Appendix J
Mitigation Monitoring and Reporting Program

Madera Station Relocation Project

Prepared for:

San Joaquin Joint Powers Authority

949 Channel Street
Stockton, CA 95202

AECOM
Kaiser Center
300 Lakeside Dr
Oakland, CA 94612

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1. INTRODUCTION

This Mitigation Monitoring and Reporting Program (MMRP) has been prepared pursuant to the California Environmental Quality Act (CEQA) and the State CEQA Guidelines to provide for monitoring of the mitigation measures required by adoption of the Initial Study/Mitigated Negative Declaration (IS/MND) of the Madera Station Relocation Project. Section 21081.6 of the Public Resources Code and Section 15091(d) of the CEQA Guidelines require public agencies to "adopt a reporting or monitoring program for changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment." The lead agency must define specific reporting and/or monitoring requirements to be enforced during project implementation prior to final approval of the Project.

The San Joaquin Joint Powers Authority (SJJPA) is the lead agency for the Project and is responsible for administering and implementing the MMRP. The MMRP stipulates how all required mitigation measures are to be implemented and completed during the appropriate project phase. It also facilitates documentation necessary to verify that mitigation measures were in fact properly implemented.

2. PROJECT DESCRIPTION

The Project consists of various project elements that can be separated into two phases, based on their purpose and timing of construction and implementation. The first phase, or the "Phase 1 – San Joaquins Relocated Station" (Phase 1), consists of elements related to the Relocated Madera San Joaquins Station (Relocated Station) from Madera Acres to the vicinity of Avenue 12. The existing Madera San Joaquins Station would no longer be used for San Joaquins operations following commencement of San Joaquins service at the Relocated Station. The second phase of the Project, or the "Phase 2 – HSR Interim Operating Segment Station" (Phase 2), consists of high-speed rail improvements at the Relocated Station to allow for future HSR service along California's future Merced to Bakersfield High-Speed Rail Interim Operating Segment, to access the Relocated Station (Figures 2-4, and 2-5). This HSR services is anticipated to be operated by the SJJPA.

For both Phase 1 and 2, the design, construction, and operation of the Project's rail components would comply with applicable standards from the Federal Railroad Administration (FRA) and/or California Public Utilities Commission (CPUC). Similarly, design, construction, and operation of site access improvements, including new roadways or modifications to existing roadways, would adhere to applicable standards such as the California Manual on Uniform Traffic Control Devices (MUTCD) and local design guidelines and specifications. Design approval for specific project components would be sought from the appropriate agencies as part of detailed design and subsequent stages of the Project.

2.1 Project Environmental Footprint

The Project Environmental Footprint (Project Footprint) is shown in Figure 2-1. In the north-south direction, the Project Footprint stretches approximately 3,600 feet north of Cottonwood Creek and approximately 150 feet south of Avenue 11 to accommodate trackwork associated with the Project. The Project Footprint also widens between Avenue 13 and Avenue 11 to accommodate the Project's station facilities and access road.

Figure 2-1. Proposed Project Environmental Footprint

2.2 Phase 1- San Joaquins Relocated Station

2.2.1 Platform

As described below, the Relocated Station for Phase 1would consist of a single side-loaded platform approximately 600 feet in length. The platform may include a canopy or canopies to offer protection from the elements for waiting passengers. There would also be fare machines, information panels, security video cameras, and lighting in the platform area. In general, the platform area would look similar to the existing Madera San Joaquins Station. Figures 2-2 and 2-3 show the proposed general layout of the Relocated Station, including the platform that the San Joaquins would utilize.

2.2.2 Trackwork

In order to access the Relocated Station platform, a new station siding track extending from the existing BNSF mainline single-track would be constructed. The entire length of the new station siding track, from the turnout locations at the north and south would be approximately 2,330 feet. The turnouts would be design for 50 mph. The new track would have a ballast base similar to the existing ballasted tracks on the BNSF Corridor.

2.2.3 Bus Depot

A bus depot would be constructed southeast of the proposed platform. The bus depot would be accessible via the access road. As part of the Phase 1, the entire footprint of the bus depot would be established, with space reserved for up to eight bus bays. However, only four of the eight bus bays would be constructed.

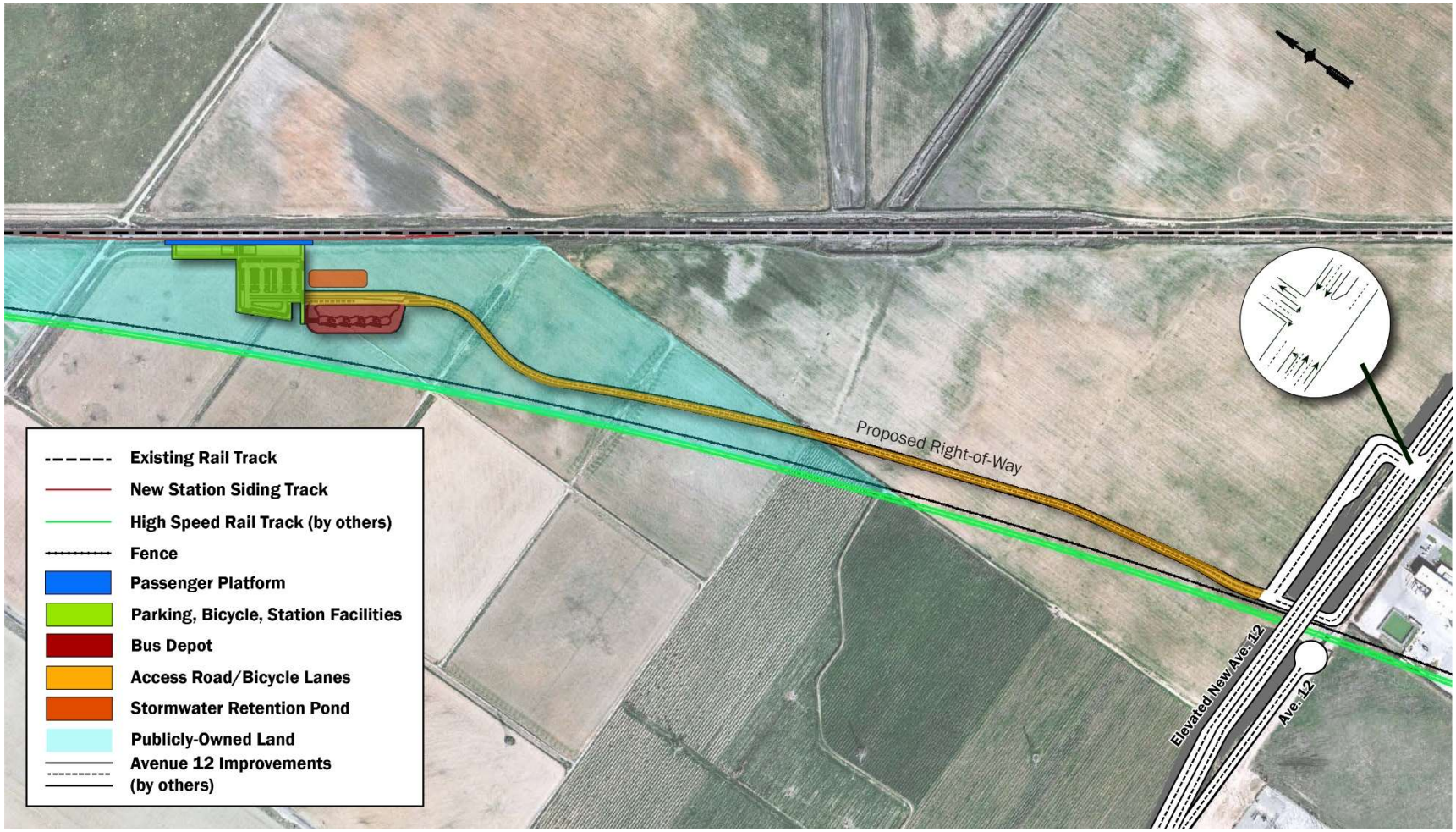
2.2.4 Parking

A surface parking lot would be constructed adjacent to and west of the Relocated Station platform, with 98 parking spaces that would be equipped with lighting and security video cameras. No parking structures are proposed. The parking lot would be accessed through via an access road connecting from Avenue 12. Parking would include disability parking. Additionally, a pick-up/drop off facility with a turnaround loop would be located within the westernmost area of the parking lot.

2.2.5 Access Road

A new two-lane access road would be constructed to provide access to the Relocated Station facilities from Avenue 12. The access road would primarily run adjacent to the CAHSR Project right-of-way and would connect to the new elevated section of Avenue 12 via a ramp structure on the north side of new grade-separated section of Avenue 12. Both the new elevated section of Avenue 12 and the ramp are being constructed as part of the CAHSR Project (Figure 2-2). The Phase 1 access road would include Class II bicycle lanes.

Figure 2-2 Proposed Design for Phase 1- San Joaquins Relocated Station (Overview)



2.2.6 Roadway Network

The access road would also connect to a section of road located in an underpass through the grade-separated Avenue 12 being constructed as part of the CAHSR Project. This underpass would provide a connection to the at-grade Avenue 12 frontage road on the south side of the new elevated section of Avenue 12. The Avenue 12 frontage road is not a Project element and is section of the same roadway that is the current Avenue 12 and would provide access to properties located immediately south of Avenue 12 and in between the CAHSR Project corridor to the west and the existing BNSF corridor to the east.

2.2.7 Buildings and Structures

A small building or buildings would be constructed to house restrooms and cleaning supplies/equipment for station maintenance, which would be located immediately west the station platform. The building(s) would be one-story (approximately 12 feet) tall. In addition, lighting posts with light-emitting diode (LED) light fixtures would be installed. Various types of signage would be also installed. Bicycle storage facilities would also be included at the station.

A stormwater drainage system would be constructed to provide drainage for stormwater from the access road, parking lot, and other station facilities. The drainage system would lead to a stormwater retention pond located immediately south of Phase 1 parking structure. The stormwater retention pond would be designed to accommodate additional stormwater anticipated from the expanded station facilities and access road associated with Phase 2.

An onsite Wastewater Treatment System (OWTS) would be constructed to treat wastewater from the planned station restroom. It is assumed that the Project would not be hooked up to the sewer system.

2.2.8 Trains

Trainsets utilized by the San Joaquins and serving the new Relocated Station during Phase 1 would be FRA-complaint diesel-based rolling stock, the same or similar to trainset currently operated for the San Joaquins today. Most of the trainsets utilized for the San Joaquins Service will be hauled by Tier 4 locomotives at the time of service commencement (estimated for 2024).

