Madera High-Speed Rail Station Project

Project Report

To Request Programming
For the 2024 Interregional Transportation Improvement Program (ITIP) Funding Allocation

On Route	California High Speed Rail Alignment
Between	Approximately 2.4 Miles North of Avenue 12
And	Approximately 1.1 Miles South of Avenue 12

I have reviewed the right-of-way information contained in this report and the right-of-way data sheet attached hereto, and find the data to be complete, current and accurate:

Bryan Pennino, Chief of Programs

APPROVAL RECOMMENDED:

Laurence Farrell Director of Capital Projects

PROJECT APPROVED: *(only include "PROJECT" for milestone M200 PA&ED)*

Stacey Mortensen, Executive Director *(or delegated authority)* — *Date*
San Joaquin Joint Powers Authority (SJJPA)

10/13/2023

Vicinity Map

This project report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

October 13, 2023

REGISTERED CIVIL ENGINEER *DATE*

Table of Contents

1. Introduction

Project Description

Project Limits	North-south direction: Approximately 3,600 feet north of Cottonwood Creek and approximately 150 feet south of Avenue 11 *East-west direction:* Road 30 ½ and along the BNSF	
	FY 25-26:	FY 27-28:
Capital Outlay Support	$9,568,000	$0
Capital Outlay Construction	$0	$124,143,000
Capital Outlay Right-of-Way	$819,000	$0
Funding Sources	ITIP,MPDG, TIRCP	
Funding Year	2024 (ITIP), 2023 (MPDG), 2024 (TIRCP)	
Type of Facility	High-Speed Rail Station	
Environmental Determination or Document	Madera Station Relocation Project Final Initial Study/ Mitigated Negative Declaration (SCH # 2020109008) (January 2021)	
Legal Description	In Madera County The Project is located at 36° 56' 5" N and 119° 59' 7" W, roughly five miles southeast of the center of the City of Madera. It is less than two miles from the city limits and accessed by exiting SR 99 at Avenue 12 and traveling two and a half miles east. The city is in the California Central Valley between the Sierra Nevada Mountains and the Southern Coast Mountain Range.	
Project Development Category	N/A	

The Madera High-Speed Rail Station Project, which is subject of this Project Report, expands upon the Madera Station Relocation Project, which is a related project at the same site approximately one mile north of Avenue 12. The fully funded Madera Station Relocation Project is currently in final design and moving toward full implementation and relocates the San Joaquins station to a location which provides substantially better ridership potential, access to public transit, excellent connectivity to SR-99, access to Madera Community College, and great potential for transit-oriented development. This new location along Avenue 12, was planned and designed to be expanded to become the Madera High-Speed Rail Station. Both the Madera High-Speed Rail Station Project and the Madera Station Relocation Project were environmentally cleared in the same environmental document and were identified in that document as Phase 1 and

Phase 2, as they are located adjacent to one another (see **Attachment A** for the Initial Study/Mitigated Negative Declaration environmental document).

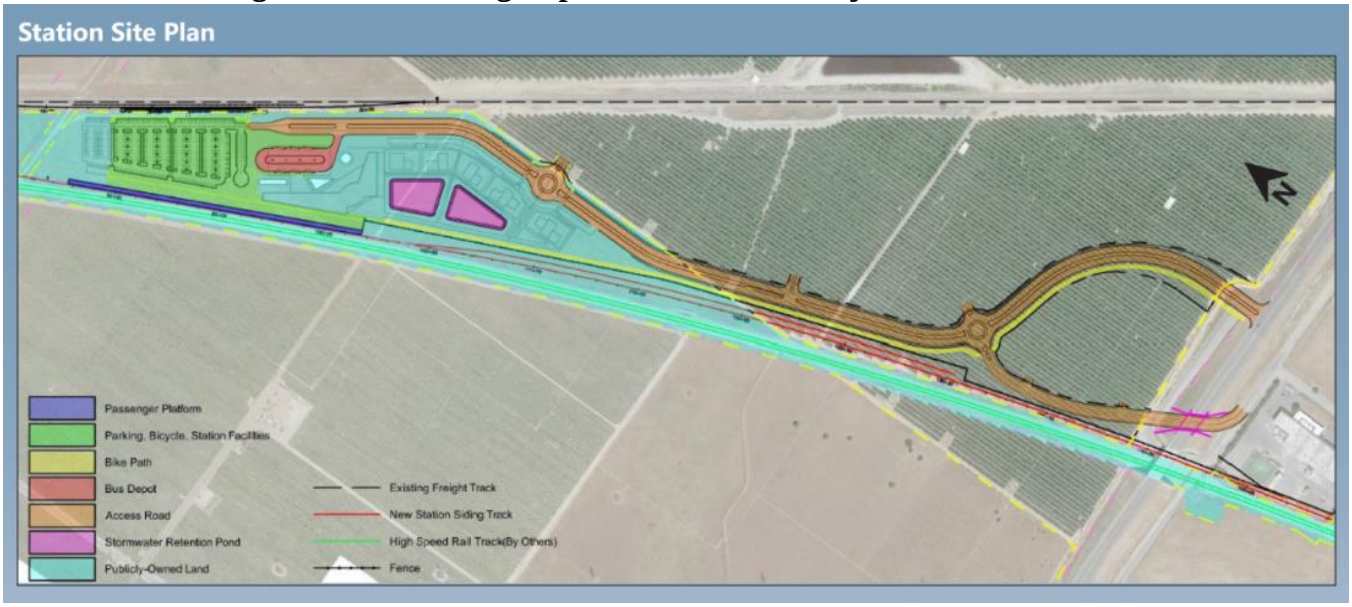
This Madera High-Speed Rail Station Project (henceforth referred to as "Project") is required to provide high-speed rail (HSR) facilities needed to enable HSR operations to Madera County residents for the Merced-Bakersfield Early Operating Segment (EOS). The Project will build out all the high-speed rail (HSR) improvements needed to enable HSR service to commence along the Merced-Bakersfield Early Operating Segment (EOS). San Joaquin Joint Powers Authority (SJJPA) is the managing agency for the San Joaquins and is expected to also be the operating agency for HSR service on the EOS. The Project is expected to be served by eighteen HSR roundtrips per day upon opening of the HSR EOS.

This Project Report specifically addresses Project elements such as HSR station facilities, including a new single side-loaded HSR platform, a nearly 3-mile long HSR station siding track, an expanded access road, additional surface parking and bike paths.

Site Plan

The site plan of the Madera High-Speed Rail Station Project is illustrated in **Figure 1**.

Figure 1 Madera High-Speed Rail Station Project Site Plan



Source: AECOM

Project Construction Elements

HSR Station Platform

With the construction of the Project, station facilities would be constructed to include a new single side-loaded HSR station platform parallel to the California High-Speed Rail (CAHSR) Project trackwork (currently under construction). The platform would be approximately 1,000 feet in length and will 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 the Madera Station Relocation Project **(Figure 1).**

HSR Trackwork and Overheard Contact System

A new HSR station siding track will be constructed to the east of the two-track HSR mainline being constructed for the CAHSR Project. The length of the new station siding track, from the turnout locations at the north and south, would be approximately 14,600 feet. Turnouts would be designed for 110 mph, and 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.

Additionally, the Project requires construction of a new bridge over Cottonwood Creek and two storage tracks for HSR trains. The proposed bridge would be a single track, 5-span continuous cast-in-place, reinforced concrete slab structure. Two storage tracks for HSR trains would be constructed. The first would extend approximately 1,900 feet north from the station siding track and the second would extend south from the station siding track, approximately 1,900 feet. In association with this 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, and potentially a small Transmission Power Substation (TPSS).

Access Road

For the trackwork required to reach the HSR platform, the access road currently being implemented as part of the Madera Station Relocation Project would be reconfigured and expanded. It would shift east and rise to meet the elevated portion of the Avenue 12 grade separation at a new intersection. The access road would also be widened from two lanes to four lanes.

Class I Bikeway

A Class I bikeway connecting the station to Avenue 12 (approximately 1.3 miles) would be constructed west of the widened access road. A two-lane auxiliary access road would be built around the southern and eastern sides of the proposed stormwater retaining pond to provide access into the expanded parking lot.

