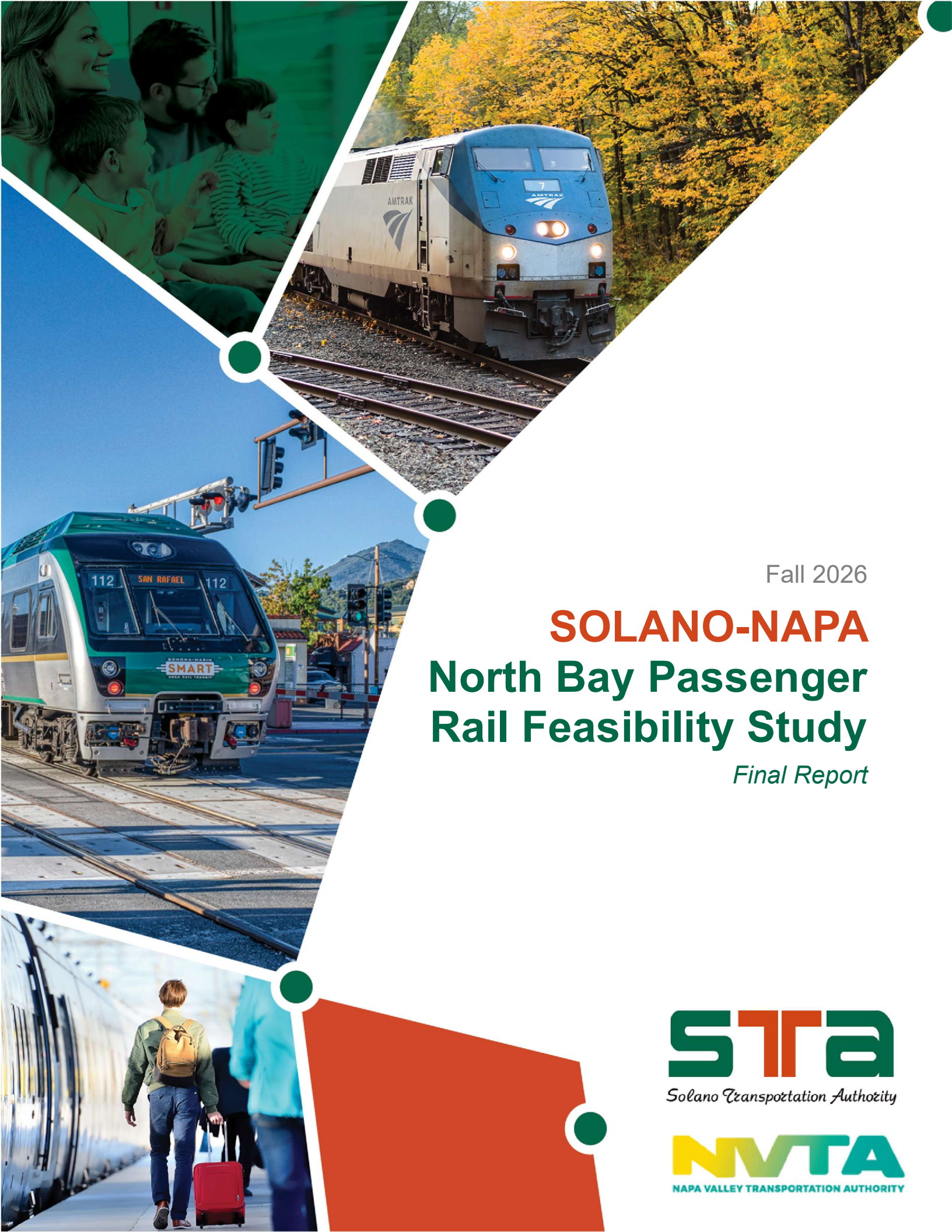




Fall 2026

SOLANO-NAPA **North Bay Passenger** **Rail Feasibility Study**

Final Report

STra
Solano Transportation Authority

NVTA
NAPA VALLEY TRANSPORTATION AUTHORITY



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Key Acronyms and Terms

- **California Northern Railroad (CFNR)** is a short-line freight railroad owned by Genesee & Wyoming that provides freight service in Northern California.
- **Capitol Corridor** is an intercity passenger rail service operating between Auburn and San José, managed by the Capitol Corridor Joint Powers Authority.
- The **Corridor Identification and Development Program (Corridor ID)** is a Federal Railroad Administration program that supports the planning and development of intercity passenger rail projects.
- **Class III Track Upgrades** are rail infrastructure improvements supporting passenger train operating speeds up to 60 miles per hour.
- **Class IV Track Upgrades** are rail infrastructure improvements supporting passenger train operating speeds up to 79 miles per hour.
- The **California State Rail Plan (CSRP)** is a long-range planning document prepared by the California State Transportation Agency (CalSTA) and Caltrans to guide development of the statewide rail network, last updated in 2024.
- The **Federal Railroad Administration (FRA)** is the federal agency responsible for regulating railroad safety, infrastructure, and funding programs.
- The **Metropolitan Transportation Commission (MTC)** is the metropolitan planning organization and regional transportation planning agency for the San Francisco Bay Area.
- The **Napa Valley Transportation Authority (NVTa)** is the regional transportation planning agency responsible for transportation planning and programming of transportation funding in Napa County and the operation of the county's transit agency, Vine Transit.
- **Napa Valley Railroad (NVRr)** is a privately operated tourist rail service in Napa County.
- **Passenger Rail** is conventional rail service operating on dedicated or shared-use rail corridors.
- **Positive Train Control (PTC)** is a railroad safety system designed to prevent train-to-train collisions or derailments due to speeding.
- **Right-of-Way (ROW)** is the land required for rail corridors and associated facilities.
- **Rough Order of Magnitude (ROM) Costs** are planning-level cost estimates developed for high-level budget projections.
- **Sonoma-Marín Area Rail Transit (SMART)** is the commuter rail service operating between Sonoma and Marin counties.



- The **Solano Transportation Authority (STA)** is the regional transportation planning agency responsible for transportation planning and programming of transportation funding in Solano County.
- The **Stadler Fast Light Innovative Regional Train (FLIRT)** is a multiple-unit train that can be configured for diesel, electric, battery-electric, or hydrogen propulsion.
- The **Stadler KISS** (German acronym for Comfortable Innovative Speedy Express Train) is a double-decker electric multiple-unit train typically used for higher-capacity regional or commuter service.
- **Union Pacific Railroad (UPRR)** is a Class I freight railroad company that owns freight rail infrastructure throughout the western United States.



Executive Summary

The Solano-Napa North Bay Passenger Rail Feasibility Study assesses the potential for passenger rail service connecting Napa, Vallejo, Fairfield, and Suisun City through upgrades to existing freight rail infrastructure in the region. This study builds on decades of prior analysis of transportation improvements between Napa and Solano Counties, incorporating current study area conditions and updated travel data into the evaluation of future passenger rail service. Supported by this analysis, this study recommends a phased approach to advancing high-capacity transit along the Napa-Vallejo corridor, anchored by a long-term passenger rail vision. Under this approach, near-term improvements focus on enhancing existing bus services between Napa and Vallejo to address current travel demand and grow transit ridership.

This study identifies a long-term passenger rail service concept consisting of hourly service between Napa and Vallejo, with timed connections to a state-supported East–West service between Novato, Fairfield, and Suisun City. This concept was selected based on its travel time performance, infrastructure requirements, and consistency with the California State Rail Plan (CSRP) vision for connected North Bay rail corridors.

Key findings supporting this recommendation include:

- **Corridor demand supports near-term transit improvements.** The Napa–Vallejo corridor exhibits the highest travel volumes between cities in the region (approximately 45,000 weekday trips) with sustained all-day demand.¹ However, estimated transit capture is modest relative to peer rail systems, indicating that enhanced bus service is a necessary near-term priority to build ridership before implementing passenger rail.²
- **Targeted rail investment provides a pathway to hourly, all-day passenger rail service.** While existing freight rail infrastructure is not suitable for passenger service, investments in Class IV track upgrades, the addition of double track segments, and positive train control (PTC) implementation enable rail travel time improvements—reducing Napa–Vallejo travel times from approximately one hour on existing infrastructure to approximately 30 minutes—while minimizing capital investment compared to higher-frequency alternatives.
- **The corridor aligns with regional and statewide rail initiatives.** The recommended concept supports the California State Rail Plan vision for frequent, connected service between Napa and Vallejo and integrates with an envisioned East–West corridor between Novato, Fairfield, and Suisun City, enabling timed transfers for passengers to access Sonoma–Marin Area Rail Transit (SMART) and Capitol Corridor.

¹ See **Travel Market** section.

² See **Addressable Market** section.



This study recommends prioritizing transit market growth between Napa and Vallejo through improvements to bus service and planning for transit-supportive land uses while building institutional capacity for future passenger rail implementation. Through this approach, the North Bay can align near-term transit investment with evolving travel demand while providing a long-term foundation for high-capacity passenger rail.



Introduction

As the North Bay region continues to grow, increases in congestion and travel demand have placed pressure on existing transportation systems. This has prompted exploration of alternative transportation options between Napa, Vallejo, Fairfield, and Suisun City, specifically passenger rail. To address evolving transportation needs in the region, the Solano Transportation Authority (STA) and the Napa Valley Transportation Authority (NVTa), in coordination with regional partners, initiated this feasibility study to evaluate the potential for passenger rail service in the North Bay as part of a regional integrated transit network. To support this objective, this study:

- Reviews previous planning efforts and assesses current rail infrastructure conditions
- Analyzes travel patterns and identifies an addressable transit market
- Develops and evaluates conceptual service plans and infrastructure requirements
- Estimates planning-level capital and operations costs for a preferred conceptual service plan
- Evaluates community impacts and potential governance structures

This analysis yields a phased implementation strategy that aligns near-term transit improvements with long-term passenger rail delivery. Specifically, this study emphasizes that strengthening the existing transit market on the Napa-Vallejo corridor is a necessary first step to support future passenger rail investment.

About the Solano Transportation Authority

The Solano Transportation Authority (STA) is the regional transportation planning agency for Solano County and serves as the county's congestion management agency. The STA is responsible for coordinating transportation planning, funding, and projects across the county. The STA also oversees the SolanoExpress bus service, a regional service operated by local transit provider SolTrans. Through studies such as this feasibility analysis, the STA works to identify opportunities for transportation investments that improve mobility across the region.

About the Napa Valley Transportation Authority

The Napa Valley Transportation Authority (NVTa) guides transportation planning, investment, and congestion management throughout Napa County. The NVTa also operates Vine Transit, which connects communities within Napa County and links riders to regional destinations through bus, shuttle, and paratransit service. Through this study, the NVTa supports evaluation of transit improvements that respond to Napa County travel needs while strengthening regional connections.