2.3 Phase 2- HSR Interim Operating Segment Station

2.3.1 Platform

As part of Phase 2, a new single side-loaded platform would be constructed parallel to the CAHSR Project trackwork now under construction to the west and immediately adjacent to a new station siding track (see below for more details). The platform would be approximately 1,000 feet in length and may include canopies to protect passengers from the elements. The height of the platform would be designed to accommodate trainsets to be selected for the HSR system. The platform would also be located approximately 365 feet west of the northerly edge of the platform built as part of Phase 1 (Figures 2-4, 2-5, and 2-6).

Figure 2-3. Proposed Design for the Phase 1- San Joaquins Relocated Station (Detailed View)

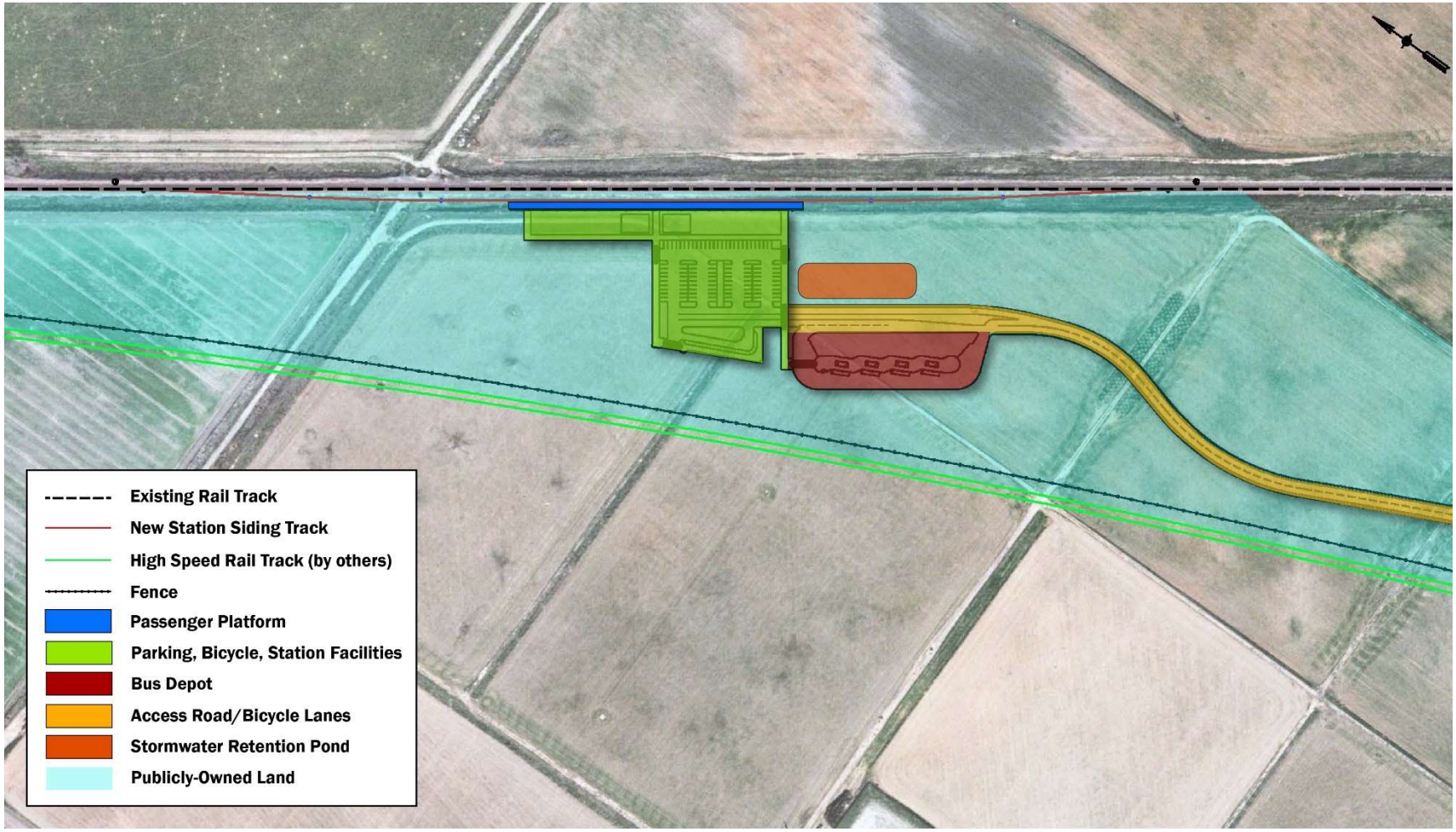


Figure 2-4. Proposed Design for the Project Phase 2- HSR Interim Operating Segment Station (Overview)

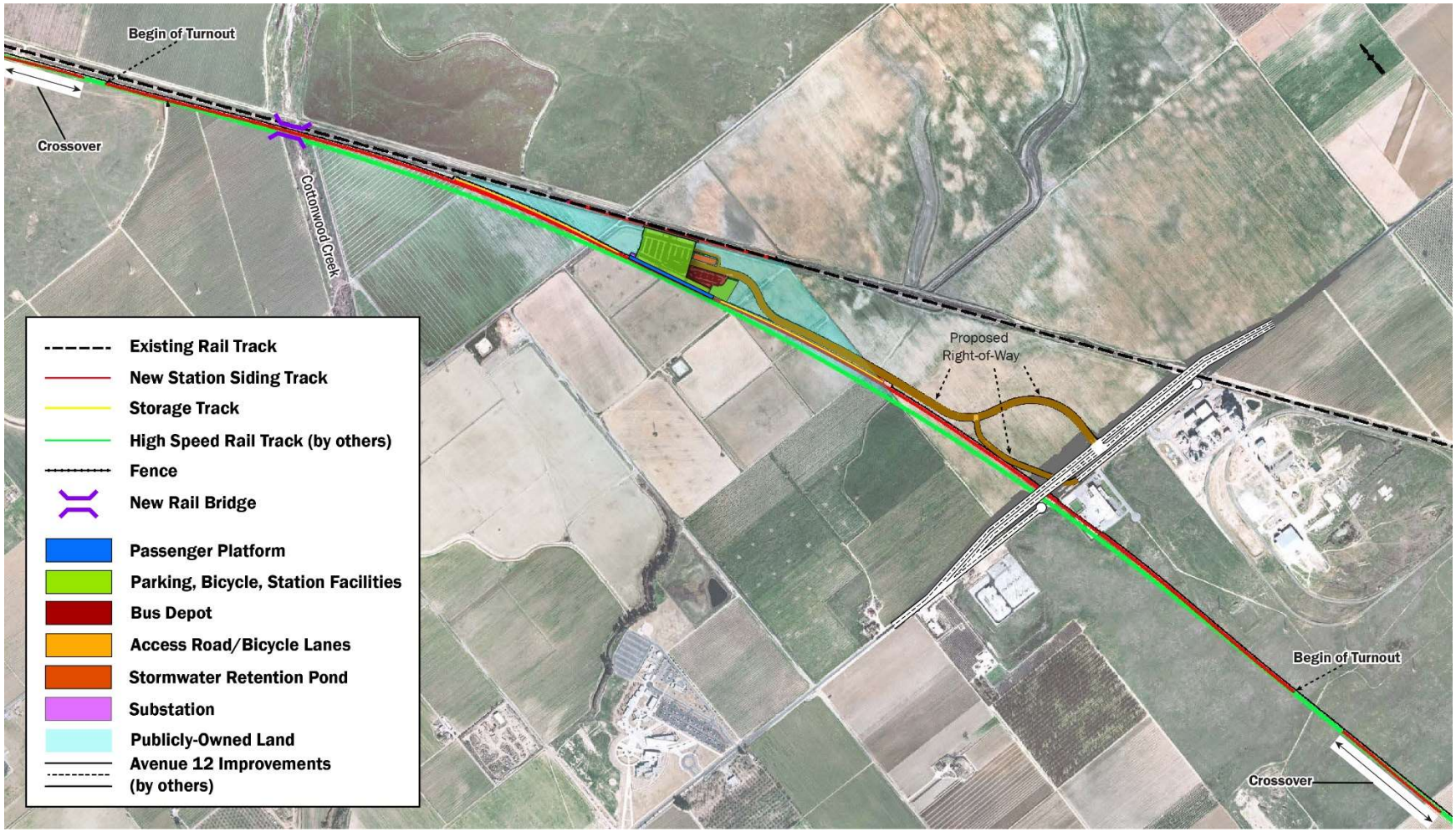


Figure 2-5. Proposed Design for the Project Phase 2 – HSR Interim Operating Segment Station (Detailed View)

