



SMART

Your train has arrived.

SMART RAIL SYSTEM SYSTEMWIDE EXPANSION AND OPPORTUNITIES

November 1, 2017

EXECUTIVE SUMMARY

- High Level review of Draft 2018 California State Rail Plan
- SMART's available opportunities

2018 California State Rail Plan

Connecting California

Draft



California State Rail Plan Vision Statement

California will have a premier, customer-focused, integrated rail system that successfully moves people and products while enhancing economic growth and quality of life.



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Role of Rail in Statewide Transport

Caltrans' mission in developing the California State Rail Plan is to provide a framework for a safe, sustainable, integrated, and efficient California rail network that successfully moves people and goods while enhancing the State's economy and livability.

“The 2018 California State Rail Plan establishes a statewide vision **describing a future integrated rail system** that provides comprehensive and coordinated service to passengers through more frequent service, and convenient transfers between rail services and transit.....”

“The Rail Plan assesses a changing funding landscape, including **the influence of newly funded Senate Bill 1 (SB 1) transportation package** and California’s Cap-and-Trade Program for reducing GHG emissions.....”

EXISTING RAIL SYSTEM



Exhibit 2.1: California Intercity and Commuter Rail Network (including connecting bus service)



Intercity Rail: Service Providers and Roles and Responsibilities

A JPA is a special entity created where two or more government agencies jointly exercise power over a shared service. Three JPAs have been established in California to organize and manage intercity passenger rail service across jurisdictional and geographic boundaries. JPAs have proven to be useful in scaling the provision of rail service across governmental geographies while maintaining the benefits of local knowledge of the market being served. The three JPAs are described below.

The State funds the services and provides oversight, including overall planning, coordinating, and budgeting, to ensure that the State-supported rail and Thruway bus system are integrated internally and with the rest of the commuter and planned HSR Systems, as well as the transit systems—with the goal of a statewide integrated and seamless system.

Appendix A describes State-supported intercity passenger rail agency roles and responsibilities.

Capitol Corridor Joint Powers Authority

The CCJPA was the first agency that took over administration of Intercity operations from Caltrans under the provisions of SB 457. The CCJPA board consists of two representatives from each of the eight counties along the 150-plus-mile route between Auburn and San Jose (Placer, Sacramento, Yolo, Solano, Contra Costa, San Francisco, Alameda, and Santa Clara Counties), which are represented by Placer County Transportation Planning Agency, Sacramento Regional Transit District, San Francisco BART District, Santa Clara Valley Transportation Authority, Solano Transportation Authority, and Yolo County Transportation District. BART provides day-to-day management support to the CCJPA, under contract. The CCJPA is also supported by the MTC and the Sacramento Area Council of Governments. The majority of the equipment on the route is owned by the State. Amtrak maintains the equipment, with oversight by the CCJPA.

Los Angeles–San Diego–San Luis Obispo Rail Corridor Agency

Effective July 1, 2015, administrative and oversight responsibility passed from Caltrans to the LOSSAN JPA under the provisions of an Interagency Transfer agreement between the State and LOSSAN that was completed pursuant to the provision of SB 1225 (2012). The LOSSAN Board of Directors is composed of current and former elected officials representing rail owners, operators, and planning agencies along Amtrak's *Pacific Surfliner* corridor between San Diego, Los Angeles, and San Luis Obispo. The Orange County Transportation Authority serves as the managing agency on behalf of the LOSSAN JPA. The *Pacific Surfliner* uses a combination of State- and Amtrak-owned equipment on the route. Amtrak owns the locomotives and 40 bi-level cars, as well as additional equipment leased from Amtrak; and the State owns 10 cars. Amtrak maintains the equipment.

San Joaquin Joint Powers Authority

The SJJPA took over management and administration of the *San Joaquin* service from the State in July 1, 2015, under the provisions of an ITA between the State and the SJJPA, pursuant to AB 1779 (2012). The ten Member Agencies that make up the SJJPA are Alameda County, Contra Costa Transportation Authority, Fresno Council of Governments, Kings County Association of Governments, Madera County Transportation Commission, Merced County Association of Governments, Sacramento Regional Transit, San Joaquin Regional Rail Commission, Stanislaus Council of Governments and Tulare County Association of Governments. The San Joaquin Regional Rail Commission is the Managing Agency for the SJJPA. The majority of the equipment on the route is owned by the State. Amtrak maintains the equipment, with oversight of equipment maintenance by the SJJPA and the CCJPA, working in partnership with Caltrans.



Intercity Rail: Emerging Corridors

Regional agencies and jurisdictions across California are currently engaged in coordinated planning with the state and rail operators to develop new passenger rail corridors and services, which provide opportunities to develop intercity and regional rail connections to a statewide passenger system

Coachella Valley – San Geronio Pass Rail Corridor

The Riverside County Transportation Commission (RCTC) has been studying passenger service in a 141 mile rail corridor between Los Angeles Union Station and Indio, CA since 1991. Passenger service in this corridor is being proposed to provide a safe, reliable, and convenient intercity passenger rail travel option to address mobility challenges that are likely to expand as growth in population, employment, and tourism increase.

RCTC, in coordination with the FRA, completed an Alternatives Analysis in 2016 that evaluated several alternatives for new intercity passenger rail service between Los Angeles and Indio. RCTC is preparing a Passenger Rail Corridor Investment Plan, including a Program Environmental Impact Statement (EIS)/ Program Environmental Impact Report for a twice daily roundtrip service, which will evaluate and conceptualize how service will operate in the corridor and what infrastructure improvements would be needed to accommodate the new service.



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Central Coast Rail

The Coast Route between Los Angeles, Santa Barbara, San Luis Obispo, Salinas and San Jose is defined as a state intercity passenger rail corridor in California Government Code. Regional agencies and jurisdictions along this route have been coordinating with Caltrans and rail operators, both independently and through a Coast Rail Coordinating Council, to develop proposals for expanding passenger rail service in the Central Coast counties.

Rail Extension to Salinas.

The Transportation Agency for Monterey County (TAMC) is planning an extension of passenger rail service to Salinas, which has been conceived as either an extension of Caltrain commuter rail service or Capitol Corridor intercity service, including two daily round trips to start with stops in San Jose, Gilroy, Pajaro/Watsonville, Castroville and Salinas. TAMC is proceeding with a reduced “Kick Start” project utilizing available state funds that would accommodate an initial service with station and track improvements at Gilroy and Salinas. TAMC is in the process of undertaking NEPA environmental review of the San Jose to Salinas segment, undertaking design work for capital improvements, purchasing right of way and coordinating with the state and rail operators on a strategy for implementing service.



Monterey Branch Line.

TAMC purchased the Monterey Branch Line between Castroville and Monterey from Union Pacific Railroad in 2003 with the intention of reestablishing intercity passenger rail service between the San Francisco Bay Area and the Monterey Peninsula. TAMC subsequently adopted a preferred alternative for Federal Transit Administration Small Starts funding identifying a light rail commuter service on a segment between Marina and Monterey with a future connection to intercity passenger rail service at Castroville, but this project has not progressed beyond the environmental stage due to a lack of funding. The Branch Line is currently being planned to include a commuter transit service guideway and remains an opportunity for providing a future passenger rail service connection for popular tourist destinations on the Monterey Peninsula.

Santa Cruz Branch Line.

The Santa Cruz County Regional Transportation Commission (SCCRTC) purchased the Santa Cruz Branch Line between Watsonville and Davenport, which is currently an active freight short line serving local industries. SCCRTC completed a feasibility study of passenger service alternatives in 2015, including various options for providing commuter service between Santa Cruz and Watsonville and connections to intercity passenger service at Pajaro/Watsonville, providing a reliable travel option in the congested Highway 1 corridor.

**Coast Route Service North of San Luis Obispo.**

The San Luis Obispo Council of Governments (SLOCOG), in coordination with its Central Coast Coordinating Council Partner agencies has planned a once daily intercity passenger rail service, referred to as the Coast Daylight, which has been conceived as an extension of Pacific Surfliner service north of San Luis Obispo to San Jose or San Francisco providing an additional passenger rail frequency on the Coast Route with proposed stops in Paso Robles, King City, Soledad, Salinas, Castroville, Pajaro/Watsonville and San Jose. Additional service in the Coast Route will provide passenger rail access to the state supported rail network, including access to the Fort Hunter Liggett military installation outside of King City.

