Project Study Report Equivalent

Suisun-Fairfield Station Improvement

(Solano Rail Hub Project)

in

County of Solano

June 1, 2023

Project Fact Sheet

What is the Project?

Figure 1: Solano Rail Hub Project

Project partners for the Solano Rail Hub Project include the Solano Transportation Authority (STA), City of Fairfield, City of Suisun City, the County of Solano, Capitol Corridor Joint Powers Authority (CCJPA), Amtrak, SMART, Caltrans Division of Rail and Mass Transportation, and the California State Transportation Agency. Demonstrating their commitment to this project, a committee structure among the project partners was created to ensure that the Solano Rail Hub continues to move forward with consensus on the strategic direction of the project. The committees include a Policy Committee (which includes the elected officials of the two cities and the County of Solano), Executive Steering Committee (which includes the executives from each of the partner agencies), and Project Leadership Team (PLT) (which includes the engineers and planners from the partner agencies). Union Pacific Railroad (UPRR), as the host railroad and dispatcher of freight and passenger trains through the Solano Rail Hub project area, has attended prior meetings with the project sponsors to receive updates on the Solano Rail Hub track and platform initial design concepts and UPRR will continue to be involved as the Solano Rail Hub advances into project design and construction.

The 2018 California State Rail Plan identifies a location in mid-Solano County (the “Solano Rail Hub” or “Project”) that will link expanded Capitol Corridor intercity rail service with express buses to Contra Costa County and connections to local transit systems as well as with a future expansion of rail service to Marin and Sonoma Counties (a future project that is not included in

the scope of this PSR).

The 2021 SMART and SolanoExpress Station Feasibility Study concluded that the current Suisun-Fairfield Station is the ideal location to serve as the Solano Rail Hub because of the preponderance of out-of-county travel originates in the Fairfield and Suisun areas. In 2021, the STA Board designated the Suisun-Fairfield Station as the official location of the Solano Rail Hub Project.

The recent 2022 Solano Rail Hub Advanced Planning Study documents the process to begin advancing the Solano Rail Hub by developing potential design options for the station (this previous study is included as Appendix A). The objective of the effort was to advance the station and platform conceptual plans and identify costs and potential funding opportunities for future phases of the project. The design options for this work confined the project footprint to within the railroad and public rights-of-way, with the intent of qualifying the project for exclusions/exemptions as part of the California and federal environmental review documents. However, in the study process and input received from UPRR and CCJPA, the PLT made the determination that the rights-of-way confinement did not grant their desired design flexibility to meet the project goals and objectives and, therefore, further study was needed.

In 2023, to continue advancing the development of the Solano Rail Hub Project, Caltrans brought its resources to the effort and has prepared this Project Study Report (PSR),which builds upon the previous work to develop design alternatives without the rights-of-way limitation.

Problem Statement

The legacy configuration at the current Suisun-Fairfield Station does not conform to prevailing design guidance and passenger safety and passenger amenities best practices, nor have the capacity to accommodate future demands that would be needed to become a true mobility hub as envisioned for the Solano Rail Hub:

- The current narrow center platform subjects disabled customers to uncomfortable and inconvenient access to the trains and does not meet Americans with Disabilities Act (ADA) requirements.
- The existing pedestrian connection between the station in Suisun City and Fairfield does not comply with ADA standards for changes in slope and elevation.
- The station design requires upgrades to improve, enhance and deliver a safe and comfortable passenger experience.
    - The platforms and tracks are curved to a greater degree than current design criteria allow, resulting in gaps between the platform and the rail cars, and the tracks are superelevated (banked), making boarding and alighting inconvenient.
    - To board trains on Main Track 1 (on the Fairfield side of the station), customers must cross an active rail line where freight trains can operate at up to 70 mph and passenger trains at up to 79 mph.
    - The current station configuration impacts railroad operations requiring approaching freight and passenger trains to “hold-out” of station operating area when passenger trains are serving the station

- While dwelling outside of the stations the "hold-out" trains emit additional diesel emissions into adjacent neighborhoods.
- The two-track, two-platform infrastructure does not physically allow for other trains to pass when a train occupies the platform.

To address the issues above, the Solano Rail Hub project proposes one new grade-separated island platform with two design alternatives: overhead pedestrian bridges or underground pedestrian tunnels, to improve pedestrian and passenger safety, accessibility, and comfort at the Suisun-Fairfield Station. The project will eliminate the need for at-grade passenger rail crossing, provide an ADA-compliant pedestrian connection between Suisun City and Fairfield that will enhance access to planned future transit-oriented development (TOD) adjacent to the station, and provide allowance for a future third track to allow for future track capacity improvements.

What is the Schedule?

- Preliminary engineering/environmental documentation: 2023-2025
- Final design plans: 2026-27
- Construction phase: 2028-2029
  *The estimated schedule listed above does not account for Right of Way Acquisition outside of the station area or Utility Relocation that could be needed depending on the crossing alternative that is selected and the resulting project footprint. Further engineering studies need to occur to determine if these steps will be required and the schedule will be adjusted accordingly to account for these additional steps

What are the Costs?