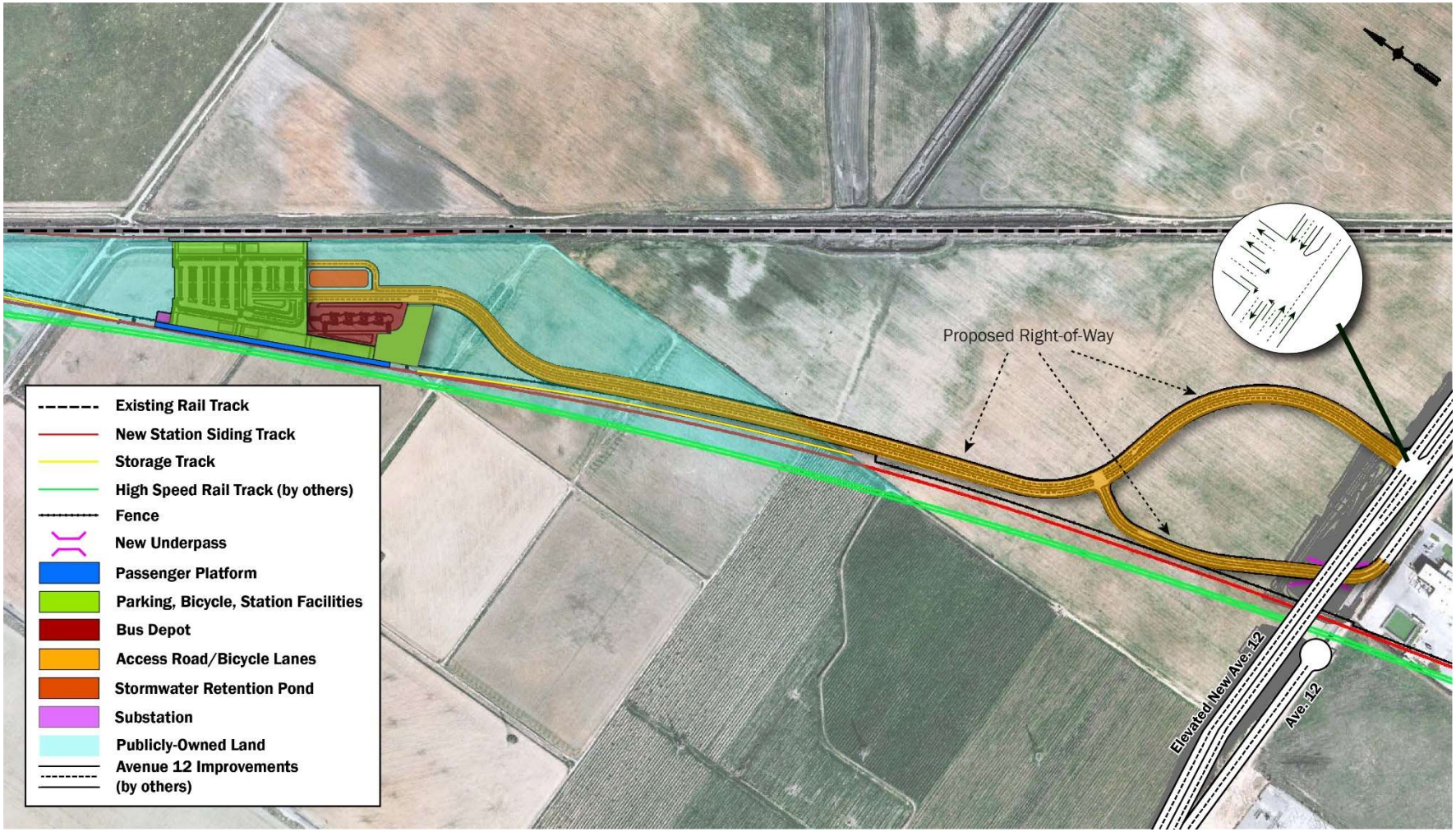
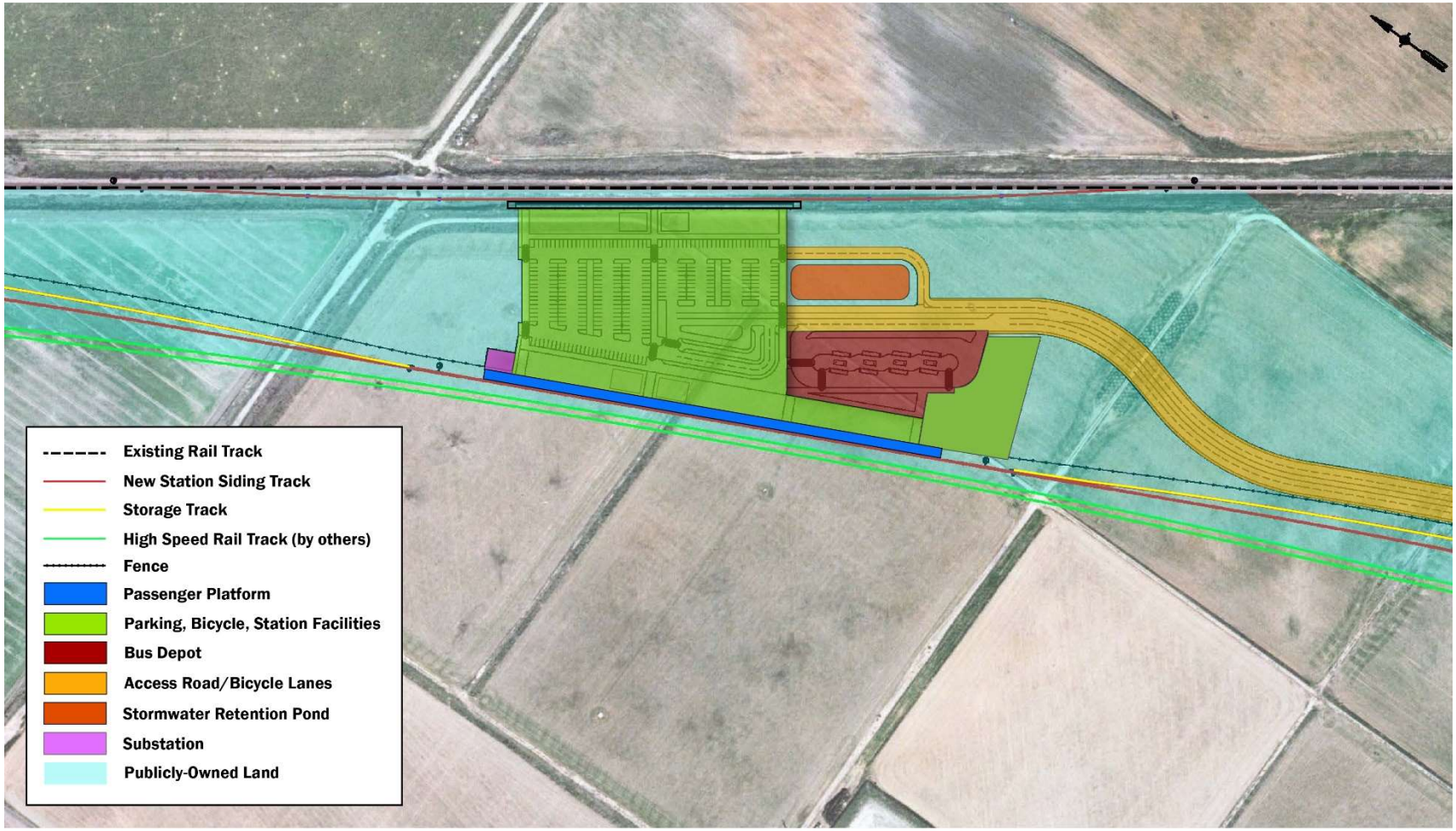


Figure 2-6. Proposed Design for the Project Phase 2 – HSR Interim Operating Segment Station (Station Close-In View)



2.3.2 Trackwork and Overhead Contact System

In order to provide access to the HSR platform, a new station siding track would be constructed to the east of the two-track mainline being constructed for the CAHSR Project. The entire length of the new station siding track, from the turnout locations at the north and south would be approximately 14,600 feet in length. The turnouts would be design for 110 mph. In addition, new crossover tracks would be constructed within the CAHSR Project corridor to the north and south of the new station siding track to allow southbound HSR trains to access the HSR platform at the Relocated Station. When including the north and south crossover tracks within the CAHSR Project right-of-way, this would extend the length of the trackwork associated with the Project to a total length of 17,300 feet. The northern crossover track would extend approximately 3,600 feet north of Cottonwood Creek. The southern crossover track would extend approximately 150 feet south of Avenue 11.

The station siding track would include a new rail bridge over Cottonwood Creek. The proposed bridge would be a single track, 5 span continuous cast-in-place, reinforced concrete slab type structure, matching the span arrangement and hydraulic conveyance capacity of the existing double-track bridge constructed as part of the CAHSR Project. The bridge would be 24 feet in width, 250 feet in length, and would be supported on 2 – 3' diameter cast-in-drilled-hole (CIDH) piles at each abutment and bent; each pile would be approximately 40 to 50 feet deep. The CIDH supported abutments would extend approximately 8 to 10 feet below the existing ground surface.

Two storage tracks for HSR trains would be constructed as part of Phase 2 of the Project. One storage track would extend from the station siding track to the north approximately 1,900 feet. A second storage track would extend south from station siding track approximately 1,900 feet (Figures 2-4, 2-5, and 2-6).

In association with the Phase 2 trackwork, an overhead contact system (OCS) would be constructed along entire length of the station siding track and storage tracks to provide electrical power to electrified trainsets. The OCS would consist of poles at intervals matching the OCS poles being constructed as part of the CAHSR Project. These OCS poles are expected to be approximately 30 feet tall and would have foundations approximately 6 to10 feet deep.

To provide power to the OCS system, a small Transmission Power Substation (TPSS) may be needed, though there is a possibility electrical power could be drawn from the OCS planned to be constructed in association with the adjacent mainline CHSRA Project tracks. If a TPSS is required, it would be located in an area in the vicinity of the north end of the HSR platform.

2.3.3 Bus Depot

A bus depot would be constructed just south of the access road as it approaches the Station parking lot. As part of Phase 1, the west side of the bus depot footprint would be built, including four bus bays. In Phase 2, four additional bus bays would be constructed such that a total of eight bus bays are operational.

2.3.4 Parking

The parking lot constructed as part of Phase 1 would be expanded by 179 additional spaces, for a total of 277 parking spaces in Phase 2. The additional parking would expand the size of surface lot; no parking structures are proposed. The parking area would be accessed through one road connecting from Avenue 12. Parking

would include disability parking. The pick-up/drop-off facility already provided in Phase 1 would be expanded with an additional 530 linear feet of curbside access divided between two additional lanes.

2.3.5 Access Road

In order to accommodate the trackwork required to reach the HSR platform, a portion of the access road constructed during Phase 1 would be reconfigured and relocated. The reconfigured portion of the access road would shift to the east and rise to meet the elevated portion of the Avenue 12 grade separation where a new signalized intersection would be created (Figure 2-5). The reconfigured portion of the access road would be a four-lane road. Furthermore, the remaining portion of the Phase 1 access road that extends north to the station, would be widened from the two-lanes to a four-lane road. Class II bicycle lanes would be also added to the widened access road during Phase 2.

In addition, a 2-lane auxiliary segment of access road would be built around the southern and eastern sides of the proposed stormwater retaining pond to provide an additional access point into the expanded parking lot.

2.3.6 Road Network

The new station siding track associated with Phase 2 of the Project would be constructed in the same space occupied by the automobile underpass currently under construction as part of the CAHSR Project. This would result in removal of the roadway in that space and severing the original automobile access to the Avenue 12 frontage road on the south of elevated Avenue 12. To address this, a new underpass would be constructed for automobiles slightly to the east (Figure 2-5). This new underpass would connect to the at-grade frontage road along the south side of Avenue 12. Construction of the new underpass in Phase 2 of the Project would require penetrating the retained fill of the Avenue 12 grade separation structure built as part of the CAHSR Project and constructing necessary support structures for the elevated Avenue 12.