SLOCOG completed an EIS/EIR for the Coast Route in San Luis Obispo and Monterey Counties in 2015 that encompassed a broad range of improvements identified in the Coast Corridor Service Development Plan completed by Caltrans in 2013 and previous plans and studies.

Central Valley: Tulare Cross Valley Corridor

The Tulare County Association of Governments (TCAG) is preparing a Cross Valley Corridor Plan to improve transportation system connections and mobility by developing a short line rail corridor between Huron and Porterville, a corridor that includes the proposed Kings/Tulare High Speed Rail Station and planned connections to the California High Speed Rail system. This corridor is planned to utilize existing rail right of way to provide passenger rail access to population centers in Kings-Tulare Counties, including the Lemoore Naval Air Station facility.



EXISTING RAIL SYSTEM

INTERCITY RAIL:

- Capitol Corridor Joint Powers Authority
- Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency (LOSSAN)
- San Joaquin Joint Powers Authority

EXISTING RAIL SYSTEM

INTERCITY RAIL: EMERGING CORRIDOR

- Coachella Valley – San Geronio Pass Rail Corridor
- Central Coast Rail (Coast Rail Coordinating Council)
 - Rail Extension to Salinas
 - Monterey Branch Line
 - Santa Cruz Branch Line
 - Coast Route Service North of San Luis Obispo
- Central Valley – Tulare Cross Valley Corridor

Commuter Rail

Commuter rail systems typically provide passenger service within a single region, and occasionally between regions. Service is more frequent during peak commuting periods. These commuter rail services are essential to supporting and connecting regional economies.

Commuter rail capital funding comes from Federal, State, and local sources, while operating funding is the responsibility of local and regional entities. Exhibit 2.2 and Exhibit 2.3 map these commuter rail services. Appendix A discusses other transit services that connect to the commuter rail lines.

Commuter rail in California currently operates in five markets:

Caltrain

Caltrain offers service from San Francisco through the San Francisco Peninsula to San Jose and Gilroy. Ridership for Fiscal Year (FY) 2016 was 19,233,427.^[89]

Route Description. Caltrain operates 7 days a week on 77 miles of track owned by the PCJPB—from San Francisco to Tamien in San Jose—and by the UPRR from Tamien to Gilroy. Caltrain serves 32 stations in 19 cities between the cities of San Francisco, San Jose, and Gilroy in the counties of San Francisco, San Mateo, and Santa Clara. The system has a mixture of local, limited, and express trains; and serves work centers in San Francisco, the Peninsula, and Silicon Valley, including developing residential areas in southern Santa Clara County. Caltrain operates 92 weekday trains between San Francisco and San Jose. Of the 92 trains, 22 are express Baby Bullet (limited-stop express) trains that have only 4 to 6 stops between San Francisco and San Jose.^[90] Weekdays, there is service at least every hour from 4 am until midnight, with significantly higher frequencies during peak commute periods.

89 Caltrain, Ridership, 2016. Accessed 2016.

90 Caltrain, Weekend Timetable, 2016. Accessed 2016.

The system provides extensive weekend service, including 36 Saturday trains and 32 Sunday trains. The weekend service consists primarily of local trains operating between San Francisco and San Jose Diridon stations on 1-hour headways from 7 am until 11 am on Saturdays, and 8 am to 10 pm on Sundays,^[91] supplemented by four Baby Bullet trains. On weekends, buses provide a connection between San Jose Diridon and Tamien stations between approximately 7:30 am and 10:30 pm.

The ridership increased by 9 percent between FY 2014 and FY 2015 and 3.7 percent between FY 2015 and FY 2016, with a total of 19.2 million total passengers for FY 2016. The frequency is dependent on time of day and location of stations, with the peak hours and busiest stations receiving the most frequent service. Caltrain owns and operates 118 passenger cars and 29 locomotives.^[92]

Travel Times. The current San Francisco to San Jose trip time is just over 1 hour and 30 minutes. Caltrain also offers two express trains at various times during a daily schedule. The Limited Stop train has a travel time of approximately 1 hour and 15 minutes to 1 hour and 30 minutes from San Francisco to San Jose. The Baby Bullet train has a San Francisco to San Jose trip time of approximately 1 hour and 5 minutes.^[93]

Proposed Improvement Strategies. Focused improvements in the Caltrain corridor include the electrification program, and installation of the PTC system. These improvements increase corridor frequency, efficiency and safety.



91 Caltrain, Weekend Timetable, April 2016. Accessed 2016.

92 Caltrain, Commute Fleet, April 2016. Accessed 2016.

93 Caltrain, Weekday Timetable, April 2016. Accessed 2017.

Altamont Corridor Express

ACE offers service from Stockton to San Jose via Livermore and Fremont. ACE ridership was approximately 1.3 million in FY 2015-2016.⁹⁴

Route Description. ACE operates on weekdays on over 85 miles of track owned by UPRR and PCJPB. ACE has just over 5,000 daily riders.⁹⁵ American Public Transportation Association, *Transit Ridership Report: Fourth Quarter 2016*, March 2017. Accessed 2016. ACE serves a total of 10 stations (Stockton, Lathrop/Manteca, Tracy, Vasco Road, Livermore, Pleasanton, Fremont, Great America, Santa Clara, and San Jose). Free parking is available at all stations, except at the Santa Clara and San Jose stations, where there is a daily fee of \$4 and \$3, respectively.

Travel Times. All westbound trips occur in the morning, with four total westbound trips departing Stockton between 4:20 am and 7:05 am. All four eastbound trips occur in the evening, departing San Jose between 3:35 pm and 6:38 pm. This schedule serves commuters working in San Jose, but also those commuting from the Central Valley to the Tri-Valley, and to BART for other Bay Area destinations. The running time between Stockton and San Jose is approximately 2 hours and 12 minutes.⁹⁶

Proposed Improvement Strategies. ACE received TIRCP funding for platform lengthening, and has begun to expand capacity and access. This includes new locomotives capable of handling longer trains on the same schedule. Additionally, ACE was awarded \$400 million from SB1 for additional ACEforward improvements.



94 American Public Transportation Association, *Transit Ridership Report: Fourth Quarter 2016*, March 2017. Accessed 2016

95 American Public Transportation Association, *Transit Ridership Report: Fourth Quarter 2016*, March 2017. Accessed 2016.

96 ACE Rail Schedule, October 2016, Accessed 2016.



Metrolink

Metrolink offers a large network of commuter rail services between Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura Counties. Metrolink served approximately 10.9 million passengers in FY 2015-2016.⁹⁷

Route Description. Metrolink currently operates 165 daily trains on weekdays, serving 55 stations on seven lines with over 39,000 daily weekday passengers.⁹⁸ The seven lines and their approximate running times are shown in **Table A.5** in Appendix A.

Most weekday trains operate during peak commuting hours before 8:30 a.m. and after 3:30 p.m. Metrolink also provides Saturday and Sunday service on the Antelope Valley, San Bernardino, Orange County, Inland Empire-Orange County, and 91 lines.

Metrolink has a total of 534 route-miles in the regional system; of those, 146 are shared route miles, where Metrolink trains share the track with freight and other passenger trains.⁹⁹ All Metrolink stations have ticket-vending machines. Stations on the Metrolink routes are owned by the cities or regional transportation agencies, and over 30,000 parking spaces are provided the majority of which are free.

Travel Times. Current travel time from Los Angeles to San Bernardino is 1 hour and 43 minutes; from Los Angeles to Riverside is 1 hour and 28 minutes; and from Los Angeles to Perris takes 2 hours and 13 minutes.

Proposed Improvement Strategies. Significant improvements are being realized through a majority replacement of the locomotive fleet with new Electro-Motive Diesel (EMD) F-125 locomotives. Metrolink is also at the forefront of PTC completion, which will significantly increase safety.