Partners

This study was conducted by the STA and the NVTa in coordination with key regional partners, with the project team including the City of Napa, the City of Vallejo, the Napa Valley Wine Train, Caltrans, Sonoma-Marín Area Rail Transit (SMART), and the Capitol Corridor Joint Powers Authority. These partner organizations play critical roles in transportation planning, funding, and service delivery across the North Bay and are essential to advancing a coordinated transit solution. Engagement with these partners and other stakeholders is summarized in Error! Reference source not found..



Existing Conditions

To analyze existing conditions, this study reviewed relevant plans, assessed current rail infrastructure, evaluated regional and local travel patterns, and identified an addressable market for a future passenger rail service.

Study Area

To analyze existing conditions, this study used a 5-mile buffer of existing freight rail corridors in Vallejo, Napa, Suisun City, Fairfield, American Canyon, and Cordelia. This radius captures the communities, activity generators, and land uses likely to benefit from or be influenced by future passenger rail service, while also including relevant rail infrastructure that would be used for operation. This study area provides a framework for evaluating infrastructure conditions, travel patterns, and potential transit markets in the vicinity of the rail corridor.

Previous Plans and Studies

To understand previous work conducted in the region that may support passenger rail service, this study reviewed relevant plans and studies. The project team identified these plans based on their contributions to rail transit in the region and their potential impact on the current study. A full list of the plans reviewed can be found in **Table 1**. Specifically, the Vallejo Passenger Rail Study, the California State Rail Plan, and the SMART East-West Study were central to the development of the service concept outlined in the **Conceptual Service Plans** section.

Table 1: Previous Plans and Studies Reviewed

Year	Plan Name	Sponsor	Key Findings
Ongoing	Downtown Vallejo Specific Plan	City of Vallejo	Emphasizes transit-oriented development in key areas.
Ongoing	Vallejo Waterfront Specific Plan	City of Vallejo	Emphasizes transit-oriented development in key areas.
Ongoing	SMART East-West Study	Caltrans	Advances East-West rail connection between Novato and Suisun-Fairfield.
2026	Napa Countywide Transportation Plan	Napa Valley Transportation Authority (NVTA)	Increasing transit service in Napa is a high priority for the county.
2026	Solano County Comprehensive Transportation Plan	Solano Transportation Authority (STA)	Novato to Suisun-Fairfield connection is a high priority to meet countywide commuting needs.
2026	STA Suisun City and Fairfield Solano Rail Hub Priority Development Area (PDA) Specific Plan	Solano Transportation Authority (STA)	Targeted development plans around the Solano Rail Hub can enhance the success of passenger rail.



Year	Plan Name	Sponsor	Key Findings
2025	Napa Valley Travel Behavior Study	Napa Valley Transportation Authority (NVTA)	Travel market between Solano County and Napa County decreased slightly in updated study but remains significant.
2024	California State Rail Plan	Caltrans	Long-term vision for statewide passenger rail network. Identifies rail expansion opportunities in the North Bay region.
2024	Napa-Vallejo California State Rail Plan (CSRP) Study	Caltrans	California State Rail Plan (CSRP) addition identifying Napa-Vallejo rail service as part of long-term vision.
2024	Vallejo Passenger Rail Study	Solano Transportation Authority (STA)	High demand for regional passenger rail service in Vallejo.
2023	NVTA Short Range Transit Plan (SRTP)	Napa Valley Transportation Authority (NVTA)	Service growth scenarios identify enhancements to regional bus service on the Napa-Vallejo corridor as a priority.
2023	Napa Valley Visitor Profile	Visit Napa Valley	Significant tourism presence in Napa Valley.
2022	Solano Rail Hub Advanced Planning Study Phase I	Solano Transportation Authority (STA)	Improvements needed to Suisun-Fairfield Station to link to regional transit.
2021	SMART and SolanoExpress Station Feasibility Study	Solano Transportation Authority (STA)	Rail hub at Suisun-Fairfield Station feasible to connect to Novato.
2020	Solano County Active Transportation Plan	Solano Transportation Authority (STA)	Countywide backbone bicycle network is being prioritized.
2019	SMART Passenger Rail Service Novato to Suisun City	Sonoma-Marín Area Rail Transit (SMART)	Novato to Suisun-Fairfield SMART service is feasible.
2019	SR 37 Travel Behavior & Transit Feasibility Study	Solano Transportation Authority (STA)	Express bus service on SR-37 could help alleviate congestion.
2003	Napa/Solano Passenger/Freight Rail Study	Solano Transportation Authority (STA)	Passenger rail deemed to have lower return on investment compared to bus service.

The previous plan review revealed that residential and tourism growth within the study area contribute to increasing travel demand, reinforcing the need for improved transit options. These studies have also consistently explored leveraging existing rail infrastructure to support passenger rail service, particularly by connecting to SMART and Capitol Corridor services and the broader statewide and regional rail network. See **Appendix B** for a detailed review of the plans included in **Table 1**.



Vallejo Passenger Rail Study

The Vallejo Passenger Rail Study (2024) explored the feasibility of implementing passenger rail service on an existing freight corridor from the Vallejo Ferry Terminal to the Suisun-Fairfield Amtrak Station. This study emphasized the sizeable transit market present in Vallejo that could support passenger rail, especially given the high volume of trips between Vallejo and Napa and between Vallejo and Solano County. As part of this analysis, a preferred draft alignment was selected and cost estimates were created, informing the development of the current study through the shared scope of the Vallejo to American Canyon corridor.

California State Rail Plan

The California State Rail Plan (CSRP), last updated in 2024, provides a long-term vision for a connected and frequent passenger rail network across the state of California. This plan identified rail services connecting Novato, American Canyon, Fairfield, Suisun City, Napa, and Vallejo and outlined a minimum frequency goal of hourly service for the North Bay region that facilitates transfers with intercity Capitol Corridor service at the Suisun-Fairfield Amtrak Station. The CSRP also outlined a connecting service between Vallejo and Napa that would supplement an east-west service between Novato and Solano County.

SMART East-West Study

An ongoing joint effort between Caltrans and SMART is progressing the vision for an East-West passenger rail service in the North Bay connecting Novato and Solano County. SMART currently owns the right-of-way (ROW) between Novato and Napa Junction, allowing this project to leverage existing track ownership. The segment between Novato, American Canyon, Fairfield, and Suisun City is included in the Federal Railroad Administration (FRA) Corridor Identification and Development (Corridor ID) program, giving SMART access to federal funding to advance the project. Completion of the corridor is currently planned for 2050.

Existing Rail Infrastructure

Existing rail infrastructure conditions in the study area were assessed using the Vallejo Passenger Rail Study and available track charts as inputs. With limited sources, further analysis of rail infrastructure condition and operations is needed before advancing future planning phases. Most of the study area rail ROW is owned by Union Pacific Railroad (UPRR) and leased to California Northern Railroad (CFNR) for freight operation; however, the Mare Island Spur is owned by the City of Vallejo and the Napa to St. Helena segment is owned by Napa Valley Railroad (NVR) for Napa Valley Wine Train operation. Rail ownership and operation in the study area is shown in **Figure 1**.

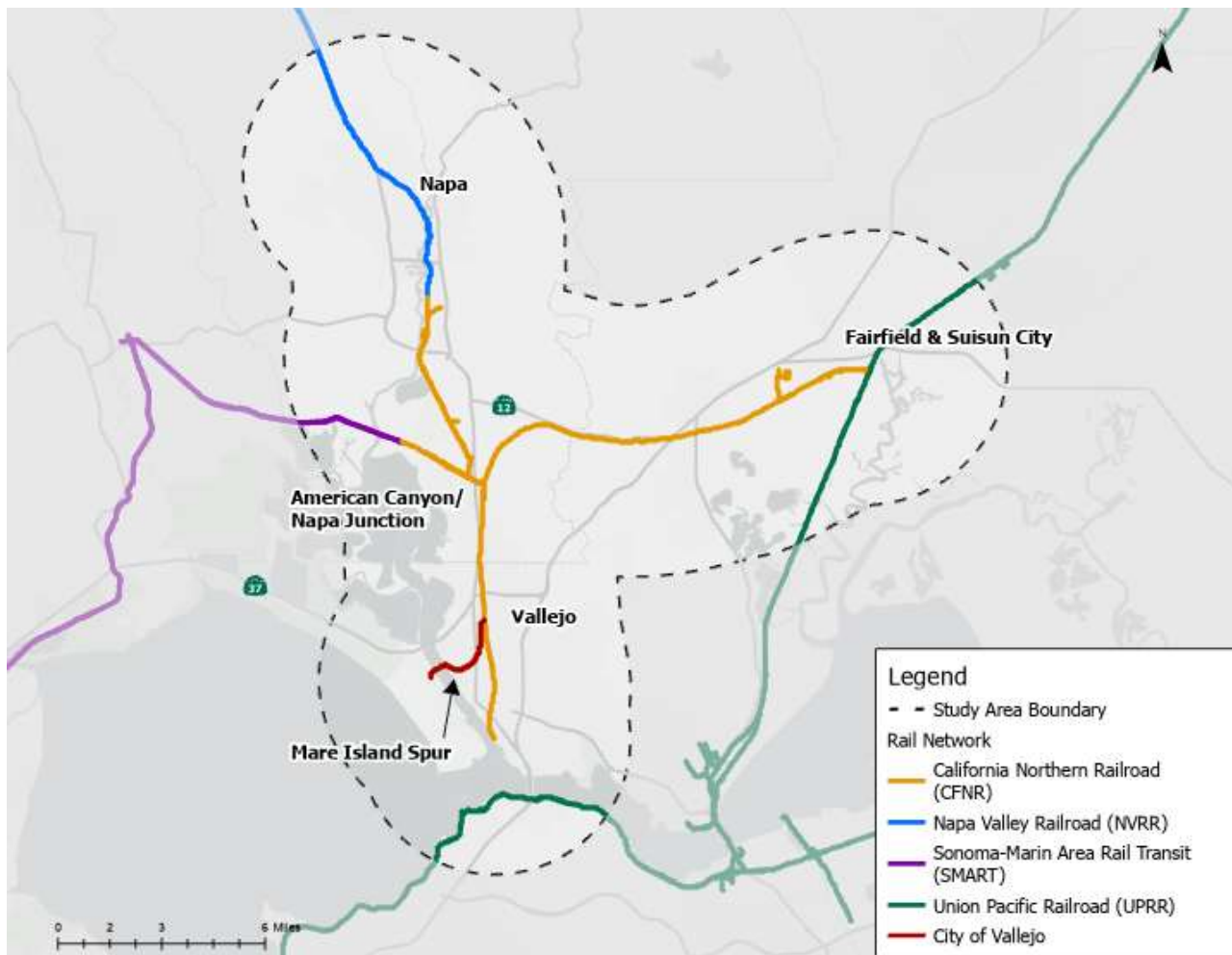


Figure 1: North Bay Current Rail Ownership

Based on the current condition of rail infrastructure in the study area, any passenger rail operation, regardless of frequency or speed of service, would require significant upgrades to track and other relevant infrastructure. All track segments have a 19th-century origin with infrequent updates and maintenance following installation due to low freight volumes (approximately five trains per week, per direction). This limits operation to a maximum speed of 18 mph between the City of Napa and Vallejo and 45 mph between Napa Junction and Fairfield and Suisun City. The corridor is predominantly single tracked with few sidings and would require added double track segments to facilitate train meets needed for more frequent service. Additional operations analysis and engineering feasibility assessments are required to identify exact locations for sidings and double track segments for passenger rail service. Passenger rail operations would also require safety system upgrades in compliance with FRA regulation, with no PTC system currently in the study area. The current condition of the study area track infrastructure is summarized in **Table 2**.



