MADERA STATION RELOCATION PROJECT

APPENDIX C
HAZARDOUS MATERIALS
TECHNICAL MEMORANDUM

SAN JOAQUIN JOINT POWERS AUTHORITY

October 2020

Appendix C
Hazardous Materials
Technical Memorandum

Madera Station Relocation Project

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October 2020

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1. INTRODUCTION

The purpose of this memorandum is to document research undertaken in relation to the Madera Station Relocation Project site, to determine if there is any potential for soil or groundwater contamination, or other hazardous materials at or near the site, that might impact Project construction or operation. The findings and conclusions summarized within this memorandum are based on desktop research of publicly-availably information. No physical site investigation was performed.

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.

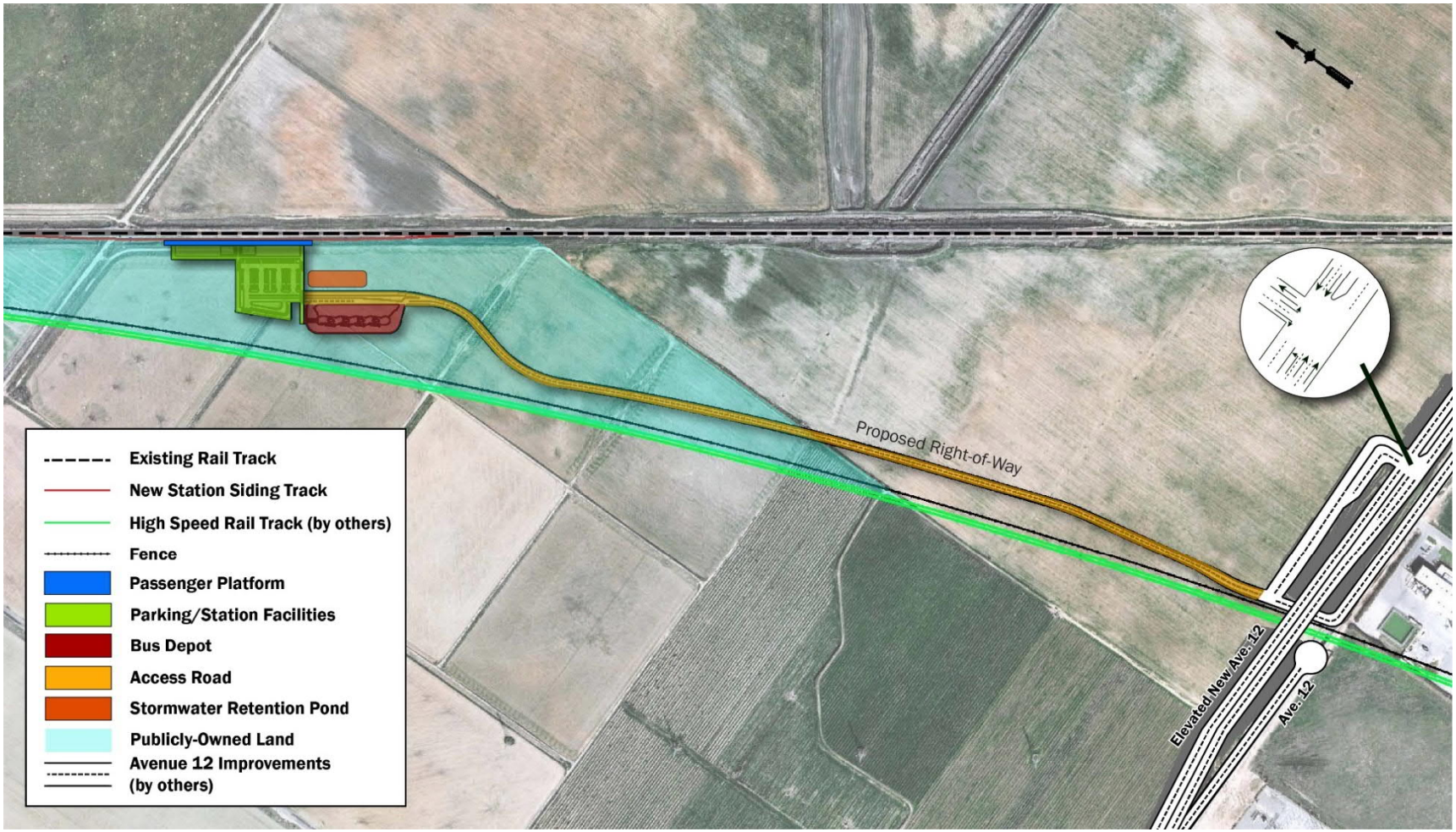
2.2.4 Parking

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). No sidewalks or bike lanes would be included in the access road as part of Phase 1.

