monterey pine. Nests in old woodpecker cavities mostly; also in human-made structures. Nest often located in tall, isolated tree/snag.	Uncommon to rare summer resident in a variety of wooded, low-elevation habitats throughout California. Following the arrival and increase of the European Starling, extirpated from the Central Valley region except in the city of Sacramento, where they have persisted by nesting in hollowbox bridges.	No potential; project segment is outside the current breeding range for the species.	No potential; project segment is outside the current breeding range for the species.
<i>Riparia riparia</i> (nesting)	bank swallow	-	-	SSC	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Riparian and other lowland habitats in California west of the deserts during the spring-fall period	No potential; no suitable nesting habitat (vertical banks/cliffs) present.	No potential; no suitable nesting habitat (vertical banks/cliffs) present.
Mammals								

Table 3. Special-status Wildlife Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Distribution	Potential for Occurrence ²	
		Federal	State	CDFW			Folsom	Rancho Cordova
<i>Antrozous pallidus</i>	pallid bat	-	-	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Throughout California except for the high Sierra Nevada from Shasta to Kern Counties; and occurs in the northwestern corner of the state.	No potential; no suitable roosting habitat (rocky areas) present.	No potential; no suitable roosting habitat (rocky areas) present.
<i>Taxidea taxus</i>	American badger	-	-	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Found throughout most of California, except in the northern North Coast area.	No potential; no suitable burrow habitat (friable soils) present.	No potential; no suitable burrow habitat (friable soils) present.

Table 3. Special-status Wildlife Species Identified as Occurring in the Project Region and Discussion of their Potential to Occur in the Biological Study Area – Sacramento Regional Transit Folsom Modernization Project – Sacramento and El Dorado Counties, California

Scientific Name	Common Name	Regulatory Status ¹			Habitat Requirements	Distribution	Potential for Occurrence ²	
		Federal	State	CDFW			Folsom	Rancho Cordova
¹ Regulatory Status: Federal Status Categories: FE = Listed as endangered under Federal Endangered Species Act FT = Listed at threatened under Federal Endangered Species Act FD = Delisted from the Federal Endangered Species Act California State Status Categories: SE = Listed as endangered under California Endangered Species Act ST = Listed as threatened under California Endangered Species Act SCT = Listed as candidate threatened under California Endangered Species Act California Department of Fish and Wildlife (CDFW) Categories: SSC = Listed by the CDFW as a Species of Special Concern FP = Listed as Fully Protected by California Fish and Game Code ² Potential for Occurrence: Could Occur: The project site is within the species’ range, but no occurrences of the species have been recorded within the project site; however, suitable habitat for the species is present and recorded occurrences of the species are generally present in the vicinity. No Potential to Occur: The project site is outside the species’ current known range or suitable habitat for the species is absent from the project site and adjacent areas. Sources: CDFW 2019b								

Valley Elderberry Longhorn Beetle

A total of 30 elderberry (*Sambucus nigra*) shrubs were mapped within or near the Rancho Cordova Project Segment footprint, many of which are large enough to provide suitable habitat for the valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*), a federally-threatened taxon. A summary of the approximate location of each shrub relative to the project footprint, and, if it could be determined at the time of the survey, the estimated number of stems and stem sizes for each shrub is presented in Table 4.

According to the USFWS *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (USFWS 2017), if elderberry shrubs occur on or within 50 meters (165 feet) of the project area, adverse effects to VELB may occur as a result of project implementation. The elderberry shrubs mapped within and near the Rancho Cordova Project Segment are scattered along fences in ruderal, non-riparian habitat. Many exist together with coyote brush (*Baccharis pilularis*) shrubs, while others are isolated individuals or are present in the understory of large trees.

Elderberry shrubs are the sole host plant for VELB, which spend their larval stage of development inside elderberry stems, emerging in spring and summer as adults to breed and lay eggs. The only identifiable exterior evidence of elderberry use by VELB is the exit hole created by the larvae. There are nine records of VELB within 5 miles of the Rancho Cordova Project Segment, documented via exit holes and the presence of adult beetles, with the nearest record located approximately 0.5 mile west, between Folsom Boulevard and Highway 50 in highway frontage ruderal habitat similar to that present in the Rancho Cordova Project Segment (CDFW 2019). The remaining occurrences are in riparian habitats to the north and east of the Rancho Cordova Project Segment along the American River, Willow Creek, and Buffalo Creek (CDFW 2019).

Table 4. Elderberry Shrubs Mapped Within or Near the Rancho Cordova Project Segment

Elderberry Shrub ID ¹	Location Relative to Project Footprint ²	Number of Stems ³	Stem Size ³
1	Inside	Unknown	Unknown
2	Inside	Unknown	Unknown
3	Inside	Unknown	Unknown
4	Within 20 feet to the south	2	<1 inch
5	Inside	10	<1 inch
6	Inside	2	3 – 5 inches
7	Within 20 feet to the south	2	1 – 3 inches
8	Within 20 feet to the south	5	3 – 5 inches
9	Within 165 feet to the south	3	1 – 3 inches
10	Within 20 feet to the south	Unknown	Unknown
11	Inside	Unknown	Unknown
12	Inside	Unknown	Unknown
13	Inside	Unknown	Unknown
14	Within 165 feet to the south	1	>5 inches
15	Within 20 feet to the south	Unknown	Unknown
16	Within 165 feet to the south	6	>5 inches

Table 4. Elderberry Shrubs Mapped Within or Near the Rancho Cordova Project Segment

Elderberry Shrub ID¹	Location Relative to Project Footprint²	Number of Stems³	Stem Size³
17	Inside	3	>5 inches
18	Within 20 feet to the south	Unknown	Unknown
19	Inside	Unknown	Unknown
20	Within 165 feet to the south	7	3 – 5 inches
21	Inside	1	>5 inches
22	Inside	2	>5 inches
23	Inside	Unknown	Unknown
24	Inside	12	<1 inch
25	Within 20 feet to the south	Unknown	Unknown
26	Within 20 feet to the south	4	1 – 3 inches
27	Inside	Unknown	Unknown
28	Within 20 feet to the south	2	1 – 3 inches
29	Within 165 feet to the south	2	3 – 5 inches
30	Inside	7	<1 inch

¹These identification numbers are for analysis purposes only and do not reflect a tagged identification number in the field.

²Results do not represent the findings of a comprehensive valley elderberry longhorn beetle (VELB) habitat survey; shrub locations and quantities are approximate, based on a reconnaissance-level biological survey, and are subject to change following final project design and the results of a pre-construction VELB survey conducted in accordance with USFWS-approved methods.

³Due to access limitations and/or the presence of obscuring vegetation (e.g., coyote brush, tall weeds), not all elderberries found within or near the project site could be visually assessed for stem quantity and size.

Special-Status Birds

Suitable foraging and/or nesting habitat for four special-status bird species is present within or near the study area. Because the immediate surroundings are subject to high levels of human disturbance in adjacent business parks, industrial sites, shopping centers, parking areas, light rail stations, and roadways, the study area likely provides only marginal-quality nesting habitat for special-status birds. These species include Swainson’s hawk, white-tailed kite, grasshopper sparrow (*Ammodramus savannarum*), and burrowing owl (*Athene cunicularia*).

There are several large and/or dense-topped trees adjacent to grasslands in both project segments that could provide nesting substrate and foraging habitat, respectively, for Swainson’s hawk (state-listed as threatened) and/or white-tailed kite (a CDFW fully-protected species). Marsh habitat along Willow Creek, approximately 0.2 mile to the east and south of the Folsom Project Segment, could provide additional foraging habitat for white-tailed kite. The CNDDB lists six occurrences of Swainson’s hawk within 5 miles of the project segments, with nests located in large cottonwood, eucalyptus, and oak trees (CDFW 2019). Of these, three records are located along White Rock Road in Rancho Cordova, and two are north of the American River in the vicinity of Folsom. There are 10 occurrences of white-tailed kite nests within 5 miles of the project sites, the majority of which are recorded as being within interior live oak

trees near oak woodland and grassland habitats (CDFW 2019). The nearest record to the Folsom Project Segment is 0.5 mile to the northeast on the north side of the American River, in oak woodland habitat, and the nearest record to the Rancho Cordova Project Segment is approximately 0.5 mile to the east in a tree immediately south of Folsom Boulevard in foothill woodland habitat (CDFW 2019).