Table 2: Current Infrastructure Conditions

Rail Segment	State of Track Infrastructure
Napa – Napa Jct.	<ul style="list-style-type: none"> Varied in service history and condition Turnouts and switches need to be replaced Not suitable for passenger service without significant updates
Vallejo – Napa Jct.	<ul style="list-style-type: none"> Lack of consistency in the age and condition of wooden ties Turnout infrastructure outdated and unable to support passenger service Not suitable for passenger service without significant updates
Mare Island Spur	<ul style="list-style-type: none"> Ballast has only seen maintenance upkeep rather than significant updates Not suitable for passenger service without significant updates
Suisun-Fairfield – Napa Jct.	<ul style="list-style-type: none"> Varied in service history and condition Not suitable for passenger service without significant updates

The aging rail infrastructure in the study area is unsuitable for passenger service without significant rehabilitation. This rehabilitation would likely include track replacement, double tracking, and implementation of PTC to improve speeds, operational capacity, and safety. Additionally, supportive infrastructure such as stations and maintenance facilities would need to be constructed prior to passenger rail implementation. A more detailed assessment of the existing infrastructure, along with a high-level overview of critical infrastructure upgrades, is shown in **Appendix C**.

Travel Market and Addressable Market

To understand current travel patterns and a potential passenger rail market, this study assessed trip volumes in the study area and the greater North Bay region using travel data from Replica.^{3 4} These volumes were then compared to peer service ridership to estimate an addressable market for a future passenger rail service within the project study area. This

³ Trip volumes include all modes, excluding commercial vehicles, as well as all trip purposes, excluding pass-through trips and freight trips.

⁴ Replica is an activity-based travel model that simulates daily travel patterns for an average weekday and weekend. This analysis excludes trips designated as a commercial or freight purpose to model only transit serviceable trips.



analysis aids in identifying station locations and informing draft service plans by aligning a service concept to current and predicted travel trends in the region.

Travel Market

This travel market assessment utilizes weekday Replica data from Spring 2024 to analyze trip volumes between the three primary city pairs in the project study area: Napa – Vallejo/American Canyon, Napa – Fairfield/Suisun City, and Vallejo/American Canyon – Fairfield/Suisun City. This methodology reveals high-density trip flows that could translate to ridership on a future transit service.⁵

This analysis identified Napa – Vallejo/American Canyon as the largest travel market in the study area, with 45,000 trips per weekday taking place between the two locations. For this planning-level assessment, Vallejo and American Canyon are grouped to identify general regional travel trends; however, future studies should evaluate more specific travel patterns as station areas, access assumptions, and service concepts are further defined. Trip volumes in the study area peaked during the AM and PM commute periods, but maintained substantial counts throughout the midday, indicating an all-day travel market. Volumes also remained high throughout the weekend but generally shifted in purpose from work/school to leisure/errand. City-to-city travel flows in the study area are shown in **Figure 2**.

⁵ Spring 2024 represents the most recent travel data available from Replica at the time of the study.

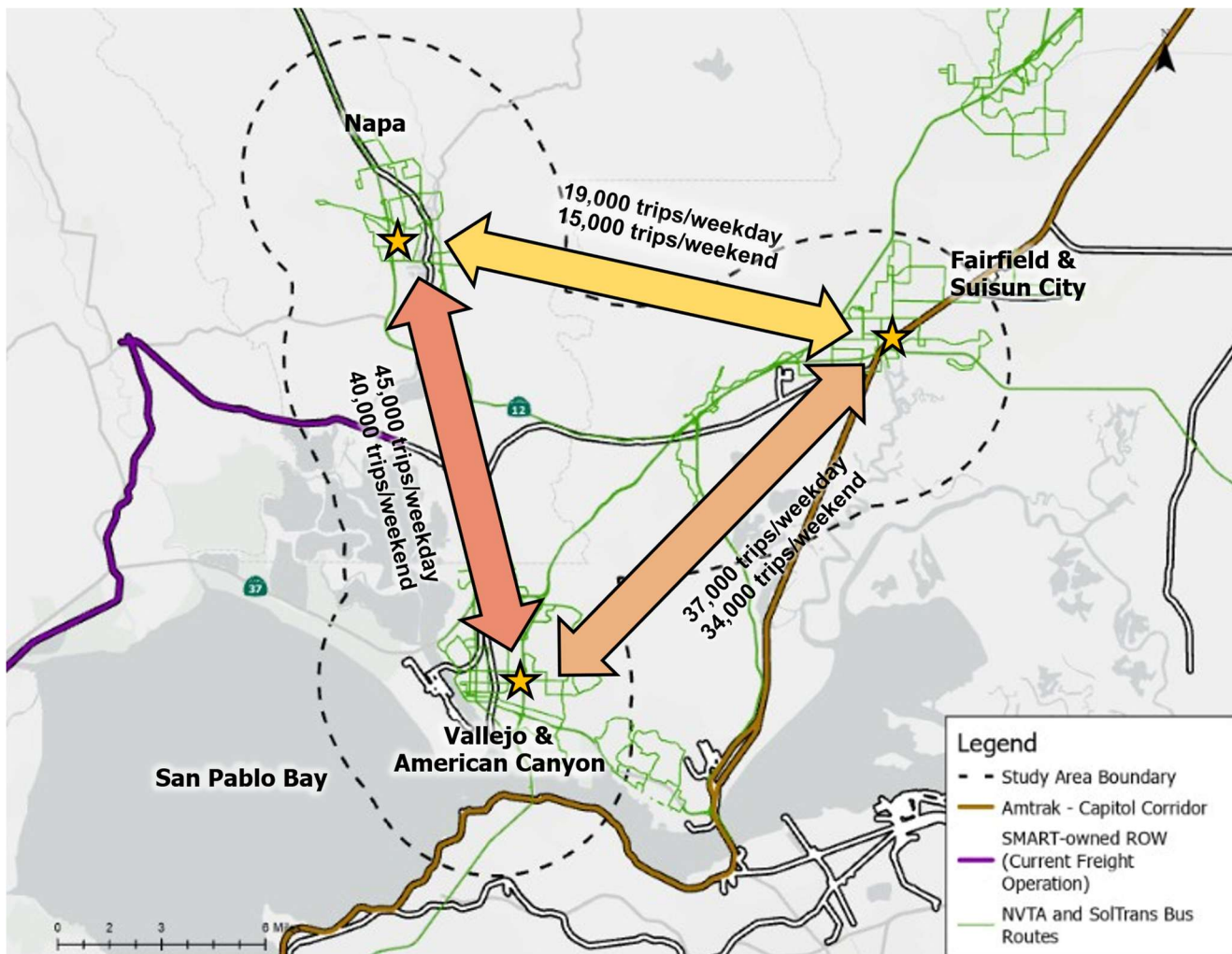


Figure 2: City-to-City Flows within Study Area (Replica – Spring 2024 Weekday)

Regional travel patterns throughout the North Bay are also relevant to this study because of potential future connections with SMART in Novato and Capitol Corridor in Fairfield/Suisun City. Strong regional flows are present between Fairfield/Suisun City and Vacaville, as well as Napa and the Northern Napa Valley, indicating transfer potential in these areas. While travel flows to San Francisco, Oakland, and Sacramento are comparatively less prominent, a regional analysis reveals a substantial interconnected travel market. Regional travel patterns are shown in **Figure 3**.

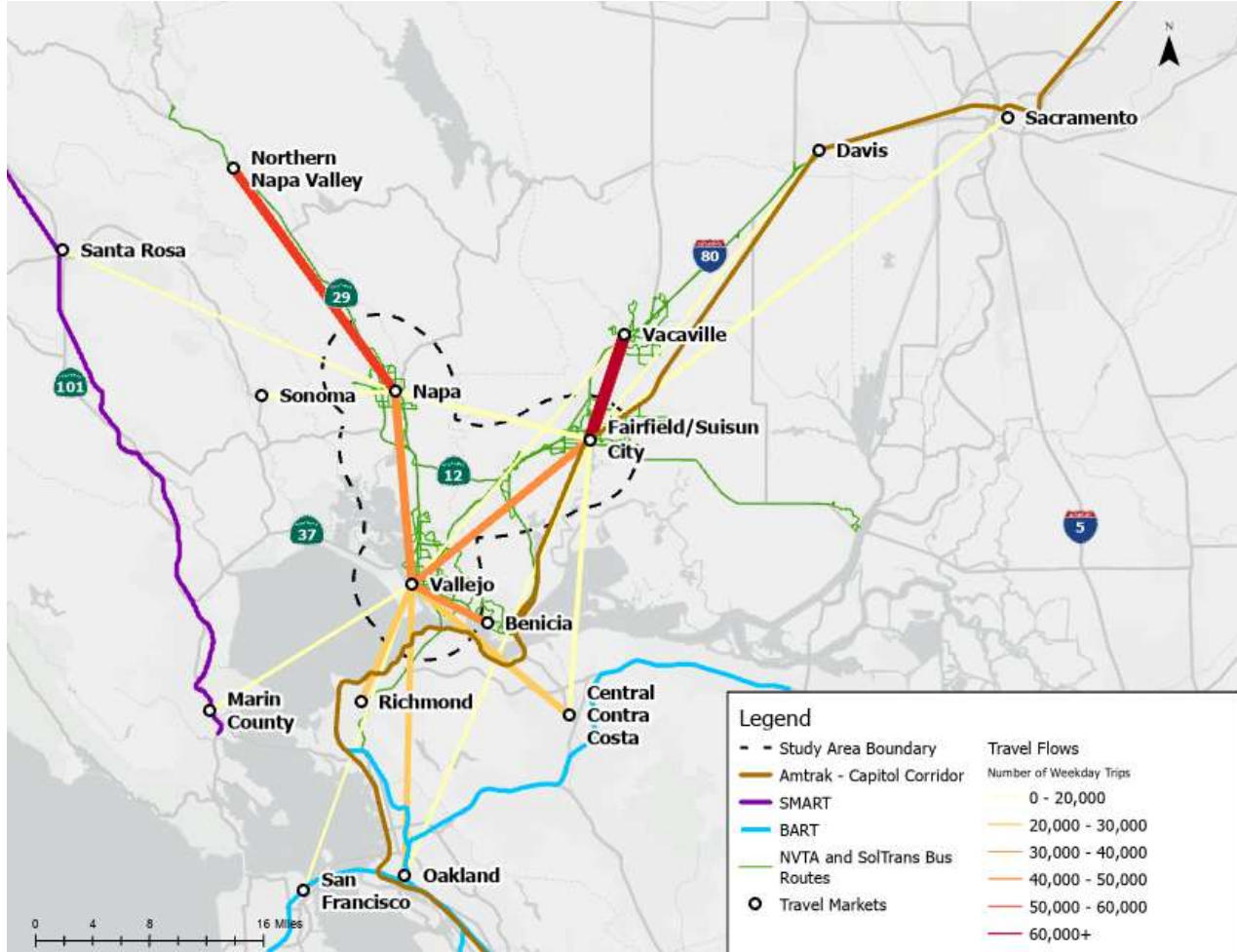


Figure 3: Travel Patterns within Region (Replica – Spring 2024 Weekday)