Depending on the proposed alternatives, costs are expected to range between $53 and $95 million in year of expenditure (YOE) of 2028. We expect these costs to be refined based on further engineering and analysis in the Preliminary Engineering/Environmental Documentation and Final Design phases.

This Project Study Report Equivalent 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.

Luke McNeel-Caird — June 1, 2023

Luke McNeel-Caird — Date
Registered Civil Engineer

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Agency Signatures

To the best of my knowledge and belief, I certify that the data and information in this request are true and correct.

APPLICANT AGENCY **SOLANO TRANSPORTATION AUTHORITY**

Name	**Daryll Halls**
Title	**Executive Director**
Signature	_____
Date	_____

PARTNER AGENCY **CALTRANS**

Name	**Kyle Gradinger**
Title	**Chief, Division of Rail and Mass Transportation**
Signature	_____
Date	_____

CTC Action Requested

__X__ New STIP Project __X__ New Other State Funding Project

1. *Project Title* ***Suisun-Fairfield Station/Solano Rail Hub Improvement***

2. *Project Type* ***Intercity Rail***

3. *Total Project Cost* ***$53-$95 million (YOE)***

    - *Local Funding (STA)* ***TBD***
    - *External Funding (Amtrak)* ***TBD***
    - *Total Amount of State Funding – TIRCP* ***TBD***
    - *State Funding - Other* ***TBD***

4. *Total State Funds Covered by This Application* ***TBD***

Agency Information

Applicant	**Caltrans**
Address	**1120 N Street MS 74, Sacramento, CA 95814**
Point of Contact	**Shannon Simonds**
Phone	**(916) 879-1236**
Email	**shannon.simonds@dot.ca.gov**

Agency Authority

A resolution designed for the Interregional Transportation / State Transportation Improvement Programs (ITIP/STIP) is attached in Appendix B. In the event that this project is added to the State's ITIP or STIP funding programs, the local agency's governing board shall sign the resolution as a condition of funding prior to the execution of a funding contract.

Background

The Solano Rail Hub, as presented herein, will be located at the current Suisun-Fairfield Station and is served by Amtrak-operated Capitol Corridor trains connecting travelers between San Jose/Oakland in the greater Bay Area region to Sacramento/Auburn in the greater Sacramento region. In addition to the Capitol Corridor trains, the station is served by regional transit to El Cerrito, Napa, Rio Vista, and Sacramento. Local transit options currently require a transfer at the Fairfield transit center or a 10+ minute walk into central Fairfield. For transit customers using a personal vehicle, the station is situated beneath State Route 12, next to a park & ride lot (owned by Suisun City and Caltrans), adjacent to Interstate 80.

The California State Rail Plan also identifies a planned passenger rail expansion between Marin and Solano Counties which would serve the Solano Rail Hub, which would serve as a distribution facility connecting customers to the various local and regional buses, passenger trains, and active transportation modes (pedestrian and bicycles) . As identified in this PSR, the planned Solano Rail Hub upgrades will accommodate the future rail expansion to Marin/Sonoma counites and North Bay cities while ensuring future track capacity for current freight and passenger trains and the project will enhance accessibility with local transit serving the Hub. These improvements in this PSR will transform the Suisun-Fairfield Station into the Solano Rail Hub, a well-utilized intermodal station, which in turn will be supported by cities' transit-supportive land use development plans.

The Solano Rail Hub Project is focused on enhancing the accessibility, safety, and comfort of rail and transit services for train customers to transform the current Suisun-Fairfield Station into the Solano Rail Hub (based on the identification of Mobility Hubs in the *California State Rail* Plan) and to enhance the connectivity between the cities of Suisun and Fairfield with an ADA-compliant pedestrian crossing. In addition to the access enhancements, the project design will also include the allowance of a future third track for added track capacity improvements that will not preclude the future expansion of passenger rail services and projected freight rail growth in the corridor.

Currently, customers at the station must cross an active at-grade rail to access the platforms or the adjacent parking lot/parcels, which is a safety concern and impedes efficient rail operations and customers as well as the general public who currently use a non-ADA-compliant bridge to access the station and the cities of Suisun City and Fairfield.

This Project Study Report (PSR) identifies infrastructure solutions which will eliminate the at-grade crossings, improve Americans with Disabilities Act (ADA) accessibility to the station and the adjacent cities' homes, schools and businesses, and increase the overall efficiency of train operations.

Under a consent decree from the US Department of Justice (DOJ) and oversight from the Federal Railroad Administration (FRA), Amtrak is mandated to upgrade intercity rail stations that Amtrak-operated trains serve in order to comply with ADA requirements. As part of its evaluation of stations along the Capitol Corridor route, Amtrak has identified the deficiencies in ADA compliance at the existing Suisun-Fairfield Station (the future site of the Solano Rail Hub).