Annual grassland habitat in the Rancho Cordova Project Segment could provide suitable habitat for the grasshopper sparrow and burrowing owl, both of which are CDFW Species of Special Concern. The mixture of annual grassland and shrubs in the southeastern extent of the Rancho Cordova Project Segment could support nesting grasshopper sparrow, while the ground-squirrel burrows in low-growing vegetation near parking areas around the Hazel Station could support nesting or wintering burrowing owl. The nearest record of grasshopper sparrow is 10 miles to the southeast of the study area, in rolling vernal pool grassland (CDFW 2019). The nearest record of burrowing owl is approximately 4.9 miles to the southwest along Mather Boulevard near the Mather airfield, in similar ruderal and grassland habitat to that present in the Rancho Cordova Project Segment (CDFW 2019).

The numerous shrubs, trees, ruderal areas, and structures in both the Folsom and Rancho Cordova project segments could provide suitable nesting substrate for migratory birds, including raptors, covered by the federal Migratory Bird Treaty Act (MBTA). The MBTA prohibits the killing, possessing, or trading of migratory birds, with essentially all native bird species in California covered by the MBTA. Migratory bird and raptor nests are further protected by Sections 3503 and 3503.5, respectively, of the California Fish and Game Code.

Sensitive Habitats

Sensitive habitats are those that are of special concern to resource agencies or are afforded specific consideration through the State CEQA Guidelines, Section 1602 of the California Fish and Game Code, Section 404 of the Clean Water Act, and the state's Porter-Cologne Act. Sensitive habitats may be of special concern to these agencies and conservation organizations for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat to common and special-status species.

State or Federally Protected Wetlands

From a regulatory perspective, surface water and its drainage or groundwater, including saline waters, within the boundaries of the state are considered "waters of the state" and are regulated under the Porter-Cologne Act and Section 401 of the CWA. Any manmade aquatic features that retain surface water at any time would also be considered waters of the state. On the federal side, aquatic areas that also meet the regulatory definition of "waters of the United States" are further regulated under Section 404 of the CWA. No project activities are proposed within a water body/water course.

Prior to the biological reconnaissance survey, AECOM biologists reviewed USGS quadrangle maps, USFWS National Wetland Inventory data (USFWS 2019b), and current and historic Google Earth satellite images of the project site. Based on this data review and site reconnaissance, no natural wetland features exist within the project footprint. Manmade drainage ditches (i.e., v-ditches) were observed

parallel to the base of railroad tracks, but these features do not appear to hold surface water and likely would not meet the definition of a federal or state water. No wetland delineation was conducted as part of this survey.

Riparian Habitat

Riparian habitats are defined as tree or shrub vegetation that overlap waterways and may be subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. There is no riparian habitat within the Project footprints or adjacent areas.

Sensitive Natural Communities

California natural communities are organized by CDFW and partner organizations, such as CNPS, based on vegetation type classification, and are ranked using the same system to assign global and state rarity ranks for plant and animal species in the CNDDDB (CDFW 2018b). CDFW considers natural communities ranked S1–S3 to be sensitive natural communities, to be addressed in the environmental review processes (CDFW 2019c). Sensitive natural communities are defined as being of limited distribution statewide or within a county or region and often vulnerable to the environmental effects of projects (CDFW 2019c). There are no sensitive natural communities within the Project footprints or adjacent areas.

Trees

A total of 91 trees (44 trees in the Folsom Project Segment and 47 trees in the Rancho Cordova Project Segment) were mapped inside of or within 20 feet of the study area. Of these, 12 are rooted within the in the Rancho Cordova Project Segment project footprint (i.e., six native trees and six non-native landscape trees), and four native oak trees are rooted in the Folsom Project Segment project footprint. Tree species that were mapped as part of the biological survey and their locations in relation to the project footprint are shown in Table 5. Details regarding tree size, health, and actual project-related impacts on trees would be determined by an arborist survey before the start of the project, in accordance with local tree ordinances (Folsom Municipal Code 2019; Rancho Cordova Municipal Code 2019).

Many of the trees within or adjacent to the project footprint are California native oaks, other native trees, or large landscape trees that are protected by local ordinances. Activities that may result in impacts on protected trees in the cities of Folsom and Rancho Cordova are governed by the Folsom Tree Preservation Ordinance (Folsom Municipal Code 2019) and the Rancho Cordova Tree Preservation and Protection Ordinance (Rancho Cordova Municipal Code 2019), respectively.

Table 5. Trees Mapped Inside and Within 20 Feet of the Folsom and Rancho Cordova Segment Footprints

Tree Species	Total Number of Trees Mapped ¹	
	Within Footprint	Outside Footprint (within 20 feet)
Folsom Project Segment		
Black Locust*	0	5
Black Walnut	0	2
Black Willow	0	1
Blue Oak	1	0
Interior Live Oak	3	29
Valley Oak	0	3
Total	4	40
Rancho Cordova Project Segment		
Tree Species	Total Number of Trees Mapped ¹	
	Within Footprint	Outside Footprint (within 20 feet)
Black Walnut	1	0
Black Willow	0	1
Crepe Myrtle*	0	1
Fremont Cottonwood	0	2
Eucalyptus species*	4	15
Interior Live Oak	2	3
London Plane*	2	5
Pear Tree*	0	1
Privet*	0	3
Unknown species*	0	3
Valley Oak	3	1
Total	12	35
<p>*Trees denoted with an asterisk are not native to California.</p> <p>¹Results do not represent the results of an arborist survey; tree locations and quantities are approximate, based on a reconnaissance-level biological survey, and are subject to change following final project design and the results of an arborist survey conducted in accordance with local tree protection ordinances.</p> <p>Source: Compiled by AECOM in 2019</p>		

References

- California Department of Fish and Wildlife (CDFW). 2018 (October 15). *California Natural Community List*. Available: <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities>. Accessed June 2019.
- . 2019. *California Natural Diversity Database (CNDDDB)*. Maps and Data, Rarefind 5 Version 5.2.14. Available: <https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>. Accessed June 2019.
- California Native Plant Society (CNPS). 2019. *Inventory of Rare and Endangered Plants of California*. Online edition, v8-03 0.39, Rare Plant Program. Available: <http://www.rareplants.cnps.org>. Accessed June 2019.
- Folsom Municipal Code. 2019. *Chapter 12.16, Tree Preservation Ordinance*. Available: <https://www.codepublishing.com/CA/Folsom/html/Folsom12/Folsom1216.html>. Accessed August 2019.
- Rancho Cordova Municipal Code. 2019. *Chapter 19.12, Preservation and Protection of Private Trees*. Available: <https://www.codepublishing.com/CA/RanchoCordova/html/RanchoCordova19/RanchoCordova1912.html>. Accessed August 2019.
- U.S. Department of Commerce National Oceanic and Atmospheric Administration (NOAA). 2019. National Weather Service Forecast Office Sacramento, California. Extended Forecast for Folsom CA. Available: <https://forecast.weather.gov>. Accessed 14 March 2019.
- U.S. Geological Survey (USGS). 2018a. Folsom Quadrangle, California, 7.5-minute series.
- . 2018b. Buffalo Creek Quadrangle, California, 7.5-minute series.
- . 2018c. Carmichael Quadrangle, California, 7.5-minute series.
- . 2018d. Folsom SE Quadrangle, California, 7.5-minute series.
- . 2018e. Roseville Quadrangle, California, 7.5-minute series.
- . 2018f. Clarksville Quadrangle, California, 7.5-minute series.
- . 2018g. Rocklin Quadrangle, California, 7.5-minute series.
- . 2018h. Pilot Hill Quadrangle, California, 7.5-minute series.
- . 2018i. Citrus Heights Quadrangle, California, 7.5-minute series.
- U.S. Environmental Protection Agency (EPA). 2017 (December 15). *WATERS (Watershed Assessment, Tracking & Environmental Results System)*. WATERSKMZ Tool, a compressed Keyhole Markup Language (KML) file that provides easy access to geospatial WATERS data and services.