2.3.7 Buildings and Structures

A building or buildings would be constructed in close proximity to the east of the HSR platform to provide space for station staffing support facilities, restrooms and cleaning supplies/equipment for station maintenance. The building(s) would be one-story (approximately 12 feet) tall. In addition, lighting posts and signage would be installed. Additional stormwater drainage facilities would be needed for the expanded station facilities and expanded roadway, but no additional work would be needed on the stormwater drainage basin constructed in Phase 1. Additional wastewater facilities would be need for additional bathroom planned near the CAHSR platform. Bicycle storage facilities would also be included at the station.

2.3.8 Trains

CAHSR trainsets would likely consist of lightweight electric multiple units (EMU) trainsets. However, no final decision has been made on rolling stock to-date. This Project has no influence on the selection of CAHSR rolling stock.

2.4 Construction Period

The construction of the proposed Project would be done in phases. Phase 1 would include all Project elements required to allow for the operations of the San Joaquins service at the Relocated Station. Construction of Phase 1 of the Project is anticipated to last 12 months. Construction of Phase 1 is anticipated to commence in 2023

and be completed in 2024. The construction schedule for Phase 1 is being coordinated with the construction of the CAHSR Project. CHSRA has indicated they will need to utilize the site of the Relocated Station (currently owned by the CHSRA) as a staging area for the CAHSR project. Given this, the schedule for Phase 1 would be delayed from the original anticipated commencement date by approximately 1.5 years.

Phase 2 would include all Project elements required to allow for the operations of HSR trains at the Relocated Station. Construction of Phase 2 of the Project is anticipated to last approximately 2 years. Assuming funding is secured, construction for Phase 2 is anticipated to commence in 2026 and be completed in 2028.

Access to construction sites would occur via a temporary access road within the Project Footprint connecting with the proposed access road segments during Phase 1 and Phase 2. There could be limited, temporary road closures, and road construction that could potentially cause increased traffic congestion in areas where emergency vehicles operate. These improvements could potentially disrupt traffic during construction activities and interfere with emergency response times.

Contractors would use staging areas within the Project Footprint and standard industry equipment such as excavators, pavers, and dump and concrete trucks to support the construction of the Project. For the construction of the new bridge over Cottonwood Creek, pile-driving equipment would be utilized.

Best Management Practices (BMPs) that would be implemented as part of the Project include:

- Use of fabric-covered screening fences to minimize public views of the construction activities, equipment, and stockpiles.
- Positioning of light direction and shielding, which would minimize lighting spillover.
- Measures found in Caltrans' Construction Site Field Manual and Troubleshooting Guide (Caltrans 2003a), and the Construction Site BMP Manual (Caltrans 2003b) to reduce impacts to soil erosion
- Standard construction practices such as Best Available Technology Economically Feasible (BATs), Best Conventional Pollutant Control Technology (BCTs) would help reduce potential impacts related to storm water drainage systems

2.5 Preliminary Project Capital Cost Estimates

Preliminary cost estimates of all Project elements – including trackwork, platforms, station facilities, power systems, drainage, bus depot, access road, and parking lots – were conducted for both Phases 1 and 2. Table 2-1 below provides the estimated cost for each phase, as well as a total for both phases. For more information on the preliminary capital cost estimates, refer to Appendix F (Preliminary Project Capital Cost Estimates).

Table 2-1. Preliminary Project Capital Cost Estimates

Phase 1	Phase 2	Total (Both Phases)
$24.9 Million	**$105.0 Million**	**$129.9 Million**

Source: AECOM 2020.

For more information on the preliminary capital cost estimates, refer to Appendix F (Preliminary Project Capital Cost Estimates).

2.6 Operations

Phase 1 of the Project presumes up to eight (8) San Joaquins roundtrip a day when the Relocated Station opens for service (anticipated in 2024). Phase 2 presumes up to eighteen (18) HSR service roundtrips a day (anticipated to commence in 2029). Once HSR service commences to the Relocated Station during Phase 2, San Joaquins trains would no longer serve the Relocated Station and would instead terminate at a new downtown multi-modal hub station in Merced, where they would connect to HSR trains, leaving only 18 HSR daily roundtrips serving Relocated Station.

Once the San Joaquins terminate in Merced, it is possible that there could be local/regional passenger rail service in the future that utilizes the slots that the San Joaquins would no longer utilize. However, this would have to be separate project and is not in the scope of this Project.

Ridership analysis was conducted for Phase 1 and Phase 2 for the years 2025 and 2029 respectively, which reflect estimated ridership for the operational plans at the Relocated Station described above, as well as for a No-Build condition, where the Existing Station is not relocated. Ridership was assessed by estimating passenger "ons and offs" (or "boardings and alightings"). In this approach, each person is counted twice (once for getting on at a station and once for getting off at a station). Therefore, the number of actual passengers would be 50% of the numbers shown above. Estimating ons/offs is useful to assess usage of the station facilities, etc.

The estimated ridership is summarized in Table 2.6-1 below.

Table 2.6-1. Estimated Project Ridership

No Build[1] 2025 (San Joaquins)	Phase 1[2] 2025 (San Joaquins)	Project Phase 2[3] 2029 (High-Speed Rail Service)
40,200[1] (passenger ons/offs)	**103,100**[2] (passenger ons/offs)	**210,600**[3] (passenger ons/offs)
Notes: [1]Assumes eight (8) San Joauquins roundtrips serving the Existing Station. [2]Assumes eight (8) San Joauquins roundtrips serving the Relocated Station. [3]Assumes eighteen (18) high-speed rail roundtrips serving the Relocated Station.		

For more information on the ridership estimates, refer to Appendix G (Ridership, Vehicle Miles Traveled, and Parking Estimates).

2.7 Required Permits

The Project is subject to CEQA, and the SJJPA is the lead agency for the Project. As such, SJJPA must oversee environmental review of the Project under CEQA, prior to approving the Project. SJJPA recognizes the need for a close relationship with Madera County (County) and the nearby City of Madera (City) and wishes to pursue the planning and environmental review of the Project in such a way that SJJPA, the County and the City can agree that the Project would be of overall community benefit and that all reasonable efforts to avoid significant environmental effects have been made. Towards this end, SJJPA would comply with regulations regarding site planning and construction, including such ordinances as the County noise regulations and provisions of the

County's stormwater sewer system discharge permit.

The Project requires the following approvals and permits from agencies including:

- County of Madera Public Works Department of Public Work's Grading and Erosion Control Permit.
- County of Madera Public Works Department of Public Work's Encroachment Permit Application
- Central Valley Regional Water Quality Control Board's NPDES Construction General Permit Order 2009-0009-DWQ (as amended by 2010-0014-DWQ and 2012-0006-DWQ).
- Central Valley Regional Water Quality Control Board, Clean Water Act (CWA) Section 401 Permit/Waste Discharge Requirements.
- A consultation with U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) would be conducted if special status plant specifies cannot be protected and an Incidental Take Permit (ITP) would be attained.
- CDFW Section 1600 Streambed Alteration Agreement.
- Central Valley Flood Protection Board (CVFPB) Encroachment Permit.
- Army Corps of Engineering Clean Water Act (CWA) Section 404 Permit.
- The California High-Speed Rail Authority (CHSRA) would need to approve connection into their track infrastructure.

2.8 Public Outreach

The SJJPA has engaged local stakeholders and agencies, as well as the general public in the Project's development since before the environmental process began. SJJPA has conducted ongoing coordination with the Madera County, Madera CTC, and the City of Madera since late 2016. The Madera CTC and Madera County sent letters of support for the Madera Station Relocation's TIRCP application. In 2018, SJJPA prepared and made available to the public a Madera Relocation Station Planning document that discussed the history and best sites for relocating the existing Madera Station. This document was updated in Spring of 2020 and made public.

Early on in the environmental process, SJJPA decided to include a robust public outreach component, even though CEQA does not require a substantial outreach effort for an IS/MND (relative to an Environmental Impact Report). An extensive stakeholder and public outreach process was undertaken to educate the public about the Project. Numerous materials were developed that include various information about the Project, including a Project factsheet. Additionally, a dedicated Project webpage was created (housed within the SJJPA website) that not only provided information about the Project but contained a tool to allow members of the public to sign-up to the Project stakeholder list.

In addition to providing general information about the Project, in-person public open houses were conceived at the onset of the Project's environmental process to further inform the public. However, due to COVID-19 and State and local restrictions on gatherings, and for the safety of the public, it was decided that webinars would be held instead of physical public open houses. Three webinars (two in English and one in Spanish) were held on May 14, 2020.

Several methods were utilized to promote the public webinars. E-mail notifications (e-blasts) were conducted to the extensive list of stakeholders assembled for the Project. Additionally, flyers, social media posts, and newspaper advertisements (both print and digital) were disseminated to inform the public about public webinars. Additionally, agencies and key stakeholders within Madera County were leveraged to further the reach of e-blasts, flyers and social media posts.

The format of all three webinars consisted of a 20-minute PowerPoint presentation on the Project history, the Project description, an overview of the environmental process, and a review of the proposed schedule for the Project. The presentation portion of the webinars were followed by a question and answer session. Approximately 20 people joined for all three meetings.

The email notifications (e-blasts), information sheets (English and Spanish), PowerPoint presentations (English and Spanish), and Project website screenshot are presented in Appendix H (Public Outreach).

The Draft IS/MND was released to the public on October 14, 2020. A Notice of Intent to Adopt an IS/MND (NOI) was published in the physical and digital versions of the Madera Herald Newspaper published on October 14, 2020. The NOI was also filed with the Madera County Clerk's Office and delivered to the California State Clearinghouse on October 14, 2020. The Draft IS/MND was made available for viewing and downloading on the Project's webpage: https://sjjpa.com/madera-station-relocation-project. The NOI also provided a project email to which comments could be sent: MaderaStationComments@sjjpa.com. Email e-blasts were used to notify all stakeholders from the previous outreach effort in addition to any new people that signed up to be notified through the Project website.

During the public review period of the Draft IS/MND (October 14 through November 16), two public meetings via webinars were held on Thursday, November 5, 2020, at 10:30 a.m. and at 6:00 p.m. A total of 14 people attended both webinars, and we received eight distinct comments during both webinars, which are documented and responded to in Appendix I. Noticing for the November 5, 2020 webinars was similar to the noticing for the May webinars as described above. The content of both November 5 webinars was exactly the same and included information on the conclusions of the Draft IS/MND, including impacts and mitigations. All outreach materials in support of the Draft IS/MND and the public webinars on November 5, 2020 are provided in Appendix H.

In addition to this outreach, Dan Leavitt of the SJJPA had further meetings with Madera City Manager on November 5 and November 13, 2020 as well as made a presentation to the Madera City Council on November 18, 2020.