Project Constraints/Site Limitations:

- Highway 12 Overpass – the platforms of the existing station are partially below the Highway 12 overpass with existing bridge columns supporting SR 12 on either side of the platform. The project will work around the existing Caltrans Hwy 12 bridge and assume no columns or abutments will be adjusted or relocated.
- Existing stormwater facilities /canals – there is a high-water table near the station and the surrounding area which will need to be designed for if a below grade crossing option is considered. Stormwater also requires detailed design; however, space is available to incorporate drainage elements, including drains and pumps.
- Cordelia Wye – Just south [less than 0.5 miles] of the current Suisun-Fairfield Station is the junction of the UPRR Martinez Subdivision and the connection to the west serving western Solano and Napa counties. Future track design plans will be developed to minimize impacts to the track infrastructure at the wye.
- Fairfield-Vacaville Hannigan Station – This station is located approximately 5 miles to the north of the current Suisun-Fairfield Station platform. Future track and platform design plans for the Solano Rail Hub will be developed to minimize operational impacts to the Fairfield-Vacaville Hannigan Station.
- Adjacent to the business districts of the cities of Fairfield and Suisun – each city is developing housing and land use plans adjacent to the station. These plans need to be accounted for when designing the station footprint.

Work to Date:

In September 2016, the City of Suisun, Solano County, the STA, and the CCJPA celebrated the completion of the latest rehabilitation of the station depot. The project was funded by a grant from the STA, and it involved various upgrades such as energy-efficient lighting and windows, interior painting, and refreshing the plaza and the bus shelters.

The 2021 SMART and SolanoExpress Station Feasibility Study[1] concluded that the current Suisun-Fairfield Station is the ideal location to serve as the Solano Rail Hub because of the preponderance of out-of-county travel originates in the Fairfield and Suisun areas. In January 2021, the STA Board formally identified the Suisun-Fairfield Station as the Solano Rail Hub, providing connectivity for expanded passenger rail service in Northern California.

The recent 2022 Solano Rail Hub Advanced Planning Study documents the process to begin advancing the Solano Rail Hub Project by developing potential design options for the station. This previous study is included as Appendix A. The design options for this work confined the project footprint to within the railroad and public rights-of-way, with the intent of qualifying the project for a California Environmental Quality Act (CEQA) statutory exemption. However, in the study process, the PLT made the determination that the rights-of-way confinement did not grant their desired design flexibility to meet the project goals and objectives and further study was

[1] https://sta.ca.gov/documents_and_report/smart-and-solanoexpress-station-feasibility-study-2021/

needed.

In 2023, a PSR effort was launched in partnership with Caltrans Division of Rail and Mass Transportation (DRMT) to build upon the previous work to develop design alternatives without the rights-of-way limitation, which is documented in this PSR. The purpose of the analysis was to plan for the necessary station improvements that transform the existing Suisun-Fairfield Station into the Solano Rail Hub, which include an ADA-compliant access to (1) a new grade-separated island platform and (2) the cities of Suisun and Fairfield at station site without the rights-of-way limitation. The initial analysis in this phase of the work included a service planning analysis of potential options to expand service to Marin and Sonoma counties and determined the improvements needed for ADA compliance can be delivered in the near-term in a manner supportive of future expansion. Therefore, while not an explicit part of this project phase, the project design will not preclude potential future frequency increases on the existing corridor and utilization of the Hub for future expansion service between Marin/Sonoma counties and Solano County (these are future projects that are not included in the scope of this PSR).

Given the ADA update requirements, the work done and advanced in this PSR identify any additional infrastructure needed to support the ADA improvements while accommodating future passenger rail expansion. This PSR details the initial design layout of the station and associated facilities.

Corridor and System Coordination

The analysis determined that future service expansion can be delivered within the existing station footprint plus additional publicly owned right-of-way, including the infrastructure changes to meet the ADA requirements. This project alternative design concept will eliminate the at-grade crossings that are incompatible with ADA standards and include other station design features like pedestrian access points and improved efficiencies for passenger and freight operations as well as other users of the system. The alternatives described in this PSR support short- and long-term service goals identified in the California State Rail Plan and facilitate the development and connectivity goals of the cities of Fairfield and Suisun City.

Alternatives Analysis

The following alternatives have not yet received California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) approval.

Existing Conditions:

At the Suisun-Fairfield Station, the Union Pacific Railroad (UPRR) tracks permit the trains serving the station the ability to use either of two platforms (island center or side main) irrespective of direction of travel (Sacramento-bound or Bay Area-bound). Currently, rail customers board the train at either platform, depending on where the train is dispatched into the station. For trains using Main Track 1 (the track closest to Fairfield), customers access the narrow island platform by crossing Main Track 2 at an at-grade crossing. In addition to potential safety hazard for crossing an active railroad track at-grade, the existing center platform does not

meet ADA standards nor standard design practices for platform width and the grade of the platform ramps. The existing center platform, with its access points that require customers to cross Main Track 2, also creates operational constraints as all trains must stop and hold/wait outside of the station while customers are crossing active tracks to use the center platform.

North of the station, there is an existing bike and pedestrian bridge which connects the Cities of Fairfield and Suisun City over the railroad tracks. This bridge features a ramp (no elevators) with a grade of more than 9%, which does not meet ADA standards. The condition of this bridge should be further assessed and determine if it will be removed or closed to public access. In Fairfield, the bridge lands approximately ¼ mile from the Fairfield civic center on the east sidewalk on Union Avenue between Ohio Street and Broadway Street. In Suisun City, the bridge lands north of the train station building and beneath the California State Route 12 overpass.