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.

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)

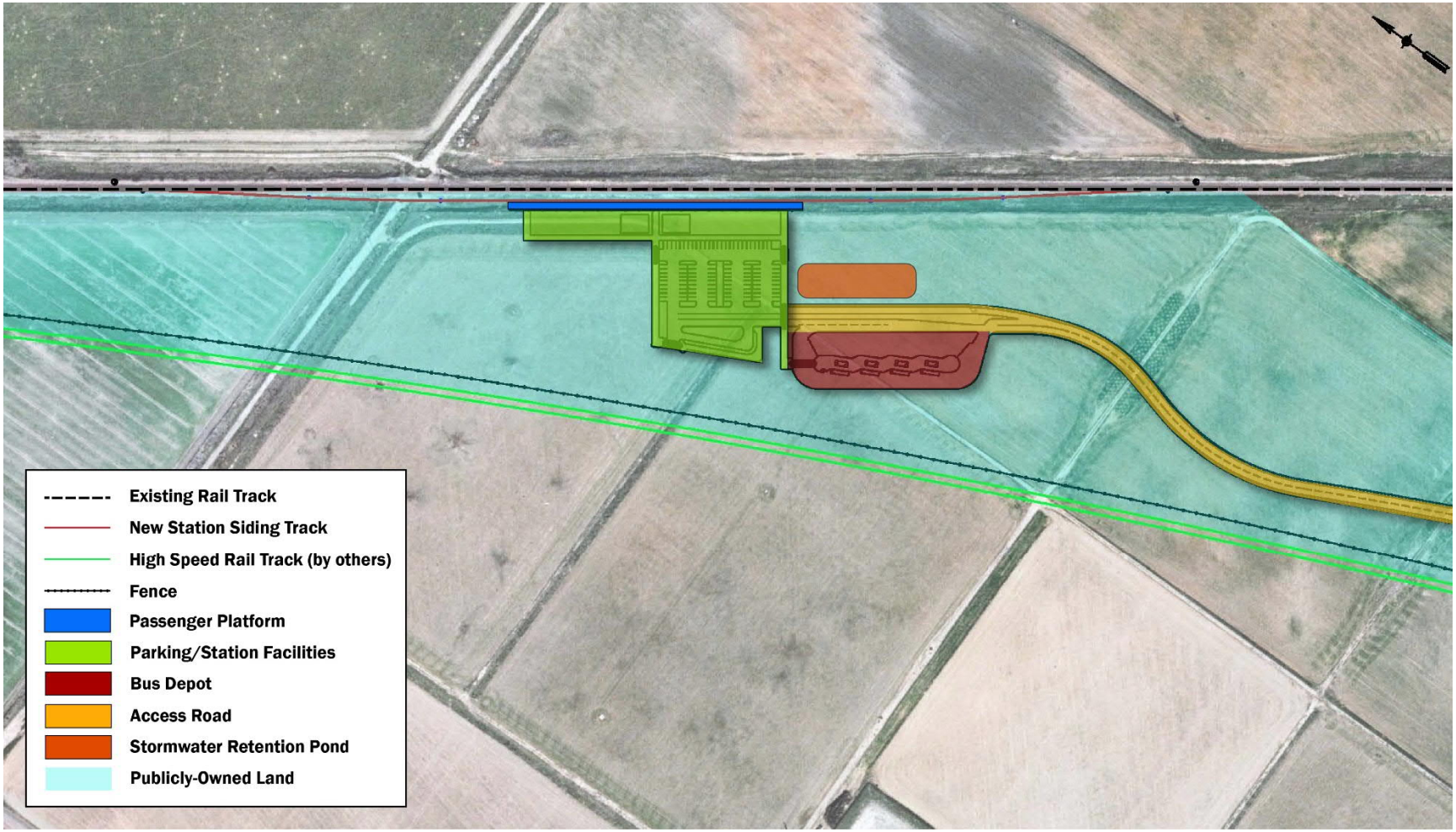


Figure 2-4. Proposed Design for the Project Phase 2- HSR Interim Operating Segment Station (Overview)