Road Network

The new station siding track would be constructed in the same space as the automobile underpass currently under construction as part of the HSR program. This would result in the removal of the roadway, severing the original vehicle access to the Avenue 12 frontage road on the south of elevated Avenue 12. To address this, a new underpass would be constructed to the east to connect to the at-grade frontage road along the south side of Avenue 12 and require penetrating the retained fill of the Avenue 12 grade separation structure, built as part of the HSR program, and constructing necessary support structures for the elevated Avenue 12.

Ancillary Facilities

Ancillary facilities will enable multimodal travel to/from the Madera HSR Station and support future HSR service. This Project will construct the bus depot and expand the pick-up/drop-off facility. The Project will also build additional parking spaces to the parking lot built as part of the Madera Station Relocation Project, adding 295 spaces to bring the total parking at the site to 400 parking spaces. An interim one-floor station building[1] would be built along the HSR platform to provide ticketing services, a waiting lobby, restrooms, staffing, and security. Lighting posts, signage, and bicycle storage facilities would be installed, as well as a stormwater retention pond for runoff from the paved portions of the Project.

Service Operations

The Relocated Station, prior to commencement of the Madera High-Speed Rail Station Project construction, will operate up to eight San Joaquins roundtrips per day upon opening of service (expected to be 2025). The Madera High-Speed Rail Station Project is anticipated to commence service between 2030 to 2033 depending on the progress of the implementation of the EOS. This HSR service is presumed to provide up to eighteen roundtrip trains per day. Once HSR service commences to the Madera HSR Station, San Joaquins trains would no longer serve the adjacent Relocated Station and would instead terminate at a new downtown multi-modal hub station in Merced, where they would connect to HSR trains, leaving the 18 HSR daily roundtrips serving the site as the only passenger rail service.

Detailed Project plans are provided in **Attachments B and C**.

[1] It is expected that the station building would be expanded when HSR service is extended to the Bay Area.

2. Recommendation

This Project Report recommends the approval of the Project—consisting of the proposed improvements to development the Madera HSR Station, which would serve HSR service along the EOS—and that the Project proceed to the next phase.

As described in further detail in Section 3 (*Background*), the IS/MND was published on October 14, 2020. The final IS/MND was certified, and the Project was approved by the Board of the San Joaquin Joint Powers Authority on January 22, 2021. See **Attachment D** for the resolution.

This Project Report attests to the following:

1) through the IS/MND process and other coordination and outreach, the affected local agencies have been consulted with respect to the Project;
2) their views have been considered; and,
3) they are in general accord with the Project as presented.

3. Background

At the November 2016 SJJPA Board Meeting, SJJPA staff presented an assessment of the existing connectivity between the San Joaquins and local transit services. During this assessment, SJJPA identified that the Madera Turlock/Denair San Joaquins Station and Madera San Joaquins Station (Madera Station) had connectivity challenges compared to other San Joaquins stations due to the lack of local or regional bus services.

Along with lower connectivity compared to other stations, the existing Madera Station, located at Madera Acres, had consistently low San Joaquins ridership. In FY 2019, of the stations served by all seven (7) San Joaquins daily round trips (pre-COVID service levels), the Madera Station had the second lowest station ridership, which is measured in passenger "ons" (boardings) and "offs (alightings). During FY 2019, Madera Station's annual ridership (or passenger ons/offs) was 27,136, or a daily ridership of 75 ons/offs. As a result of the Madera Station's low annual ridership, SJJPA worked with Madera County, the City of Madera, MCTC, CalSTA, and CHSRA in 2016 to identify a new station location at Avenue 12, southeast of the City of Madera, as the best service option for a relocated San Joaquins Amtrak station and a future HSR station to serve Madera County. The location of Avenue 12 also has higher ridership potential since it would be an attractive location for potential riders from Madera and portions of Northern Fresno. This is important, because the amount of service provided to any Madera Station in the future would depend largely on the amount of ridership the station can generate. Ridership analysis for the Madera High-Speed Rail Station Project in 2029 projects 210,600 passenger ons/offs (or "boardings and alightings"), assuming eighteen high-speed rail roundtrips serving the station. California's TIRCP provided new funding opportunities for SJJPA to employ State resources, enabling the relocation of the Madera Station. In 2018, the SJJPA/ San Joaquin Regional Rail Commission (SJRRC) application (Valley Rail Program7) received a $500.5 million award from CalSTA. Following the TIRCP award, SJJPA prepared an Initial Study/Mitigated Negative Declaration (IS/MND), supported by funding from the California Transportation Commission (CTC) in August 2019.

The IS/MND for this Project was certified in January 2021, where the Project was divided into two phases: San Joaquins Relocated Station (Phase 1) and HSR Interim Operating Segment Station (Phase 2). Completion of Phase 2 (the Project) is required to enable the HSR EOS to serve the Madera Station. SJJPA is the expected initial operator for the HSR EOS and is responsible for securing funding and implementing the Madera HSR Station for the HSR EOS.

The CHSRA's 2022 Business Plan illustrates the current HSR program map (**Figure 2**). The project location map can be found in **Attachment E**. The CHSRA Board approved an extension of Construction Package 1 by approximately 2.72 miles northward in March 2016. This action did not have any environmental clearance implications, as the extended length of the Construction Package still fell within the environmentally cleared Merced-Fresno Project Section Environmental Impact Report/Environmental Impact Statement (EIR/EIS) (CHSRA and FRA, 2012). The aforementioned January 2021 California Environmental Quality Act (CEQA) IS/MND granted environmental clearance for both the relocated San Joaquins Station and the

improvements needed for the HSR Station that will be along EOS. The HSR service along the EOS is expected to provide 18 trains per day round trip (a total of 36 trains). This service expansion will commence when the HSR "Merced-Bakersfield HSR Early Operating Segment" (as described in the 2020 and 2022 CHSRA Business Plans) opens as early as 2030. This Project supports the interim operations along the HSR EOS.

Figure 2 Current High-Speed Rail Program Map

Source: CHSRA 2022 Business Plan

According to the Business Plan, following interim operations, CHSRA would implement the "Valley to Valley" service, extending HSR to the San Francisco Bay Area. Plans include an extension to Southern California. With these proposed service expansions, the Madera HSR Station will need to be expanded further to allow higher frequency service and non-stop express service not envisioned for interim operations. Environmental clearance of additional HSR facilities and service at the relocated station is being conducted separately by SJJPA.

During 2018 and 2019, SJJPA developed preliminary engineering plans for a relocated Madera Station. SJJPA coordinated with CHSRA and CalSTA to ensure that the designs for a relocated Madera Station could accommodate future HSR service and minimize construction impacts. These engineering plans and design elements are included in the MCTC Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS13). These plans and designs are shown in the first phase of fiscally constrained projects. They were also added to the MCTC 2019 Federal Transportation Improvement Program (FTIP) as part of Amendment #14 and adopted by the MCTC in May 2020. In 2020, Amendment #14 was approved by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). In 2022, Madera County (in partnership with SJJPA, Madera CTC, and the City of Madera) was awarded a $450,000 Sustainable Transportation Planning Grant to develop a plan for the Madera HSR Station, prepare for transit-oriented development, and enhance transit connectivity throughout Madera County and northern Fresno County. In August 2023, SJJPA and Caltrans submitted a joint application for a 2023-2024 MPDG grant to receive matching Federal funds to fully fund the $134.5M Project (year of expenditure). SJJPA will apply for 2024 TIRCP funding for the Project in case the federal application funding request is not awarded or a reduced amount is awarded.

SJRRC is completing the final design for the relocated San Joaquins Madera Station (Phase1) which is scheduled to be completed by June 2025. The Project (Phase 2) is scheduled to have construction completed and begin operations by 2030. Caltrans and SJJPA expect that the San Joaquins Madera Station relocation is complete and operational prior to implementation of the Project.

4. Purpose and Need

Purpose

The purpose of this Project is to enable a HSR station in Madera County, California, for the Merced-Bakersfield HSR EOS, that will connect HSR to economic and educational centers in Madera County, and to enable sustainability and economic benefits in Madera County from HSR operations.