97 American Public Transportation Association, *Transit Ridership Report: Fourth Quarter 2016*, March 2017. Accessed 2016

98 *ibid*

99 *ibid*

COASTER

COASTER commuter trains offer service along the San Diego County coastline, from Oceanside to San Diego, via Carlsbad, Encinitas, and Solana Beach. COASTER served 1,556,056 passengers in FY 2015-2016.¹⁰⁰

Route Description. The COASTER serves an average of 5,700 weekday passengers at eight stations between San Diego and Oceanside on 41 route-miles. It runs 126 trains per week that primarily are concentrated during peak periods¹⁰¹. Four round trips are operated on Saturdays, Sundays, and holidays. Additional service is provided in the spring and summer, and for special events such as home games at Petco Park for the San Diego Padres Major League Baseball franchise. All stations have free parking available, except downtown San Diego's Santa Fe Depot, where metered parking is available. Trains run between Oceanside and San Diego Santa Fe Depot from approximately 5:00 am to 8:30 pm.

Travel Times. Current travel time from Oceanside to San Diego is approximately 1 hour.



100 North County Transit District, Personal Communications, May 2017.

101 COASTER, Fact Sheet, 2016. Accessed 2016

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Sonoma-Marín Area Rail Transit

SMART is a voter-approved commuter rail service that will initially run from Santa Rosa to San Rafael. Rail service on the initial segment will commence in 2017.

Route Description. SMART's initial segment runs 43 miles from Sonoma County Airport in Santa Rosa, south to San Rafael Transit Center, with eight intermediate stops. Trains began commercial operations on August 25, 2017. The service will eventually serve 14 stations along 70 miles of rail, from Cloverdale to Larkspur Landing, where it will connect with commuter Golden Gate ferries to/from San Francisco, although the first phase in operation is from Santa Rosa Airport to San Rafael, a 43 miles section. The project aims to bring the publicly owned Northwestern Pacific Railroad alignment into passenger use to encourage modal shift and relieve traffic on Highway 101. Passenger service beyond the initial operating will be extended as funding becomes available.¹⁰²

Seven self-propelled Diesel Multiple Unit trainsets, each with two cars, will operate along the initial segment. Trains will run every 30 minutes in both directions during peak weekday hours, with one mid-day trip scheduled. SMART also will provide weekend service.

Travel Times. SMART is scheduled to launch passenger service in late-spring 2017. The estimated travel time from the northernmost station, Sonoma County Airport, to the southernmost station, San Rafael, is 1 hour and 7 minutes.

Proposed Improvement Strategies. The key improvements to this corridor include extensions to Cloverdale and Larkspur, adding service for additional markets and connections to the Bay Area.



102 Sonoma-Marín Area Rail Transit, Website, 2016. Accessed 2016



EXISTING RAIL SYSTEM

COMMUTER RAIL:

- Caltrain
- Altamont Corridor Express
- Metrolink
- COASTER
- Sonoma-Marín Area Rail Transit District (SMART)

COMMUTER RAIL NORTHERN CALIFORNIA



Exhibit 2.3: California Commuter Rail Services (Northern California)

PUBLIC OWNERSHIP OF RAIL



Exhibit 2.5: Class I and Public Agency Owned Rail System



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Proposed Passenger Improvements and Investments

Chapter 4 presents the service improvements and investments needed to achieve the Rail Plan Vision. The Rail Plan supports near-term plans and proposals being developed in individual corridors and regions, with a 2022 targeted completion date; but presents a flexible, corridor-level framework for developing the passenger rail system over the long-term, 2040 time horizon of the plan. This framework is intended to serve as the basis for State-led service implementation planning to be undertaken in coordination with regional agencies, rail operators, and stakeholders to achieve the 2040 Rail Plan Vision. The Rail Plan does not seek to prescribe specific projects or solutions and their associated costs, but rather to provide a path for implementation and a common understanding of how the State's rail network should develop to meet State goals.

PROPOSED PASSENGER IMPROVEMENTS AND INVESTMENTS

SERVICE AREAS:

- Central Valley and Sierra Nevada
- **North San Francisco Bay Area and the North Coast**
- South San Francisco Bay Area
- Central Coast
- Las Vegas to High Speed Rail
- LOSSAN North and Antelope Valley
- Los Angeles Urban Mobility Corridor
- Inland Empire
- LOSSAN South

PROPOSED PASSENGER IMPROVEMENTS AND INVESTMENTS

Organizational Framework - each Service Area divided into:

- Time Periods:
 - » Short-Term=2022
 - » Medium-Term = 2027
 - » Long-Term = 2040
- Service Goals
- Infrastructure Investments

2022 SHORT-TERM SERVICE GOALS

4.6.2 North San Francisco Bay Area and the North Coast

The 2022 Short-Term Plan regional goals focus on optimizing existing rail services and building on the recently established SMART service from San Rafael to Sonoma County Airport, launched on August 25, 2017 with 17 weekday round trips (and 5 weekend round trips), including half-hourly peak period service. Primary goals include improving intercity rail service and connectivity between Oakland and Roseville, and enhancing connectivity between the North Bay and North Coast and the rest of the statewide network through well-timed Integrated Express Bus and transit connections, while planning for longer-term rail investments.

Service Goals and Improvements:

Improve service speeds and frequencies between Roseville and Oakland with track and right-of-way improvements, and by introducing an optimized rail schedule that better uses capacity available under existing and enhanced railroad agreements across all intercity rail service providers.

- Improve ridership and revenue on intercity and regional rail services through enhancing Integrated Express Bus services, and through improving connectivity to high-frequency urban transit networks at rail stations throughout the corridor between Roseville and Oakland
- Connect SMART at the San Rafael Transit Center to Richmond with Integrated Express Bus services.
- Expand SMART rail service to Larkspur in the south and add new transfer to expand capacity and connect communities in the North Bay Area to an integrated ferry connection to San Francisco.
- Improvements to bus services to better connect communities north of Sonoma County Airport (on the North Coast) and in the Napa Valley, with SMART, as well as with intercity services in Solano County and at Martinez.

Planning, Analysis, and Project Development:

- Evaluate options for higher-capacity hourly off-peak and half-hourly peak intercity rail service between Sacramento and Oakland on the existing alignment (with the potential for some trips being served by Integrated Express bus in low-congestion periods).
- Evaluate options for improved connections at Martinez for trains between Stockton and Martinez with those traveling between Sacramento and Oakland.
- Evaluate intercity and regional rail options for the Sacramento to Oakland corridor, allowing both local and express services over all or part of the route. Include an assessment of service needs with and without a new Transbay crossing to San Francisco and the Peninsula, as well as the business case and phasing recommendations for adding service beyond what is possible on the existing alignment.
- Evaluate options for fully integrated express bus services connecting northern California communities with SMART and the State's intercity rail corridors.
- Plan for completion of SMART to Cloverdale by 2027.
- Evaluate expansion of rail service from San Rafael, Sonoma, and Napa Counties to Solano County, considering rail service primarily on existing rail alignments with potential connections to the statewide network at Fairfield-Suisun or near Vallejo.

2022 SHORT-TERM PLAN – SERVICE GOALS

- Expand SMART rail service to Larkspur.
- Connect SMART at the San Rafael Transit Center to Richmond with Integrated Express Bus services.
- Evaluate expansion of rail service from San Rafael, Sonoma, and Napa Counties to Solano County, considering rail service primarily on existing rail alignments with potential connections to the statewide network at Fairfield-Suisun or near Vallejo.
- Improvements to bus services to better connect communities north of Sonoma County Airport (on the North Coast) and in the Napa Valley, with SMART, as well as with Intercity services in Solano County and at Martinez.

2022 (Near-Term) Infrastructure Investment

The 2022 services goals and Capital Program are focused on identifying the planned, committed, or otherwise under-construction projects that will ultimately serve the network identified in the 2040 Vision. Goals for the 2022 Capital Programs and projects list, which will potentially be achieved earlier than 2022, include relevant State-level projects that are already scoped, scheduled, and budgeted; and establish existing conditions for future capital cost

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Intercity Rail Impr expansion and sp

intercity rail services, grade separations and other safety improvements, and shared freight corridor improvements like new sidings and double-tracking sections. In addition, a number of planning studies have been identified and included in the Capital Program to explore project implementation for future service goals. These projects positively impact the statewide network, improving interregional corridors and overall connectivity goals, inciting State interest in project sponsorship and funding.