Comments were received by email, webpage, during the webinars, and posted to the CEQAnet page for this project. All comments were responded to in Appendix I.

3. MITIGATIONS MONITORING AND REPORTING PROGRAM PROCEDURES

3.1 Description of Project Site

This MMRP gives SJJPA the primary responsibility for taking all actions necessary to implement the mitigation measures according to the specifications provided for each measure and for demonstrating that the action has been successfully completed. The SJJPA's designated environmental monitor will track and document compliance with mitigation measures, note any problems that may result, and take appropriate action to remedy problems. The SJJPA, at its discretion, may delegate responsibility for measure implementation and monitoring, or portions thereof, to other responsible individuals and agencies, such as a licensed contractor. Specific responsibilities for the SJJPA include:

- Coordination of all mitigation monitoring activities
- Management of the preparation, approval, and filing of monitoring or permit compliance reports
- Maintenance of records concerning the status of all approved mitigation measures
- Quality control assurance of field monitoring personnel
- Coordination with other agencies regarding compliance with mitigation or permit requirements
- Reviewing and recommending acceptance and certification of implementation documentation
- Acting as a contact for interested parties or surrounding property owners who wish to register concerns regarding environmental issues; verifying any such circumstances; and developing any necessary corrective actions.

3.2 Resolution of Noncompliance Complaints

Any person or agency may file a complaint regarding noncompliance with the mitigation measures addressed in the MMRP. The complaint shall be directed to SJJPA at the mailing address listed below in written form providing detailed information on the purported violation.

San Joaquin Joint Powers Authority
949 Channel Street
Stockton, CA 95202

SJJPA will investigate any complaints filed to determine the validity of the complaint. If noncompliance with a mitigation measure is verified, SJJPA will take the necessary action(s) to remedy the violation. The complainant will receive written confirmation indicating the results of the investigation, including any corrective actions.

3.3 Mitigation Monitoring and Reporting Program Matrix

The MMRP is organized in a matrix format.

- The first column identifies the mitigation measure.
- The second column, entitled “Time Frame for Implementation,” refers to when monitoring will occur. The timing for implementing mitigation measures and the definition of the approval process has been provided to assist SJJPA staff to plan for monitoring activities.
- The third column, entitled “Responsible Party,” refers to the agency or other party responsible for ensuring that the mitigation measure is implemented.
- The fourth column, entitled “Monitoring Party,” refers to the party that will conduct the monitoring to ensure compliance with the mitigation measure.
- The fifth column, entitled “Monitoring Period”, indicates when monitoring will occur during implementation of the Project.

The mitigation measures are presented by environmental issue area.