Available: <https://www.epa.gov/waterdata/viewing-waters-data-using-google-earth>. Accessed June 12, 2019.

U.S. Fish and Wildlife Service (USFWS). 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (Desmocerus californicus dimorphus)*. Sacramento, CA.

———. 2019a. *Information for Planning and Consultation (IpaC)*. Powered by ECOS – the Environmental Conservation Online System. Available: <https://ecos.fws.gov/ipac/>. Accessed August 2019. U.S. Geological Survey (USGS). Accessed August 2019.

———. 2019b (May 5). *National Wetlands Inventory*. Wetlands Mapper data desktop/mobile view. Available: <https://www.fws.gov/wetlands/data/Mapper.html>. Accessed June 2019.

U.S. Natural Resources Conservation Service (NRCS). 2018 (September). Web Soil Survey. Available: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed June 12, 2019.

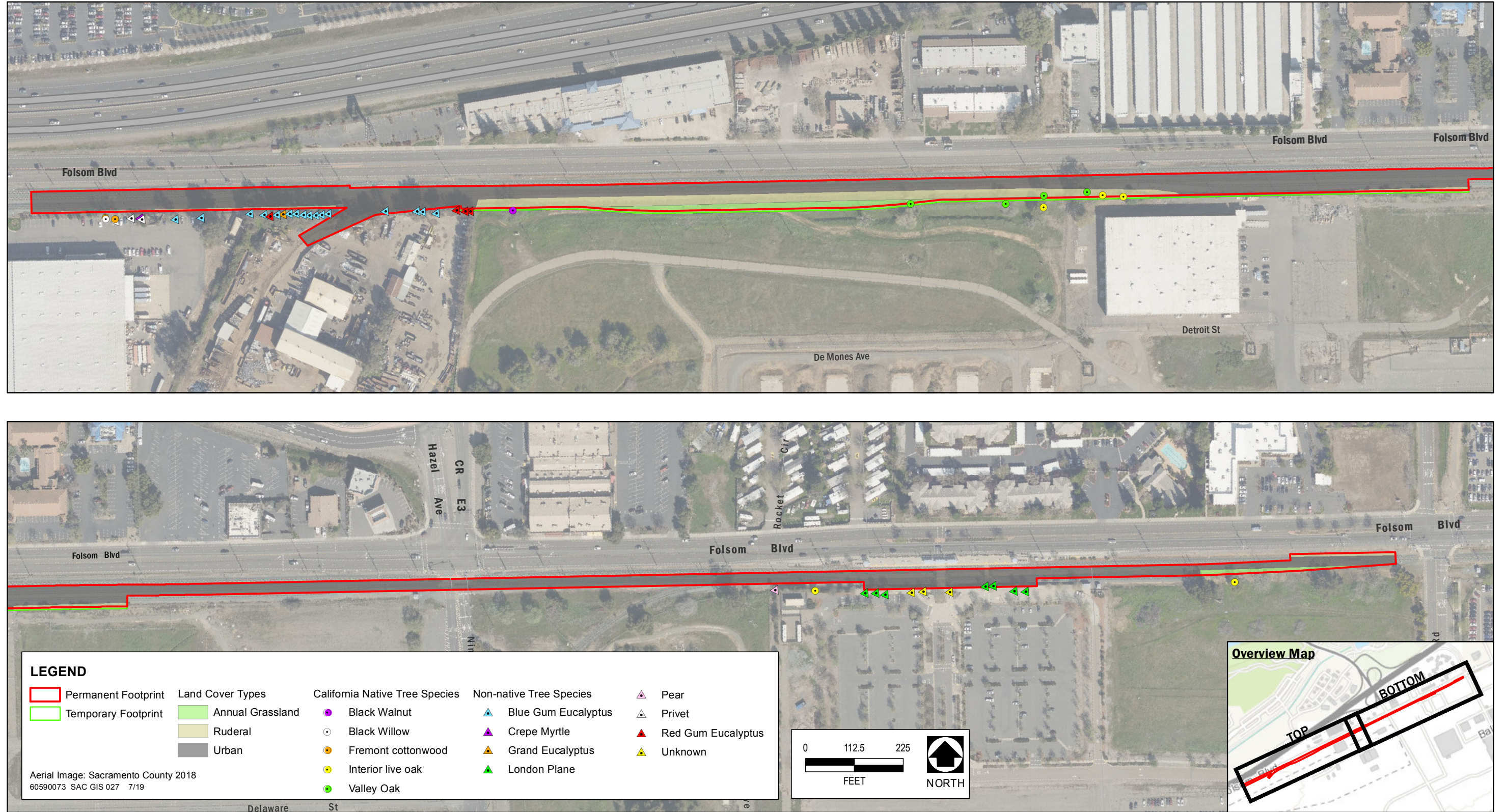
Figures

X:\GIS\Projects\60590073_SacRT_GoldLine\02_Maps\60590073_SAC_GIS_026_Folsom_Habitats.mxd 6/28/2019 clement SAC



Source: AECOM 2019

X:\GIS\Projects\60590073_SacRT_GoldLine\02_Maps\60590073_SAC_GIS_027_RanchoCordova_Habitats.mxd 7/2/2019 clementl SAC



Source: AECOM 2019

X:\GIS\Projects\60590073_SacRT_GoldLine\02_Maps\60590073_SAC_GIS_023_HCPs_NCCPs.mxd 8/6/2019 element1 SAC



Source: CDFW, Sacramento County 2019

Noise Modeling Assumptions and Results

LT-01-Ldn
Long-Term 24 Hour Continuous Noise Monitoring
 Model Input Sheet



Project: 60590073 - Gold Line Double Tracking Env

Date: Existi **Tuesday, August 20, 2019** **Wednesday, August 21, 2019**

Site: Oak Brook Apartments, 12499 Folsom Boulevard, Sacramento County

Hour	Leq	Lmax	L50	L90
20:00	52.3	75.1	50.3	48.0
21:00	51.1	71.4	48.5	46.2
22:00	48.9	63.6	46.5	45.1
23:00	46.9	63.8	45.2	43.4
0:00	45.8	65.3	44.6	44.0
1:00	44.7	56.0	44.3	43.2
2:00	44.2	54.7	43.7	43.1
3:00	45.5	62.8	44.7	43.6
4:00	46.1	58.1	44.7	43.5
5:00	49.3	63.7	47.0	44.9
6:00	52.0	66.0	49.3	46.1
7:00	52.9	71.8	49.5	45.2
8:00	55.7	78.9	50.0	44.7
9:00	52.2	71.6	50.6	45.6
10:00	50.8	71.7	48.9	44.3
11:00	51.7	68.2	48.9	45.3
12:00	54.6	83.0	49.6	45.9
13:00	51.8	71.1	49.4	46.4
14:00	51.0	65.5	49.4	46.2
15:00	52.8	75.6	50.1	46.5
16:00	52.8	68.6	50.7	46.2
17:00	52.8	68.4	50.3	46.1
18:00	53.9	78.5	50.1	45.7
19:00	53.2	80.7	50.1	46.7

Daytime (7 a.m. - 10 p.m.)
 Nighttime (10 p.m. - 7 a.m.)