Addressable Market

To understand potential transit ridership within the project study area, this study analyzed an addressable transit market by estimating transit capture on each corridor. Transit capture represents the percentage of total trips made within a corridor completed on transit, calculated by dividing weekday ridership on a given transit route by the number of weekday non-commercial trips completed within a half-mile buffer of the route.

SMART, Capitol Corridor, and Caltrain were used as peer services for this analysis, with transit capture calculated based on weekday average daily ridership for each service. The weekday transit-serviceable trips, average weekday ridership for SMART, Capitol Corridor, and Caltrain, and the estimated transit capture for each study area corridor are shown in **Figure 4** and **Figure 5**. More information on the methodology and findings of the addressable market analysis is shown in **Appendix D**.



Weekday Transit Serviceable Trips

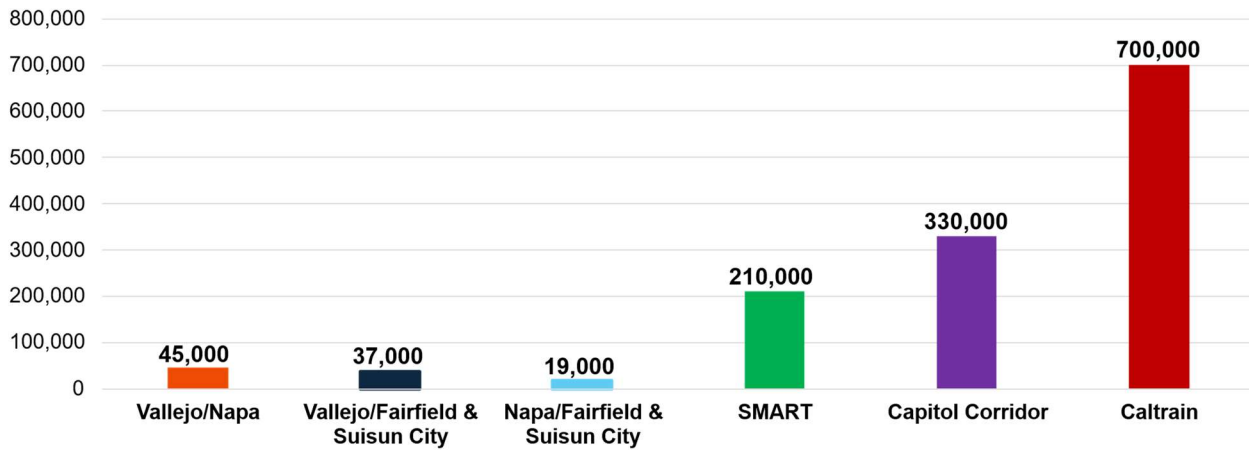


Figure 4: Weekday Transit Serviceable Trips (Replica – Spring 2024 Weekday)

Estimated Daily Weekday Transit Capture vs Peer Systems Weekday Average Ridership

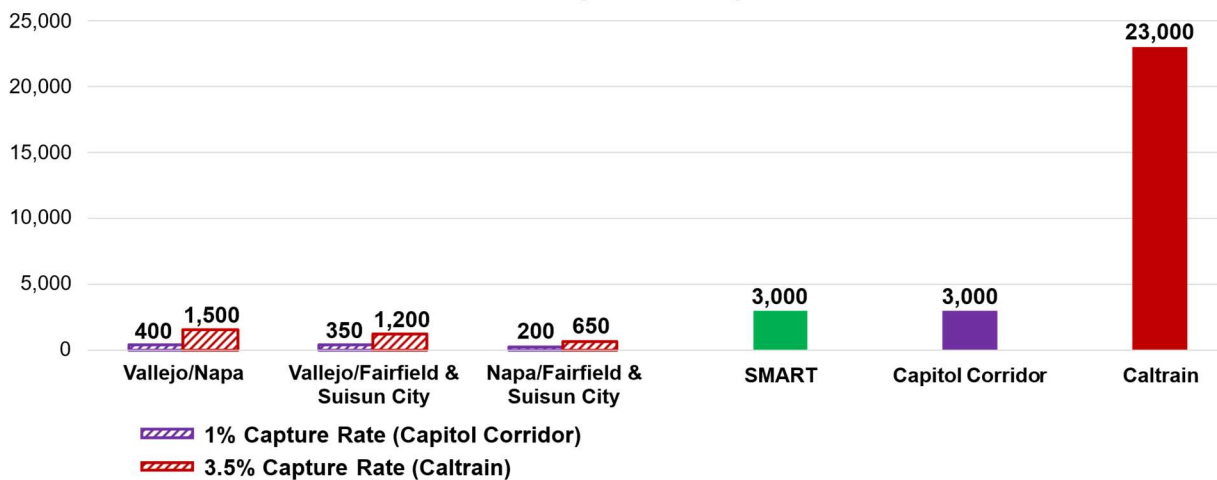


Figure 5: Estimated Daily Weekday Transit Capture vs Peer Systems Weekday Average Ridership (2024)⁶

Note: Transit capture range shown is based on a Capitol Corridor capture rate of 1% and a Caltrain capture rate of 3.5%.

Estimated transit capture on each study area corridor is lower than the current weekday ridership on the peer corridors reviewed, including SMART, Capitol Corridor, and Caltrain. Transit capture should not be interpreted as a ridership forecast; instead, transit capture represents a level of corridor travel activity to compare to ridership metrics of regional peers. This comparison is intended as an order-of-magnitude addressable-market benchmark, not a

⁶ Source: SMART Ridership Web Posting (2025); Capitol Corridor Monthly Service Performance Report (2024); Caltrain Annual Ridership Report (2024)



ridership forecast. Because both the study area estimates and peer ridership metrics are evaluated at the corridor level, and because transit capture is derived from total travel activity within each corridor, the comparison provides a consistent basis for assessing the relative scale of the addressable travel market.

While the current underlying travel market may not support ridership equivalent to that observed on SMART or Capitol Corridor, growth in the travel market would likely be a primary factor in achieving comparable ridership. However, factors such as service levels, connectivity, station access, land use, fare integration, and regional transfer opportunities could also increase transit capture. Additionally, though the one-half-mile corridor buffer captures trips within walking distance of a potential rail alignment, it may not fully represent the broader addressable market that could access service through feeder buses, the Vallejo Ferry Terminal, bicycle connections, park-and-ride facilities, or regional transit transfers. These factors should be incorporated in future phases of analysis through more detailed ridership modeling via an activity-based travel demand model. The size of the travel market relative to peer services, in addition to other factors that support ridership, should be considered when phasing capital investment for high-capacity transit upgrades.



Conceptual Transit Service

This section describes the development of four conceptual transit service plans for North Bay passenger rail. The conceptual service plans were evaluated based on travel times, the infrastructure required to support the proposed frequency, and their integration with regional passenger rail efforts. More detail on the conceptual service plans and the related analyses is shown in **Appendix E**.

Service Plan Development

The four conceptual service plans were developed based on coordination with regional rail planning efforts, infrastructure constraints on travel times, and conceptual station areas identified in the Vallejo Passenger Rail Study and the CSRP.

Corridors Considered

A variety of corridor combinations were considered in the creation of the conceptual service plans. These configurations included alignments connecting the City of Napa, Vallejo, Fairfield, and Suisun City that support observed travel markets and connect to existing services like SMART and Capitol Corridor. One-seat ride opportunities were considered between the city pairs to reduce transfers and improve rider convenience.

While a range of options were weighed for inclusion in the conceptual service plans, the analysis converged on a two-corridor service: a North-South corridor between the City of Napa and the City of Vallejo and an East-West corridor connecting Fairfield, Suisun City, and Novato with a central transfer point in American Canyon at Napa Junction. This approach is consistent with the CSRP and ongoing Corridor ID efforts (see below), ensuring that the conceptual service plans align with regional and statewide rail investments. Service further north of the City of Napa was not considered for the conceptual service plans due to the dispersed land use patterns and small population, based on input from the City of Napa.

California State Rail Plan Integration

As part of the long-term planning horizon for California passenger rail, the CSRP outlines two corridors in the North Bay for future passenger rail service: the City of Napa to Vallejo via American Canyon (North-South) and Novato to Fairfield and Suisun City (East-West), shown in **Figure 6**.