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
AGRICULTURAL RESOURCES					
MM- AG-1: *Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, and Unique Farmland).*	The San Joaquin Joint Powers Authority (SJJPA) shall enter into an agreement with the Department of Conservation and its California Farmland Conservancy Program to implement agricultural land mitigation. SJJPA shall fund the California Farmland Conservancy Program's work to identify suitable agricultural land for mitigation of impacts and to fund the purchase of agricultural conservation easements from willing sellers. The performance standards for this measure are to preserve Important Farmland in an amount commensurate with the quantity and quality of the converted farmlands, within the same agricultural regions as the impacts occur, at a replacement ratio of not less than 1:1 for Important Farmlands that are permanently converted to nonagricultural uses. SJJPA shall document implementation of Mitigation Measure AG-1 through issuance of a compliance memorandum.	Final Design	SJJPA	Department of Conservation	During Final Design or Prior to Construction
AIR QUALITY					
MM-AQ-1. *Implement advanced emissions controls for off-road equipment and best construction practices.*	SJJPA shall require that the construction contractor for all off-road equipment greater than 50 horsepower have engines that, at a minimum, meet Tier 4 Final California Air Resources Board (CARB)/ U.S. Environmental Protection Agency (EPA) off-road emission standards, if commercially available. Lesser tier engines shall be allowed on a case-by-case basis when the contractor has documented that no Tier 4 final engine equipment or emissions equivalent retrofit equipment is available for a particular equipment type that must be used to complete construction. Documentation shall consist of signed written statements from at least two construction equipment rental firms or equivalent. In addition, SJJPA shall require that the construction contractor implement the following measures: • Limit idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Ongoing during Construction
MM-AQ-2. *Implement advanced emissions controls for locomotives used for construction.*	SJJPA shall require that the construction contractor for all diesel-powered locomotives used for construction to have engines that meet Tier 3 locomotive emission standards.	Final Design and Construction	Construction Contractor for diesel-powered locomotives	SJJPA	Final Plan Check and Ongoing during Construction
MM-AQ-3. *Operational Equipment.*	SJJPA shall utilize electric or zero-emission off-road equipment, as reasonably available, for equipment required for on-site activities including mobile equipment for maintenance activities.	Final Design and Construction	Construction Contractor for diesel-powered locomotives	SJJPA	Final Plan Check and Ongoing during Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
BIOLOGICAL RESOURCES					
MM-BIO-1: *Designate Project Biologist(s), Contractor's Biologist(s), and Project Biological Monitor(s).*	During contract procurement for construction and construction management, and prior to ground-disturbing activities, designate a Project Biologist(s), a Contractor's Biologist(s), and a Project Biological Monitor(s), which would be responsible for conducting biological monitoring, overseeing regulatory compliance requirements, and monitoring restoration activities associated with ground-disturbing activities in accordance with the adopted mitigation measures and applicable laws. These roles are defined below: Project Biologist: The Project Biologist represents and report directly to the Construction Management Team and is responsible for reporting and overseeing the biological resources mitigation measures presented below. The Project Biologist is also responsible for ensuring that the terms and conditions in U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) permits are outlined in the Mitigation Monitoring and Reporting Program (MMRP). The Project Biologist shall report to the overall construction management team, interact with the designated Resident Engineer (part of the Contractor), and shall work to provide quality assurance on the implementation of the mitigation measures as performed by the Contractor and the designated Contractor's Biologist. It is anticipated that the Project Biologist shall have specialized support from other biological monitors and shall work with the construction management team during deployment of the monitors and their respective responsibilities. Contractor's Biologist: The Contractor's Biologist is responsible for implementing mitigation measures in compliance with the terms and conditions outlined in the MMRP and USFWS, USACE, RWQCB, and CDFW permits. The Contractor's Biologist shall work to implement mitigation reflected within the construction drawings and specifications. The Contractor's Biologist shall keep the Project Biologist informed of the progress, planning, implementation, and activities conducted in support of implementing the mitigation measures. Project Biological Monitor: The Project Biological Monitor shall be approved by and report directly to the Project Biologist. The Project Biological Monitor shall be onsite during all ground-disturbing activities that have the potential to affect biological resources and shall be the principal agent(s) in the direct implementation of the MMRP and compliance assurance. The Project Biological Monitor is responsible for Worker Environmental Awareness Program (WEAP) training, general surveys, compliance monitoring, and reporting. The Project Biological Monitor shall act on behalf of the Project Biologist. The Project Biologist's duties include reviewing design documents and construction schedules and determining which Project Biological Monitor(s), depending on type of biological issues, need(s) to report to the construction site each day. The Project Biologist informs the Biological Monitors as to which mitigation measures should be documented each day and of any special issues that arise during meetings with the construction management team and/or the Contractor's team. The Contractor's Biologist is responsible for the timely implementation of the biological mitigation measures as outlined in the MMRP and construction documents and pertinent resource agency permits. The Contractor's Biologist duties include monitoring construction crew activities, as needed, to document compliance with applicable mitigation measures and permit conditions.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing during Construction
MM-BIO-2: *Regulatory Agency Access.*	If requested, before, during, or upon completion of ground-disturbing activities, the Contractor shall allow access by USFWS, USACE, RWQCB, and CDFW staff to the construction site. Due to safety concerns, these agencies shall check in with the Resident Engineer prior to accessing the construction site.	Pre-Construction and Construction	Construction Contractor	SJJPA	As needed prior to and/or during construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
MM-BIO-3: *Prepare and Implement a Worker Environmental Awareness Program.*	Prior to ground-disturbing activities, prepare and implement a WEAP for construction crews. WEAP training materials include the following: discussion of the federal Endangered Species Act (ESA), California Endangered Species Act (CESA), Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act (MBTA), Clean Water Act, and the California Fish and Game Code; consequences and penalties for violation or noncompliance with these laws and regulations and Project permits; identification and value of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities; hazardous substance spill prevention and containment measures; the contact person in the event of the discovery of a dead or injured wildlife species; and review of mitigation measures. In the WEAP, detail construction timing in relation to habitat and species' life stage requirements and discuss Project maps, showing areas of planned minimization and avoidance measures. Implement the WEAP training before the initiation of construction activities and repeat, as needed, when new personnel begin work within the construction Footprint. Perform daily updates and synopsis of the training during the daily safety ("tailgate") meeting. Require that all personnel who attend the training sign an attendance list stating that they have received the WEAP training. Require that California High-Speed (CAHSR) maintenance crews attend WEAP training annually.	Pre-Construction and Construction	Final Design and Construction Contractors A	SJJPA	Ongoing as needed prior to and during construction
MM-BIO-4: *Prepare and Implement a Noxious Weed Control Plan.*	• Prior to ground-disturbing activities, the Contractor shall prepare and implement a Noxious Weed Control Plan to minimize or avoid the spread of noxious weeds during ground-disturbing activities. "Noxious Weeds" shall be defined, per California Food and Agricultural Code, Section 5004 as "any species of plant that is, or is liable to be, troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate." In the Noxious Weed Control Plan, the Contractor shall address the following: • Identify noxious weed control treatments including permitted herbicides, and manual and mechanical methods for application. Restrict herbicide application from use in environmentally sensitive areas. • Determine timing of the noxious weed control treatment for each plant species. • Identify fire prevention measures. The Contractor shall implement the Noxious Weed Control Plan during the construction period and require that maintenance crews follow the guidelines in the Noxious Weed Control Plan during both the construction and operations of the Project.	Final Design, Construction, and Operations	Final Design and Construction Contractors. SJJPA during operations.	SJJPA	Final Plan Check, Ongoing During Construction, and Operations
MM-BIO-5: *Prepare and Implement a Biological Resources Management Plan.*	During final design, the Contractor shall prepare a Biological Resources Management Plan (BRMP) and assemble the biological resources mitigation measures. In the BRMP, the Contractor shall include terms and conditions from applicable permits and agreements and make provisions for monitoring assignments, scheduling, and responsibility. The BRMP shall also include habitat replacement and revegetation, protection during ground-disturbing activities, performance (growth) standards, maintenance criteria, and monitoring requirements for temporary and permanent native plant community impacts. Form the parameters for the BRMP with the mitigation measures from this section, including terms and conditions as applicable from the USFWS, USACE, RWQCB, and CDFW permits, as applicable. In the BRMP, the Contractor shall organize the biological resources mitigation measures and terms and conditions to help facilitate their implementation. The Contractor shall oversee the implementation of the BRMP and shall prepare compliance reports to document implementation and performance.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-6: *Prepare and Implement a Restoration and Revegetation Plan.*	During final design, the Contractor shall prepare a restoration and revegetation plan (RRP) for habitat subject to temporary ground disturbances during construction that would require decompaction or regrading, if appropriate.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
MM-BIO-7: *Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field).*	Prior to ground-disturbing activities, to the extent practicable, the Contractor shall verify that environmental sensitive areas and environmentally restricted areas (ERAs) are delineated as appropriate. Environmentally sensitive areas are areas within the construction zones containing suitable habitat for special-status species and habitats of concern that may allow construction activities, but have restrictions based on the presence of special-status species or habitats of concern at the time of construction. ERAs are areas outside the construction Footprint that must be protected in-place during all construction activities. Prior to ground-disturbing activities, the Contractor shall include all environmentally sensitive areas and ERAs on final construction plans (including grading and landscape plans). The Contractor shall prepare maps of all environmentally sensitive areas and ERAs on the design drawings and work to update these maps as necessary. The Contractor shall submit these maps to the SJJPA for their review and approval prior to the start of construction. Prior to ground-disturbing activities, install the environmentally sensitive area and ERAs. Mark environmentally sensitive areas and ERAs with high visibility temporary fencing to prevent encroachment of construction personnel and equipment onto sensitive areas. Designate the two categories, environmentally sensitive area and ERA, differently in the field (e.g., different colored flagging/fencing). Use sub-meter accurate global positioning system (GPS) equipment to delineate all environmentally sensitive areas and ERAs. Remove environmentally sensitive areas and ERA fencing when construction is complete, or the resource has been cleared according to agency permit conditions in the MMRP and construction drawings and specifications.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Operations
MM-BIO-8: *Equipment Staging Areas.*	Prior to ground-disturbing activities, the contractor shall locate staging areas for construction equipment outside sensitive biological resources including habitat for special-status species, habitats of concern, and wildlife movement corridors, to the maximum extent possible.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-9: *Avoid Mono-Filament Netting*.	During ground-disturbing activities, the Contractor shall verify that plastic monofilament netting (erosion-control matting) or similar material is not used in erosion control materials; substitutes include coconut hair matting or tackified hydroseeding compounds.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-10: *Vehicle Traffic.*	During ground-disturbing activities, the Contractor shall restrict Project-related vehicle traffic, within the construction area, to established roads, construction areas, and other designated areas. Contractor shall establish vehicle traffic locations disturbed by previous activities to prevent further adverse effects. Workers shall observe a 20-mph speed limit for construction areas with potential special-status species habitat. Lastly, the Contractor shall clearly flag and mark access routes and prohibit off-road traffic.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-11: *Entrapment Prevention.*	The Contractor shall cover all excavated, steep-sided holes or trenches, more than eight inches deep, at the close of each working day with plywood or similar materials or provide a minimum of one escape ramp per 10 feet of trenching constructed of earth fill. The Contractor shall thoroughly inspect such holes or trenches for trapped animals before filling. Screen all culverts, or similar enclosed structures, with a diameter of 4 inches or greater to prevent use by wildlife. Clear stored material at the construction site for common and special-status wildlife species before the material is subsequently used or moved.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-12: *Work Stoppage.*	During ground-disturbing activities, the Contractor shall halt work in the event that a special-status wildlife species gains access to the Project Footprint under construction. The Contractor shall suspend ground-disturbing activities in the immediate area that could reasonably result in a take of special-status wildlife species. The Contractor shall continue the suspension until the individual leaves voluntarily, is relocated to a release area using USFWS- and/or CDFW-approved handling techniques and relocation methods, or as required by USFWS or CDFW.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
MM-BIO-13: *'Take' Notification and Reporting.*	The Contractor shall notify the USFWS and/or CDFW immediately in the case of an accidental death or injury to a federal- or state-listed species during Project-related activities.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-14: *Post-Construction Compliance Reports.*	The Contractor shall submit post-construction compliance reports consistent with the appropriate agency (e.g., USFWS and CDFW) protocols within 90 days of completion of construction.	Post Construction	Construction Contractor	SJJPA	Post Construction
MM-BIO-15: *Conduct Pre-Construction Surveys for Special-Status Plant Species and Implement Avoidance, Minimization and Mitigation Measures.*	A qualified botanist shall conduct protocol-level preconstruction special-status plant surveys for potentially occurring species during the appropriate survey period, based on the blooming or identification period, and preceding the start of construction. All plant species encountered on the Project area shall be identified to the taxonomic level necessary to determine species status. The surveys shall be conducted no more than 5 years prior and no later than the blooming period immediately preceding the approval of a grading or improvement plan or any ground disturbing activities, including grubbing or clearing. If one or more occurrences of hairy Orcutt grass, San Joaquin Valley Orcutt grass, succulent owl's-clover, or spiny-sepaled button-celery are detected, CDFW and/or USFWS shall be consulted to develop avoidance and minimization measures to protect these occurrences from direct and indirect impacts during construction. Protection shall involve establishment of ERAs and marking them as environmentally sensitive areas for all occurrences, as described above in MM-BIO-7. If direct and indirect impacts on special-status plants cannot be avoided by protecting the occurrences within ERAs, MM-BIO-16 shall be implemented.	Pre-Construction / During Construction/ Post Construction	Construction Contractor	SJJPA	Pre-Construction / During Construction/ Post Construction
MM-BIO-16: *Implement Compensatory Mitigation Measures for Special-Status Plant Species in Consultation with CDFW and/or USFWS*	If special-status plant species in the vernal pool cannot be protected from direct and indirect impacts, USFWS and CDFW shall be consulted to determine if an Incidental Take Permit (ITP) is required and to develop appropriate compensatory mitigation for loss of special-status plants in the vernal pool. As directed by CDFW and/or USFWS (depending on whether the plant occurrences are state or federally listed), mitigation shall be accomplished by either (1) purchasing credits from an existing, approved mitigation bank that provides habitat for the affected special-status plant species, or (2) developing and implementing a Special-Status Plant Mitigation Plan for salvage, relocation and/or propagation of special-status plant species. Mitigation shall be at least 1:1 for the actual impact (calculated by area per as-built construction drawings and the results of the preconstruction plan surveys) or at a greater ratio if specified in the ITP. If a Special-Status Plant Mitigation Plan is developed the mitigation strategy in the plan shall include performance standards for successful establishment of the target special-status plants and/or enhancement of existing habitat, and a monitoring and reporting program to track revegetation and/or enhancement success. This plan shall be developed in consultation with and approved by CDFW before construction begins. The Special-Status Plant Mitigation Plan shall include at least the following provisions: • Before Project disturbance, identification of restoration areas within the Project area for seeding and/or transplanting of special-status plants, with data collection to determine appropriate microsites • Before Project disturbance, measurement of existing special-status plant populations within the Project area for percent cover and density and establishment of these characteristics as the minimum success criteria for the species' cover and density as a result of restoration/enhancement. • A plan and protocols for appropriate and ecologically sensitive collection and storage of special-status plant seeds, rhizomes, and plants from the Project area. • Transplanting and seeding protocols for special-status plants. • Adaptive management measures and a remedial planting plan. • Revegetation and/or enhancement monitoring and reporting for at least 3 years.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
MM-BIO-17: *Conduct a Site Assessment for California Tiger Salamander and Implement Avoidance and Minimization Measures.*	Prior to ground-disturbing activities, the Project Biologist shall conduct a site assessment of the Project area vernal pool and seasonal wetlands and adjacent uplands in accordance with the Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander (USFWS 2003). If the site assessment determines that there is a likelihood that the California tiger salamander may occur in wetlands or in upland habitat within the Project Footprint, the USFWS and CDFW shall be consulted, and field surveys shall be conducted to confirm presence or absence of California tiger salamanders, as required in the USFWS 2003 guidance. If aquatic and upland habitat for California tiger salamanders are identified during the survey, these areas shall be mapped and flagged during preconstruction surveys. Protection shall involve establishment of environmentally restricted areas (ERAs) and environmentally sensitive areas to protect aquatic and/or upland habitat for California tiger salamander within and near the Project Footprint, as described above in MM-BIO-7. If direct and indirect impacts on California tiger salamander habitat cannot be avoided by protecting the habitat within an environmentally sensitive areas and ERAs, mitigation shall be accomplished as described below in MM-BIO-18.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-18: *Secure Incidental Take Permits for California Tiger Salamander from CDFW and USFWS and Implement Compensatory Mitigation as Required by Permit Conditions.*	If the site assessment and surveys described in MM-BIO-17 establish that California tiger salamander are likely to be present in aquatic or upland habitat in the Project Footprint, and that impacts on aquatic and upland habitat for California tiger salamanders cannot be avoided during construction, ITPs shall be secured from the USFWS and CDFW before construction. All avoidance, minimization and mitigation measures specified in the USFWS and CDFW ITPs shall be implemented during construction. Mitigation shall include purchase of credits at an approved California tiger salamander mitigation bank at a minimum 1:1 ratio, or at a higher ratio if specified in the ITP conditions.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-19: *Conduct a Site Assessment for Western Spadefoot and Implement Avoidance and Minimization Measures*	Prior to ground-disturbing activities, the Project Biologist shall conduct a site assessment for western spadefoot. If the site assessment determines that there is a likelihood that western spadefoot may occur in wetlands or upland habitat within the Project Footprint, aquatic and upland habitat for this species shall be mapped and flagged during the surveys. Protection shall involve establishment of ERAs and environmentally sensitive areas to protect aquatic and/or upland habitat for western spadefoot within and near the Project Footprint, as described above in MM-BIO-7. If direct and indirect impacts on western spadefoot habitat cannot be avoided by protecting the habitat within environmentally sensitive areas and ERAs, mitigation shall be accomplished as described below in MM-BIO-20.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-20: *Secure Compensatory Mitigation to Offset Impacts on Western Spadefoot.*	If the surveys described in MM-BIO-19 determine that western spadefoot are present in aquatic or upland habitat in the Project Footprint, mitigation credits shall be purchased at an approved mitigation bank for western spadefoot at a minimum 1:1 ratio.	Pre-Construction	Construction Contractor	SJJPA	Pre-Construction