Averages			
Leq	Lmax	L50	L90
52.8	73.3	49.8	45.9
47.8	61.6	45.6	44.1

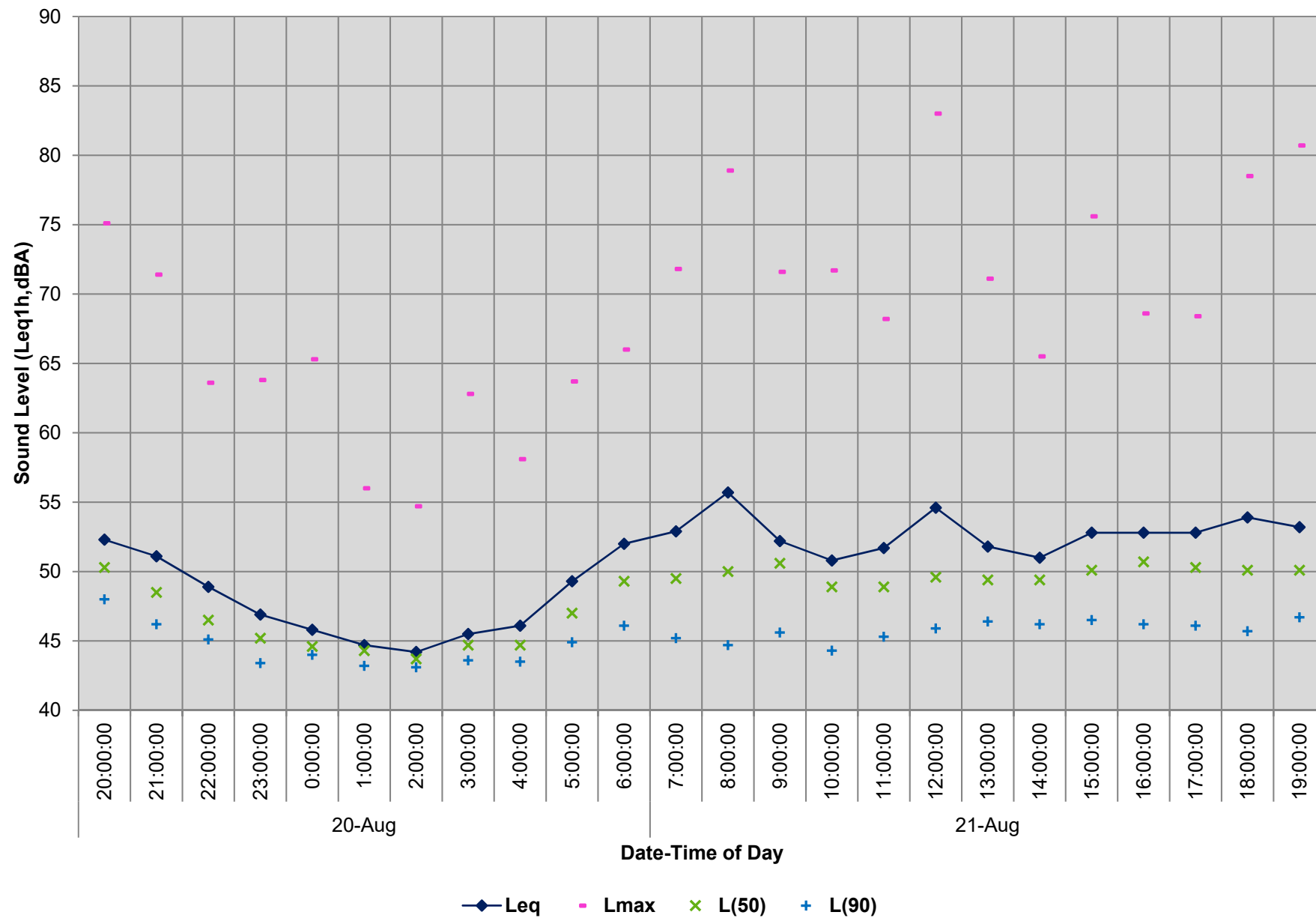
Daytime (7 a.m. - 10 p.m.)
 Nighttime (10 p.m. - 7 a.m.)

Uppermost-Level			
Leq	Lmax	L50	L90
55.7	83.0	50.7	48.0
52.0	66.0	49.3	46.1

Percentage of Energy	
Daytime	84%
Nighttime	16%

Calculated L _{dn} , dBA
55.4

LT-01 Oak Brook Apartments, 12499 Folsom Boulevard, Sacramento County



LT-02-Ldn
Long-Term 24 Hour Continuous Noise Monitoring
 Model Input Sheet



Project: 60590073 - Gold Line Double Tracking Env

Date: Existi **Tuesday, August 20, 2019** **Wednesday, August 21, 2019**

Site: Oak Villas Pond, 229 Pacific Oak Court, City of Folsom

Hour	Leq	Lmax	L50	L90
21:00	53.7	72.1	51.4	48.1
22:00	50.9	66.9	48.1	44.1
23:00	48.8	66.9	45.3	41.3
0:00	46.3	62.6	43.2	40.4
1:00	45.2	59.8	41.9	39.6
2:00	48.8	74.0	42.2	39.4
3:00	47.8	61.8	44.8	41.1
4:00	50.0	65.3	47.6	42.5
5:00	54.6	71.1	52.0	47.0
6:00	58.1	72.1	55.1	49.5
7:00	56.7	71.5	55.5	49.2
8:00	56.0	69.0	54.4	48.8
9:00	57.8	79.4	53.2	46.2
10:00	54.1	73.4	51.0	45.0
11:00	66.6	84.2	56.0	46.7
12:00	52.9	77.6	49.3	44.0
13:00	55.0	78.7	50.0	44.2
14:00	54.5	71.5	52.1	46.7
15:00	53.7	69.6	51.5	46.2
16:00	56.5	71.2	54.3	49.2
17:00	55.7	77.8	52.2	46.8
18:00	52.9	70.2	50.3	44.7
19:00	55.3	70.7	53.2	48.7
20:00	54.6	71.1	52.3	48.5

Daytime (7 a.m. - 10 p.m.)
 Nighttime (10 p.m. - 7 a.m.)