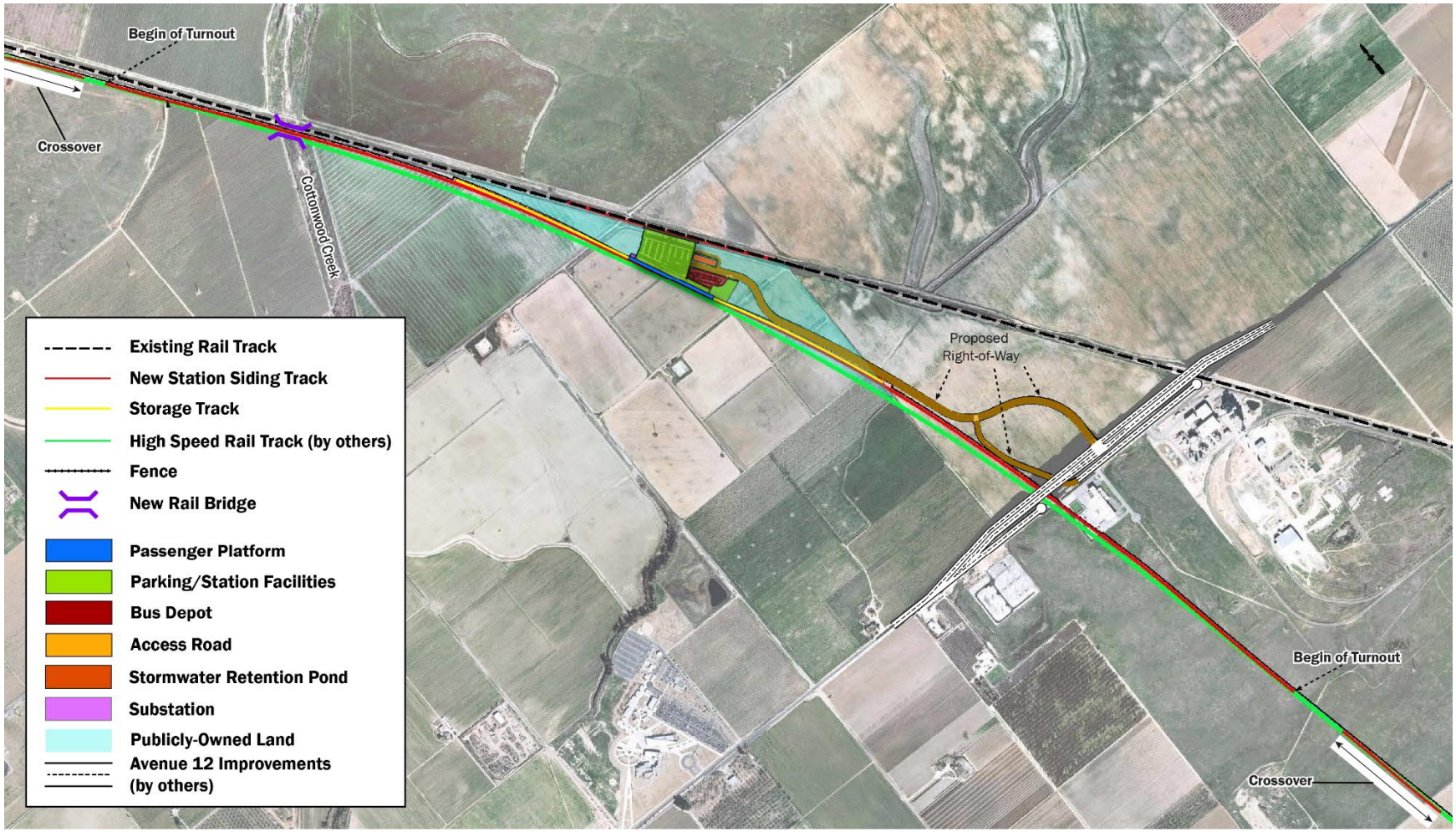


Figure 2-5. Proposed Design for the Project Phase 2 – HSR Interim Operating Segment Station (Detailed View)