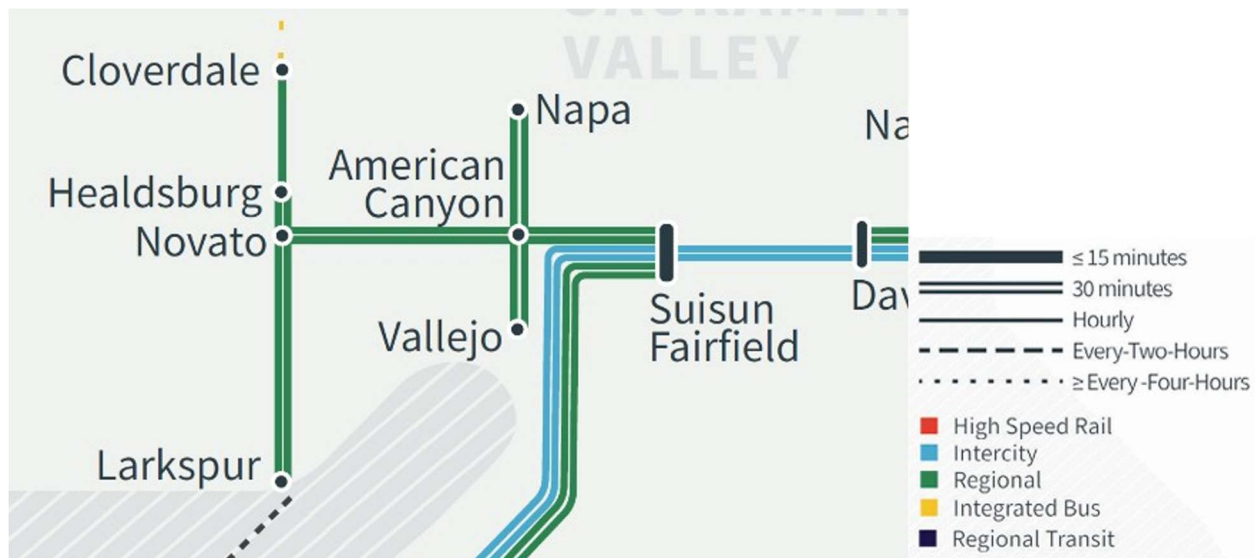


Figure 6: California State Rail Plan Map - North Bay

The CSRP outlined 30-minute headways for both corridors with a 5-minute transfer window between services in American Canyon at Napa Junction; however, the East-West corridor has been refined to hourly frequencies as the East-West corridor advances through the FRA's Corridor Identification and Development (Corridor ID) program. The Corridor ID program supports the planning and development of intercity passenger rail corridors, preparing passenger rail projects for implementation. For the conceptual transit service plans, the East-West service is assumed to be state-supported with hourly frequencies as identified through the Corridor ID process. The following service plans for the North-South corridor integrate timed transfers to the East-West service and assess both the CSRP goal of 30-minute service and the hourly service goal identified for the East-West service via Corridor ID.

Travel Times

Current track infrastructure conditions dictate travel time constraints for the proposed services, with passenger speeds restricted to 18 mph on the North-South corridor and 45 mph on the East-West corridor, assuming no track upgrades were implemented.

To improve travel speeds and support more reliable operations, this study considered service scenarios that include significant infrastructure upgrades. Existing track supports speeds of less than 30 mph and lacks the signalization required for passenger service. Class III track upgrades could increase passenger rail speeds up to 60 mph and reduce corridor travel times through improvements such as rail replacement, ballast and subgrade work, track geometry modifications, and signaling upgrades to support PTC. Class IV track upgrades could enable passenger speeds up to 79 mph through similar upgrades, albeit with more stringent standards for geometry, signal, and track conditions to support higher speeds. Based on the more



stringent requirements for Class IV track upgrades, cost savings may be achieved with Class III track upgrades. The relevant classes of track upgrades and the current track infrastructure conditions are summarized in **Table 3**.

Table 3: Class III and Class IV Track Upgrades

Track Classification	Max Speed Supported	Signalization Required	Track Upgrades Required*
Class I	15 mph	None	N/A
Class II	30 mph	None	N/A
Class III	60 mph	PTC	Rail replacement, ballast/subgrade improvements, track geometry changes
Class IV	79 mph	PTC	Rail replacement, ballast/subgrade improvements, track geometry changes

**Specific upgrades vary by segment and target speed; Class IV improvements may require more stringent geometry, signal, and track condition standards than Class III upgrades.*

Peer Bay Area passenger rail operators, such as SMART, Caltrain, and Capitol Corridor operate on majority Class IV tracks. Select sections may be rated at a lower class, including a Class III section of the SMART corridor between San Rafael and Novato, as well as a Class II section used by Capitol Corridor between Roseville and Auburn. Class III or Class IV improvements would allow the corridor to safely accommodate faster, more reliable passenger service, improve schedule competitiveness, strengthen connections to other rail services, and better reflect the performance needed for a viable long-term passenger rail system. The most suitable level of track upgrades should be continually assessed. Depending on the final determination of station quantity and spacing, the acceleration and deceleration capabilities of the selected rail vehicle, and the improvements to rail geometry on the existing corridor, there may be very limited sections of track on which the passenger trains can reach speeds of 79 mph. In that case, Class III upgrades may be more cost-effective than Class IV upgrades. In future design phases, the tradeoffs between Class III and Class IV track upgrades should be assessed to maximize cost savings while providing a high-quality passenger service. For this



analysis, Class IV track upgrades were assumed for service concepts 2A and 2B to achieve run times most competitive with driving.

Conceptual Station Areas

The conceptual transit service plans for the North-South corridor use station assumptions outlined in the Vallejo Passenger Rail Study. These conceptual station areas include⁷:

- Downtown Napa (City of Napa)
- Rocktram (City of Napa)
- Napa Junction (*transfer to the East-West Service*)
- American Canyon
- Sereno Transit Center
- Sonoma Boulevard
- Mare Island Way
- Vallejo (Assumed proximate to the Ferry Terminal)

Conceptual Service Plans

This study assessed four conceptual service plans, with the service plans differentiated by track infrastructure upgrade level and planned frequency. These service concepts were modeled to visualize service patterns and infrastructure needs, allowing evaluation of run times and double track needs. The service concepts and model results are shown in **Table 4**.

Table 4: Conceptual Service Plans

Concept	Track Infrastructure Upgrades	Frequency	Miles of Additional Double Track*	North-South Corridor Run Time
1A	No track upgrades	Every 30 min.	~6.5 mi.	1 hr, 3 min
1B	No track upgrades	Every 60 min.	~3 mi.	1 hr, 3 min

⁷ These station locations were chosen for operational analysis purposes only, with station locations between Napa Junction and Vallejo informed by the Vallejo Passenger Rail Study. Future studies will study station quantity, spacing, and specific locations in more detail.



Concept	Track Infrastructure Upgrades	Frequency	Miles of Additional Double Track*	North-South Corridor Run Time
2A	Class IV track upgrades	Every 30 min.	~2.5 mi.	30 min
2B	Class IV track upgrades	Every 60 min.	~1 mi.	30 min

*Double track miles reflect North-South corridor only

Service Plan Selection

The four service concepts were assessed based on their travel times, the infrastructure required to support the proposed frequency, and their integration with the CSRP and the East-West Corridor ID project. Following discussions with stakeholders and project partners,

Concept 2B: Class IV track upgrades and hourly service was selected as the preferred scenario. This selection is supported by the following:

1. **Competitive travel times.** Class IV track upgrades reduce North-South travel time from 1 hour, 3 minutes in Concepts 1A and 1B to 30 minutes.
2. **Targeted infrastructure investment.** Operation of hourly service requires fewer additional miles of double track (~1 mile) and fewer trainsets than 30-minute frequencies, minimizing capital and ongoing operations cost investment compared to other service concepts.
3. **Regional integration.** Timed “pulse” transfer potential between the North-South corridor and East-West corridor at Napa Junction Station capitalizes on ongoing work on the state-supported East-West service. More details on the alignment with the CSRP are shown in **Appendix F**.

Because the East-West corridor is currently advancing through the FRA’s Corridor ID program with support from Caltrans and SMART, the preferred service vision focuses on the North-South corridor. The following analyses reflect that focus, with the understanding that similar analyses are being conducted for the East-West corridor as part of that separate study. It should also be noted that the selection of a preferred service concept does not constitute a recommendation to implement the specific concept but instead provides a framework through which to conduct a high-level assessment of infrastructure needs, vehicle needs, capital and operating costs, and potential community impacts.



Operations Infrastructure

This study assessed operations and infrastructure needs for the selected service concept, identifying a need for roughly 1 mile of double track and 2 platforms at the Napa Junction Station to facilitate the proposed frequency and allow transfers to the state-supported East-West service. Infrastructure needs also include baseline track rehabilitation, PTC implementation, and maintenance facility and station construction. These requirements are subject to change based on further coordination with host railroads on infrastructure needs. The operational infrastructure requirements for the selected service concept are shown in **Table 5** and more detail is provided in **Appendix E**.

Table 5: Operations Infrastructure Required

Concept*	North-South
2B: Class IV track speed upgrades, hourly service	~1 mi. double track & 2 platforms at Napa Jct. station

**Assumptions: 1. PTC implementation per passenger rail safety regulation; 2. train storage and maintenance has been proposed near American Canyon, but further study is required.*

Vehicle Assessment

Based on the proposed service concept, 3–4 trainsets will be needed to operate the hourly frequency outlined in the service plan, inclusive of the required spare equipment sets. Trainsets are assumed to be composed of 2 train cars, reflecting the configuration currently in use by SMART. This assumption should be refined by detailed ridership modeling efforts to determine the total capacity needed. Diesel vehicle options would also need to meet applicable U.S. Environmental Protection Agency emissions standards. Current EPA locomotive emissions standards include Tier 0 through Tier 4, with Tier 4 applying to new locomotives manufactured in 2015 or later and representing the most stringent federal locomotive emissions tier. Future procurement should evaluate whether diesel equipment meets current EPA requirements, as well as whether lower-emission alternatives such as battery-electric, hydrogen, or electric multiple units are feasible for the corridor.

To understand the performance of a range of potential vehicle types, this study modeled the following vehicle types:

- Diesel locomotive F59PHI-(AM)
- Diesel multiple unit Stadler FLIRT
- Electric multiple unit Stadler KISS



- Battery multiple unit Stadler FLIRT
- Hydrogen multiple unit Stadler FLIRT

Run times were modeled across vehicle types to assess performance on the North-South corridor. Run times experienced minimal variation among vehicle types, as closely-spaced stations limit trains from reaching the top speed of 79 mph enabled through Class IV track upgrades.

Because of comparable performance between vehicles, operational considerations should be a critical decision factor in vehicle selection. Boarding heights should be assessed for compatibility with other services in the region, as interlining with Capitol Corridor or other services would require compatible platform-train interfaces. California fleets are trending toward low-level boarding (15–25 in.). Maintenance facility location should also inform vehicle selection, as equipment sharing across services could allow for vehicle servicing at existing facilities due to the relatively low number of trainsets required to operate the conceptual service plan. Environmental and community impacts of vehicle types should also be assessed in further studies. Zero-emission trainsets could provide a quieter ride and reduce localized emissions, alleviating some environmental and community impacts of passenger rail implementation. More information about potential vehicle types and considerations is shown in **Appendix F**.

Cost Estimates

To establish a baseline for constructing and operating the preferred service concept, high-level capital and operating cost estimates were developed for the North-South corridor. These planning-level estimates draw on a conceptual capital cost estimate and an operations and maintenance cost estimate prepared for this study, which reference the Vallejo Passenger Rail Study among other comparable projects. These cost estimates do not reflect corridor engineering or design. All costs are reported in 2050 dollars to account for anticipated escalation prior to project completion. More detail on the capital and operating cost estimates is shown in **Appendix H** and **Appendix I**.