Averages			
Leq	Lmax	L50	L90
57.9	73.9	52.4	46.9
52.1	66.7	46.7	42.8

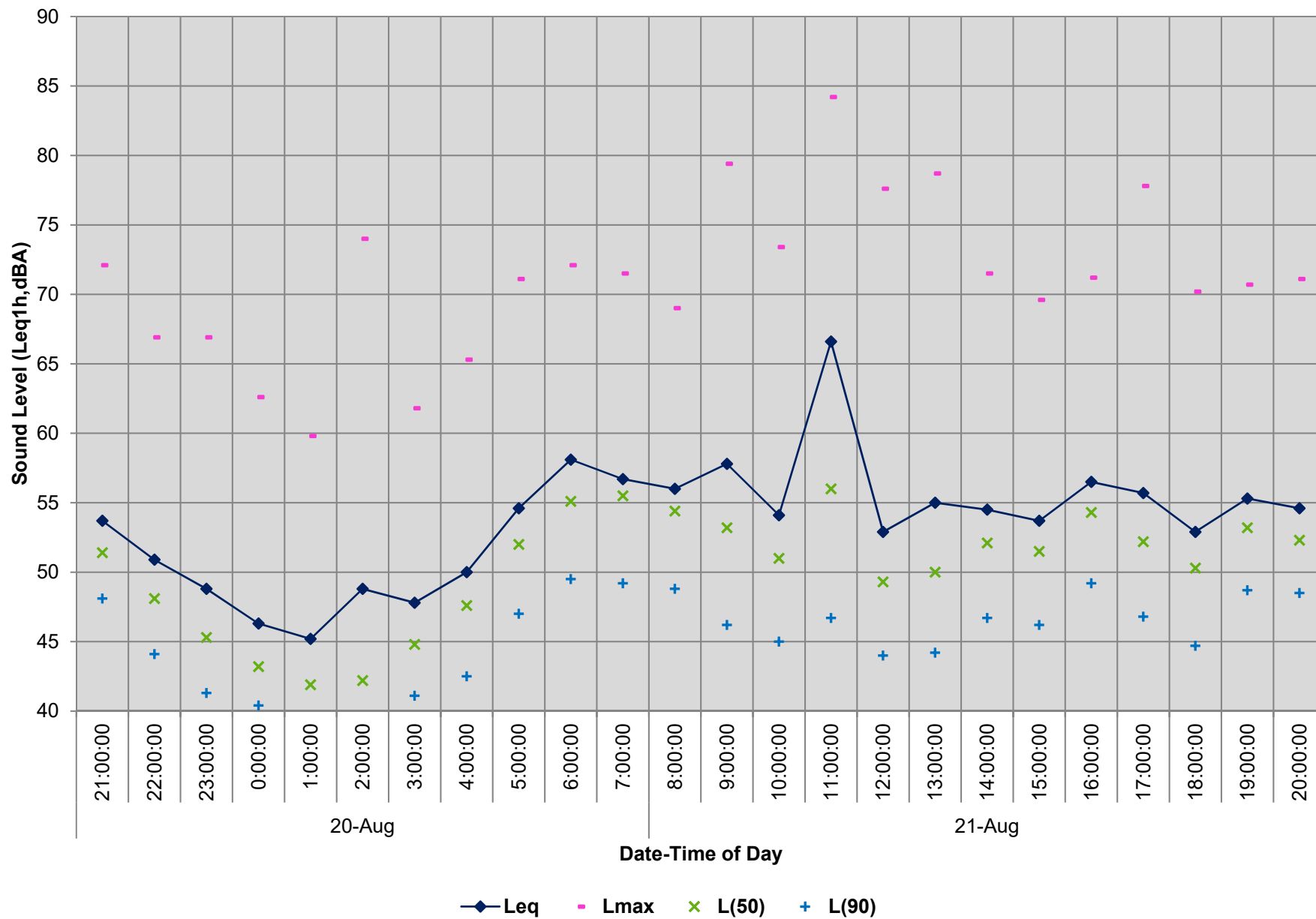
Daytime (7 a.m. - 10 p.m.)
 Nighttime (10 p.m. - 7 a.m.)

Uppermost-Level			
Leq	Lmax	L50	L90
66.6	84.2	56.0	49.2
58.1	74.0	55.1	49.5

Percentage of Energy	
Daytime	86%
Nighttime	14%

Calculated L _{dn} , dBA
59.9

LT-02 Oak Villas Pond, 229 Pacific Oak Court, City of Folsom



LT-03-Ldn
Long-Term 24 Hour Continuous Noise Monitoring
 Model Input Sheet



Project: Gold Line Double Tracking Env

Date: Existi **Tuesday, August 20, 2019**

Wednesday, August 21, 2019

Site: Glenn Station Park & Ride, 620 Coolidge Drive, City of Folsom

Hour	Leq	Lmax	L50	L90
21:00	58.4	73.9	55.8	49.2
22:00	56.6	74.2	53.2	45.7
23:00	53.6	70.2	49.7	43.4
0:00	51.2	69.2	45.3	42.6
1:00	49.2	66.6	43.3	41.7
2:00	49.1	67.2	43.6	42.0
3:00	51.0	69.8	44.2	42.1
4:00	54.7	69.5	49.1	43.6
5:00	59.9	74.0	57.1	50.0
6:00	63.6	90.5	60.5	54.1
7:00	62.1	72.1	61.1	54.6
8:00	61.6	71.5	60.8	53.3
9:00	60.1	72.2	58.5	51.8
10:00	60.6	77.8	58.6	52.0
11:00	60.0	75.0	58.1	51.4
12:00	60.5	75.8	58.8	52.4
13:00	66.3	94.4	58.9	52.7
14:00	61.3	77.8	59.3	52.0
15:00	62.2	79.6	60.5	54.7
16:00	62.9	81.1	60.9	55.1
17:00	61.6	77.4	60.5	54.9
18:00	61.2	79.9	59.2	52.3
19:00	59.8	80.2	57.6	52.2
20:00	58.7	74.4	56.8	51.1

Daytime (7 a.m. - 10 p.m.)
 Nighttime (10 p.m. - 7 a.m.)

Averages			
Leq	Lmax	L50	L90
61.6	77.5	59.0	52.6
57.2	72.4	49.6	45.0

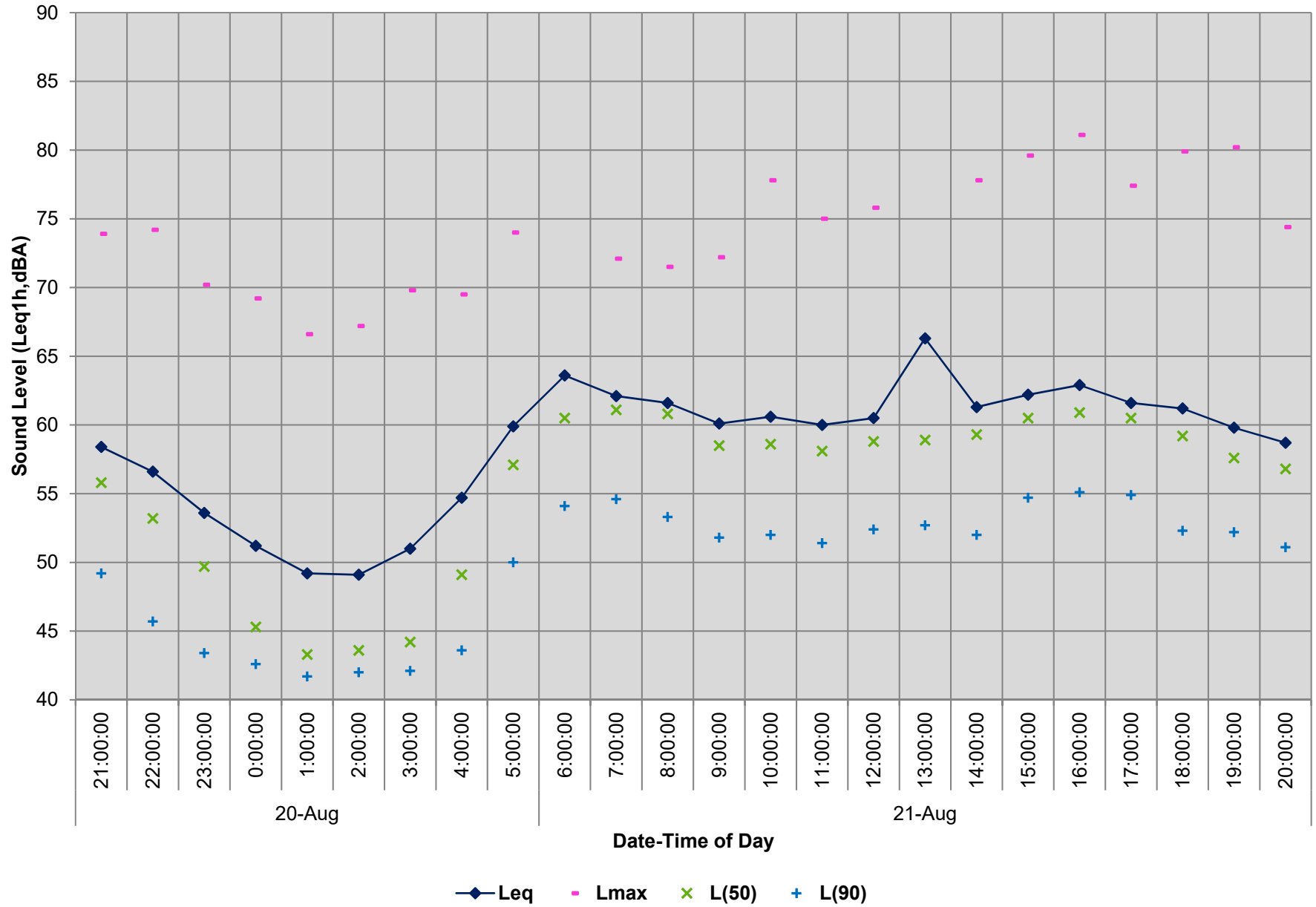
Daytime (7 a.m. - 10 p.m.)
 Nighttime (10 p.m. - 7 a.m.)