Table 1: Ownership of & responsibility for existing station elements

Hub Facility	Owner	Improvement Agency
Train Platforms	Union Pacific	Amtrak
Depot Building	Suisun City	Suisun City
Parking	Suisun City + Caltrans	Suisun City + Caltrans
Ped Bridge	Suisun City + Fairfield	Suisun City + Fairfield

Figure 2: Existing Bike and Pedestrian Bridge (from Suisun City, northeast of Station)

Figure 3: Existing Bike and Pedestrian Bridge (from City of Fairfield, north of Station)

Figure 4: Existing Bike and Pedestrian Bridge (from Suisun City, northeast of Station)

Figure 5: Existing at-grade crossing at Suisun-Fairfield Station

Table 2: ADA Deficiencies at the Station and Minimum/Standard ADA Requirements	
ADA Deficiency	**Detail**
Center Platform Width	Too narrow
At-grade crossings	Customers crossing main line tracks is a safety hazard
Tracks on curve: superelevation	Train tilting while boarding at station due to superelevation
Tracks on curve: Boarding gaps	Boarding gaps too wide
Bike and Pedestrian Connection between Fairfield and Suisun City	Slope of overcrossing too steep
Platform ramps	Slope of ramps too steep
Signage	Station identification signage is not compliant
Accessible Routes from Public Right of Way and Public Transportation	Deteriorated surface

Station Platform Location:

The allowance for a future third track at the station location will result in significant changes to track geometry, which, in turn, may require the station platform to either move south of the current location or north of the SR 12 columns. The platform cannot encroach on the highway columns due to required column setbacks.

Additionally, the existing platforms are curved, resulting in gaps between the platform and the rail cars. The tracks are also curved, as well as banked (which tilts the deck of the passenger rail cars at the station). These characteristics limit the optimal ease to board and alight customers from trains. The width of the center platform is not ADA-compliant, and customers are required to cross active tracks to access the center platform. Therefore, improvements to enhance passenger safety are necessary.

The placement of a single grade-separated island platform with new access points is a policy issue that should be considered because it may either improve or diminish the perception of "closeness" to residents of Fairfield and Suisun City. The current location of the overcrossing also connects the Suisun City and Fairfield central business districts and will support the land use and station-area development plans of both cities.

Summary of Alternatives:

The Suisun-Fairfield Station Improvement project is looking to enhance accessibility, safety, and comfort for customers and pedestrians at Suisun-Fairfield Station by addressing issues with at-grade crossings and ADA compliance. The design will eliminate the need for pedestrians to cross Main Track 2 by providing grade-separated access to a new center platform, which will provide safe access to both eastbound and westbound trains on Main Tracks 1 and 2, while making the necessary improvements to preserve freight movements and future passenger rail enhancements.

Two alternatives have been considered: overhead pedestrian bridges and underground

pedestrian tunnels, both options would eliminate the need for customers to cross active tracks. The crossing locations would be similar but come with specific sets of advantages and challenges, described below.

Characteristics Shared by All Alternatives:

The primary shared characteristic is the replacement of the two existing boarding platforms with a single grade-separated island platform between the two main tracks. Boarding will no longer be allowed from the Suisun City Station-side platform along Main Track 2. Further, to make the safety improvements of the revised boarding platform effective, the railroad corridor must be effectively sealed (fenced) on both sides and for some distance along the track in each direction. The need is to be sure that the path of least resistance to gain access to the boarding platform is via the grade separation structure. In both alternatives, the infrastructure improvements must be designed to improve pedestrian access, safety, and comfort. The ideal design will also improve the existing connection between the Suisun City and Fairfield central business districts and will support the land use and station-area development plans of both cities.

The infrastructure improvements will require a track shift and an increase in the width of the center platform. The revised track alignment must accommodate a space on the railroad R/W for a future main line track that the UPRR may wish to construct. Doing so, and avoiding the existing Highway 12 bridge columns, may necessitate dedication of additional R/W to the UPRR. Relocating the depot building may also be required related to the track shifts and platform widening, but moving the depot building is not included in the scope and is not included in the analysis or cost estimate. Moreover, the track shift would require pier protection to protect the existing Highway 12 overhead bridge piers. Both overhead and underground options should be assessed for conflicts with utilities before proceeding. Furthermore, in the overhead alternative we will have two bridges and for the underground alternative we will have two tunnels respectively, and there will be up to two access points to the platform at each of the tunnels and bridges. The east tunnel or bridge will have an entrance east of the existing station/south of the tracks, a center platform access, and an entrance north of the track in Fairfield. The west tunnel or bridge has an entrance by the bus facility and a center platform access. Both alternatives have at least one point of access between Suisun and the island platform plus an access across the tracks (over or under) serving as an improved ADA-compliant connection between Suisun City and Fairfield (and allowing for the removal of the current pedestrian bridge to north).