Need

The Project will improve access to passenger rail service within the Madera County and the San Joaquin Valley Region. This Project will provide high-speed rail (HSR) facilities needed to enable HSR operation to the Madera HSR Station for the Merced-Bakersfield Early Operating Segment (EOS). Located along Avenue 12, the station will provide Madera County with direct access to HSR service and better connect it with Fresno, the larger Central Valley region, and the rest of California. Future transit-oriented development along the Avenue 12 Corridor, together with improved transit connectivity, will ensure that Madera County can capture the full economic and environmental benefits of HSR and sustainable growth patterns.

The Project will provide unprecedented economic, mobility, and safety benefits for Madera County. Without access to HSR through a convenient station location, the City of Madera, the Madera Community College, and other communities and public institutions within Madera County lack access to jobs; the ability to grow with increased public transportation use throughout the county, and plan for and implement sustainable transit-oriented development along the Avenue 12 Corridor; and the potential for economic growth in a region of the State that is severely disadvantaged and underserved. Without this Project, automobile-oriented development patterns will continue in Madera County. The area will not see meaningful reductions in vehicle miles traveled (VMT) or greenhouse gas (GHG) emissions, nor the economic benefits provided by a connection to HSR.

The Project's implementation would lead to a mode shift from automobiles to trains for intercity trips between Madera County and the rest of California and commuters from Madera County to Fresno. This mode shift will lead to a reduction in emissions, gridlock, and crashes on the region's busy interstates and highways. It will also give travelers the option to relax or be productive onboard the train, rather than gripping the steering wheel while sitting in hours of traffic.

The Project contributes to the following needs:

- **Climate Change, Resiliency, and the Environment:** Reduces emissions by providing a cleaner mode of transportation, reduces VMT, and promotes increased transit use and transit-oriented development

- **Equity, Multimodal Options, and Quality of Life:**

- Improves rail and transit transportation access for Historically Disadvantaged Communities and Areas of Persistent Poverty
- Enhances mobility and accessibility by providing an improved mode of state-wide transportation

- **Economic Impacts and Job Creation:**
  - Provides employment opportunities related to the construction, operation, and maintenance of the staffed facilities
  - Connects travelers to destinations throughout California
  - Enhances connection to educational and employment centers

- **Safety:**
  - Lessens auto travel/VMT by shifting travel to a safer mode of transport – rail

These considerations and needs are discussed in further detail below.

Climate Change, Resiliency, and the Environment

The Project supports the State of California in achieving its climate goals. The California Air Resources Board Draft Scoping Plan[2] encourages local governments to adopt goals to reduce GHG emissions by 15% below 1990's levels by 2020, 40% below 1990 levels in 2030, and 80% below 1990 levels by 2050.

According to the San Joaquin Valley Air Pollution Control District, the San Joaquin Valley is in nonattainment for Federal standards for eight-hour ozone and particulate matter $(PM)_{2.5}$, and California standards for one-hour ozone, eight-hour ozone, PM_{10}, and $PM_{2.5}$. As part of HSR's overall program, this Project will support shifting passenger travel from more air-polluting aviation and automobile modes to zero-emitting trains powered by renewable energy sources. Mode shift from automobiles to passenger rail encouraged by this Project will result in a significant reduction in VMT, which, in turn, will reduce GHG emissions. As part of the CHSRA's overall program, this Project shifts passenger travel from more costly and air-polluting aviation and automobile modes to more efficient and faster zero-emission electric trains powered by renewable energy sources (and connecting passenger rail and Thruway bus services). SJJPA and SJRRC submitted Climate Action Plans to the FTA (April 2022),[3] committing to meet state and federal GHG reduction goals by 2030 and transition to zero-emission trains/buses/shuttles. The Project will result in a reduction of approximately 69,012 metric tons of Carbon Dioxide (CO2), 7.8 metric tons of Nitrogen Oxides (NOx), 0.7 metric tons of Sulfur Dioxide (SOx), and 0.1 metric tons of PM2.5 – reductions that will have a demonstrable effect

[2] Draft 2022 scoping plan update - California Air Resources Board. (n.d.). https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf

[3] United States Department of Transportation. (n.d.). *SJRRC climate action plan framework*. Federal Transit Administration. https://www.transit.dot.gov/sites/fta.dot.gov/files/2022-04/SJRRC-Climate-Action-Plan-Framework.pdf

on the air quality in the San Joaquin Valley, helping to enhance the health and well-being of the general public throughout the region.

The Project will comply with SJJPA's Station Design Guidelines.[4] This document mandates that all new stations include sustainable hardscape elements, including stormwater filtration and groundwater recharge elements, such as permeable pavement, rain gardens with native and water-wise plantings, and bioswales. The Project will also comply with CHSRA's Technical Memoranda (TM) related to station design (TM 2.2.2 Station Program Design Guidelines[5], TM 2.2.3 High-Speed Train Passenger Station Design Guidelines,[6] and TM 2.2.4 Station Platform Geometric Design[7]). Additionally, the guidelines require the installation of conduits for future solar canopies to cover parking lots.

The amenities proposed as part of this Project will be coordinated with Caltrans' SR 99 Comprehensive Multimodal Corridor Plan[8] (CMCP).

Overall, the Project is not expected to bring adverse environmental impacts to water quality, wetlands, or endangered species. It is forecasted to reduce GHG emissions and thereby improve air quality significantly. Construction of the Madera HSR Station and track improvements will follow the established goals of the CHSRA regarding sustainability, the preservation of natural resources, and the reduction of waste generation by selecting environmentally preferrable materials when possible.

Environmental Sustainability

High rates of automobile ownership and increasing vehicle miles traveled (VMT) have contributed to air quality problems throughout California. Pollutants of concern include nitrogen oxides and reactive organic gases, which are precursors of ozone (also referred to as smog); sulfur dioxides; carbon monoxide; and particulate matter. GHGs (including carbon dioxide, nitrous oxide, methane, and other gases) are now a focus of environmental planning in California because of their role in global climate change. Motor vehicles are substantial contributors to the production of all these pollutants.

---

[4] *Updated Madera Station Full Build Site.* San Joaquin Joint Powers Authority. (2023, May 25). https://sjjpa.com/madera-station-relocation-project/

[5] *Technical memorandum / policy - Station Program Design Guidelines TM 2.2.2*. California High-Speed Rail Authority. (n.d.). https://hsr.ca.gov/wp-content/uploads/docs/programs/eir_memos/Proj_Guidelines_TM2_2_2R01.pdf

[6] California High-Speed Rail Authority. (n.d.). *TECHNICAL MEMORANDUM High-Speed Train Passenger Station Site Design Guidelines TM 2.2.3*. California High-Speed Train Project. https://hsr.ca.gov/wp-content/uploads/docs/programs/eir_memos/Proj_Guidelines_TM2_4_5R00.pdf

[7] California High-Speed Rail Authority. (n.d.-a). *TECHNICAL MEMORANDUM High-Speed Train Station Platform Geometric Design TM 2.2.4.* https://hsr.ca.gov/wp-content/uploads/docs/programs/eir_memos/Proj_Guidelines_TM2_4_5R00.pdf

[8] Caltrans. (n.d.). *State Route 70-99 Comprehensive Multimodal Corridor Plan*. State Route 70-99 Comprehensive Multimodal Corridor Plan | Caltrans. https://dot.ca.gov/caltrans-near-me/district-3/d3-projects/d3-sr-70-99-cmcp

The Madera HSR Station falls in the San Joaquin Valley Air Basin (SJVAB), for which air quality conditions are regulated by the San Joaquin Valley Air Pollution Control District (SJVAPCD). While the air quality has improved in recent years, largely in response to technological improvements in motor vehicles and fuels, both air basins face substantial challenges to meet air quality standards. The SJVAB is designated an extreme nonattainment area for the 8-hour federal standard for ozone and a nonattainment area for the federal PM2.5 standard. With respect to California standards, the SJVAB is currently a severe nonattainment area for the 1-hour ozone standard and a nonattainment area for the 8-hour ozone, PM2.5, and PM10 standards.

Because transportation is the major contributor to ozone precursors, increasing auto travel threatens the area's improvement in air quality. Growing traffic generation and congestion will add to the potential problems because of increased emissions due to increased number of vehicles operating and also due to this increased traffic being subjected to increased frequency of stop-and-go traffic. Shifting commuters and other travelers to higher occupancy modes is highly desirable as a means to partially offset the effects on air quality produced by the growth in auto travel.