Capital Costs

Estimated Total Capital Cost (2050 Dollars): \$2.0B–\$3.5B

The following rough order of magnitude (ROM) cost estimate represents the anticipated capital investment required to implement the passenger rail service on the North-South corridor. Developed for planning purposes, this estimate is based on conceptual infrastructure needs and comparable projects and is intended to inform high-level budget allocations rather than detailed engineering or design.



This cost estimate specifically excludes the East-West corridor, as this alignment is being advanced through a separate planning process. The following items are also excluded from this estimate:

- Environmental mitigation
- Escalation beyond 2050 assumptions and cost fluctuation
- Building permits and inspections
- Additional ROW acquisition and resulting schedule impacts

The capital cost estimate range for the North-South corridor is broken down by component in **Table 6**. The difference between the low and high infrastructure cost estimates is driven by the conceptual planning level of this study. As this study does not include engineering/design, the study cannot assign a precise cost to many major infrastructure elements. The low estimate reflects a typical minimum scope for track upgrades, grade crossings, stations, and the operations and maintenance facility, while the high estimate accounts for the possibility that later engineering may identify more complex construction requirements, added scope, or field conditions not yet known. Development of conceptual design plans will be needed to narrow the range and refine the cost estimate.

Table 6: Capital Cost Estimate

Item	Low Estimate (2050 Capital Cost)	High Estimate (2050 Capital Cost)
Class IV Track Upgrades	\$1,210,000,000	\$2,170,000,000
Grade Crossing Upgrades	\$430,000,000	\$650,000,000
Stations	\$35,000,000	\$80,000,000
Operations and Maintenance Facility	\$100,000,000	\$160,000,000
Trainsets*	\$50,000,000	\$100,000,000
Project Reserve/Contingency	\$200,000,000	\$340,000,000
TOTAL	\$2,025,000,000	\$3,500,000,000



**Trainset estimate reflects vehicle procurement only; the 15-year maintenance contract included in the source cost estimate is accounted for under operations costs.*

Operations Costs

Estimated Annual Operations and Maintenance Cost (2050 Dollars): \$43M–\$47M

The following operations and maintenance (O&M) cost estimate provides a high-level understanding of the annual expenses associated with the operations and maintenance of the North-South passenger rail service. Developed for planning purposes, this estimate is based on the conceptual service plan and comparable systems and is intended to inform annual budget considerations rather than operations planning or procurement.

This cost estimate specifically excludes the East-West corridor, as this alignment is being advanced through a separate planning process. The following items are also excluded from this estimate:

- Potential staffing at stations
- Environmental mitigation

The annual operations and maintenance cost for the North-South corridor is shown in **Table 7**.

Table 7: O&M Cost Estimate

Item	Low Estimate (2050 Annualized Cost)	High Estimate (2050 Annualized Cost)
Operations	\$23,000,000	\$25,000,000
Contracted Maintenance	\$20,000,000	\$22,000,000
TOTAL	\$43,000,000	\$47,000,000

Revenue Generation

Revenue generation from a future passenger rail service represents an opportunity to offset a portion of annual operating costs as part of a long-term funding strategy. Fare revenue is typically measured using the farebox recovery ratio, which measures the share of operating costs covered by passenger fares. This metric helps define the level of ongoing public subsidy required for a transit service and shapes the overall funding strategy for operations and maintenance. Peer systems vary widely in farebox recovery but provide context for a range of fare revenue performance for a future North-South service. The farebox recovery ratios for



peer services in the Bay Area, including Caltrain, Capitol Corridor, and SMART, are shown in **Table 8**. A future market demand analysis should be conducted to refine ridership, fare revenue, and farebox recovery assumptions for the North-South service as part of subsequent planning and implementation phases.

Table 8: Peer System Farebox Recovery Ratios

Peer Service	Farebox Recovery Ratio	Source Year
Caltrain ⁸	28%	FY2024
Capitol Corridor ⁹	46%	FY2023-2024
SMART ¹⁰	8%	FY2024-2025

Community Impacts

To evaluate the potential community burden of a future passenger rail service, this study analyzed a variety of impacts along the proposed corridor using a high-level GIS scan validated by a Google Street View assessment. More details on community impacts and benefits are shown in **Appendix J**.

The assessed community impacts, shown in **Figure 7** and **Figure 8**, are defined below in **Table 9**.

Table 9: Community Impacts Assessed

Community Impact	Metric Assessed
Right-of-way	ROW less than 60 ft wide in segments requiring double tracking
Grade crossings	Considered high-risk if located within 750 ft of schools, parks, and higher-density housing
Noise and vibration	Buildings within 750 ft of commuter rail mainline

⁸ Caltrain Executive Director’s Monthly Report (November 2025)
⁹ Capitol Corridor Joint Powers Authority Business Plan Update (April 2025)
¹⁰ Marin Transit FY 2024/2025 System Performance Report (December 2025)



Community Impact	Metric Assessed
Economic burdens	Burden located in Metropolitan Transportation Commission (MTC) Equity Priority Community ¹¹ , Solano County Equity Communities ¹² , or Napa County Equity Priority Communities ¹³
Displacement potential	Residential station area parcels where land value is greater than improvement value
Environmental impacts	Station area located in Census block group in 70 th percentile or above of CalEnviroScreen ¹⁴

¹¹ Source: Metropolitan Transportation Commission Plan Bay Area 2050+
¹² Source: Solano County Thresholds for Disadvantaged Communities
¹³ Source: Napa Valley Transportation Authority Community-Based Transportation Plan
¹⁴ Source: Draft CalEnviroScreen 5.0