The existing Main Track 2 (closest to the station building in Suisun City) will remain in service for both options except during certain phases of construction, for example when overhead bridges are lifted in place if selected or during sheet pile driving for tunnel option. The new track can be constructed adjacent to the existing track to shift the railroad away from the existing platform to allow for the necessary width increase for the new island platform and will carry the mainline around the construction permanently. Flagging will be required throughout construction with possibly 2 flaggers required depending on the work undertaken.

All alternatives will require conveyance for people using mobility devices to drop below or rise above grade and access the platform. These conveyances are usually elevators or ramps. The

station is currently unstaffed and there may be some concern among customers using and possibly getting trapped in an elevator that does have on-site staffing support. Customers and site users may also perceive security risks when using a long ramp, especially a ramp that drops below grade. (Note: the Hannigan Fairfield/Vacaville Station is unstaffed and was designed to have customers access the platform via ramps instead of elevators.)

Alternative 1: Overhead Pedestrian Bridges

This proposed alternative is depicted in Figure 5 and involves the construction of two overhead pedestrian bridges to replace the three existing at-grade track crossings at the Suisun-Fairfield Station. The eastern overhead bridge would be north of the existing station and the Highway 12 bridge, which would provide safe access for all customers from the proposed center island platform to the parcels adjacent in both Suisun City and Fairfield. The second western bridge would be situated closer to the two southernmost at-grade crossings to the existing center platform, providing a direct, grade-separated connection between the proposed center island platform and the bus transfer facility, station, and park & ride lot in Suisun City but not providing a connection to the City of Fairfield.

The overhead bridges could include a combination of stairs, ramps and/or elevators depending on the crossing alternative that is chosen and the resulting project layout. Further engineering studies are required to determine the best ADA-compliant configuration of the project within the parameters of this site.

The platform would be lengthened to 800 feet, the current platform length is 500 feet. A track shift would be necessary to widen the platform to 24 feet wide to accommodate the required ADA elevators for the overhead access bridges. The platform lengthening is proposed to provide platforms at all potential train car door opening locations.

Figure 6 : Alternative 1 – Overhead Pedestrian Bridges

Alternative 2: Underground Pedestrian Tunnels

In this alternative, underground tunnels could include a combination of stairs, ramps and/or elevators depending on the crossing alternative that is chosen and the resulting project layout. The first underground tunnel would be built on the north end of the platform and allow customers from the proposed center platform to access the parcels adjacent to the station in both Suisun City and Fairfield. The second western location for the underground tunnel, similar to the overhead bridges option, would be further south on the platform, near the bus transfer facility and the park & ride lot, but this option only provides access to Suisun City. The new tunnels will eliminate the existing at-grade crossing of tracks and provide a direct ADA accessible route. Similar to the overhead bridge alternative, the underground pedestrian tunnels would also require a track shift to meet the standard center platform width of 24 feet and platform length of 800 feet. The platform lengthening is proposed to provide platforms at all potential train car door opening locations. This would allow space for ADA elevators, if required. At other stations served by CCJPA, ramps are used with pedestrian tunnels to access the boarding platforms. The vertical separation is about 15 feet or possibly less, depending upon the interior width of the tunnels. The platform width required to accommodate a ramp is about the same as stairs/elevators. Tunneling is often preferred compared to overhead bridges, which generally require elevators to access the boarding platform. Providing security in tunnels is always a public concern and issues with sight lines and lighting are important considerations. Municipal and county staff have expressed concern over sea level rise and water table issues at this location. Additionally, host railroads generally have construction issues with new structures

Figure 7 : Alternative 2 - Underground Pedestrian Tunnels

under their tracks. Construction of tunnels may require unacceptably long work windows on the busy UPRR mainline. Long term maintenance issues with inspection and track settlement are

also typical host railroad concerns. These concerns must be factored into the consideration of an underground option. The estimates include costs for dewatering needed for construction. This is also an issue for the completed structure, not just during the construction phase. Sea level rise may preclude the ability to construct tunnels at this location.

Preliminary Comparison of Alternatives

There are several benefits and disadvantages of each alternative that have been reviewed, and below is summary for each alternative:

Table 3: Alternative 1 - Overhead Pedestrian Bridges	
Advantages	**Disadvantages**
Relatively easy to build and requires fewer construction steps because there is no need to dig under track or drive sheet piles to excavate the tunnels.	Tracks will need to be temporarily placed out of service when overhead bridges are lifted into place
Pedestrian comfort – more security because of more light and visibility	Overhead crossing can't be located under the SR 12 bridge, there is not adequate space to accommodate a pedestrian bridge between the top of the rail and the underside of the highway bridge that meet UPRR standards so it must be shifted to avoid the SR 12 bridge.
More cost effective	Longer walking distance to get to platforms and between cities
	Bridges generally require the use of elevators, which have significant safety/security issues. Providing appropriate security to the grade separation and elevators is a significant operational issue.