Uppermost-Level			
Leq	Lmax	L50	L90
66.3	94.4	61.1	55.1
63.6	90.5	60.5	54.1

Percentage of Energy	
Daytime	82%
Nighttime	18%

Calculated L _{dn} , dBA
64.6

LT-03 Glenn Station Park & Ride, 620 Coolidge Drive, City of Folsom



Project-Generated Construction Source Noise Prediction Model

Phase 1 Site Work



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L _{eq} dBA)	Assumptions:	Reference Emission Noise Levels (L _{max}) at	Usage Factor ¹
				50 feet ¹	
Threshold*	27	Daytime	Grader	85	0.4
	85	Nighttime	Excavator	81	0.4
	50		Compactor (ground)	83	0.2
LT-01	750	61	Auger Drill Rig	84	0.2
LT-02	450	66	Backhoe	78	0.4
LT-03	150	75			

Ground Type Hard
Ground Factor 0.00

Predicted Noise Level ²	L _{eq} dBA at 50 feet ²
Grader	81.0
Excavator	77.0
Compactor (ground)	76.0
Auger Drill Rig	77.0
Backhoe	74.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)

84.7

Sources:

¹ Obtained from the FHWA Roadway Construction Noise Model, J:

² Based on the following from the Federal Transit Noise and Vibrati

$$L_{eq}(\text{equip}) = E.L. + 10 \log(U.F.) - 20 \log(D/50) - 10 \log(G) \log(D/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

Project-Generated Construction Source Noise Prediction Model

Phase 2 Rail Work and Platform Work



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L _{eq} dBA)	Assumptions:	Reference Emission Noise Levels (L _{max}) at	Usage Factor ¹
				50 feet ¹	
Threshold*	44	Daytime	90	Dozer	0.4
	138	Nighttime	80	Grader	0.4
LT-01	50		89	Compactor (ground)	0.2
	750		65	Pneumatic Tools	0.5
LT-02	450		70	Pneumatic Tools	0.5
	150		79	Welder / Torch	0.05
LT-03				Crane	0.16
				Front End Loader	0.4
				Paver	0.5
				Concrete Pump Truck	0.2
				Vacuum Street Sweeper	0.1
				Tractor	0.4

Ground Type Hard
Ground Factor 0.00

Predicted Noise Level ²	L _{eq} dBA at 50 feet ²
Dozer	78.0
Grader	81.0
Compactor (ground)	76.0
Pneumatic Tools	82.0
Pneumatic Tools	82.0
Welder / Torch	61.0
Crane	73.0
Front End Loader	75.0
Paver	74.0
Concrete Pump Truck	74.0
Vacuum Street Sweeper	72.0
Tractor	80.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)

88.8

Sources:

¹ Obtained from the FHWA Roadway Construction Noise Model, J:

² Based on the following from the Federal Transit Noise and Vibrati

$$L_{eq}(\text{equip}) = E.L. + 10 \log(U.F.) - 20 \log(D/50) - 10 \log(G/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

Project-Generated Construction Source Noise Prediction Model

Phase 3 LRT Track/ OCS and signals



Location	Distance to Nearest Receiver in feet	Combined Predicted Noise Level (L _{eq} dBA)	Assumptions:	Reference Emission Noise Levels (L _{max}) at	Usage Factor ¹
				50 feet ¹	
Threshold*	20	Daytime 90	Generator	81	0.5
	65	Nighttime 80	Crane	81	0.16
	50	82	Concrete Pump Truck	81	0.2
LT-01	750	59	Front End Loader	79	0.4
LT-02	450	63	Compressor (air)	78	0.4
LT-03	150	73	Welder / Torch	74	0.05

Ground Type Hard
Ground Factor 0.00

Predicted Noise Level ²	L _{eq} dBA at 50 feet ²
Generator	78.0
Crane	73.0
Concrete Pump Truck	74.0
Front End Loader	75.0
Compressor (air)	74.0
Welder / Torch	61.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)

82.2

Sources:

¹ Obtained from the FHWA Roadway Construction Noise Model, J:

² Based on the following from the Federal Transit Noise and Vibrati

$$L_{eq}(\text{equip}) = E.L. + 10 \log(U.F.) - 20 \log(D/50) - 10 \log(G) - 10 \log(D/50)$$

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects; and

D = Distance from source to receiver.

Federal Transit Administration
 Noise Impact Assessment Spreadsheet
 Copyright 2007 HMMH Inc.
 version: 7/3/2007

Project: **SacRT Gold Line**

Receiver Parameters

Receiver:	LT-01
Land Use Category:	2. Residential
Existing Noise (Measured or Generic Value):	55 dBA

Noise Source Parameters

Number of Noise Sources:	3
--------------------------	---

Noise Source Parameters

		Source 1
Daytime hrs	Source Type:	Fixed Guideway
	Specific Source:	Rail Transit Vehicle
	Avg. Number of Transit Vehicles/train	3
	Speed (mph)	40
Nighttime hrs	Avg. Number of Events/hr	3
	Avg. Number of Transit Vehicles/train	2
	Speed (mph)	40
	Avg. Number of Events/hr	0.888888889
Distance	Distance from Source to Receiver (ft)	150
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	No
	Jointed Track?	No
	Embedded Track?	No
	Aerial Structure?	No

Noise Source Parameters

		Source 2
Daytime hrs	Source Type:	Fixed Guideway
	Specific Source:	Transit warning device
	Speed (mph)	40
	Avg. Number of Events/hr	3
Nighttime hrs	Avg. Number of Events/hr	
	Speed (mph)	40
	Avg. Number of Events/hr	0.888888889
Distance	Distance from Source to Receiver (ft)	150
	Number of Intervening Rows of Buildings	0
Adjustments		

Noise Source Parameters

		Source 3
Daytime hrs	Source Type:	Stationary Source
	Specific Source:	Crossing Signals
	Signal Duration/hr (seconds)	120
Nighttime hrs	Signal Duration/hr (seconds)	120
Distance	Distance from Source to Receiver (ft)	150
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	No

Project Results Summary

Existing Ldn:	55 dBA
Total Project Ldn:	60 dBA
Total Noise Exposure:	61 dBA
Increase:	6 dB
Impact?:	Moderate

Distance to Impact Contours

Dist to Mod. Impact Contour:	---
Dist to Sev. Impact Contour:	---

Source 1 Results

Leq(day):	46.8 dBA
Leq(night):	39.8 dBA
Ldn:	48.2 dBA

Source 2 Results

Leq(day):	56.0 dBA
Leq(night):	50.7 dBA
Ldn:	58.4 dBA
Incremental Ldn (Src 1-2):	58.8 dBA

Source 3 Results

Leq(day):	46.7 dBA
Leq(night):	46.7 dBA
Ldn:	53.1 dBA
Incremental Ldn (Src 1-3):	59.8 dBA

Federal Transit Administration
 Noise Impact Assessment Spreadsheet
 Copyright 2007 HMMH Inc.
 version: 7/3/2007