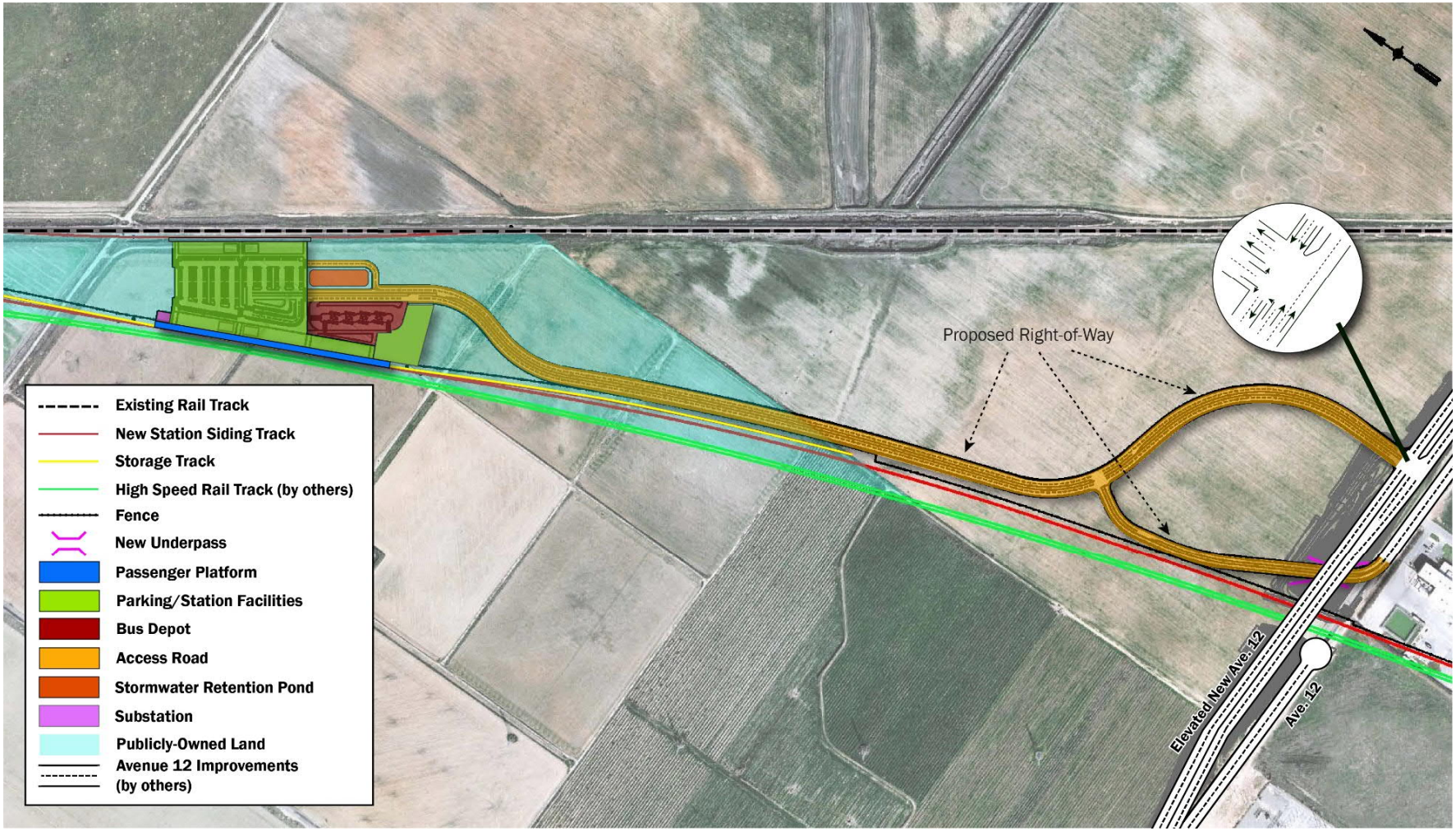
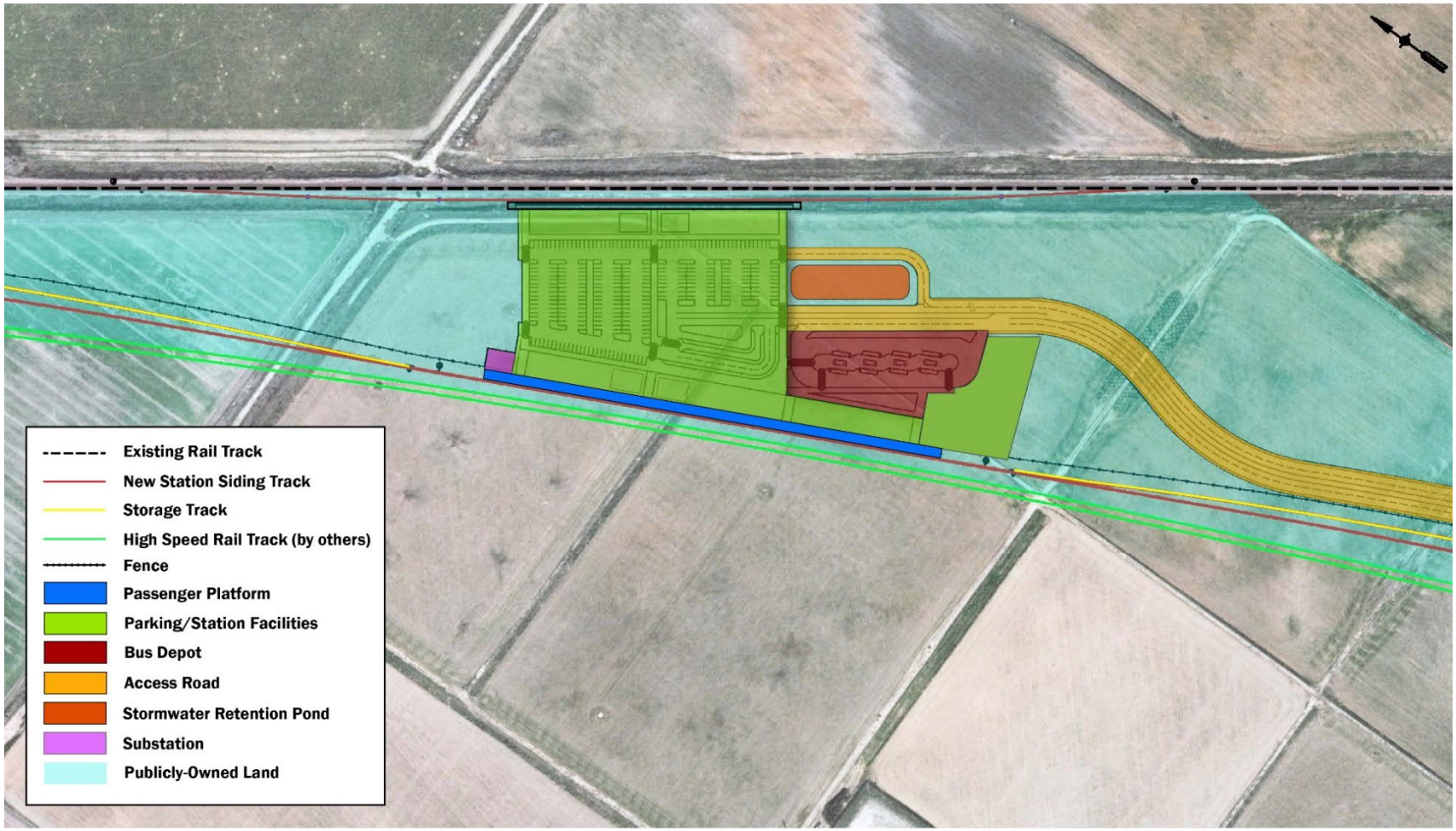