MM-BIO-21: *Establish Environmentally Sensitive Areas and ERAs around Seasonal Wetlands and the Vernal Pool to Protect Vernal Pool Fairy Shrimp and Other Vernal Pool Invertebrates.*	Prior to ground-disturbing activities, the Project Biologist and the Contractor Biologist shall establish ERAs and environmentally sensitive areas to protect aquatic habitat (the vernal pool and six seasonal wetlands) for vernal pool invertebrates. If direct and indirect impacts on vernal pool fairy shrimp and other special-status vernal pool invertebrates cannot be avoided by protecting the habitat within environmentally sensitive areas and ERAs, mitigation shall be accomplished as described below in MM-BIO-22.	Pre-Construction	Construction Contractor	SJJPA	Pre-Construction
MM-BIO-22: *Secure Incidental Take Permit for Vernal Pool Fairy Shrimp from USFWS and Implement Compensatory Mitigation as Required by Permit Conditions.*	If direct and indirect impacts on vernal pool fairy shrimp cannot be avoided with establishment and maintenance of environmentally sensitive areas and ERAs, an ITP shall be secured from the USFWS before construction. All avoidance, minimization and mitigation measures specified in the ITPs shall be implemented during construction. Mitigation shall include purchasing credits at an approved vernal pool fairy shrimp mitigation bank at a minimum 1:1 ratio, or at a higher ratio if specified in the ITP conditions.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
MM-BIO-23: *Conduct Pre-Construction Surveys for Swainson's Hawk and Implement Protective Buffers.*	The Project Biologist shall conduct preconstruction surveys for Swainson's hawks during the nesting season (March 1 through August 21) within the Project Footprint and of all suitable nesting habitat within line of sight of construction activities within a 0.5-mile radius of the Project Footprint. The surveys shall be conducted no less than 14 days and no more than 30 days before the beginning of construction. Guidelines provided in Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley (SHTAC 2000) shall be followed for surveys for Swainson's hawk. This requires that surveys be conducted for at least the two survey periods prior to the start of construction. The survey periods are as follows: Period I. January-March 20, Period II. March 20 to April 5, Period III. April 5 to April 20, Period IV. April 21 to June 10 (monitoring known nests only), Period V. June 10 to July 30 (post-fledging). If active Swainson's hawk or other raptor nests are found, appropriate buffers shall be established around active nest sites, in coordination with CDFW, to provide adequate protection for nesting raptors and their young. No Project activity shall commence within the buffer areas until the Project Biologist has determined in coordination with CDFW, the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment. Monitoring of the nest by the Project Biologist or Project Biological Monitor during construction activities may be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer shall remain in place until the chicks have fledged or as otherwise determined by the Project Biologist or Project Biological Monitor.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-BIO-24: *Conduct Pre-Construction Surveys for Burrowing Owls and Implement Protective Buffers.*	The Project Biologist shall conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 1,500 feet of the Project Footprint. Surveys shall be conducted prior to the start of construction activities and in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (CDFW 2012) which requires that four survey visits be conducted. Surveys conducted during the breeding season (February 1 to August 31) must include one visit between February 15 and April 15 and a minimum of three survey visits spread three weeks apart between April 15 and July 15. Four survey visits spread evenly through the nonbreeding season (September 1 through January 31) are required for nonbreeding surveys. If no occupied burrows are found, no further avoidance and minimization measures shall be required. Surveys for burrowing owl shall be conducted by walking transects with centerlines spaced no more than 65 feet apart to search the ground for burrows. If an active burrow is found during the nonbreeding season, the Project applicant shall consult with CDFW regarding protection buffers to be established around the occupied burrow and maintained throughout construction. If occupied burrows are present that cannot be avoided or adequately protected with a no-disturbance buffer, a burrowing owl exclusion and relocation plan shall be developed according to guidance provided in Appendix E of CDFW's Staff Report on Burrowing Owl Mitigation (CDFW 2012). Owls shall be relocated outside of the impact area using passive or active methodologies developed in consultation with CDFW and may include active relocation to preserve areas if approved by CDFW and the preserve managers. No burrowing owls shall be excluded from occupied burrows until the burrowing owl exclusion and relocation plan is approved by CDFW. If an active burrow is found during the breeding season, occupied burrows shall not be disturbed and shall be provided with a 150- to 1,500-foot protective buffer unless the Project Biologist or Project Biological Monitor verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The appropriate size of the buffer (between 150- to 1,500-feet) shall depend on the time of year and level of disturbance as outlined in the CDFW Staff Report (2012:9).The size of the buffer may be reduced if a the Project Biologist or Project Biological Monitor, in consultation with CDFW, determines burrowing owls would not be adversely affected by the proposed activities. If a smaller than recommended buffer is used, a scientifically-rigorous monitoring program approved by CDFW shall be implemented to ensure burrowing owls are not detrimentally affected. Once the fledglings are capable of independent survival, the owls shall be relocated outside the impact area if their burrows cannot be avoided or adequately protected with a no-disturbance buffer. Relocation shall follow a burrowing owl exclusion and relocation plan developed according to guidance provided in Appendix E of CDFW's Staff Report on Burrowing Owl Mitigation (CDFW 2012). No burrowing owls shall be excluded from occupied burrows until the burrowing owl exclusion and relocation plan is approved by CDFW.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
MM-BIO-25: *Conduct Pre-Construction Surveys for Nesting Bird Species and Establish Protective Buffers.*	If construction activities occur during the nesting bird season (February 1 to August 31), a focused survey to identify protected bird nests shall be conducted by the Project Biologist or the Project Biological Monitor before construction begins. Surveys shall include all areas of suitable nesting habitat within 300 feet of the Project Footprint. If no active nests are found, no further avoidance or minimization measures shall be required. If active nests are found, appropriate buffers shall be established to avoid impacts. No Project activity shall commence within the buffer area until the Project Biologist or Project Biological Monitor, in consultation with CDFW, confirms the nest is no longer active. Depending on the species of bird and its sensitivity, 50 to 300-feet shall likely to be needed to avoid indirect Project impacts on nesting activities. The size of the buffers may be reduced in consultation with CDFW if the Project Biologist or Project Biological Monitor determines that Project activity within a reduced buffer shall not be likely to adversely affect the nest. Monitoring of active nests by the Project Biologist or Project Biological Monitor during construction activities may be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer shall remain in place until the chicks have fledged or as otherwise determined by the Project Biologist or the Project Biological Monitor.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
CULTURAL RESOURCES					
MM-CUL-1: *Conduct cultural resources awareness training.*	Prior to construction (any ground-disturbing activity), the construction contractor shall have a qualified archaeologist implement cultural resources awareness training to all Project personnel (laborers and supervisors) who shall have the potential to encounter cultural resources on the Project. The training shall address the types of cultural resources that may be expected within the Project Footprint, measures to avoid and protect archaeological artifacts and features, the mandatory procedures to follow should potential cultural resources be exposed during construction, and the legalities of destroying or removing resources or human remains. Implementation of mitigation measures MM-CUL-1 and MM-CUL-2 (described below) would reduce the likelihood of impacts to previously unidentified cultural resources; however, given the increased potential to encounter buried archaeological resources in the northern portion of the Project Footprint, it is uncertain if these requirements alone would reduce such impacts to a less than significant level. MM-CUL-3 and MM-CUL-4 are proposed to provide additional protection to potential resources.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-CUL-2: *Implement measures to protect unidentified cultural resources.*	During construction (any ground-disturbing activity), should there be an unanticipated archaeological discovery, all work within 50 feet of the resource shall halt, and the Project proponent shall consult a qualified archaeologist to assess the significance of the discovery, according to CEQA Guidelines Section 15064.5, and recommend appropriate measures. Should the discovery include human remains, all parties shall comply with state regulations and guidelines regarding the treatment of human remains, including Health & Safety Code Section 8010 et seq., and Cal. Public Res. Code Section 5097.98, and consult with Native American Heritage Commission (NAHC), and tribal groups.	Construction	Construction Contractor	SJJPA	Construction
MM-CUL-3: *Preconstruction testing or archaeological monitoring.*	Based on the geoarchaeological sensitivity assessment there is an increased potential for encountering buried archaeological sites from approximately just south of the Relocated Station platform and approximately mid-way through the high-speed rail (HSR) platform, to the northern extent of the Project Footprint beyond Cottonwood Creek; this sensitivity is generally greatest in areas near freshwater. If these areas cannot be avoided by the Project, and Project activities in those areas are sufficient (i.e., deep enough) to potentially encounter buried archaeological resources, then additional actions would be necessary to mitigate potential impacts to as-yet unidentified buried resources, such as subsurface testing in advance of Project construction and/or construction-period monitoring. A professional archaeologist shall be consulted and testing and/or monitoring plans shall be prepared prior to construction activities (i.e., ground disturbance) identifying areas for archaeological investigation or monitoring.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-CUL-4 *Comply with state laws relating to Native American remains.*	In the case of discovery of human remains Health and Safety Code Section 7050.5(b) specifies protocol including stop work and documentation measures. The code requires that in the event of discovery of human remains in any location other than a dedicated cemetery, there must be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county (Madera County) in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission shall identify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.	Construction	Construction Contractor	SJJPA	Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
PALEONTOLOGICAL RESOURCES					
MM-GEO-1. *Paleontological Monitoring During Construction.*	At least 120 days prior to construction, a paleontological resources monitor shall be designated for the project and shall be responsible for determining where and when paleontological resources monitoring should be conducted. The paleontological resources monitor shall be selected based on their qualifications, and the scope and nature of their monitoring shall be determined and directed based on the Paleontological Resource Monitoring and Mitigation Plan (PRMMP). The paleontological resources monitor shall be responsible for developing and implementing the WEAP training. All management and supervisory personnel and construction workers involved with ground-disturbing activities shall be required to take this training prior to beginning work on the Project and shall be provided with the necessary resources for response in case paleontological resources are found during construction. The paleontological resources monitor shall document any discoveries, as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-GEO-2: *Prepare and Implement a Paleontological Resources Monitoring and Mitigation Plan (PRMMP).*	Paleontological monitoring and mitigation measures are restricted to those construction-related activities that shall result in the disturbance of paleontologically sensitive sediments. The paleontological resources monitoring and mitigation plan (PRMMP) shall include a description of when and where construction monitoring shall be required; emergency discovery procedures; sampling and data recovery procedures; procedures for the preparation, identification, analysis, and curation of fossil specimens and data recovered; preconstruction coordination procedures; and procedures for reporting the results of the monitoring and mitigation program. In general, the monitoring program shall reflect site-specific construction of the selected option. The PRMMP shall be consistent with Society of Vertebrate Paleontology (SVP) guidelines for the mitigation of construction-related impacts on paleontological resources. The PRMMP shall also be consistent with the SVP conditions for receivership of paleontological collections and any specific requirements of the designated repository for any fossils collected.	Final Design and Construction	Final Design and Construction Contractors	SJJPA	Final Plan Check and Ongoing During Construction
MM-GEO-3: *Halt to Construction when Paleontological Resources are Found.*	If fossil or fossil-bearing deposits are discovered during construction, regardless of the individual making a paleontological discovery, construction activity in the immediate vicinity of the discovery shall cease. This requirement shall be spelled out in both the PRMMP and the Worker Environmental Awareness Program. Construction activity may continue elsewhere provided that it continues to be monitored as appropriate. If the discovery is made by someone other than a paleontological resources monitor, the paleontological resources monitor shall immediately be notified.	Construction	Construction Contractor	SJJPA	Construction
HAZARDOUS MATERIALS					
MM-HAZ-1. *Implement voluntary oversight agreement.*	Prior to construction, SJJPA shall establish an agreement with an appropriate state regulatory agency to oversee the investigation and management (described in MM-HAZ-2 and MM-HAZ-3) of contaminated soil, ballast, and/or groundwater that would potentially be disturbed by construction of the proposed project. Regulatory agency oversight may be provided by, but is not limited to, the State Water Board under the Site Cleanup Program or Department of Toxic Substances Control (DTSC) under the Voluntary Cleanup Program.	Final Design	SJJPA	State Water Board or DTSC	Final Agreement
MM-HAZ-2: *Conduct site investigations.*	Prior to construction, SJJPA shall conduct a site investigation for Project improvements to evaluate the chemical quality of soil, ballast, and/or groundwater that could be disturbed during construction activities. A licensed professional shall prepare a work plan describing how representative samples of soil and ballast shall be collected and analyzed for potential contamination from the following potential sources of hazardous materials: • Railroad corridors; • Agricultural land; • Existing roadways; • Adjacent industrial properties. Work plans shall be submitted to the appropriate oversight agency for review and approval. In accordance with the approved work plans, the site investigations shall be conducted and evaluated by a licensed professional. A technical report summarizing the field activities and analytical results shall be submitted to the appropriate oversight agency for review and approval.	Pre-Construction	SJJPA	SJJPA	Pre-Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
MM-HAZ-3: *Implement construction risk management plan (CRMP).*	Prior to construction, SJJPA shall prepare a construction risk management plan (CRMP) for the Project improvements that provides a framework for proper characterization and management of contaminated soil, ballast, and groundwater that could be disturbed during construction activities. The CRMP shall describe how to meet the following key objectives: • Identify various scenarios under which soil and railroad ballast generated during construction can be safely reused; • Identify maximum acceptable contaminant levels to protect workers, passengers, the public, and ecological receptors for each soil and ballast reuse scenario; • Identify maximum acceptable contaminant levels to protect station workers and passengers potentially exposed to vapor intrusion, if any, from soil or groundwater contamination; • Identify sampling and analysis, stockpiling, transportation, health and safety, and other procedures by which soil and ballast must be managed in order to meet safety, regulatory and other standards; and • Define how the groundwater that would be encountered during construction (if any) shall be characterized, properly managed, and discharged or disposed to a permitted facility. Based on the analytical results of the site investigations required under MM-HAZ-2, maximum acceptable contaminant levels shall be established for the following soil and ballast reuse scenarios: • "Unrestricted Onsite Reuse," in which soil and ballast excavated from the Project Footprint can be reused anywhere onsite; • "Station Reuse," in which soil and ballast excavated from the Project Footprint can be reused in station areas where there is anticipated to be relatively frequent potential exposure; • "Right-of-Way Reuse," in which soil and ballast excavated from the Project Footprint can be reused in areas where there is anticipated to be relative infrequent potential exposure along the right-of-way (ROW) of the tracks; and • "Encapsulation", in which soil and ballast excavated from the Project Footprint can be reused under barriers or other structures (and covered on all exposed sides by clean material). To protect ecological receptors, the reuse scenarios shall incorporate additional limitations, as necessary, near creeks, surface waters, or other aquatic habitats based on the findings of an ecological risk assessment. Soil or ballast that contains chemical constituents at levels greater than the acceptable reuse scenarios shall be disposed of in accordance with resource conservation and recovery act (RCRA) and Cal. Code Regs. at a facility permitted to accept the waste. Imported fill materials shall be characterized to demonstrate they satisfy the criteria for "Unrestricted Onsite Reuse" established in the CRMP. All extracted groundwater shall be considered potentially affected and require characterization to determine the appropriate treatment requirements (if necessary) for discharge or disposal. The extracted groundwater shall be collected and managed for disposal or treatment prior to discharge in compliance with local and state regulations and permit requirements. Based on the preliminary groundwater analytical results from the site investigations required under MM-HAZ-2, groundwater discharge and disposal options may include the following: • Discharge directly to receiving waters; • Discharge to the local sanitary sewer system; • Discharge to the storm drain system; and • Disposal/recycling at an appropriately permitted offsite facility. Health and safety procedures described in the CRMP shall include requirements for an air quality monitoring program during excavation in areas with elevated contaminants of concern to ensure that fugitive dust emissions do not pose an unacceptable health risk to workers or the public. The air monitoring program shall identify action levels for total particulates that require respiratory protection, implementation of engineering controls, and ultimately work stoppage. This monitoring program shall be in addition to the fugitive dust controls required by the SJVAPCD. A licensed professional shall prepare the CRMP and submit it to the appropriate oversight agency for review and approval prior to construction. The approved CRMP shall be implemented during construction of the Project.	Pre-Construction	SJJPA	SJJPA	Pre-Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
HYDROLOGY					
MM-HYD-1. Project Design Drainage Features.	To reduce runoff volumes and pollutants entering receiving waters, a licensed Professional Engineer (PE) registered in the state of California shall design a stormwater quality system that meets the standards set forth in the County of Madera's Stormwater Resource Plan (SWRP). A full capture system shall be designed to contain all stormwater runoff from impervious surfaces and treats the stormwater to State discharge standards for industrial operations. Through the County of Madera's SWRP, the State Water Resources Control Board has indicated that the following BMPs should be considered for full capture systems: • Bioretention • Infiltration Trench • Infiltration Basin • Detention Basin • Media Filter • Storm water Capture and Use The system shall account for flooding potential in FEMA designated zones and be designed to meet the flow capacity. Per the County of Madera Grading and Erosion Control Permit, if the complexity of the project requires additional information, the design shall provide drainage flow computations with volume of runoff to and from the site. The drainage system shall be reviewed and approved by the County of Madera prior to the approval of the Grading and Erosion Control Permit.	Final Design	Final Design Contractor	SJJPA	Final Plan Check
MM-HYD-2. Cottonwood Creek Channel Capacity. New HSR Rail Bridge Hydraulic Model and Construction BMP	The Project shall complete a hydraulic model to demonstrate that design features and construction practices would maintain existing channel capacity. The model shall be completed pursuant to Caltrans standard methods. Per the Madera County General Plan Policy 5.C.4, the construction and installation of the CIDH piers for the new HSR rail bridge at Cottonwood Creek shall implement BMPs and be approved by the County's Grading and Erosion Control permitting process. Some typical industry BMPs for CIDH installations at bridge waterways that the Project could include are listed below: • Erosion Control Blankets • Silt fences on the edge and throughout the construction zone. • Mulches, straw, and sodding • Hydraulic erosion control product installation • Silt curtain installation • Ditch check installation	Final Design	Final Design Contractor	SJJPA	Final Plan Check
TRANSPORTATION					
MM-TR-1 *Transportation Management Plan for Project Construction.*	The San Joaquin Joint Powers Authority (SJJPA) shall coordinate with public works and transportation departments of local jurisdictions to develop a transportation management plan that shall mitigate construction impacts to transit, roadway, bicycle, and pedestrian facilities, while allowing for expeditious completion of construction. Measures that shall be implemented throughout the course of Project construction shall include, but shall not be limited to, the following: • Limit number of simultaneous street closures and consequent detours of transit and automobile traffic within each immediate vicinity, with closure timeframe limited as much as feasible for each closure, unless alternative routes are available. • Implement traffic control measures to minimize traffic conflicts for all roadway users (regardless of mode) where lane closures and restricted travel speeds shall be required for longer periods. • Provide advance notice of all construction-related street closures, durations, and detours to local jurisdictions, emergency service providers, and motorists. • Provide safety measures for motorists, transit vehicles, bicyclists, and pedestrians to ensure safe travel through construction zones.	Final Design and Construction	Final Design Contractor and Construction Contractor	SJJPA	Final Plan Check and Ongoing During Construction