2022 SHORT-TERM INFRASTRUCTURE INVESTMENTS

There are a number of commuter rail improvements identified in the 2022 Capital Program, including the initial stages of *ACEforward*, SMART, and Caltrain's Peninsula Corridor Electrification Project.



2022 SHORT-TERM INFRASTRUCTURE INVESTMENTS

Table 6.1 catalogs capital costs for projects supporting the integrated statewide network in 2022. Costs attributed to locally led, privately

sponsored, or CHSRA-programmed projects are included in the overall 2040 Vision.

Table 6.1: 2022 Short-Term Project List (thousands \$)¹⁶⁸

Planning Area	Corridor	2022 Capital Projects	2022 Capital Cost (thousands \$)	2022 Pricing Source
South Bay Area	San Francisco-San Jose	Peninsula Corridor Electrification Program	\$1,980,000	Caltrain
		Completion of Full Electrified Service + Targeted Corridor Infrastructure Improvements/Grade Sep Planning	\$280,000	Caltrain + Regional Programming
		CBOSS Positive Train Control	\$248,000	Caltrain
		25th Ave Grade Separation	\$165,000	Caltrain
		South San Francisco Station Improvements	\$61,000	Caltrain
South Bay Area	San Jose-Gilroy	PTC Expansion + Added Frequency	\$47,000	FRA Award + Regional Programming
South Bay Area	San Jose-Stockton	ACEforward Capacity Expansion	\$26,000	TIRCP/AQMD Award
South Bay Area	Oakland-San Jose	Coast Subdivision Rail Corridor Improvements	\$20,000	CCJPA
South Bay Area	Multiple	Regional Network & Service Integration Project Development (Peninsula, Dumbarton, East Bay, Altamont)	\$6,000	CSRP Pricing Catalog
North Bay Area	San Francisco-Oakland	New Transbay Crossing Planning	\$10,000	BART
North Bay Area	Multiple	North Bay to Sacramento Network & Service Integration Project Development (Marin, Sonoma, Napa, Solano, Yolo, Sacramento, Contra Costa, Alameda)	\$3,000	CSRP Pricing Catalog
North Bay Area	Larkspur-Cloverdale	SMART San Rafael - Larkspur Connection Ferry Connection to San Francisco	\$84,000	SMART
		2 New Trainsets for expanded capacity	\$11,000	TIRCP Award
		San Rafael Transit Center	\$30,000	SMART
Central Valley/Sierra Nevada	Sacramento-Roseville	Placer County Service Expansion (Increased Capitol Corridor service)	\$79,000	TIRCP Award
Central Valley/Sierra Nevada	Fresno-Stockton	Merced Station Double Tracking	\$10,000	CTC Allocation
		Stockton to Escalon Double Track	\$23,000	CTC Allocation
		Stockton Maintenance Facility Lead Track & Stockton Wye	\$32,000	Caltrans
		Bi-Hourly + Morning Express Service Expansion	\$36,000	Caltrans



168 Estimated costs in 2018 dollars. These costs are planning-level estimates and require further study in implementation.



2022 SHORT-TERM INFRASTRUCTURE INVESTMENTS

North Bay Area	Multiple	North Bay to Sacramento Network & Service Integration Project Development (Marin, Sonoma, Napa, Solano, Yolo, Sacramento, Contra Costa, Alameda)	\$3,000	CSRP Pricing Catalog
North Bay Area	Larkspur-Cloverdale	SMART San Rafael - Larkspur Connection Ferry Connection to San Francisco	\$84,000	SMART
		2 New Trainsets for expanded capacity	\$11,000	TIRCP Award
		San Rafael Transit Center	\$30,000	SMART

2027 MID-TERM SERVICE GOALS

4.8.2 North San Francisco Bay Area and the North Coast

The Rail Plan supports investments that leverage full use of existing regional corridor capacity between Sacramento and Oakland; expansion of planned rail service in Marin and Sonoma Counties; and implementation of Integrated Express Bus service to the statewide network in Solano County.

Service Goals and Improvements

- Integrated regional service from Larkspur to Cloverdale as part of SMART Phase 2, increasing the utility of the service, and providing a rail link between northern Sonoma County and North Coast communities with ferry connections to San Francisco.
 - Integrated Express Bus services connecting SMART services to North Coast communities, to Richmond, to regional and HSR services in San Francisco, and to the statewide rail network at Suisun-Fairfield.
 - Integrated Express Bus services connecting Napa County and Suisun-Fairfield.
- Half-hourly peak and hourly off-peak intercity service from Oakland to Sacramento (with the potential for some trips to be served by Integrated Express bus in low-congestion periods, should sufficient railroad capacity not be available).
- Stockton-Richmond/Martinez bi-hourly regional service for connections to statewide rail network.
 - Richmond/Martinez station connectivity investment to turn Stockton-Richmond/Martinez trains.
- Implement improvements to Integrated Express Bus network recommended by 2022 study.

Planning, Analysis, and Project Development:

- Implementation planning for a connection from Marin and Napa Counties to the state network at a Solano County hub, based on the results of the 2022 evaluation.
- Planning for a new electrified alignment between Richmond and the Solano County hub, including selection of an alignment and determination of service needs for express and local service on the corridor.
- Begin implementation of results of study on intercity and regional rail options for the Sacramento to Oakland corridor, including detailed planning based on Transbay tunnel decision.
- Assist communities throughout the North Bay and North State area in better connecting transit systems to rail and enhancing station area functions.



2027 MID-TERM PLAN – SERVICE GOALS

- Integrated regional rail service from Larkspur to Cloverdale as part of SMART Phase 2, increasing the utility of the service, and providing a rail link between Northern Sonoma County and North Coast.
- Integrated Express Bus services connecting SMART services to North Coast communities, to Richmond, to regional and High Speed Rail services in San Francisco, and to the statewide rail network at Suisun Fairfield.

2027 MID-TERM INFRASTRUCTURE IMPROVEMENTS

2027 (Mid-Term) Infrastructure Investment

The 2027 Capital Program and service goals are focused on maximizing the potential of existing infrastructure, making full use of available passenger rail capacity, and making key investments in regional networks to prepare for integration with HSR. In identifying service goals for 2027, every rail network in the state was carefully examined to identify latent capacity for additional service, while assessing it against the ridership potential of the corridor. Goals for the 2027 Capital Program include identifying achievable mid-term improvements that affordably increase opportunities for additional long-distance passenger rail trips per day, while strengthening an integrated rail network that leverages HSR investments and enables rapid statewide travel by rail, creating more options for auto-dependent communities.

Key projects in the 2027 Capital Program include preparing regional networks to connect to and leverage HSR service. Additional service frequencies and improved speeds connecting greater Los Angeles, Orange County, and the Inland Empire to HSR hubs at Burbank, Los Angeles Union Station, and Anaheim are key investments in this time period. Similarly, investments include improving blended-speed regional service expansions in the Central Valley, for interim connections from HSR in Merced to Stockton and Sacramento.

HSR capital costs include projects necessary to complete valley to valley service delivery.

Intercity rail improvements include further capacity improvements, service expansions, and infrastructure around the state. The 2027 Capital Program includes supporting extended service in Sonoma County to Cloverdale; enhanced capacity between San Jose and Sacramento with improving travel times, frequency, and other right-of-way improvements building toward electrification of the corridor; and increasing service frequencies north of Sacramento to Placer County.

The plan supports increased service on the coastal corridors, using strategic track investments, sidings, layover facilities, and other capacity and speed improvements to bring service to the coast throughout the day. Additional service on the Central Coast, providing connections north to the San

Francisco Bay Area, and connections south to the Los Angeles area, will provide residents and businesses with frequent, fast, and reliable connections within the Central Coast, and beyond to high-speed hubs in Gilroy and Burbank.