With the coming in of this Project, HSR ridership is estimated to further increase with the replacement of San Joaquins service with HSR service, increasing to an estimated 210,600 passenger ons/offs. This increased ridership would result in a decrease in regional and intercity single-occupancy vehicle trips by passenger vehicles, which would produce substantive benefits in reducing vehicle miles traveled (VMT), congestion on SR-99, and associated criteria pollutant emissions. These benefits in particular, would align with the goals and objectives in the applicable SJVAPCD's AQAPs and Rules and Regulations. For example, consistent with the goal of Rule 9410, Employer-Based Trip Reduction, the Project would increase passenger rail ridership and reduce single-occupancy vehicle commutes.

The transportation sector is the largest source of GHG emissions in California and in most communities along HSR EOS.[9] The Madera County Transportation Commission (MCTC) have adopted the Regional Transportation Plan (RTP)/Sustainable Community Strategies to reduce GHG emissions. California has ambitious goals to reduce GHG emissions throughout the state – with the goal of ensuring that the MCTC region can meet its regional GHG targets set by the California Air Resources Board (CARB). The targets included a percentage reduction of greenhouse gas (GHG) emissions from 2005 of 5% by the year 2020 and a reduction in GHG

[9] California Air Resources Board. 2021. California Greenhouse Gas Emissions from 2000 to 2019, Trends of Emissions and Other Indicators. https://ww2.arb.ca.gov/sites/default/files/classic/cc/ca_ghg_inventory_trends_2000-2019.pdf, Accessed on October 6, 2023

emissions of 10% by the year 2035.[10] By reducing vehicle travel on regional roadways, the Project would also help communities along the entire Merced to Bakersfield corridor and in California as a whole to meet their GHG reduction goals.

The Project would result in a net reduction of VMT by inducing a mode shift from personal automobiles to public transit, including long-distance intercity trips through an estimated increased rail ridership. The annual net reduction in VMT would result in a net reduction in criteria pollutant emissions in the region.

The HSR-related improvements implemented as part of this Project would bring intercity HSR service directly to Madera County, providing vastly improved travel times via rail over existing rail service in the County. Thus, the Project is expected to result in a net reduction in VMT from personal vehicles in the region and the associated criteria air pollutant emissions.

While there is expected to be some increase in criteria air pollutant emissions associated with new localized VMT due to vehicle activity, including buses and personal vehicle trips, to and from the proposed station, these effects would be far outweighed by the reduction in regional and intercity VMT due to mode shifts from automobiles to passenger rail.

The estimated increase in ridership due the Project would result in VMT reductions and, thereby, a reduction in regional criteria air pollutants that would outweigh the nominal increase in emissions associated with travel to and from the proposed station (**Table 1**). This Project is anticipated to result in an annual net reduction of approximately 8,102,300 vehicle-miles traveled under the 2029 Project conditions.

Table 1 Emissions Reductions Associated with Net Reduction in VMT

Description **HSR EOS due to Project**	**CO**	**NOx**	**ROG**	**SOx**	**PM10**	**PM2.5**
Avoided Daily Emissions (lbs/day)	(27.91)	(0.19)	(0.32)	(0.12)	(2.26)	(0.93)
Avoided Annual Emissions (tons/year)	(5.09)	(0.04)	(0.06)	(0.02)	(0.41)	(0.17)
Notes: CO = carbon monoxide; NO_x = nitrogen oxides; ROG = reactive organic gases; SO_x = sulfur oxides; PM10 = suspended particulate matter less than 10 micrometers in diameter; PM2.5 = fine particulate matter less than 2.5 micrometers in diameter; tpy = tons per year; lbs/day = pounds per day.						

[10] Madera County Transportation Commission. 2019. *MCTC 2018 Regional Transportation Plan/Sustainable Communities Strategy Amendment No.1*. https://www.maderactc.org/sites/default/files/fileattachments/transportation/page/5651/mctc_2018_rtp_am_1_technical_revision.pdf, Accessed on October 6, 2023

Thus, operational emissions associated with operation of the Project is anticipated to generate a beneficial impact to air quality in the region by reducing VMT and the associated criteria air pollutants in the region.

Equity, Multimodal Options, and Quality of Life

The Project will provide new multimodal opportunities in an area largely comprised of disadvantaged communities. When constructed, the Project will improve access for residents in Madera County and northern Fresno County to destinations throughout California via sustainable HSR service and an extended connection to public transportation networks in California's Central Valley. The Project will also enable Madera County to enhance transit connectivity throughout Madera County that will focus on serving the Madera HSR Station.
The Project will benefit a Federally designated Historically Disadvantaged Community, an Area of Persistent Poverty, and a State-designated Low-Income and Disadvantaged Community. As evidenced in the CEQA IS/MND and its preliminary engineering, the Project's design seeks to proactively address barriers to opportunity by reducing automobile dependence in a region that is heavily reliant on single-occupant vehicles.

Madera County, the City of Madera, MCTC, and SJJPA have coordinated with local stakeholders, agencies, and the public in the Project's development since late 2016. These efforts will continue under the Transit Area Specific Plan, which includes creating a technical working group, stakeholder meetings, and community workshops. The Transit Oriented Development induced as a result of the station area specific plan will lead to the following benefits:

- Reduced dependency on cars: promote walkability and easy access to the Madera Station, leading to the decrease in car usage.
- Economic growth and job creation: will simulate local economies by attracting businesses, residents, and visitors leading to increase property values and tax revenue. Additionally, the accessibility of reliable public transit will encourage job growth and accessibility, enhancing employment opportunities for local communities.
- Improved quality of life: development of a vibrant, mixed-use community that will offer convenient access to essential services, amenities and recreational spaces.
- Environmental sustainability: By reducing the need for personal vehicles, transit oriented development will contribute to lower greenhouse gas emissions and overall environmental impact. They also encourage the use of alternative transportation methods like biking and walking.
- Enhanced social equity: Transit oriented development often provide more affordable housing options and greater accessibility to essential services for a diverse range of population. The inclusivity will help bridge socio-economic disparities and create more equitable and inclusive communities.

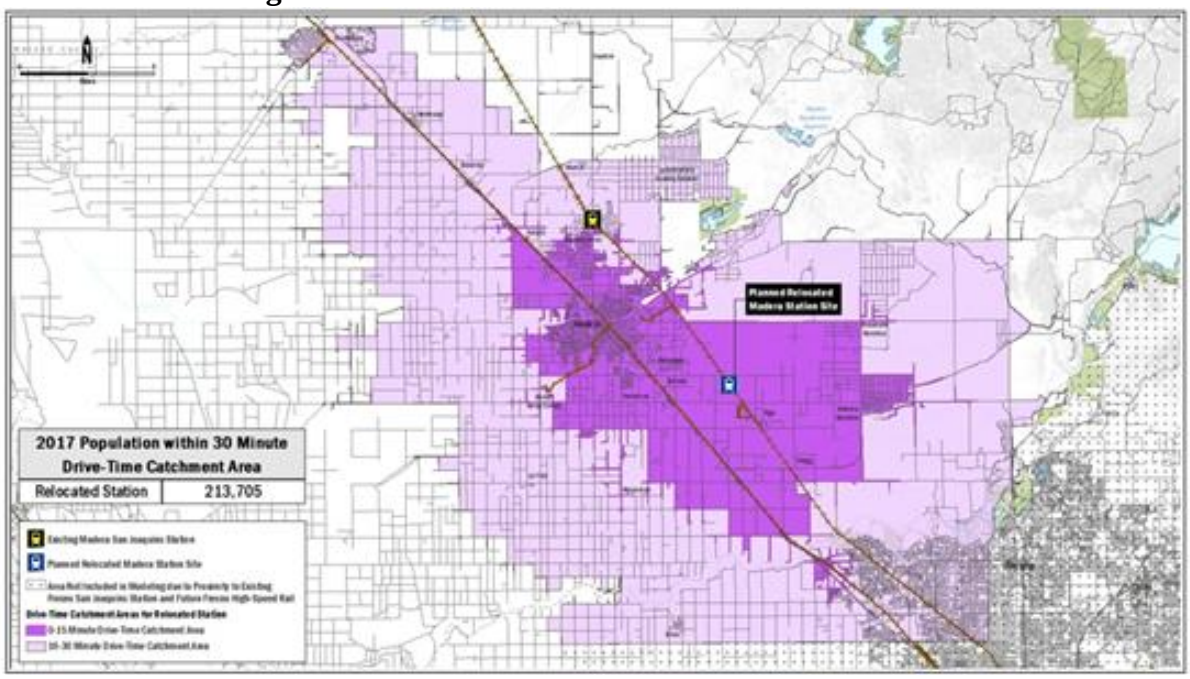
Additionally, a dedicated Project webpage will be created within the Madera County and SJJPA websites to provide information and allow interested parties to sign up for the stakeholder mailing list. As part of the planning and environmental approvals completed to date, public workshops were conducted in-person and remotely in the communities surrounding the Project

area. Communities near the Project area will be engaged in the public outreach process and provided informational materials.