Table 4: Alternative 2 - Underground Pedestrian Tunnels	
Advantages	**Disadvantages**
Provide the opportunity to include some art and education on tunnel walls	Need to dig under existing tracks and drive sheet piles adjacent to existing Main Track 2, which is more disruptive to existing service and could cause issues with existing underground utilities
The tunnels are less intrusive than bridges. The design is context-sensitive, and aesthetically better fit	Jacked box construction is becoming common, but UP may not embrace it, potentially leading to the closure of one track for possibly weeks or months while the track is removed, and the tunnels are excavated. Micro tunneling and

	jack-and-bore technics have been found impractical on similar projects. The benefit of improved visual aesthetics benefits may be diminished by the location of the potential future undercrossing--adjacent to an existing freeway overpass.
Tunnels keep airspace clear, which is beneficial in case in future railroad require the space to install cables or other aerial structures for tracks	Sea Level Rise, surrounding marshland, and water table issues in Suisun City might challenge construction of tunnels and require more dewatering. This may also be an issue for the completed structure, not just during the construction phase. Sea level rise may preclude the ability to construct tunnels at this location.
More direct connection to the platform and between the cities	Pedestrian discomfort – perception of walking through pedestrian tunnels can be uncomfortable. If overhead lighting is dim and sight lines are bad and lack of adequate ventilation, pedestrian tunnels can be perceived as unsafe. Tunnels can become hot and stifling if air flow is not adequate. Tunnels can also be targeted for graffiti tagging, which can become a maintenance issue.

Other Considerations for the Selection of the Alternative(s):

- As the Solano Rail Hub will not support any train station staff, the response time for any operating issues with the elevators and other mechanical components may be prolonged and affect the safety and access needs of train customers and members of the public traveling between the cities.
- Long-term maintenance and response times for repair of elevators and other mechanical components should be considered in determining which alternative is selected.
- The inclusion of elevators will require more maintenance and labor costs than non-mechanical ramps.

Climate Change

This project improves the reliability of the existing intercity rail service and prepares for its expansion. Intercity rail service has significantly lower greenhouse gas (GHG) emissions

per passenger mile compared to vehicular and air travel modes so the enhancements to the corridor have the opportunity to shift more people from single-occupancy vehicles to the Capitol Corridor service and contribute to reduced greenhouse gas emissions. Compared to light duty vehicles which create 20% of the state's GHG emissions, passenger and freight rail account for less than one percent. As the state's fleet of light duty vehicles electrifies, California's intercity rail vehicles are also transitioning to zero-emission, first through re-powering locomotives with Renewable Diesel (RD), then through employing hydrogen and battery technology. Taken together, investments and improvements to the safety and reliability of the rail network will help the State more rapidly meet its climate change goals.

The impact of passenger rail and station development on city designs also reduces greenhouse gas impacts through encouraging more dense and sustainable development around station areas that encourages travel by transit, thereby decreasing GHG emissions. Rail infrastructure requires considerably less concrete than highway development, so the GHG impacts of this construction product are also reduced.

Project Location

The Suisun-Fairfield (SUI) Amtrak station serves as the location for the Suisun-Fairfield Station Improvement project. It is located at 177 Main Street in Suisun City, Solano County, California, United States, which is a small community of sister cities situated between San Francisco and Sacramento. Approximately half of the station platform is located under the State Route 12 overpass. Parcels located north of State Route 12 and west of the Union Pacific Railroad (UPRR) tracks are within the City of Fairfield. Station users can walk or cycle to 400 Union Avenue in the city of Fairfield by using an existing non-ADA-compliant pedestrian bridge located east of the station-side platform in Suisun City; the walk is approximately 900 feet.

The Amtrak station is served by the Capitol Corridor train service, which operates between San Jose and Auburn. The station features a small building that serves as a waiting area for customers. There is also a park & ride lot with 265 spaces and bike lockers managed by Solano Transportation Authority adjacent to the station.

Figure 8: Project Location

Project Description

The Solano Rail Hub Project identifies infrastructure upgrades at the Suisun-Fairfield Station needs to allow customers to safely access rail and transit services without the need to cross active rail at-grade. The station is currently served by Amtrak-operated Capitol Corridor intercity passenger trains, which travel along Union Pacific Railroad's right-of-way. This project identified two different design alternatives that will improve the safety and mitigate ADA issues at the station: overhead pedestrian bridges or underground pedestrian tunnels. The project will also eliminate train hold-outs, which currently requires trains to wait outside the operating envelope of the station to allow passenger to cross the main line tracks to board passenger trains from the narrower center platform. The proposed single center island platform design will reduce instances of passenger and freight train interference. In addition to the accessibility, efficiency and safety improvements, the selected infrastructure configuration must also maintain or improve the connectivity between the two cities and the station by providing a high-quality pedestrian and bike connection linked to station-side development in both cities.

As of 2009, transit-oriented development studies have been examined in this area that indicates uses for a Central Business District in Suisun City. As of January 2023, there were three housing and mixed-use projects under development in the City of Fairfield comprising approximately 250 units consistent with the 2017 "Heart of Fairfield" plan, which envisions 1600 units. The Fairfield projects are all within one and a quarter mile of the existing pedestrian connection to the Suisun Fairfield Station. As of February 2023, there were 12 Suisun City development projects in process within ½ mile of the Suisun Fairfield Station in the City of Suisun's Waterfront Development Area. All these proposed higher-density developments will

support those who travel by trains and buses serving the Solano Rail Hub station.