Urban Rail investments include expansions of Los Angeles, San Diego, Sacramento, and San Francisco Bay Area rail transit networks largely funded through local ballot initiatives. These projects are extensions and connections in the existing transit networks identified and led by relevant local stakeholders. Major investments include the completion of BART service to San Jose, numerous expansions of the LA Metro system, and extending rail service to the Sacramento International Airport.

The Las Vegas High Speed Rail (Las Vegas HSR) project is included in the 2027 capital project time horizon.

Table 6.2 catalogs capital costs for projects supporting the integrated statewide network in 2027. Costs attributed to locally led, privately sponsored, or CHSRA-programmed projects are included in the overall 2040 Vision.

Table 6.2: 2027 Capital Costs¹⁶⁹

Planning Area	Capital Cost (thousands \$)
South Bay Area	\$7,320,000
North Bay Area	\$520,000
Central Valley/Sierra Nevada	\$1,150,000
Central Coast	\$250,000
LOSSAN North	\$550,000
Las Vegas HSR	\$10,500,000
LA Urban Mobility Corridor	\$2,500,000
Inland Empire	\$950,000
LOSSAN South	\$950,000
Statewide	\$22,310,000
Total	\$47,000,000

¹⁶⁹ Estimated costs in 2018 dollars. These costs are planning level estimates and require further study in implementation.



**2027 MID-TERM
INFRASTRUCTURE
IMPROVEMENTS**

Table 6.2: 2027 Capital Costs^[169]

Planning Area	Capital Cost [thousands \$]
South Bay Area	\$7,320,000
North Bay Area	\$520,000
Central Valley/Sierra Nevada	\$1,150,000
Central Coast	\$250,000
LOSSAN North	\$550,000
Las Vegas HSR	\$10,500,000
LA Urban Mobility Corridor	\$2,500,000
Inland Empire	\$950,000
LOSSAN South	\$950,000
Statewide	\$22,310,000
Total	\$47,000,000

2040 LONG-TERM SERVICE GOALS

4.10.2 North San Francisco Bay Area

The 2040 Vision in the North San Francisco Bay Area will provide for fast, frequent service connecting the Sacramento region and outer Solano and Contra Costa County suburbs to Oakland and San Francisco, with connections to Napa, Marin, and Sonoma Counties, and to the North Coast. Development of the 2040 Vision in the North San Francisco Bay Area is dependent on decisions to pursue construction of a second Transbay tube between the San Francisco Transbay Terminal and Oakland. This possible long-term improvement provides an opportunity to extend conventional electrified rail services, including HSR from Southern California and regional electric service between San Jose and San Francisco, across the Bay to Oakland; and connect electrified passenger rail service from Sacramento directly to San Francisco and San Jose along the Peninsula Corridor. An electrified conventional rail tube also offers the opportunity for additional regional electric service for regional trips between Solano County and the East Bay to San Francisco and San Jose as an option for relieving severe congestion in the I-80 and I-880 highway corridors, especially during peak commute periods. The cost of a new Transbay tube could be justified by the access to additional travel markets made possible by this improvement, supporting ridership on the intercity passenger rail network and congestion reduction.

Service Goals and Improvements:

- Half-hourly electrified intercity service between Sacramento and San Francisco through an Oakland hub (and continuing to San Jose).
- Half-hourly electrified regional service between a Solano County hub and San Francisco via a Richmond and Oakland hub.
- Half-hourly electrified local service between a Solano County hub and an East Bay Hub through Richmond and Oakland on a dedicated electrified passenger line south of Oakland.
- Hourly service connecting the Stockton Area Hub and Martinez/Richmond.
- Half-hourly peak and hourly off-peak service between Cloverdale and Larkspur corridor with Integrated Express Bus connections from San Rafael to San Francisco and Richmond, and Ferry connections from Larkspur to San Francisco.
- Hourly service between a Solano County Hub and Novato, providing timed connections to service between Cloverdale and Larkspur, or through service to Marin or Sonoma Counties.
- Hourly service between Napa and the Solano County Hub, providing connection between Napa County and the State rail network.



2040 LONG-TERM PLAN – SERVICE GOALS

- Implementation and planning for a connection from Marin and Napa Counties to the state network at a Solano County hub, based on the results of the 2022 evaluation.
- Assist communities throughout the North Bay and North State area in better connecting transit systems to rail and enhancing station area functions.
- Half-hourly peak and hourly off peak service between Cloverdale and Larkspur corridor with Integrated Express Bus connections from San Rafael to San Francisco and Richmond, and Ferry connections from Larkspur to San Francisco.

2040 LONG-TERM INFRASTRUCTURE INVESTMENTS

2040 (Long-Term) Infrastructure Investment

The 2040 Capital Program is focused on completion of the full build-out of regional networks to integrate the statewide system and High Speed Rail with unified service throughout the state. The program represents the long-term investments needed to achieve the passenger rail service goals described in the 2040 Vision (see Chapter 4). These include incremental projects built to expand and connect previously described services in the 2022 and 2027 programs, wider-scale investments to modernize services through electrification and connectivity improvements at station hubs, and large infrastructure projects like HSR expansion, intermodal hubs, new Transbay tube, and urban rail transit investments.

HSR expansion plays of key importance to the 2040 Capital Program, and includes electrified blended service from Sacramento to Merced and through the Inland Empire, as well as HSR service to San Diego.

Intercity rail improvements for 2040 include electrification of express services in both Northern and Southern California, complementing HSR in network hubs with pulsed service schedules to achieve the 2040 Vision.

This includes wide-scale electrification of intercity services in the San Jose–Oakland–Sacramento corridor, Central Valley from Merced to Sacramento, and Inland Empire, from Los Angeles separately to San Bernardino and Riverside, and on to the Coachella Valley. Large investments are identified for a shared second Transbay tube (hosting regional and intercity rail) to improve San Francisco-to-Oakland capacity, and improve overall Northern California network functionality. Complementary services to the HSR expansion are included in both the Sacramento-to-Merced corridor, east-west in the Central Valley, and throughout the Inland Empire. These projects require numerous grade separations and track improvements to support service speeds and safety in identified corridors.

The end result is a modern, energy efficient, and fully integrated statewide network providing the frequent, fast, and pulse scheduled services described in the 2040 Vision. This network will provide seamless service to passengers, and serve as the high-level State investment needed for California to be increasingly economically competitive while true to its environmental and equity goals, improving quality of life across the state.

Table 6.3 catalogs capital costs for projects supporting the integrated statewide network in 2040.

Table 6.3: 2040 Capital Costs¹⁷⁰

Planning Area	Capital Cost [thousands \$]
South Bay Area	\$5,000,000
North Bay Area	\$18,400,000
Central Valley/Sierra Nevada	\$4,900,000
Central Coast	\$1,500,000
LOSSAN North	\$700,000
Inland Empire	\$17,300,000
LOSSAN South	\$1,200,000
Statewide	\$36,000,000
Total	\$85,000,000

¹⁷⁰ Estimated costs in 2018 dollars. These costs are planning-level estimates and require further study in implementation.