The Project's implementation would lead to a mode shift from automobiles to trains for intercity trips between Madera County and the rest of California and commuters from Madera County to Fresno. This mode shift will lead to a reduction in emissions, gridlock, and crashes on the region's busy interstates and highways. It will also give travelers the option to relax or be productive onboard the train, rather than gripping the steering wheel while sitting in hours of traffic.

The Madera Station will be the only HSR station in Madera County and draw passengers from the entire county and northern Fresno County (for Fresno County passengers heading to northern destinations). Error! Reference source not found.**Figure 3** depicts the improved access resulting from the proposed Madera HSR Station location, expressed via population within a 15-minute and a 30-minute drive time catchment area of the station. The Project site is bound by the BNSF Stockton Subdivision corridor to the east and the HSR corridor to the west.

Figure 3 15-minute and 30-Minute Catchment Areas



The greater mode choice and mobility option to better access all parts of California will help all residents of Madera County, including the underserved and historically disadvantaged communities that make up most of the county. SJJPA has made additional efforts to support disadvantaged riders by offering discounts to riders with disabilities, seniors, children, students, Medicare cardholders, and those that qualify for the Community Assistance Program (based on income level). About 60% of the San Joaquins riders have household incomes of $50,000 or less. SJJPA will work with CHSRA and Caltrans to ensure that low-income riders will be able to

continue to have access to these discounts for the future HSR service, by exploring the potential to offer means-based fares for the future HSR service. In coordination with the SJJPA, the San Joaquin Regional Rail Commission (SJRRC) is also initiating TRACC (The Rail Academy of Central CA) in partnership with Sacramento City College and the Stockton Unified School District to provide students and young adults who might otherwise be passed by, with a vocational program for a career in the passenger rail industry. SJJPA will work with SJRRC and CHSRA on continuing and expanding SJRRC's and CHRSA's (Central Valley Training Center) vocational programs in the Central Valley to include training for CHSR Early Operating Segment operations. SJJPA will also pursue partnerships with Madera Community College.

Economic Impacts and Job Creation

The Project will enhance mobility and accessibility for Madera County and northern Fresno County residents by providing access to the HSR service running between Merced and Bakersfield, as well as access to an improved transportation network mode of transportation connecting them to the San Francisco Bay Area, Sacramento region, and Southern California. This improved linkage between the Central Valley and California's major metropolitan areas will increase labor productivity and the economic strength of the region and State. The access provided by HSR will decrease transportation costs relative to existing conditions (i.e., automobile travel) and provide reliable and timely access for Madera County to destinations throughout California. Cost reductions include travel time savings, roadway maintenance costs, safety improvements, and vehicle operating costs. The modernized HSR system will serve to enhance connectivity between cities and regions in California that were previously not easily accessible by automobile travel, encouraging travel not only on HSR but also connecting services to HSR.

Caltrans, SJJPA (through its managing agency the SJRRC), and CHSRA include various programs and initiatives to contract work with small businesses, disabled veterans, and disadvantaged business enterprises. For example, the CHSRA has paid more than $970 million to certified Small Businesses, Disadvantaged Business Enterprises, and Disabled Veteran Business Enterprises for work on the HSR program. Additional information on the Project's economic benefits pertaining to equity, affordability, and underserved communities has been described in the **Equity, Multimodal Options, and Quality of Life** section above.

The San Francisco Bay Area, the Central Valley, and the State of California are fortunate to have a multitude of recreational and tourism opportunities in the form of National and State of California parks, forests, recreation areas, wildlife refuges, and wilderness areas. This Project, when constructed, would provide timely and cost-effective access to these destinations. During the Project's construction, ongoing operations, and maintenance, SJJPA and CHSRA are committed to advancing high-quality job creation by supporting good-paying jobs with a free and fair choice to join a union. These agencies adhere to strong labor standards, by offering registered apprenticeship programs, providing competitive pay and benefits packages, and workforce development programs.

The State of California is investing over $32 billion in the HSR segment between Merced–Bakersfield. This is the first part of the envisioned HSR network, the biggest transportation Project being implemented in the country. This Project will support the economic impacts of HSR's significant investment of public funds. This Project will contribute to the nation's global economy by adhering to the Build America, Buy America Act to procure and manufacture rolling stock, track, and system, and related technical elements domestically.

Caltrans recently awarded Madera County $450,000 to develop a Transit Area Specific Plan in support of the Madera HSR Station in partnership with SJJPA, the City of Madera and Madera CTC. The plan will lead to the creation of new intermodal transit options and future transit-oriented development along the Avenue 12 corridor in southwestern Madera County. This integrated land use planning effort will ensure the area surrounding the Project is consistent with and supportive of the goals of the Caltrans Sustainable Transportation Planning Grant Program, SB1 requirements, the Madera County General Plan, the SCCCSP, and CHSRA's programmatic and Project environmental documents. This effort will guide the design and land-use in the vicinity of the station area and along the Avenue 12 Corridor as well as enable Madera County and the City of Madera to promote economic development, encourage station area development and enhance multi-modal access connections between the station, the City of Madera, Madera Community College, and other surrounding communities throughout Madera County and northern Fresno County. Madera County will work in partnership with the City of Madera, MCTC, SJJPA, CHSRA, and Caltrans to promote economic development, multi-modal access, and clean energy generation in the implementation of this smart growth initiative.

Property Value Enhancement

Overall property values in Madera City will rise as the city realizes increased land development and subsequently increased land values due to the new Madera HSR Station. The station, meanwhile, will be located in an area mostly free of commercial and residential properties but is expected to be developed with TOD around the station that would likely include commercial and high-density residential. Overall, net property values will be enhanced, just as many studies conclude. Property values are driven by and hence reflect the value associated with local changes in community impacts (accessibility, safety, visual amenity, and community cohesion), as well as economic development impacts (business productivity). In general, a transportation Project would only lead to changes in property values (and subsequent land use) if it causes a direct change in one or more of these other local factors that affect the desirability of a location. This Project specifically targets the items noted above.

The value of the one-time one-percent property value enhancement (assumed in 2030) associated with the Project is $19.4 million over the 30-year analysis period, discounted at 7 percent. When constructed and opened, the Madera HSR Station will serve up to eighteen HSR roundtrips trains a day starting as early as 2030. Upon commencement of HSR service, the Amtrak San Joaquins trains would no longer serve the Madera Station and would instead terminate at a new downtown multi-modal hub station in Merced, where they would connect to HSR trains. The Madera HSR Station will provide a much-needed intercity passenger rail connection from Madera County and northern Fresno County to the major metropolitan areas of

California. If the Madera HSR Station is not implemented, there will be no direct intercity passenger rail service to Madera County.

The table below (**Table 2**) summarizes the 2029 forecasted ridership model results for the Madera HSR Station, 2019 San Joaquins ridership at the existing Madera Acres Station, and forecasted 2025 San Joaquins ridership at the Relocated Madera Station along Avenue 12 (where the Madera HSR Station will be implemented). Ridership was assessed by passenger "ons and offs" (or "boardings and alightings") at the station. This approach is useful for assessing the usage of the station facilities to determine the necessary sizes of station components.