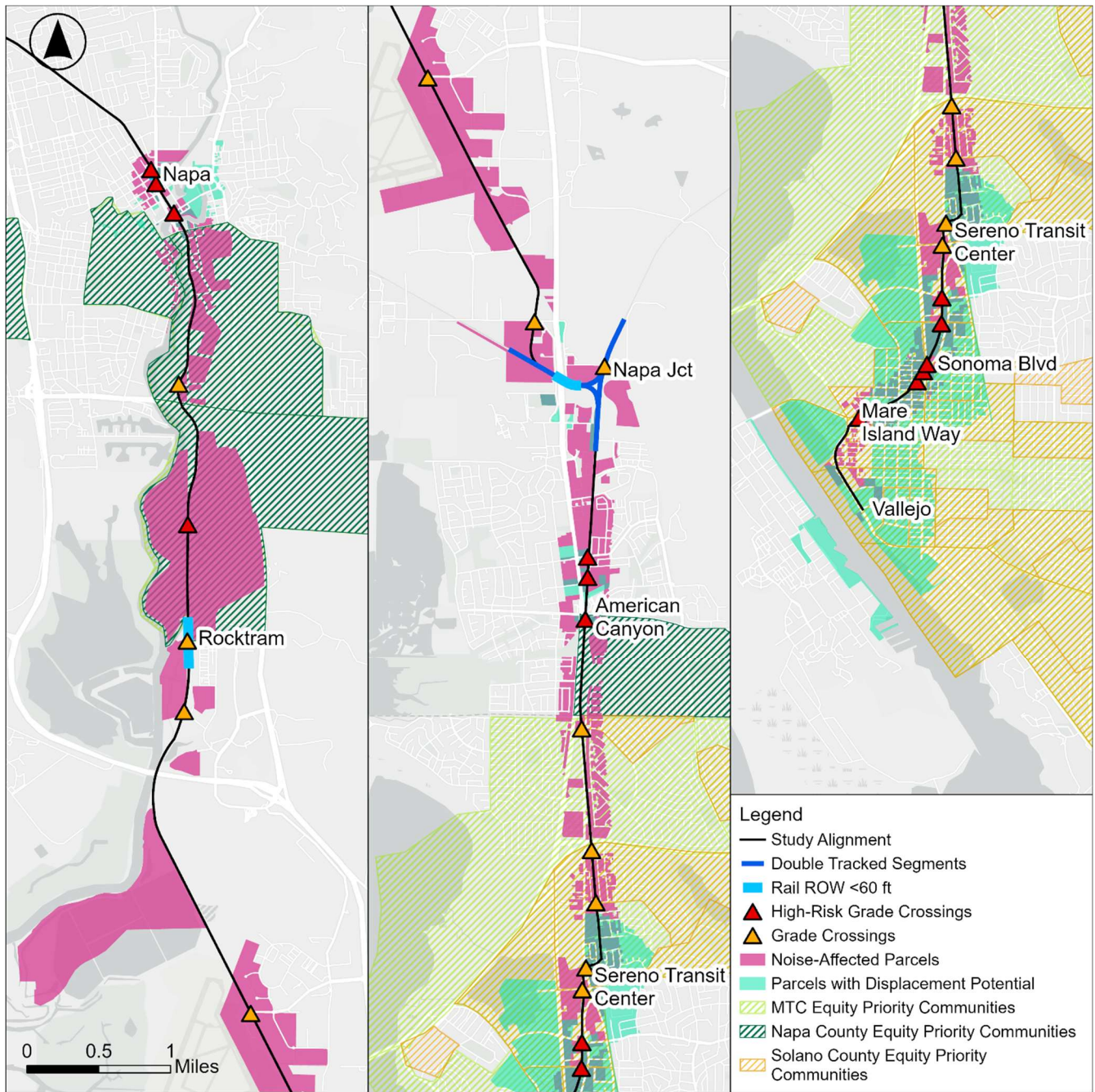


Figure 7: Concept 2B Community Impacts

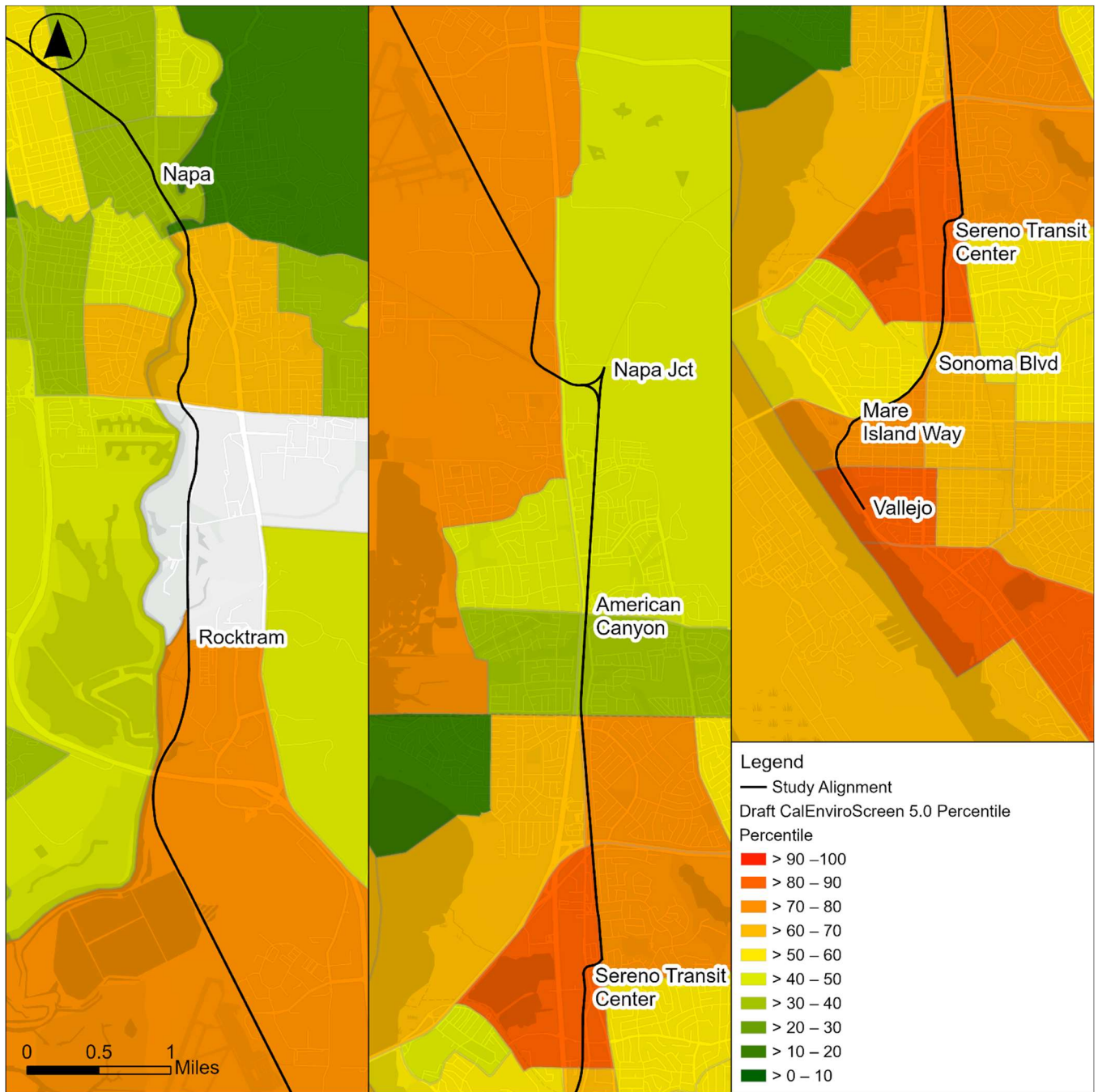


Figure 8: Study Area CalEnviroScreen 5.0 Percentile

As the service concept advances through planning and design, further analysis will be needed to determine the full extent of the community impacts. These impacts may include construction impacts in areas of constrained right-of-way in Vallejo, safety concerns and increased noise and vibration from elevated levels of train traffic, and potential displacement in residential



areas along the corridor. Preliminary mitigation measures to reduce adverse impacts of the future passenger rail service include, but may not be limited to:

1. **Grade crossing mitigation measures.** FRA funding is available for projects that mitigate grade crossing impacts, including grade separation, track relocation, or protective device installation.¹⁵
2. **Noise and vibration mitigation measures.** Communities may request a quiet zone through the FRA to limit train horn sounding. Other measures include sound barrier or insulation installation, vehicle noise reduction, relocation of special trackwork, or installation of continuously welded rail.¹⁶
3. **Anti-displacement strategies.** A range of possible anti-displacement strategies have been identified and warrant additional evaluation, including but not limited to: inclusionary zoning, housing trust funds, community benefits agreements, affordable housing financing measures, and reduced transit fare programs.¹⁷
4. **Equity-focused community engagement.** Future planning and design phases should include targeted engagement with Equity Priority Communities and other potentially affected neighborhoods along the corridor. Engagement should help identify community priorities, sensitive receptors, access needs, construction concerns, displacement risks, and opportunities to improve the distribution of project benefits. This process should inform mitigation strategies and help ensure that affected communities have meaningful input as the service concept advances.
5. **Air quality mitigation measures.** Future phases should evaluate potential air quality impacts associated with construction activities and rail operations, particularly in Equity Priority Communities and communities with a high CalEnviroScreen score. Potential mitigation measures may include use of cleaner construction equipment, dust control practices, reduced idling requirements, construction emissions management, and evaluation of low- or zero-emission rail vehicle technologies where feasible.

Community Benefits

This study also assessed community benefits, as the introduction of high-capacity transit can create significant benefits for an area by improving access to jobs, services, and regional destinations while making the corridor more attractive for investment and growth. Five of the eight conceptual station areas fall within zones designated as Priority Development Areas by

¹⁵ Source: Federal Railroad Administration Crossing Safety Program/Railroad Crossing Elimination Grant Program

¹⁶ Source: California High-Speed Rail Noise and Vibration Mitigation Guidelines; Federal Railroad Administration Quiet Zone Establishment Process

¹⁷ Source: Vallejo Passenger Rail Study



the MTC, indicating that future rail service could promote development opportunities.¹⁸ It should be noted that station locations are preliminary and require further assessment to determine their precise location. A significant investment in transit can deliver long-term community benefits, including economic development, improved mobility and access, and expanded housing opportunities through transit-oriented development. The assessed community benefits, as shown in **Figure 9**, are defined below in **Table 10**.

Table 10: Community Benefits Assessed

Community Benefit	Metric Assessed
Economic opportunities	Station located in MTC Priority Development Area
Economic development	Station area parcels where land value is greater than improvement value ¹⁹

¹⁸ Source: Metropolitan Transportation Commission Plan Bay Area 2050+

¹⁹ Parcels where land value exceeds improvement value may indicate development potential, but may also signal displacement risk in residential areas.

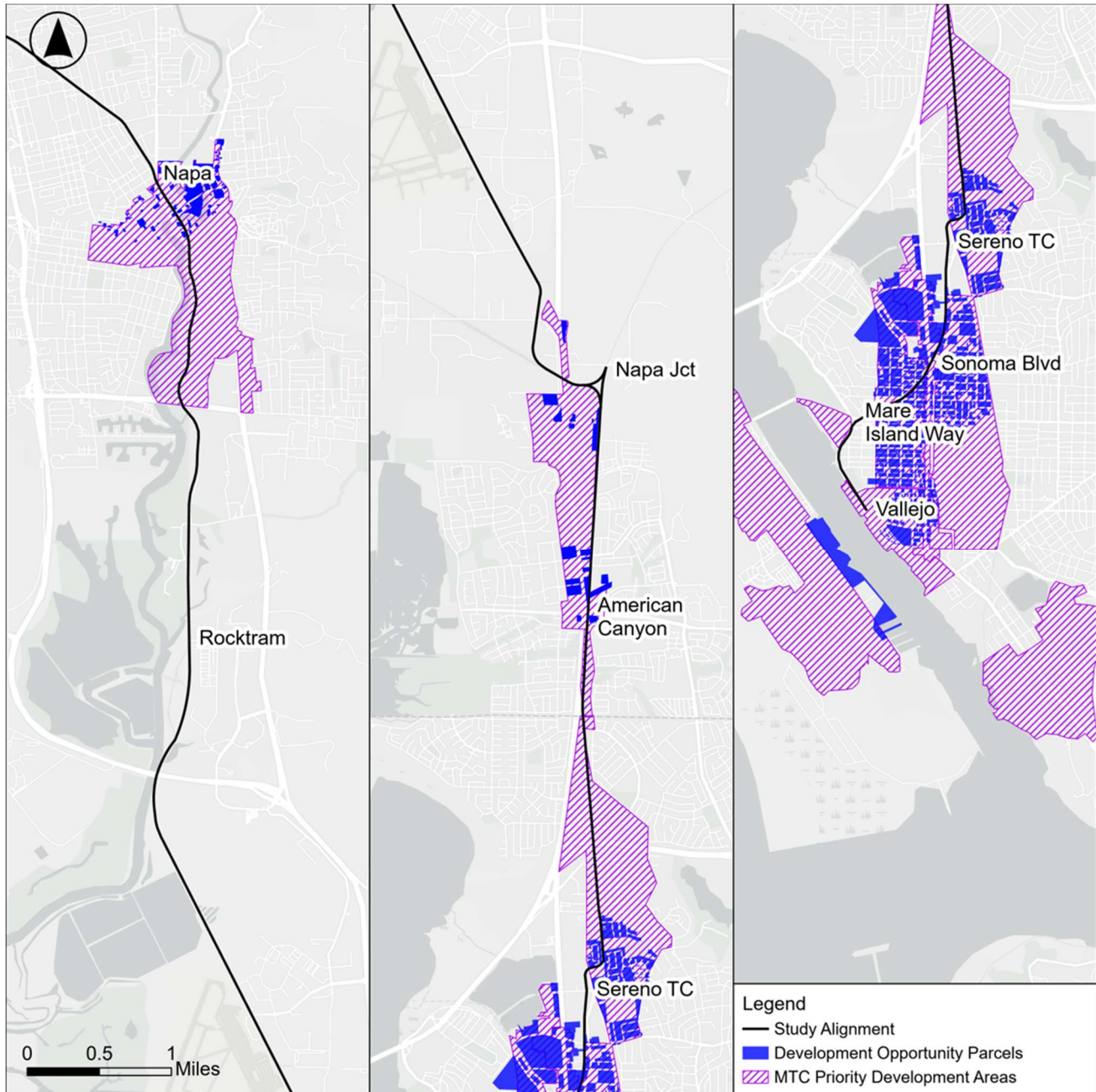


Figure 9: Concept 2B Community Benefits

Additional Benefits

Not all passenger rail benefits can be directly quantified at this stage of planning but remain important considerations when evaluating the benefits of a potential transit project. These benefits include reductions in greenhouse gas (GHG) emissions, improved air quality, and enhanced transportation system resilience and reliability.



Passenger rail can provide meaningful GHG emissions benefits by shifting trips from single-occupancy vehicles to higher-capacity transit. This shift reduces per-capita vehicle miles traveled (VMT) and decreases tailpipe emissions, particularly on corridors experiencing high levels of congestion where stop-and-go traffic increases emissions.

Over time, these reductions can compound as transit-oriented land use patterns develop in station areas, shortening trip lengths and encouraging transit trips. Passenger rail investment can support regional and statewide climate goals and reduce GHG emissions. These specific benefits can be further quantified through future analysis using travel demand modeling and emissions modeling tools to estimate changes in VMT and associated reductions in GHG emissions.



Governance Models

Delivering passenger rail service in the North Bay will require the establishment of an entity with the legal authority to plan, deliver, and operate rail service. Several Bay Area passenger rail providers represent potential governance models for this future service. As neither the STA nor the NVTA currently functions as a rail operator or infrastructure owner, this study evaluated peer service governance models for their applicability to a future North Bay passenger rail operating entity. More details on passenger rail governance models are shown in **Appendix K**.