2040 LONG-TERM INFRASTRUCTURE INVESTMENTS

Table 6.3: 2040 Capital Costs^[170]

Planning Area	Capital Cost [thousands \$]
South Bay Area	\$5,000,000
North Bay Area	\$18,400,000
Central Valley/Sierra Nevada	\$4,900,000
Central Coast	\$1,500,000
LOSSAN North	\$700,000
Inland Empire	\$17,300,000
LOSSAN South	\$1,200,000
Statewide	\$36,000,000
Total	\$85,000,000

2040 CA RAIL VISION MAP



Exhibit 4.2: Caltrans Statewide 2040 Vision Rail Map

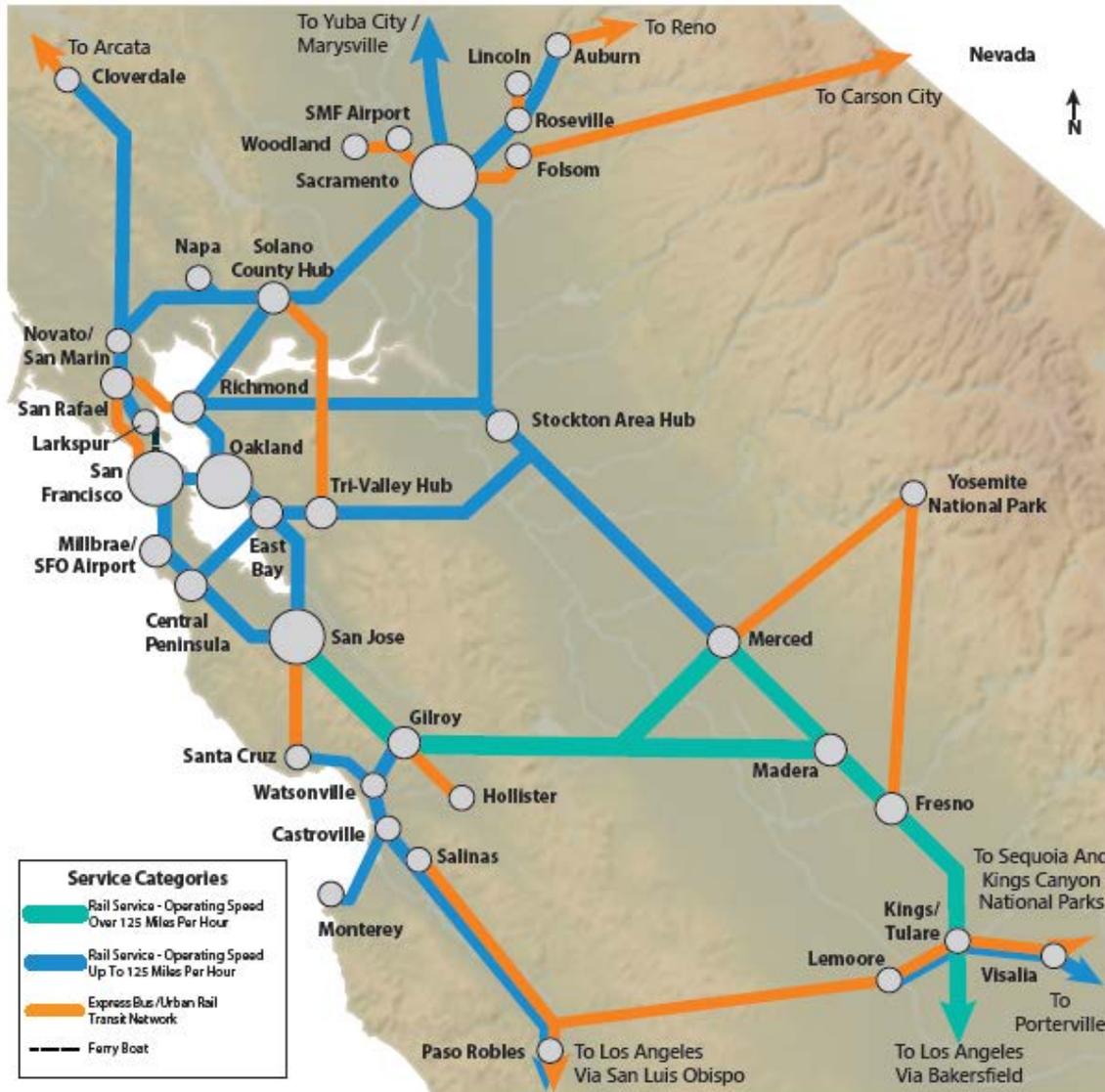


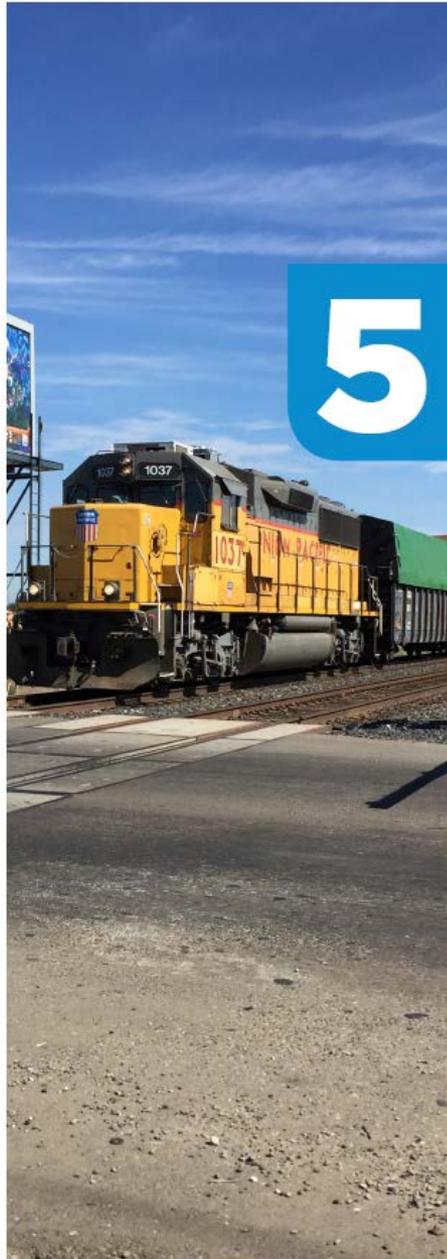
Exhibit 4.3: Northern California Service (2040 Vision)

FREIGHT RAIL DISCUSSION



5

Freight Rail Investment Strategy



Since its initial development in the 19th century, California's rail network has evolved in response to the changing needs of what is now the United States' largest state economy. The freight rail network, responsible for the movement of goods that generate that economic competitiveness, operates on privately owned infrastructure that has integrated freight and passenger service on the same tracks. To date, private capital has been the principal source of funding for upkeep and improvement of the freight network.

By improving rail infrastructure to attract additional long-distance freight movement (otherwise concentrated on highways), extra capacity is created on highways for passengers and short distance freight travel. Improvements to the rail network allow for the shift of goods movement from auto and air to rail, thereby creating capacity on those existing infrastructures by reducing demand. Rail, therefore, is an effective mechanism for congestion relief on highways, and for the movement of people and goods, while simultaneously improving and complementing parallel trade corridors.

5.2.3 Economic Development and Short Lines

California's short lines handle approximately one-tenth of the State's carload freight tonnage, and are a critical link between many of the State's freight-intensive industries, ports, and principal trade corridors. Therefore, it is important to maintain a modern and efficient short-line rail system in California that operates seamlessly with its Class I connections.

The principal challenge that must be addressed is that some of the State's short-line trackage cannot handle freight cars weighing 286K pounds, a standard that the Class I railroads adopted in 1994. Where a line is not 286K-capable, the common practice is to either load a railcar to less than its maximum capacity, or transfer the load to trucks for transport to a location where the railroad can handle the heavier load. Both practices unnecessarily increase costs through the inefficient use of assets, the additional steps required, and the increased travel time.

Addressing the 286K issue on a line typically requires undertaking one or more improvements, including replacing rail, ensuring that there are an adequate number of performing ties, and strengthening or replacing bridges. Concurrently, except for short lengths of line, it is greatly beneficial to bring track conditions up to FRA Track Class II, which allows speeds of up to 25 miles per hour for freight trains. Higher speeds greatly improve railroads' operational efficiency, reduce their costs, and have the potential to improve the marketability of rail service, particularly for potential new rail shippers. Industrial spurs provide direct access to the rail network and reduce truck movement, and often are a necessity for some industries that wish to use rail.

Some examples of short-line-focused improvements and how they would contribute to California's overall rail vision, including potential co-benefits for both freight and passenger rail, are summarized in Table 5.2.