Table 2 Ridership Forecasts

2019[1,3] San Joaquins Amtrak at Madera Acres Station	2025[2,3] San Joaquins Amtrak at Madera Acres Station	2025[2,4] San Joaquins Amtrak at Avenue 12 Station	2029[2,5] Project: Madera HSR Station
27,636	40,201	103,117	210,564

NOTES:
- *[1]SJJPA 2022 Draft Business Plan*
- *[2]Source: 2023 Madera High-Speed Rail Station Project MPDG Application Ridership Memorandum, AECOM, See BCA Narrative document*
- *[3]Assumes eight (8) San Joaquins roundtrips serving the Madera Acres station*
- *[4]Assumes eight (8) San Joaquins roundtrips serving the Avenue 12 station*
- *[5]Assumes eighteen (18) HSR roundtrips serving the Madera HSR Station*

Employment

The unemployment rate of Madera County is currently 7.7 percent, this is higher than the state of California (4.2%) and the US (4.7%).[11] The implementation of the Project will assist in lowering the unemployment rate via increased accessibility to employment, and the creation of new local jobs via increased land development and Project construction.

Vehicle Operating Cost Savings

A reduction in automobile VMT will generate economic benefits related to lower vehicle maintenance costs, such as fuel usage and general vehicle wear-and-tear. Lower expenditures toward transportation costs mean households will be left with greater income for alternative use. Over the course of the 30-year period of captured benefits, the Project can be expected to reduce fuel usage by 8,625,983 gallons of gasoline. Overall, the value of vehicle operating cost savings associated with the Project is $30.1 million over the 30-year analysis period, discounted at 7 percent.

Avoided Vehicle Travel Times

The Project will result in avoided vehicle travel times for new riders diverted from passenger vehicles. However, due to the limited availability of data, such as present and future average vehicle travel speeds, travel time savings are calculated very conservatively. The BCA utilizes a

[11] Employment Development Department, State of California. (n.d.). *Madera County profile*. California Labor Market Info. https://labormarketinfo.edd.ca.gov/cgi/dataBrowsing/localAreaProfileQSResults.asp?state=true&selectedarea=Madera%2BCounty&geogArea=0604000039

blended average HSR travel speed of 126 miles per hour (MPH), which is calculated based on a weighted average of the short-distance HSR travel speed (104 MPH) and the long-distance HSR travel speed (129 MPH). Approximately 10.1 percent of HSR trips will be short distance, with the remainder (89.9%) being long-distance trips. For the analysis, it is assumed that the average vehicle travel speed is 39 MPH, which is held constant throughout the entire analysis period. For reference, according to data from TomTom on average travel speeds during the morning rush in the Fresno regional area (the nearest available region), the average vehicle travel speed currently during the morning rush is an average of 39 miles per hour, and the evening rush is 35 MPH in 2022.[12] Furthermore, peak hour travel speed will likely fall due to increasing congestion as VMT is expected to increase over time in the area, resulting in an increase in vehicle travel times over the duration of the analysis period.

In the No Build, HSR riders are assumed to travel, on average, 126 MPH, with would-be riders in the Build scenario who are traveling via automobile assumed to travel, on average, 39 MPH. In the Build scenario, all HSR riders are assumed to travel 126 MPH. Passenger hours traveled (PHT) are calculated by dividing VMT by the average travel speed in the No Build and the Build. Net PHT, which is to say the Project's travel time savings, is derived by taking the difference between the No Build and Build. Error! Reference source not found.**Table 3** displays No Build, Build, and net passenger hours traveled for the 2030 opening year.

Table 3 Passenger Hours Traveled

Description	Unit	Value
No Build PHT	hours	387,646
Build PHT	hours	145,162
Net PHT	hours	242,485

Over the course of the Project's 30-year period of captured benefits, passenger hours traveled will be reduced by a total of 8,188,249 hours. Travel time savings were monetized using the value of time for weighted average HSR travel of $23.30. The value of avoided vehicle travel time associated with the Project is $45.2 million over the 30-year analysis period, discounted at 7 percent.

Safety

The Project improves safety for travelers by reducing VMT and shifting to a much safer mode of transport. The HSR infrastructure will be fully grade-separated from roads, and the right-of-way fenced to prevent pedestrian access on the tracks. The station facility will include 24/7 surveillance cameras, security personnel, adequate lighting, and environmental design features for crime prevention. The construction of a Class I bikeway allows access via active transportation modes. The new fencing along the HSR corridor serves as an anti-trespassing measure, preventing pedestrians from intruding onto the HSR track areas.

[12] Fresno Metro Area, AM Rush, 2022 (assumed for 2023), TomTom, https://www.tomtom.com/traffic-index/sacramento-traffic/

The reduction in automobile VMT over the 30-year analysis period as commuters shift to passenger rail from the road will provide substantial safety benefits. Crash statistics per 100 million VMT were applied to the net annual avoided automobile VMT to estimate fatalities and crashes avoided for each year of the analysis period. The BCA utilizes estimates per 100 million VMT of 1.34 fatalities, 79.00, and 100.67 property damage only (PDO). The avoided crashes resulting in fatalities, injuries, and PDO due to the Project were monetized using USDOT-provided values of $13.046 million per fatality crash, $307,800 per injury crash, and $9,600 per PDO crash (based on an average of 1.5 vehicles per PDO crash. Because the Project will not result in additional train miles, the Project does not have any associated safety disbenefits.

Over the first thirty years of operation, the Project will generate a reduction of approximately 3.70 crashes resulting in fatalities, nearly 218.41 injury crashes, and 4017.49 crashes resulting in property damage only. When monetized, this equates to approximately $117.6 million in undiscounted safety benefits generated by the Project over the assessment period, or $27.9 million of safety benefits when discounted at the USDOT requested discount rate of seven percent.

The calculated estimates for the reduction in crashes under the Project are based on statistics for the nationwide average crash rates per 100 million VMT. Over the last ten years, the automobile vehicle death rate per one hundred million passenger miles was over nine times higher than for buses and seventeen times higher than for passenger trains.

5. Considerations Requiring Discussion

Value Analysis

While a formal value analysis study was not completed, the Madera High-Speed Rail Station Project is one part of the larger effort to provide HSR facilities for the Merced-Bakersfield High Speed Rail Interim Operating Segment. A Benefit-Cost Analysis has been done for the Project and is being submitted. As is stated in the Benefit-Cost Analysis, attached as **Attachment F** for this report, the benefit cost ratio for this Project is 1.90. As discussed in the *Background* section, Project development of the Madera High-Speed Rail Station Project, as the second phase of the Madera Station Relocation Project, would provide substantial increases in ridership in comparison to previous ridership levels identified in the *Introduction* prior to Project proposal. Following the Merced to Bakersfield EOS operations, CHSRA plans to first implement Valley to Valley service (San Joaquin Valley to Silicon Valley) which will increase HSR operations along the proposed HSR alignments, including those passing the Relocated Madera Station. As such, by building out interim HSR service, this Project enables a critical first step in executing Valley to Valley service. Thus, the Project inherently provides high value to the Central Valley by supporting future growth in Madera County and better serving potential riders in the more populous City of Madera and Northern Fresno. Further, the Project offers high value as a part of an overarching link in providing Valley to Valley HSR service.

Resource Conservation

As described in Section 3.6 (*Energy*) of the Madera Station Relocation Project IS/MND, construction and operations of the Project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, nor conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Further, the electric HSR trains are planned to run on 100 percent renewable energy and thus, energy consumption would not be inefficient, wasteful, or unnecessary. Due to the use of renewable energy for electric-powered HSR train service, the Project would not conflict with state or local plans for renewable energy or energy efficiency.

While construction of the Project would require energy expenditure, this would be temporary and limited to the duration of the construction period. In addition, many financial incentives are offered by government agencies and utility companies to support energy-efficient investments. Thus, it is anticipated that construction materials built and purchased from offsite suppliers would be efficiently produced based on the economic incentive for efficiency. Additionally, jurisdictions where the Project would be constructed require reuse and recycling of construction and demolition materials, which would reduce the inherent energy cost of materials. Furthermore, implementation of mitigation measures for air quality would require use of advanced emissions controls for off-road equipment, all construction equipment to be properly maintained, advanced emissions controls for locomotives, and use of a modern fleet for material delivery and haul trucks during the construction of the Project. These mitigation measures would require the use of newer construction equipment, locomotives, and on-road vehicles that are generally more fuel efficient than older models. Thus, energy resources would not be consumed in a wasteful, inefficient, or unnecessary manner during construction.
Operation of the Project would result in a net energy savings, as reductions in automobile VMT, congestion on SR-99, associated criteria pollutant emissions, and associated energy consumption would more than offset the increased energy demand from train/bus and station operations. In addition, all diesel-powered locomotives used for construction of the Project would be required by SJJPA to have engines that meet or exceed Tier 3 locomotive emission standards.