Project Purpose/Need

The existing condition at Suisun-Fairfield Station has customers crossing active railroad tracks to board from a narrow center platform with undulations at grade crossing paths to the side main platform. Crossing the main line tracks is a potential safety risk and contrary to the CCJPA Station Policy. This issue has resulted in passenger fatalities at other stations. Safety is improved if the need to cross the active track is eliminated (grade separation). ADA-accessible boarding is limited from this existing narrow center platform, and the current track layout requires other trains to hold out of the station while a train is boarding customers, causing operational inefficiencies. This project will improve existing and future intercity passenger rail services by providing operating flexibility via safe, ADA-accessible boarding without the need to hold trains outside of the station while allowing for the accommodation of future service expansions in the corridor. To facilitate ADA accessibility, investments are needed at the existing Suisun-Fairfield Station, such as addition of ramps or elevators, a wider center island platform, some sort of grade-separated conveyance for customers and site users, and a replacement of the current non-ADA-compliant pedestrian bridge that uses the station area to connect Suisun City to Fairfield.

UPRR, the host railroad owner and dispatcher, enforces a rule that requires approaching trains to wait outside the station if another train is stopped for customers. This results in delays for both passenger and freight trains, with both impacting on-time service, reducing operational flexibility, and contributing to increased diesel exhaust.

Overall Schedule by Scope of Work Phase/Cost

Alternative 1: Overhead Pedestrian Bridges

Phase	Activities	Start	End	Cost (YOE)
Preliminary Engineering	Preliminary Engineering for the development of 30% design plans and environmental clearance and community outreach	2023	2025	$4.6 million
Final Design	Develop plans, specifications, & estimate (PS&E) package for construction	2026	2027	$5.5 million
Construction	Project Construction	2028	2029	$42.6 million
Total Project Cost				**$52.7 million**

Alternative 2: Underground Pedestrian Tunnels

Phase	Activities	Start	End	Cost (YOE)

Preliminary Engineering	Preliminary Engineering for the development of 30% design plans and environmental clearance and community outreach	2023	2025	$7.4 million
Final Design	Develop plans, specifications, & estimate (PS&E) package for construction	2026	2027	$8.8 million
Construction	Project Construction	2028	2029	$68.0 million
Total Project Cost				**$84.2 million**

The estimated costs for the track shift of main track #2 are conceptual and based on aerial photographs. There is some concern that the required track shift may be longer than that assumed in the base cost. An additional estimate was prepared to reflect the effects and costs should the track shift extend to the wye track to the south/west of the platform.

- If detailed design with future survey information indicates that the Cordelia Wye south of the station will have to be modified to accommodate the track shift, the price will increase by $11.0 million.

Additional Costs: Modification of Cordelia Wye (if necessary)

Phase	Activities	Start	End	Cost (YOE)
Construction	Project Construction	2028	2029	$11.0 million
Total Project Cost				**$11.0 million**

Project Cost Estimate Assumptions and Process

This document is a preliminary study of the Solano Rail Hub Project conducted before the initiation of Environmental, Design, and Construction phases. The following assumptions were used to develop the Project cost estimate:

- Construction of the entire project will be within the railroad or publicly-owned right-of-way, however:
    - Additional property may need to be dedicated to UPRR for their R/W, and
    - Temporary construction easements on adjacent properties may be required.
- Caltrans Highway 12 structures will not be relocated, moved, or impacted.
- The final design will consist of a wider center platform with grade-separated access.
- The final design will have ADA-compliant access to the center platform.
- The final design will maintain or improve connections between both Suisun City and Fairfield.

- The final design will make use of future development parcels to 'land' the platform access paths in Fairfield, while access paths to Suisun City will 'land' in the existing station area.
- The existing overhead bike and pedestrian crossing between Suisun City and Fairfield, if removed, will be replaced with an equally suitable or more suitable connection between the cities.

The Solano Rail Hub Project is currently at a concept planning level of design and specific improvements to be made have not been identified. Therefore, broad assumptions are made about the site conditions and contingencies and high-level cost items are used to characterize the costs.

Funding Commitments

Amtrak has committed to financing its share of the improvements to the station platform/tracks and access points up to the limits of the non-railroad right-of-way that are necessary to make the station ADA-compliant for purposes of Amtrak-operated trains serving the station.

Public Benefits

The public benefits of Suisun-Fairfield Station Improvement project include:

- Upgrading accessibility and boarding at Suisun-Fairfield Station to comply with ADA standards and regulations.
- Eliminating customers' need to cross at-grade, active rail:
    - The existing condition at Suisun-Fairfield Station has customers crossing active railroad tracks to board a narrow center platform with undulations at grade crossing paths to the side main platform. Crossing the main line tracks is a safety concern and contrary to the CCJPA Station Policy. This issue has resulted in passenger fatalities at other stations. Safety is improved if the need to cross the active track is eliminated (grade separation). ADA-accessible boarding is limited from this existing narrow center platform, and the current track layout requires other trains to hold out of the station while a train is boarding customers, causing operational inefficiencies. This project will improve existing and future intercity passenger rail services by providing operating flexibility via safe, ADA-accessible boarding without the need to hold trains outside of the station.
- Eliminating train holdouts:
    - Reduce idling of passenger and freight rail in adjacent communities, and
    - Reduce operational impacts stemming from holdouts.
- Improving access between the cities of Fairfield and Suisun City via the station footprint to help spur future transit-oriented developments within ½ mile radius of the station.
- Future proofing the station for climate resiliency.