Current Governance Structure

The NVTA and the STA function as congestion management agencies and are responsible for planning and funding local transportation projects. In addition, the NVTA is a joint powers authority and the transit provider for the area, with Transdev contracted as the operator and NVTA providing contract oversight and decision-making. For transit service in Solano County, SolTrans operates the SolanoExpress bus service on behalf of the STA. In their current forms, the NVTA and the STA lack the capacity for rail planning, delivery, or oversight, as well as the jurisdictional authority for the cross-county rail service proposed in this study.

Peer Services

As operators of other passenger rail services in the Bay Area, SMART, Capitol Corridor, Caltrain, and the Napa Valley Wine Train represent potential governance models for the Napa to Vallejo corridor. **Table 11** describes the legal authority for each entity, its revenue and funding sources, and its respective scope and capacity.

Table 11: Peer Service Governance Models

Peer Service	Legal Authority	Revenue & Funding	Capacity	Scope
SMART	Special Purpose District	Sales tax in service area; federal and state funding	Board of Directors: elected officials from Sonoma and Marin Counties, Golden Gate Bridge District Directly staffed and operated	Owns right-of-way, rolling stock and stations



Peer Service	Legal Authority	Revenue & Funding	Capacity	Scope
Capitol Corridor	Joint Powers Authority	State funding (Caltrans)	Board of Directors: elected officials from the 8-county service area Contracted Staff (Operations, planning, and management)	Shared use agreement with UPRR for track access Leases rolling stock and stations
Caltrain	Joint Powers Authority	Member contributions, federal and state grants, county sales taxes	Board of Directors: representatives from the 3-county service area Directly staffed for planning and management, with some administrative functions shared with the San Mateo County Transit District Operations are contracted	Owens right-of-way, rolling stock, stations and assets Shared use agreement with UPRR for track access between Tamien and Gilroy
Napa Valley Wine Train	Private Corporation	Fare revenue	Directly staffed and operated	Owens right-of-way and rolling stock

To advance passenger rail service in the North Bay, a critical next step for the STA, the NVTA, and other partners will be establishing an entity to operate rail service. The enabling legislation for this entity will need to integrate the following essential functions to successfully deliver a cross-county passenger rail service:

- Issuing long-term debt
- Acquiring right-of-way
- Delivering a large-scale capital project
- Complying with federal liability and insurance requirements for right-of-way ownership



Phased Implementation

North Bay passenger rail delivery will require a phased approach, allowing near-term mobility improvements to occur alongside long-term capital investment for the proposed rail service. Securing sufficient funding and implementing a governing authority will be ongoing efforts, but immediate improvements can provide a strong foundation by growing the transit market along the North-South corridor. Initial project phases prioritize actions to improve transit performance, connectivity, and ridership growth while the institutional groundwork and physical infrastructure for future rail operation is implemented.

Service Improvements

Phase 1 focuses on improvements to existing transit service in the North Bay to address evolving travel needs and strengthen a future market for passenger rail. These improvements include enhancements to bus service on current Napa-Vallejo routes through speed and reliability upgrades and improved connections.

Phases 2A and 2B are not sequential, with completion timelines determined by funding availability and the advancement of planning on the East-West service. Phase 2A delivers the East-West service via the FRA's Corridor ID program, establishing a connection between SMART in Novato and Capitol Corridor in Fairfield/Suisun City, creating an opportunity for transfers to interim bus service connecting to Napa and Vallejo.

Phase 2B implements the Napa-Vallejo corridor, completing the North Bay passenger rail network with transfers to the East-West service. The proposed service improvement phases are shown in **Table 12**. See **Appendix E** for a detailed description of the proposed service phases.

Table 12: Proposed Service Phases

Phasing*	Description	Potential Service Connections
Phase 1: Grow transit market through investments in bus service	Regional coordination and funding to support bus speed and reliability enhancements	Bus: Capitol Corridor at Suisun-Fairfield Amtrak Station Bus: Vallejo Ferry



Phasing*	Description	Potential Service Connections
Phase 2A: Establish regional rail connectivity	East-West rail delivered via Corridor ID	Rail: Capitol Corridor at Suisun-Fairfield Amtrak Station Rail: SMART Core service at Novato Bus: East-West at Napa Jct.
Phase 2B: Deliver full passenger rail vision	Implement Napa-Vallejo rail corridor	Rail: East-West at Napa Jct. Rail: Vallejo Ferry

**Phases 2A and 2B may advance independently based on funding, project readiness, and partner coordination.*



Next Steps

This study represents an early step in a longer planning and implementation process for potential passenger rail service between Napa and Vallejo. Future passenger rail delivery would require multiple additional phases, including market demand analysis, station area planning, alternatives refinement, governance and operating model development, environmental review, preliminary engineering, right-of-way coordination, funding strategy development, and final design. Given the scale and cost of passenger rail implementation, service is likely a long-term investment that would need to be advanced over multiple decades as travel demand, land use, funding, and institutional conditions mature. **Figure 10** depicts the role of this study in the overall passenger rail implementation process.

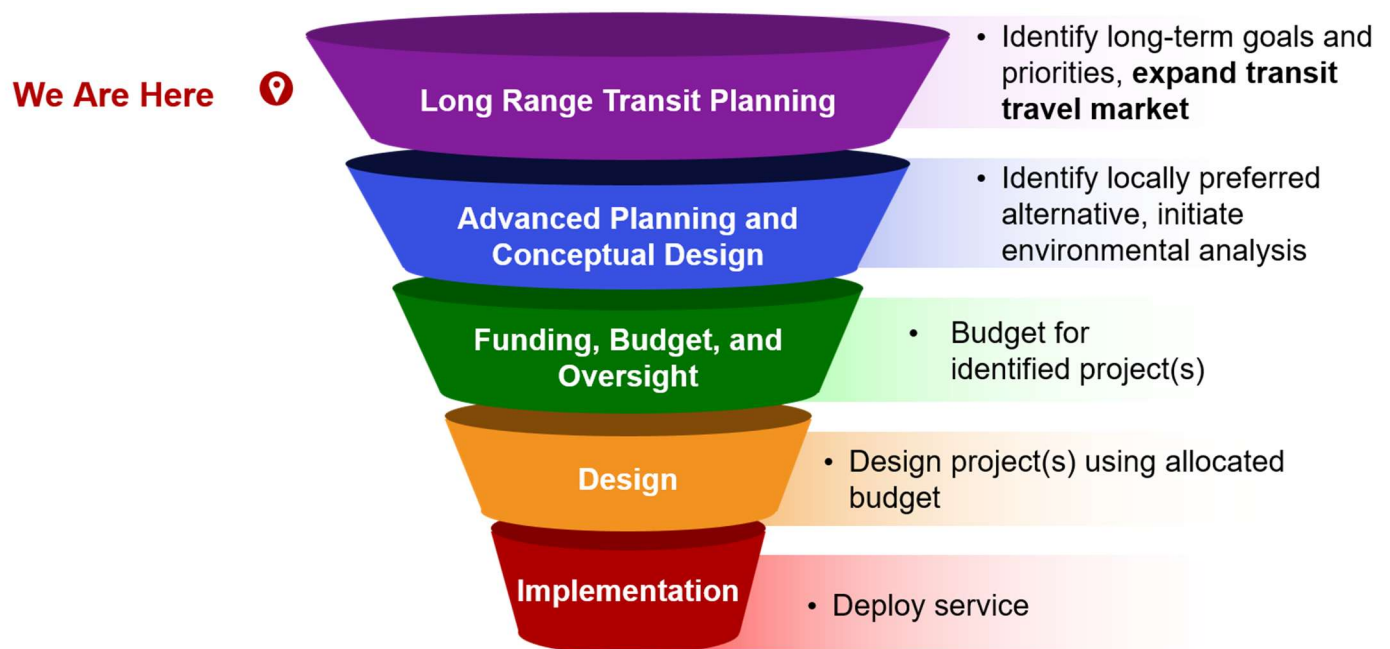


Figure 10: Passenger Rail Implementation Process

Immediate next steps for passenger rail delivery should prioritize actions that can be implemented in the near term to strengthen the corridor's transit market while advancing institutional readiness for rail operation, including:

1. **Enhancing existing Napa–Vallejo bus service** through targeted speed and reliability improvements, increased frequency, and improved connections to regional transit hubs. Planned improvements through the SR-29 American Canyon Corridor Improvements Project, including signal upgrades, multimodal improvements, Business Access and Transit lanes for Vine Transit vehicles during congested peak periods, and intersection queue jumps, will support faster and more reliable bus travel. Regional routes



connecting Napa to Del Norte BART and the Vallejo Ferry Terminal would benefit from these investments. MTC's Plan Bay Area 2050+ also recognizes the importance of funding increased frequency on Vine Transit Routes 10 and 11, which supports enhanced bus service as a near-term step toward higher-capacity transit.

2. **Advancing station area and access planning** to better understand potential station locations, land use opportunities, and multimodal connections. NVTa was awarded a \$250,000 Caltrans Sustainable Communities planning grant to develop a South Napa County Station Area Plan, expected to begin by January 2027. This effort will identify possible station locations, evaluate access and transit connections, and consider future land use around the station area.
3. **Evaluating and advancing governance and operating models** capable of delivering and managing a future cross-county passenger rail service, including identification of required authorities, funding mechanisms, and institutional structure.

At the same time, the STA, the NVTa, and regional partners should establish a passenger rail readiness monitoring framework to help determine when conditions may support advancing from enhanced bus service to more detailed rail planning. The framework should build on the Travel Market and Addressable Market analysis completed for this study but should not prescribe a single threshold for implementation. Instead, it should track whether a range of indicators are moving in a direction that supports higher-capacity transit investment. While current conditions support enhanced bus service, passenger rail implementation will become increasingly viable as the corridor demonstrates sustained transit demand and supportive land use patterns, among other indicators. These indicators may include:

- **Strong transit ridership growth**, particularly sustained increases in Napa-Vallejo bus ridership.
- **Increasing corridor congestion**, reflecting growing travel demand, increased vehicle travel times, and greater transit competitiveness.
- **Concentration of development along the future rail corridor**, including higher-density residential and employment growth.
- **Funding readiness**: Identification of sustainable capital and operating funding sources.
- **Institutional readiness**: Progress on governance, operating models, interagency coordination, and corridor owner/operator agreements.

Based on the current regional travel market and the high cost of passenger rail implementation, passenger rail is not yet the most cost-effective near-term transit solution to connect Napa and Vallejo. However, continued investment in bus service, supportive land use policies, and regional rail coordination can establish favorable conditions for passenger rail in the long term. Accordingly, this study recommends a **phased approach to passenger rail**



implementation, leveraging near-term improvements to enable high-capacity transit. This approach avoids delaying investment until demand is fully realized, instead positioning the corridor for passenger rail service as travel patterns evolve.