Project:	SacRT Gold Line
----------	-----------------

Receiver Parameters	
Receiver:	LT-02
Land Use Category:	3. Institutional
Existing Noise (Measured or Generic Value):	60 dBA

Noise Source Parameters	
Number of Noise Sources:	3

Noise Source Parameters		Source 1
Noisiest hr of Activity During Sensitive hrs	Source Type:	Fixed Guideway
	Specific Source:	Rail Transit Vehicle
	Number of Transit Vehicles/train	3
	Speed (mph)	40
	Number of Events/hr	3
Distance	Distance from Source to Receiver (ft)	100
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	No
	Jointed Track?	No
	Embedded Track?	No
	Aerial Structure?	No

Noise Source Parameters		Source 2
Noisiest hr of Activity During Sensitive hrs	Source Type:	Fixed Guideway
	Specific Source:	Transit warning device
	Speed (mph)	40
	Number of Events/hr	3
Distance	Distance from Source to Receiver (ft)	100
	Number of Intervening Rows of Buildings	0
Adjustments		

Noise Source Parameters		Source 3
Noisiest hr of Activity During Sensitive hrs	Source Type:	Stationary Source
	Specific Source:	Crossing Signals
	Signal Duration/hr (seconds)	120
Distance	Distance from Source to Receiver (ft)	100
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	No

Project Results Summary

Existing Leq _h :	60 dBA
Total Project Leq _h :	57 dBA
Total Noise Exposure:	62 dBA
Increase:	2 dB
Impact?:	None

Distance to Impact Contours

Dist to Mod. Impact Contour:	---
Dist to Sev. Impact Contour:	---

Source 1 Results

Leq _h :	46.8 dBA
--------------------	----------

Source 2 Results

Leq _h :	56.0 dBA
Incremental Leq _h (Src 1-2):	56.5 dBA

Source 3 Results

Leq _h :	46.7 dBA
Incremental Leq _h (Src 1-3):	56.9 dBA

Federal Transit Administration
 Noise Impact Assessment Spreadsheet
 Copyright 2007 HMMH Inc.
 version: 7/3/2007

Project:	SacRT Gold Line
----------	-----------------

Receiver Parameters	
Receiver:	LT-03
Land Use Category:	1. Outdoor Quiet
Existing Noise (Measured or Generic Value):	65 dBA

Noise Source Parameters	
Number of Noise Sources:	3

Noise Source Parameters		Source 1
Noisiest hr of Activity During Sensitive hrs	Source Type:	Fixed Guideway
	Specific Source:	Rail Transit Vehicle
	Number of Transit Vehicles/train	3
	Speed (mph)	40
	Number of Events/hr	3
Distance	Distance from Source to Receiver (ft)	50
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	No
	Jointed Track?	No
	Embedded Track?	No
	Aerial Structure?	No

Noise Source Parameters		Source 2
Noisiest hr of Activity During Sensitive hrs	Source Type:	Fixed Guideway
	Specific Source:	Transit warning device
	Speed (mph)	40
	Number of Events/hr	3
Distance	Distance from Source to Receiver (ft)	50
	Number of Intervening Rows of Buildings	0
Adjustments		

Noise Source Parameters		Source 3
Noisiest hr of Activity During Sensitive hrs	Source Type:	Stationary Source
	Specific Source:	Crossing Signals
	Signal Duration/hr (seconds)	120
Distance	Distance from Source to Receiver (ft)	50
	Number of Intervening Rows of Buildings	0
Adjustments	Noise Barrier?	No

Project Results Summary

Existing Leq _h :	65 dBA
Total Project Leq _h :	57 dBA
Total Noise Exposure:	65 dBA
Increase:	1 dB
Impact?:	None