Table 5.2: Project Examples of Economic Development and Short Lines with Co-Benefits

Investment	Freight	Passenger
Economic Development and Short Lines		
Freight spurs/sidings SMART/NWP (increase rail opportunities for North Bay shippers)	✓	✓
Evaluate rail-served industrial development infrastructure for Northern Contra Costa Waterfront	✓	
State of good repair and infrastructure upgrades to maintain and expand service (SMVRR)	✓	
Track and yard expansion (SMVRR)	✓	
Reload yard and multiple rail upgrades for CCTC	✓	
Sidings, track upgrades, industrial spurs, and loaders for rail-served customers (SJR, CCT)	✓	✓
State of good repair and infrastructure upgrades to maintain and expand service (SMVRR)	✓	✓
Track and yard expansion (SMVRR)	✓	
Grade separation at SCRRA tracks on San Canyon Road	✓	

FREIGHT RAIL DISCUSSION

Table 5.2: Project Examples of Economic Development and Short Lines with Co-Benefits

Investment	Freight	Passenger
Economic Development and Short Lines		
 Freight spurs/sidings SMART/NWP (increase rail opportunities for North Bay shippers)	✓	✓
Evaluate rail-served industrial development infrastructure for Northern Contra Costa Waterfront	✓	
State of good repair and infrastructure upgrades to maintain and expand service (SMVRR)	✓	
Track and yard expansion (SMVRR)	✓	
Reload yard and multiple rail upgrades for CCTC	✓	
Sidings, track upgrades, industrial spurs, and loaders for rail-served customers (SJVR, CCT)	✓	✓
State of good repair and infrastructure upgrades to maintain and expand service (SMVRR)	✓	✓
Track and yard expansion (SMVRR)	✓	
Grade separation at SCRRRA tracks on San Canyon Road	✓	

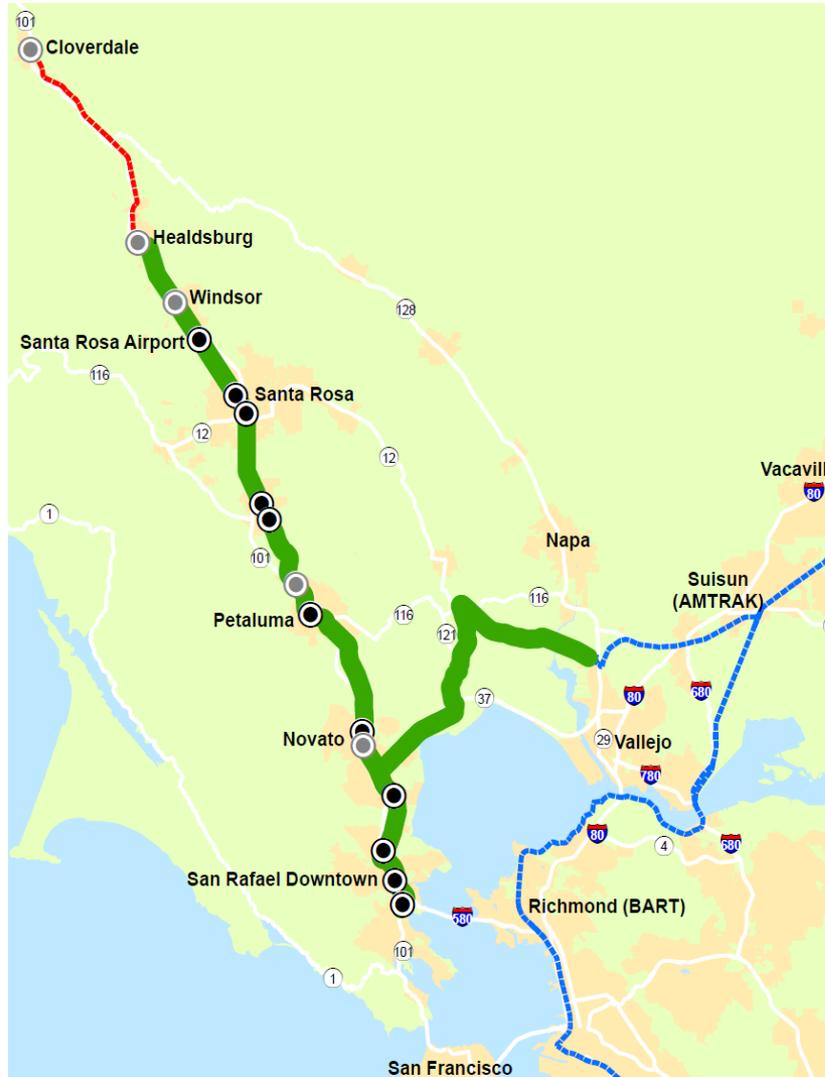
POTENTIAL FUNDING SOURCES

- Senate Bill 1 (SB1)
 - » Transit and Intercity Rail Capital Program (TIRCP)
 - » State Rail Assistance (SRA) – Commuter Rail Funds
 - » State Transit Assistance & State of Good Repair (STA & SGR)
 - » Local Partnership Program (LPP)
 - » Caltrans Planning Grants
- Cap-and-Trade
 - » Low Carbon Transit Operating Program (LCTOP)
- Regional Measure 3