- Investing in improvements that can accommodate future service expansions.

Environmental Clearance

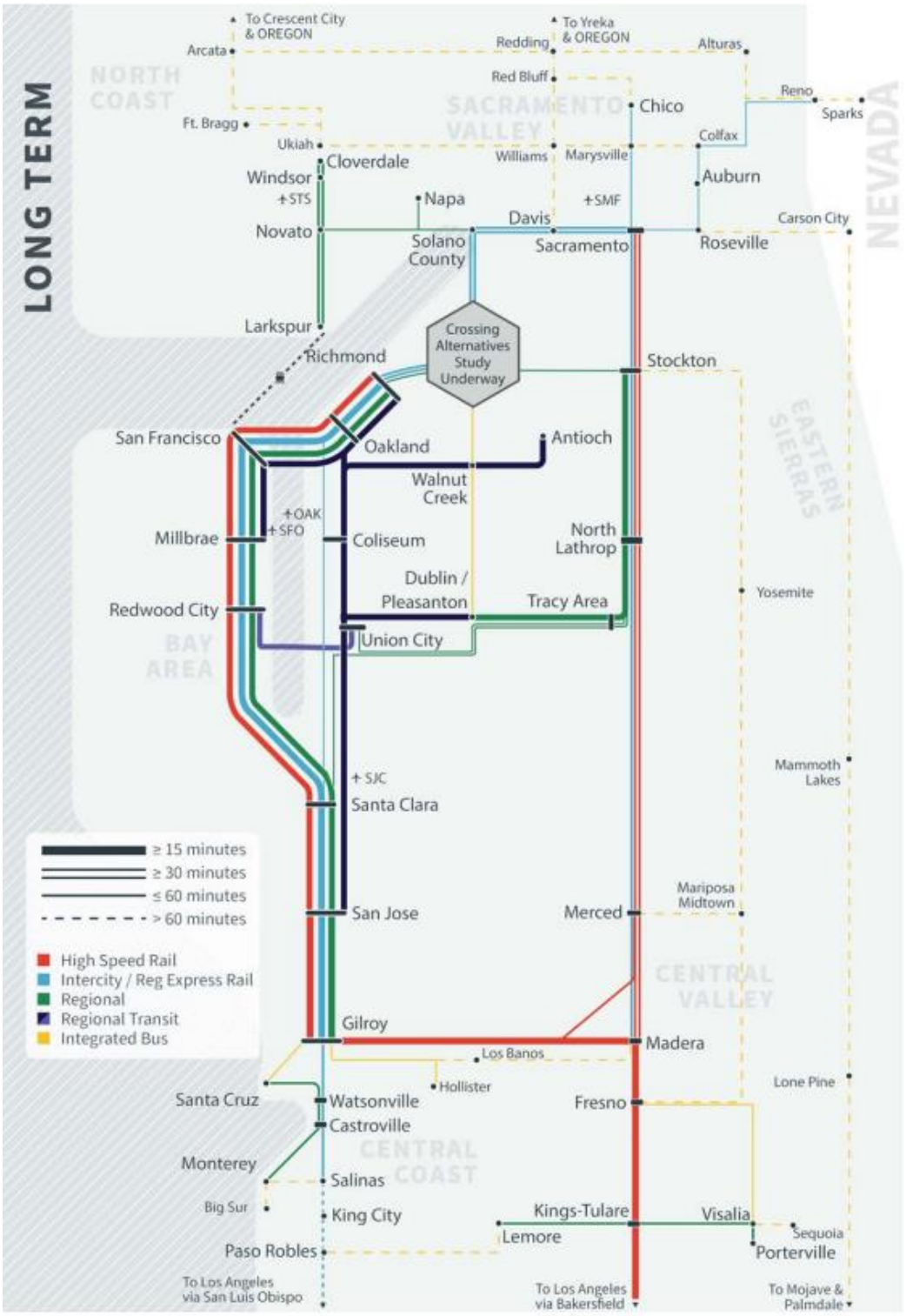
California Environmental Quality Act (CEQA) PRC 21000 et seq.		**Citation**	**Actual or Estimated Completion Date**
__X__	Categorically Exempt (CE)	California Code of Regulations (CCR) Section 15301.	2025
_____	Statutorily Exempt (SE)		
National Environmental Policy Act (NEPA) 42 USC Sec. 4321 et seq.			
__X__	Categorically Excluded (CE)	23 Code of Federal Regulations (CFR) Section 771.117(c)(22).	2025

Permit Completion

No major federal permits have been identified to date for the project.

Exhibit A: Project Area

Exhibit B: 2050 State Rail Network Map



Appendix A: Solano Rail Hub Advanced Planning Study 2022

Appendix B: Draft ITP/STIP resolution