Figure 2-6. Proposed Design for the Project Phase 2 – HSR Interim Operating Segment Station (Station Close-In View)



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. A sidewalk and bike 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.

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). A second outreach effort will be made once the Draft IS/MND is published.

3. ENVIRONMENTAL SETTING

3.1 Description of Project Site

The proposed Project Footprint contains agricultural and/or orchard lands with no built structures other than a few dirt roads and fences, and the existing rail tracks, ballast and bridges associated with the existing BNSF Stockton Subdivision alignment. The northern portion of the Project Footprint, including APN 047-070-027 which would be the site of the proposed station, bus depot and parking areas, is currently agricultural fields. The middle portion of the Project Footprint (between the main station area and Avenue 12) contain orchards. The portion of the Project site south of Avenue 12 is mostly agricultural land, with a small area at the very south passing through orchards.

The Project site is generally flat, at an elevation of approximately 287 feet above sea level (EDR 2020). Soil types within the Project Footprint include the San Joaquin series, a moderately well drained sandy loam with slow infiltration and clay content; Hanford series, a well-drained fine sandy loam with moderate infiltration and moderately coarse textures; and Alamo series, a poorly drained clay soil with very slow infiltration rates (EDR 2020).

The site is located within the Madera groundwater sub-basin, part of the larger San Joaquin basin (DWR 2004). Groundwater flow is generally southwestward in the eastern part of the subbasin and to the northwest in the southern portion, away from the recharge area along the San Joaquin River (DWR 2004). In the vicinity of the Project site, groundwater flow in the regional aquifer typically shows a southerly flow gradient (TRC 2015). Depth to groundwater in the area has fluctuated between approximately 150 to 300 feet below ground surface over the last decade (DWR 2020). However, shallow perched groundwater has been documented in the vicinity of the Project site, which occurs as separate water bearing lenses that are not in hydraulic communication with each other (TRC 2015).