Right-of-Way Issues

Right-of-Way Required

The majority of the required right-of-way for the Project would fall within the land already procured by CHSRA for the HSR mainline right-of-way. The remaining portion of the station area right-of-way is currently being procured by the SJJPA to provide access from Avenue 12 to the Madera HSR Station. The station track alignment requires the last portion of right-of-way south of the station that would still need to be procured. This includes a total fee take of 1.2 acres from two properties and 1.3 acres of temporary construction easement.

Relocation Studies

As described in Section 3.14 (*Population and Housing*) of the Madera Station Relocation Project IS/MND, the Project's construction and operation will not result in any displacement of existing people or housing and will not require construction of replacement housing.

Right-of-Way Use Agreement Areas

As discussed above, the overwhelming majority of the right-of-way for the Project is within areas already procured for the CAHSR Project. The additional land needed will be procured for the HSR Project and therefore, right-of-way use agreements are not required.

Environmental Compliance

Environmental Document

The Madera Station Relocation Project IS/MND certified by the SJJPA Board on January 22, 2021, is included as **Attachment A**.

Wetlands and Flood Plains

Based on the analysis of land cover and flood hazard zones provided in Section 3.10 (*Hydrology and Water Quality*) of the Madera Station Relocation Project IS/MND, majority of the Madera High-Speed Rail Station Project falls within FEMA Zone X, indicating that the area is outside of the Federal Emergency Management Agency 100-year flood hazard zone. However, approximately 475 feet of at-grade guideway would be built on Flood Zone AO and 250 feet of the aerial and at-grade guideway would be built on Flood Zone AE.

In Zone AE areas, the County of Madera also requires certification by a registered civil engineer to demonstrate that the proposed development shall not result in any increase in flood levels during the occurrence of the base flood discharge. The design of the Cottonwood Creek Bridge would account for storm drain features so that they are adequately sized to prevent flooding or issues in drainage. According to the Madera County Local Hazard Mitigation Plan, conditions imposed on the development would protect the property at a 100-year level of protection consistent with the current Central Valley Flood Protection Plan or the FEMA standard of flood protection. Through state regulation on design standards, impacts on flood flows would be minimized. Therefore, operational impacts that would impede or redirect flood flows would be less than significant.

Construction activities associated with the Project require excavating, digging, and heavy equipment working at the identified vernal pool location, which could degrade and destroy the pool, resulting in permanent direct impacts to a federally- protected wetland. As a result, permanent hydrological alterations could lead to the loss of this feature entirely. The impacts to the vernal pool would be a significant impact.

Direct impacts to these protected features are addressed through mitigation measures, which would protect them within environmentally sensitive areas or an ERA. These mitigation measures include:

- *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 is 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 environmentally sensitive areas and ERAs, mitigation shall be accomplished as described below in MM-BIO-18.

- *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.
- *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.

If direct impacts to these protected features cannot be avoided by protecting them within an environmentally sensitive areas or an ERA, as described in MM-BIO-17, MM-BIO-19 and MM-BIO-21, mitigation shall be accomplished by purchasing credits from existing mitigation banks that provide credits for vernal pool wetlands and, if needed, for other Waters of the U.S. Implementing these mitigation measures would reduce construction impacts on protected wetlands and Waters of the U.S. to less than significant by protecting the creek channel and the vernal pool wetland in an ERA during construction, or by implementing compensatory mitigation to offset impacts.

Other Environmental Issues

A full discussion of environmental issues for the Project is provided in the Madera Station Relocation Project IS/MND included in **Attachment A.**

Air Quality Conformity

As discussed in Section 3.3 (*Air Quality*) of the Madera Station Relocation Project IS/MND, operation of the Project—including the Madera High-Speed Rail Station that is the subject of this Project Report—would not conflict with or obstruct implementation of the applicable air quality plans from the San Joaquin Valley Air Pollution Control District (SJVAPCD), nor result in a cumulatively considerable net increase of a criteria pollutant for which the Project's region is a nonattainment area under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).

However, the IS/MND did identify the following potentially significant impacts associated with air quality during construction of the Project:

- Construction of the Project could conflict with or obstruct implementation of the applicable air quality attainment plan.

The IS/MND identified the following mitigation measures, which would reduce these air quality impacts to a less-than-significant level:

- *Mitigation Measure 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 CARB/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, and
    - All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

- *Mitigation Measure AQ-2.2: 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 or exceed Tier 3 locomotive emission standards.

Title VI Considerations

The Project, together with other projects under and related to the future HSR service along California's future Merced to Bakersfield High-Speed Rail Interim Operating Segment, are public transit projects designed to expand and improve passenger rail service in the Central Valley. These Projects will address a long history of disinvestment in transportation alternatives and untampered expansion of auto-centric suburban and exurban sprawl in the Central Valley.

The Madera HSR Station is located to accommodate Projected growth in Madera County, and better serve potential riders in the City of Madera and Northern Fresno. It will directly benefit disadvantaged populations, including low-mobility and minority groups. These communities will benefit from improved air quality and expanded access to education, employment, and essential services needed to facilitate quality of life improvements and ensure economic and social vitality. These communities will also benefit from improved mobility and travel alternatives to the automobile for regional and intercity trips. The Madera HSR Station and ancillary facilities (e.g., transit plazas) will be designed for multi-modal access and will prioritize active transportation (walking, biking, and other non-motorized transportation).

In addition, as discussed in Section 3.14 (*Population and Housing*) of the Madera Station Relocation Project IS/MND, construction and operation of the Project—including the Madera High-Speed Rail Station Project segment that is the subject of this Project Report—would not displace a substantial number of existing people or housing such that it would necessitate the construction of replacement housing elsewhere.

Hazardous Waste

As discussed in Section 3.8 (*Greenhouse Gas Emissions*) and Section 3.9 (*Hazards and Hazardous Materials*) of the Madera Station Relocation Project IS/MND, construction of the Madera High-Speed Rail Station Project would involve the routine use of hazardous materials associated with construction. Use of hazardous materials causes risk of the following: accidental spills or release of hazardous materials and contaminated soils and groundwater (due to the disturbance of soil and railroad ballast, and possibly groundwater).

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.

Section 3.9 (*Hazardous Materials*) of the Madera Relocated Station IS/MND identified the following as having a less than significant impact with mitigation incorporated, associated with hazardous materials during construction, operation, and maintenance of the Madera High-Speed Rail Station Project:

- Construction of the Project could create a significant hazard to the public or the environment involving reasonably foreseeable upset conditions or the disturbance of existing hazardous materials.

The IS/MND identified the following mitigation measures, which would reduce these hazardous materials impacts to a less-than-significant level:

- *Mitigation Measure-HAZ-1. Implement voluntary oversight agreement*. Prior to construction, SJJPA shall establish an agreement with a state regulatory agency to oversee the investigation and management (described in Mitigation Measure-HAZ-2 and Mitigation Measure-HAZ-3) of contaminated soil, ballast, and/or groundwater that would potentially be disturbed by construction of the Project. Regulatory agency oversight may be provided by, but is not limited to, the State Water Board under the Site Cleanup Program or DTSC under the Voluntary Cleanup Program.
- *Mitigation Measure-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.
- *Mitigation Measure HAZ-3: Implement construction risk management plan (CRMP).* Prior to construction, SJJPA shall prepare a 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.

Noise Abatement Decision Report

As discussed in Section 3.13 (*Noise and Vibration*) of the Madera Station Relocation Project IS/MND, operation of the Project—including the Madera High-Speed Rail Station Project that is the subject of this Project Report—would not generate a substantial permanent increase in ambient noise levels in the vicinity of the Project in excess of FTA thresholds.

6. Other Considerations as Appropriate

Public Hearing Process

Public hearings have been implemented throughout the course of Project development to-date, including for the IS/MND (see Appendix I of the IS/MND), and it is expected that additional outreach will be conducted in subsequent stages of the Project.

Permits

A list of approvals and permits that are required for the Project is provided in Section 2.7 (*Required Permits*) of the Madera Station Relocation Project IS/MND. Currently, there are no expected issues or concerns with the process of applying for and securing these approvals and permits.