Mitigation Measure		Implementation Timeframe	Responsible Party	Monitoring Party	Monitoring Milestone/ Period
MM-TR-2 *Freight Rail Disruption Control Plan for Project Construction.*	The San Joaquin Joint Powers Authority (SJJPA) shall make efforts to contain and minimize disruption to freight services during Project construction, while allowing for expeditious completion of construction. Measures that shall be implemented throughout the course of Project construction shall include, but shall not be limited to, the following: • Limit number of simultaneous track closures within each immediate vicinity, with closure timeframe limited as much as feasible for each closure, unless bypass tracks or alternative routes are available. • Provide safety measures for freight rail operations through construction zones. • Require contractors to coordinate with rail dispatch to minimize disruption of rail service in the corridor. • Where feasible, maintain acceptable service access for freight operations. • Where track closures result in temporary suspension of freight rail service, work with BNSF and freight users to schedule alternative freight service timing to minimize disruption to freight customers. Where such closures shall result in substantial diversion to trucks, SJJPA or their construction contractor(s) shall coordinate with local jurisdictions and freight carriers to determine preferred truck routes to minimize the effect on the circulation system. • Provide advance notice of construction-related track closures to all affected parties. • Coordinate with BNSF in advance and during any potential disruption to freight operations and/or BNSF facilities, and maintain emergency access for BNSF for the duration of construction.	Final Design and Construction	Final Design Contractor and Construction Contractor	SJJPA	Final Plan Check and Ongoing During Construction