3.2 Description of Adjacent Areas

The area surrounding the Project Footprint is predominantly agricultural, with a mixture of orchards, vineyards, and crop lands, and associated infrastructure such as outbuildings, dirt roads, irrigation ponds, etc. Industrial uses (Church and Dwight Manufacturing, Pacific Ethanol, Borden Substation) are present to the south of Avenue 12. Madera Community College is approximately one mile west of the Project site, on the north of Avenue 12.

3.3 Historical Uses of Project Site and Adjacent Areas

Based on historic aerial photography (Google Earth 2020) and topographic maps (USGS 2020), the existing rail corridor and Avenue 12 were constructed prior to 1922. Major powerlines have been present near the site since at least 1946, running approximately parallel to, and approximately a half mile east of, the BNSF rail corridor. The Borden Substation was constructed just south of Avenue 12 sometime prior to 1965. Portions of the Project Footprint are mapped as having contained vineyards or orchards since at least 1965. The Project Footprint is crossed by ephemeral tributaries of Cottonwood Creek, which at times appear to have had associated wetlands within the Project Footprint.

4. POTENTIAL SOURCES OF HAZARDOUS MATERIALS

The principle data resources reviewed to describe existing hazardous materials concerns in the study area are as follows:

- Existing railroad and major roadway corridors mapped by the California Department of Transportation (Caltrans 2018);
- Naturally-occurring asbestos mapped by the U.S. Geological Survey (USGS) (Van Gosen and Clinkenbeard 2011);
- Existing and historic agricultural land mapped on current or historic topographic maps (USGS 2020), or shown on historic aerial photography (Google Earth 2020);
- Petroleum pipelines mapped by the federal Pipeline and Hazardous Materials Safety Administration (PHMSA 2020);
- Environmental records of hazardous materials release sites from the State Water Board's GeoTracker database (SWRCB 2020) and the DTSC's EnviroStor database (DTSC 2020) or identified through a third-party federal, state and local database search (EDR 2020);
- Ambient groundwater levels from observation wells reported in the California Department of Water Resources' (2018) Groundwater Information Center; and
- Presence of structures determined through review of aerial photography (Google Earth 2020).

The hazardous materials information was geocoded (as needed) and imported into a Geographic Information System (GIS) to identify the potential sources of hazardous materials in the Project Footprint.

4.1 Hazardous Building Materials

Existing building, bridge, roadway, and railroad structures can contain hazardous building materials. Any building or bridge structures constructed before 1981 could potentially contain asbestos-containing materials (ACMs). Any residential building structures constructed before 1979 and any commercial or industrial building (regardless of construction date) could potentially contain lead-based paint (LBP). Traffic stripes and pavement markings applied to roadways could also contain lead and chromium. All railroad ties along existing railroad corridors could contain wood preservatives, such as arsenic, chromium, copper, pentachlorophenol, or creosote. All building structures could also contain other common hazardous materials (e.g., polychlorinated biphenyls [PCBs], diethylhexyl phthalate, mercury, and other metals) that would be considered universal wastes during demolition activities.

While there are very few structures within the Project Footprint, the following potential sources of hazardous building materials have been identified:

- Yellow traffic striping (paint) along Avenue 12.
- Existing railroad bridge over Cottonwood Creek.
- Existing railroad ties within BNSF alignment.

4.2 Soil and/or Groundwater Contamination

4.2.1 Pesticide Residues

Prior to 1950, inorganic pesticides that contained elevated concentrations of metals, such as arsenic, were commonly used in California agriculture. After 1950, organochlorine pesticides (OCPs) were commonly used in California agriculture until about the mid-1970s. Arsenic from inorganic pesticides and residues from OCPs used in the past have the potential to persist for many decades in shallow soils and can affect human health and the environment (DTSC 2010). Shallow soils within the Project Footprint are likely to be contaminated with arsenic and OCPs from historical pesticide applications in areas located on agricultural land. Although the groundwater table in the Project Area is typically more than 200 feet below ground surface, which makes contamination of the deep aquifer from pesticides unlikely, there are known shallow perched groundwater lenses (TRC 2015), which could contain elevated levels of pesticides.

4.2.2 Railroad corridors

Elevated concentrations of arsenic are common in shallow soils from historical applications of inorganic herbicides and leaching from chemically-preserved railroad ties and/or arsenic-laced slag used as ballast material. Other sources of contaminants associated with historical railroad operations may include coal ash from engines and polynuclear aromatic hydrocarbons (PAH) from diesel exhaust. The risk of soil contamination is generally greater at railyards and along railroad corridors that are adjacent to industrial areas, where historical loading practices, leaks during material transfers or storage, and repair activities may have contaminated the soil or railroad ballast. Similar to pesticides, such contamination is unlikely to have impacted deep regional aquifers but could have impacted shallower perched groundwater lenses.