Transportation Management Plan

Section 3.17 (*Transportation*) of the Madera Station Relocation Project IS/MND, identified the following potentially significant transportation-related impacts during construction and operation of the Project:

- Construction and operation of the Project could conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities.

The EIR identified the following mitigation measures, which would reduce these transportation impacts to a less-than-significant level:

- *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 the 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.

- *MM-TR-2 Freight Rail Disruption Control Plan for Project Construction.* The 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.

7. Funding, Programming and Estimate

Funding

It has been determined that this Project is eligible for Federal-aid funding. Should federal funding be provided, NEPA clearance will be pursued and obtained.

Programming

Current Project funding includes $80.0 million from ITIP in 2024 and $54.53 million from MPDG in 2023 as shown in **Table 4 and Table 5** below:

Table 4 2024 ITIP Fiscal Year Estimate

2024 ITIP	Fiscal Year Estimate								
	Prior	23/24	24/25	25/26	26/27	27/28	28/29	Future	Total
Component	In thousands of dollars ($1,000)								
PS&E									0
R/W									0
Construction						80,000			80,000
Total						80,000			80,000

Table 5 2023 MPDG Fiscal Year Estimate

2023 MPDG	Fiscal Year Estimate								
	Prior	23/24	24/25	25/26	26/27	27/28	28/29	Future	Total
Component	In thousands of dollars ($1,000)								
PS&E				9,568					9,568
R/W				819					819
Construction						44,143			44,143
Total				10,387		44,143			54,530

Estimate

Table 6 illustrates a summary cost estimate. Details of the construction costs are included in **Attachment G.**

Table 6 Summary Cost Estimate

Description	Estimate
Construction Cost	$77,755,000
Design Services	$9,568,000
Right of Way	$819,000
Construction Support	$21,608,000
Contingency	$24,780,000
Total	$134,530,000

8. Delivery Schedule

Table 7 Delivery Schedule

Summary Cost Estimate	Summary Cost Estimate	Summary Cost Estimate
BEGIN ENVIRONMENTAL	05/01/2020	Actual
CIRCULATE DRAFT ENVIRONMENTAL DOCUMENT	10/01/2020	Actual
ENVIRONMENTAL CERTIFICATION	01/22/2021	Actual
DRAFT PROJECT REPORT	10/13/2023	Actual
BEGIN DESIGN (PS&E) PHASE	06/01/2025	Target
END DESIGN PHASE (READY TO LIST)	05/01/2027	Target
BEGIN RIGHT OF WAY PHASE	10/01/2025	Target
END RIGHT OF WAY PHASE	03/01/2027	Target
BEGIN CONSTRUCTION PHASE	08/01/2027	Target
END CONSTRUCTION PHASE	12/01/2029	Target
BEGIN PROJECT CLOSEOUT	01/01/2030	Target
END PROJECT CLOSEOUT	03/01/2030	Target

9. Risks

The scope, schedule, and cost estimate have been prepared to accommodate all anticipated challenges that might be associated with the standard design process, including the procurement of engineering services. Additionally, the Project's cost has built-in contingencies to accommodate potential scope changes and other impacts that might increase Project costs. Both Caltrans and SJJPA have expertise in procuring similar services for Projects utilizing State and Federal funding. As the primary point of contact and grantee, Caltrans has experience managing grant funds, covering cost overruns, and operating deficits, and maintaining and operating Federally funded construction Projects.

Funding

The Project will be financed through a combination of Federal and State funding sources. Current foreseeable risks to Project cost and funding may include rising costs and delays in the supply chain, as documented for construction Projects nationwide. Cost estimating during the final design will include reviewing price escalations and accounting for these in the appropriate contingency amounts. It is not anticipated that funding shortfalls would occur.

Environmental/NEPA Risks

A complete evaluation of environmental impacts under NEPA will be completed, and anticipated impacts will be mitigated. The components of the Project, as proposed, are consistent with the local land uses and are not expected to result in litigation. Due to the scope of the Project and its locations, it is anticipated that coordination with the following agencies and/or environmental permits will be necessary:

- United States Army Corp of Engineers
- United States Fish and Wildlife Service
- California Department of Fish and Wildlife
- Central Valley Regional Water Quality Control Board
- California State Historic Preservation office

Design Risks

A complete evaluation of design risks would be considered and mitigated. Design risks to be addressed include:

- Obstruction to construction and soil/geotechnical factors that could escalate costs
- Unforeseen utility relocations and right-of-way acquisitions
- Coordination with CHSRA for rail siding and mainline connection

Risk Management

SJPPA has a history of managing planning and design projects. SJJPA will utilize its consultant staff to perform the planning and engineering components. Project managers would observe strict schedules, and regular meetings would take place to eliminate obstacles that may arise during the planning, environmental, and engineering phases.

10. External Agency Coordination

SJRRC has been working closely with CalSTA, Caltrans, CHSRA, Madera County Transportation Commission (MCTC), Madera County, and the City of Madera for this Project.

Environmental Permits and Reviews

A CEQA IS/MND for the relocation of the Madera Amtrak Station and the Madera HSR Station for CHSR Early Operating Segment was signed in January 2021. SJJPA is the CEQA lead agency responsible for managing the San Joaquins rail service.

SJJPA understands that the Project will require NEPA approval to be eligible for Federal funding. The lead agency for NEPA is expected to be CHSRA, which possesses NEPA assignments from FRA in the State of California for specified Projects. SJJPA believes, based on the resource impacts and findings identified in the IS/MND, a NEPA Categorical Exclusion (CE) would be the appropriate environmental review class of action, and SJJPA will propose a CE class of action to the federal lead agency for their consideration and ultimate determination required. SJJPA understands that the NEPA approval may be a pre-obligation requirement for federal funds and anticipates completing NEPA review prior to the Project advancing into final design. As the Project advances into construction, a precise determination pertaining to necessary regulatory permits will occur as part of this grant scope of work.

The Project will have independent utility for NEPA purposes.

State and Local Approvals

SJJPA will coordinate with Madera CTC and Caltrans to ensure the Project is entered into the 2024 California State Transportation Improvement Program (STIP). Madera CTC, Madera County, and the City of Madera strongly support the Project.

SJJPA is developing the Project in such a way that all reasonable efforts are made to avoid significant environmental effects. Caltrans and SJJPA will comply with State and local site planning and construction regulations, including noise, dust, and emissions ordinances, and obtain a stormwater sewer system discharge permit. Local municipal permits for grading, drainage, building, utilities, and emergency services will be obtained prior to, or as initial tasks, of Project construction.

Required agency approvals and permits may include:

- County of Madera Public Works Department Grading and Erosion Control Permit
- County of Madera Public Works Department Encroachment Permit
- 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 Section 401 Permit/Waste Discharge Requirements
- U.S. Fish and Wildlife Service and California Department of Fish and Wildlife Incidental Take Permit
- California Department of Fish and Wildlife Section 1600 Streambed Alteration Agreement

- Central Valley Flood Protection Board Encroachment Permit
- Army Corps of Engineering Clean Water Act Section 404 Permit

Federal Transportation Requirements Affecting State and Local Planning

The Project is included in the Madera CTC RTP/SCS. The Project is shown in the first phase in the list of fiscally constrained Projects. The Madera CTC FTIP includes the Project as part of Amendment #14 and was adopted by the MCTC in May 2020. In July of 2020, Amendment #14 was approved by the FHWA and the FTA. The identifying number in the above FTIP is "MAD118003."

11. Project Reviews

SJJPA was the lead agency during environmental clearance for Madera Relocated Station Project IS/MND, which included the Madera HSR Station. Therefore, a standard Caltrans Project review was not part of this process.

12. Project Personnel

Dan Leavitt (209) 944-6266
Manager of Regional Initiatives, San Joaquin Regional Rail Commission/San Joaquin Joint Powers Authority

Daniel Krause (510) 768-9092
Consultant Project Manager, AECOM

13. Attachments

The following is the list of attachments:

A. The Madera Station Relocation Project 2021 IS/MND with all the attachments
B. Detailed Project Plans
C. Updated Site Plan
D. Resolution
E. Location Map
F. Benefit-Cost Analysis
G. Cost Estimates