Distance to Impact Contours

Dist to Mod. Impact Contour:	---
Dist to Sev. Impact Contour:	---

Source 1 Results

Leq _h :	46.8 dBA
--------------------	----------

LT-03

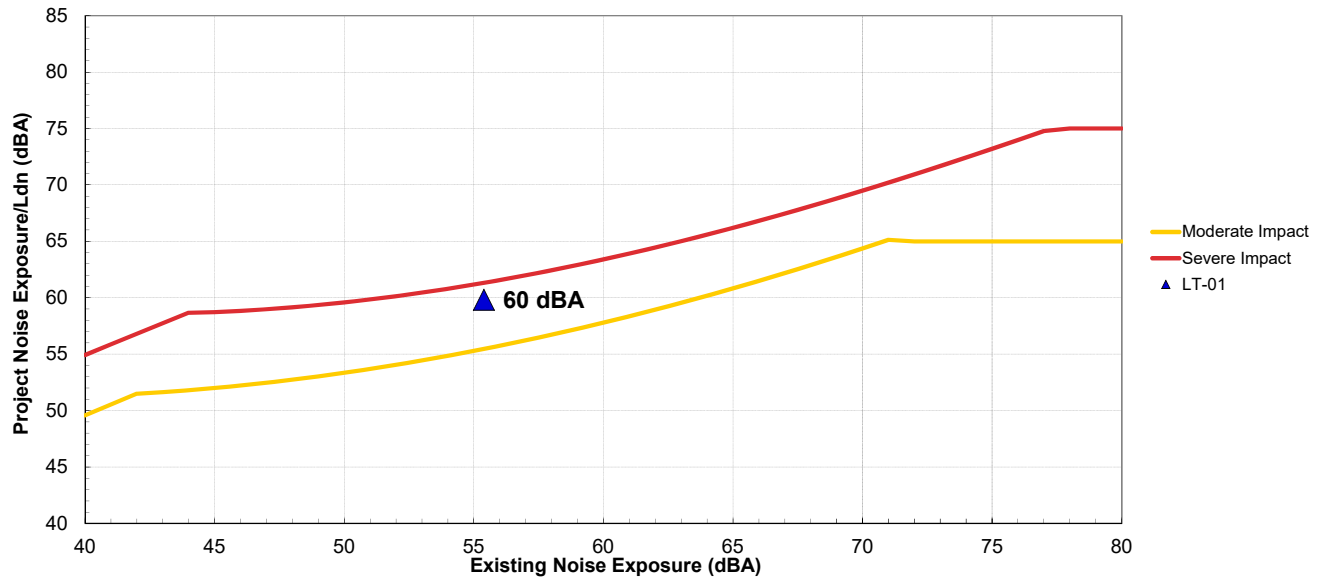
Source 2 Results

Leq _h :	56.0 dBA
Incremental Leq _h (Src 1-2):	56.5 dBA

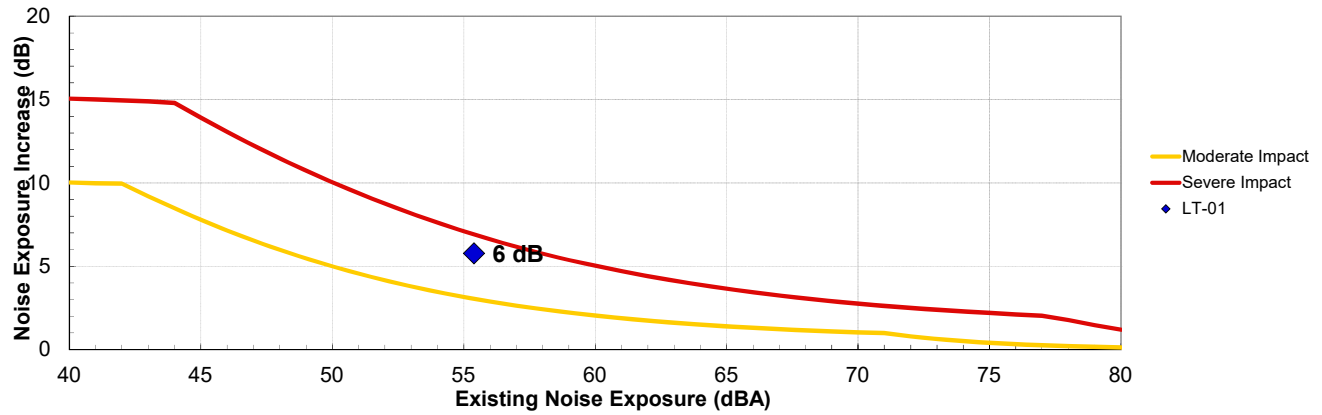
Source 3 Results

Leq _h :	46.7 dBA
Incremental Leq _h (Src 1-3):	56.9 dBA

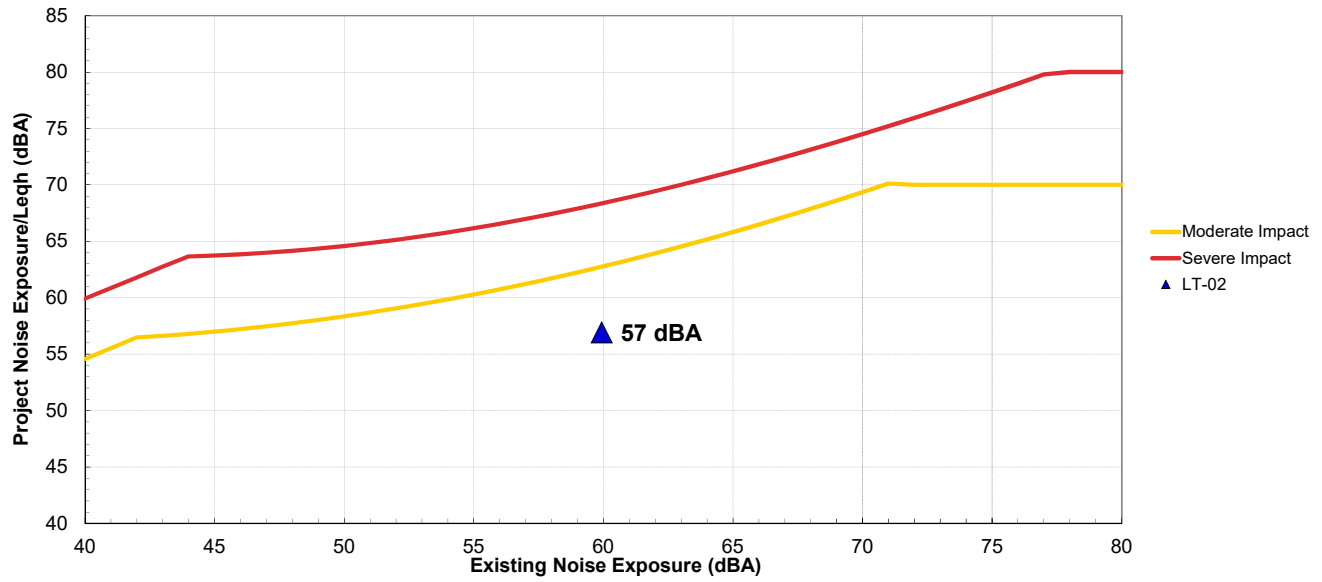
Noise Impact Criteria (FTA Manual, Fig 3-1)



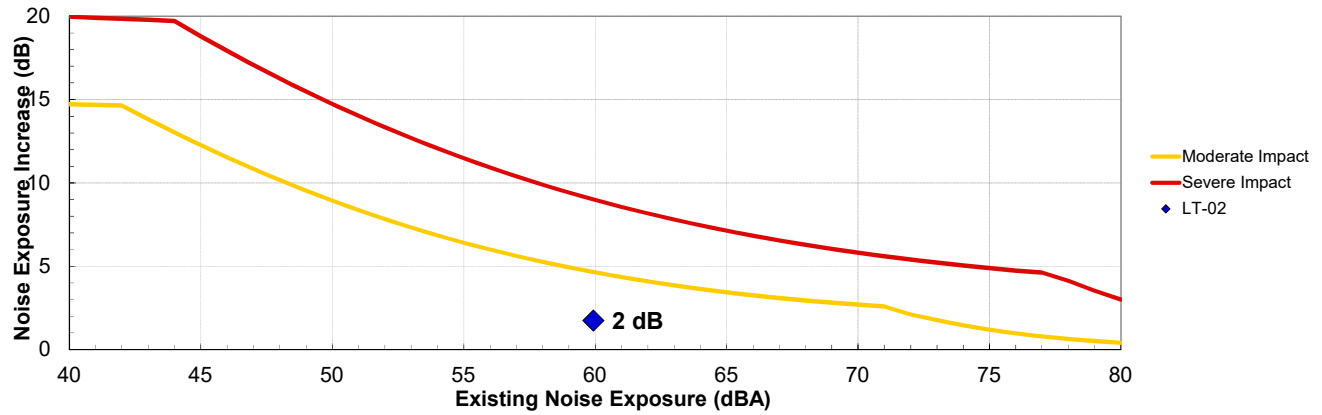
Increase in Cumulative Noise Levels Allowed (FTA Manual, Fig 3-2)



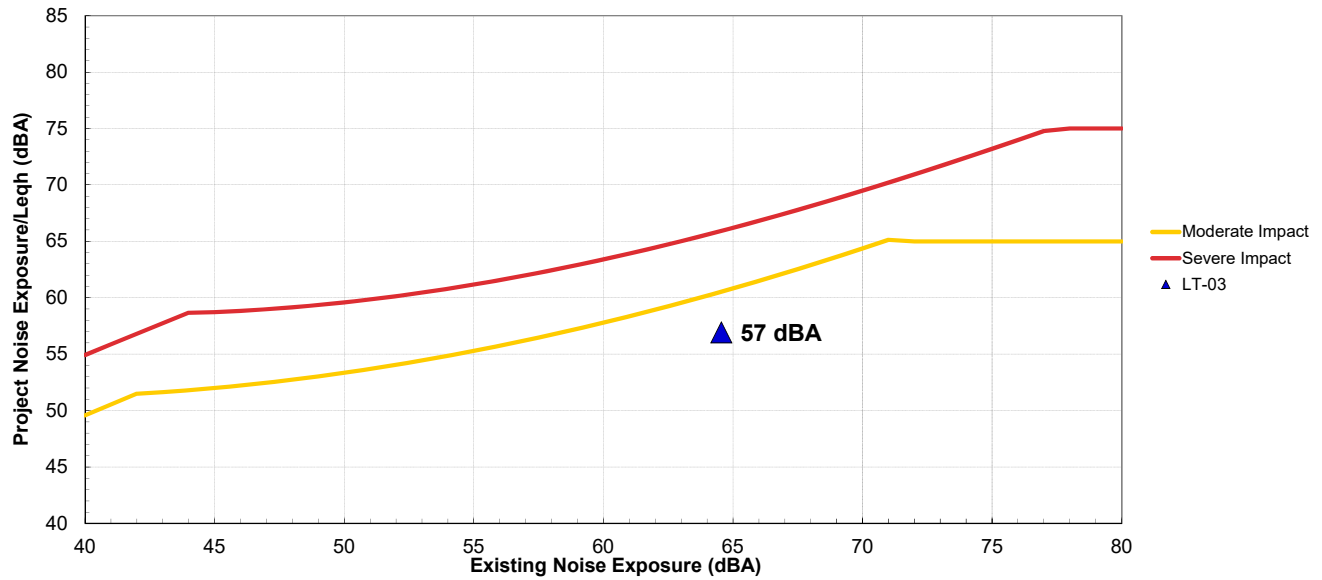
Noise Impact Criteria (FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed (FTA Manual, Fig 3-2)



Noise Impact Criteria (FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed (FTA Manual, Fig 3-2)