4.2.3 Aerially deposited lead

Refiners in the United States started adding lead compounds to gasoline in the 1920s in order to boost octane levels and improve engine performance by reducing engine ‘knock’ and allowing higher engine compression. Tailpipe emissions from automobiles that used leaded gasoline contained lead and resulted in aerially deposited lead (ADL) being deposited in and along roadways throughout the State (DTSC 2016). Beginning in 1973, the U.S. Environmental Protection Agency (USEPA) ordered a gradual phase-out of lead from gasoline that significantly reduced the prevalence of leaded gasoline by the mid-1980s, and beginning in 1992, lead was banned as a fuel additive in California. However, lead-contaminated soil still exists along roadsides and medians and can also be found underneath some existing road surfaces due to past construction activities (DTSC 2016).

Avenue 12 is classified as a minor arterial route (Caltrans 2018) and has been present in its current location near the Project Footprint since at least 1922 (USGS 2020). The road has approximately 13,000 daily traffic movements (MCTC 2018), and therefore could have contributed in aerially deposited lead in shallow soil immediately adjacent to the roadway.

4.2.4 Utility Pipelines

Existing pipeline safety regulations minimize impacts associated with potential future releases of petroleum from pipelines; however, they do not address the potential impacts related to undocumented petroleum releases that may have occurred in the past. Contaminants of concern from petroleum pipelines include gasoline, diesel, jet fuel, and polycyclic aromatic hydrocarbon (PAH) compounds. As a result, soil immediately

adjacent to pipelines, and groundwater within 0.25-miles of pipelines could potentially be contaminated by documented or undocumented releases from petroleum pipelines.

The approximate locations of petroleum pipelines in the study area were delineated based on mapping from the Pipeline and Hazardous Materials Safety Administration's (PHMSA's) Public Map Viewer. In accordance with PHMSA's security policy, the scale of the Public Map Viewer is restricted to 1:24,000 and the minimum accuracy of the mapped pipeline locations is 500 feet. According to the PHMSA Public Map Viewer, the nearest Hazardous Liquid Pipeline is more than 2 miles west of the Project Footprint (PHMSA 2020). A PG&E natural gas transmission pipeline is present along Avenue 12, including within the Project site, however this gaseous pipeline does not represent a potential source of soil or groundwater contamination.

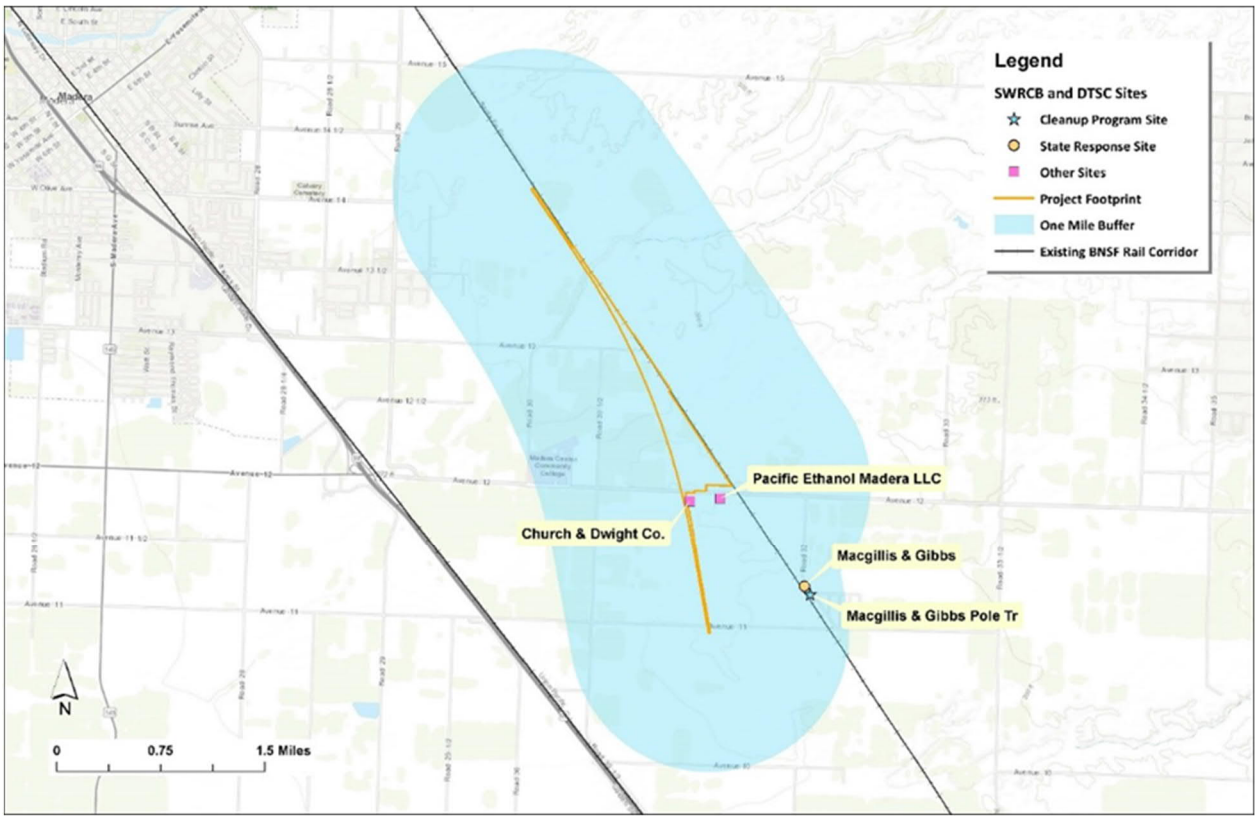
4.2.5 Naturally Occurring Asbestos

Geologic mapping by the USGS does not show any areas of rock likely to contain naturally-occurring asbestos (ultramafic rock) within the hazardous materials study area (Van Gosen and Clinkenbeard 2011). Therefore, naturally occurring asbestos in bedrock would not be expected to be encountered within the study area.

4.2.6 Hazardous Materials Release Sites

Review of the Geotracker and Envirostor environmental databases (DTSC 2020, SWRCB 2020) did not identify any known sites of historical hazardous materials releases within the Project Footprint or within a quarter mile buffer. The closest hazardous materials release site listed in these databases is the Macgillis & Gibbs Pole Treating Facility, at 11272 Road 32, Madera, approximately 0.7 miles south of Avenue 12 (Figure 4-1). This site is listed as an active State Response site on the Envirostor database, and as a Cleanup Program site on the Geotracker database. As the the Macgillis & Gibbs site is 0.68 miles from the closest portion of the Project Footprint and is therefore unlikely to have impacted soils at the Project site. Groundwater contamination at the Macgillis and Gibbs site was limited to shallow, perched groundwater lenses and was not found to have impacted the deeper regional aquifer (TRC 2015).

Figure 4-1 Potential Hazardous Materials Release Sites in the Vicinity of the Project Footprint.



Source: Google; ESRI

Two facilities within a quarter mile radius of the Project Footprint were identified in other environmental databases (EDR 2020), including:

- The Church & Dwight Co, Inc. property at 31266 Avenue 12, Madera (also listed under Church Dwight Co, Inc, IKG Borden, and IKG Industries). The Project Footprint overlaps the corner of the Church Dwight property (west siding alignment). This property did not have any recorded hazardous materials spills.
- The Pacific Ethanol Madera, LLC property at 31470 Avenue 12, Madera (also listed under Norby Lumbar Co, Inc., and Coast Grain Company). This property is immediately adjacent to the Project Footprint in the vicinity of the roadway improvements south of Avenue 12. There have been four reported spills recorded at the Pacific Ethanol site in 2007 and 2008.

5. CONCLUSIONS

Based on the research discussed above, the following possible sources of soil contamination may be present within the Project Footprint:

- Potential lead-based paint from traffic striping on Avenue 12.
- Potential lead-based paint or asbestos-containing materials on the existing railroad bridge across Cottonwood Creek or other railroad structures.
- Potential arsenic or other contaminants from railroad ties within the existing BNSF corridor.
- PAH, TPH or metals (particularly arsenic) in shallow soils, railroad ballast materials or shallow perched groundwater lenses, due to current and historical rail operations within the BNSF corridor, adjacent to and within the Project Footprint.
- Pesticide contamination in shallow soils or perched groundwater lenses, resulting from current and/or historical agricultural land uses within the Project Footprint.
- Lead contamination in shallow soils adjacent to Avenue 12, resulting from aerial deposits from historical traffic using leaded gasoline.
- Potential localized soil or groundwater contamination from unreported spills associated with industrial land uses adjacent to the Project Footprint (Dwight and Church Company, Inc. and Pacific Methanol Madera, Inc.)

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