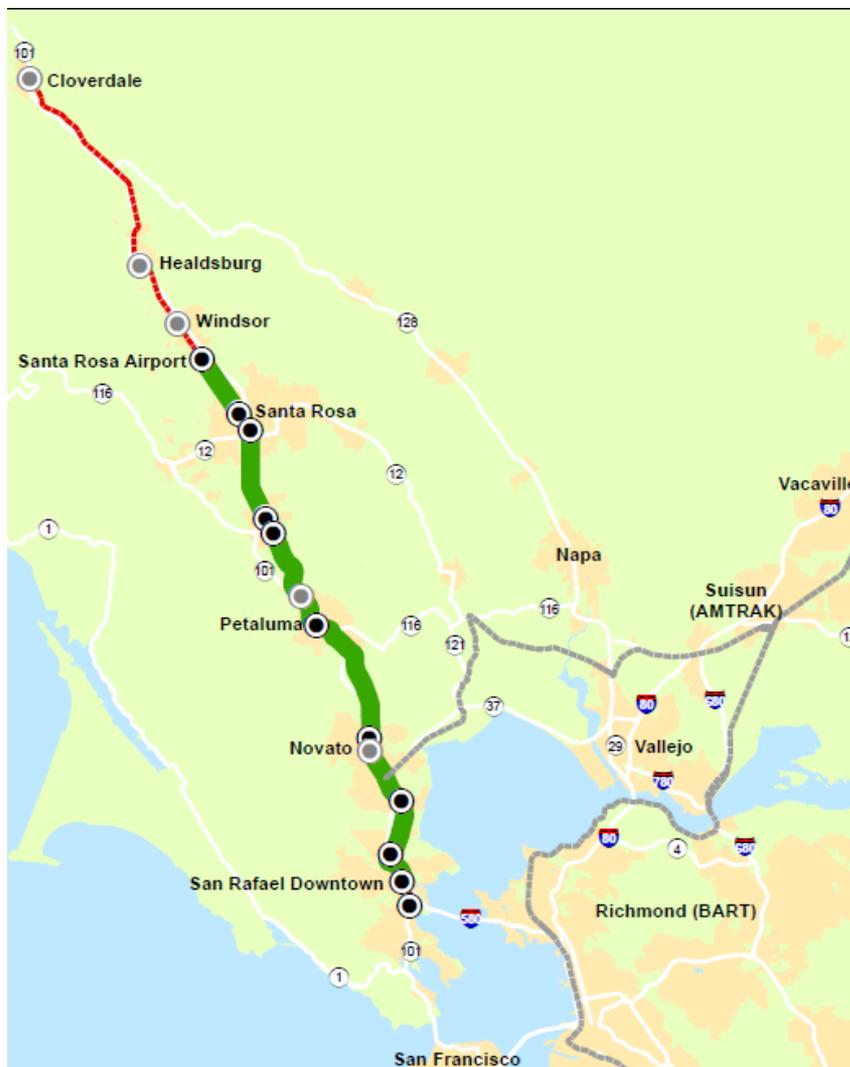
QUESTIONS



MAP OF SMART OWNED RIGHT-OF-WAY



INITIAL SMART SYSTEM - PHASE 1



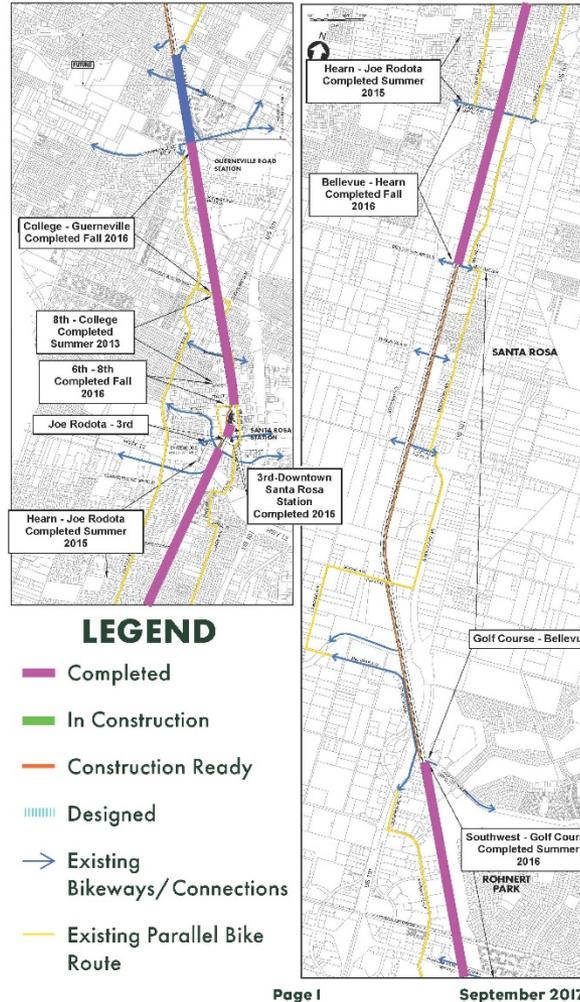
PHASE 2: LARKSPUR EXTENSION

CONSTRUCTION HAS BEGUN:

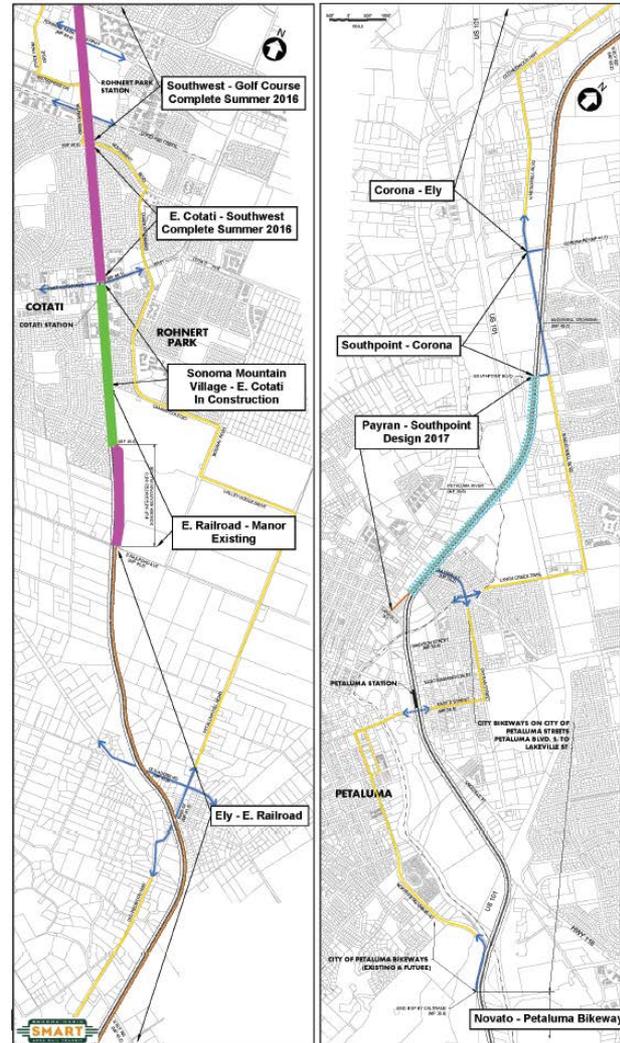
- Fall 2017 – Bridge piling
- Winter 2017/18 – Platform, Bridges, Roadway
- Spring 2018 – Track, Andersen Dr., Crossings, Utilities
- Summer 2018 – Track, Roadways, Crossings, Transit Center
- Fall/Winter 2018 – Systems & Train Control Installations
- Winter/Spring 2019 – Testing
- Spring/Fall 2019 – Passenger Service!

SMART PATHWAY SYSTEM

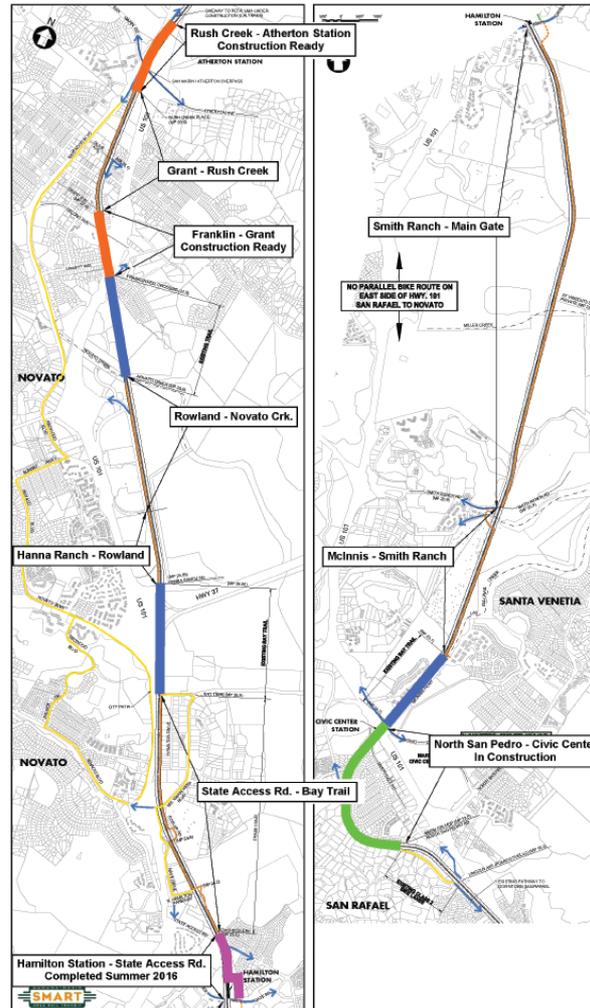
SONOMA-MARIN SMART PATHWAY MAP AREA RAIL TRANSIT



SMART PATHWAY SYSTEM



SMART PATHWAY SYSTEM



BIKE PROJECTS UNDERWAY

San Rafael: San Pedro Road to Civic Center Station



BIKE PROJECTS UNDERWAY

Novato: Franklin Path to Grant Street



BIKE PROJECTS UNDERWAY

Novato: Rush Creek Place to San Marin Station



BIKE PROJECTS UNDERWAY

Cotati/Rohnert Park: Station to Sonoma Mountain Village



BIKE PROJECTS UNDERWAY

Petaluma: Payran to South Point

- Design Complete: 4th Quarter 2017
- Construction: Summer 2018



PASSENGER RAIL EXTENSIONS

North: Sonoma County Airport to Cloverdale



SONOMA COUNTY AIRPORT - CLOVERDALE



NORTH ESTIMATES

Sonoma County Airport to Windsor	\$55m
Windsor to Healdsburg	\$125m
➤ Additional Rail Cars	\$44m
➤ Rail Yard Capacity	\$50m
Healdsburg to Cloverdale	\$170m



NORTHERN SCOPE & COST REVIEW

- We have completed Environmental Review (CEQA)
- We have completed 20% Engineering

NEXT STEPS:

- Review Existing Designs
- Update Cost Estimate
- Verify Scope





Exhibit 4.2: Caltrans Statewide 2040 Vision Rail Map

NOVATO – SOLANO HUB



NOVATO – SOLANO HUB

CONCEPTUAL STUDY

- Evaluate Right-of-Way
- Develop Operational Model
- Identify Potential Stations
- Prepare Implementation Strategy



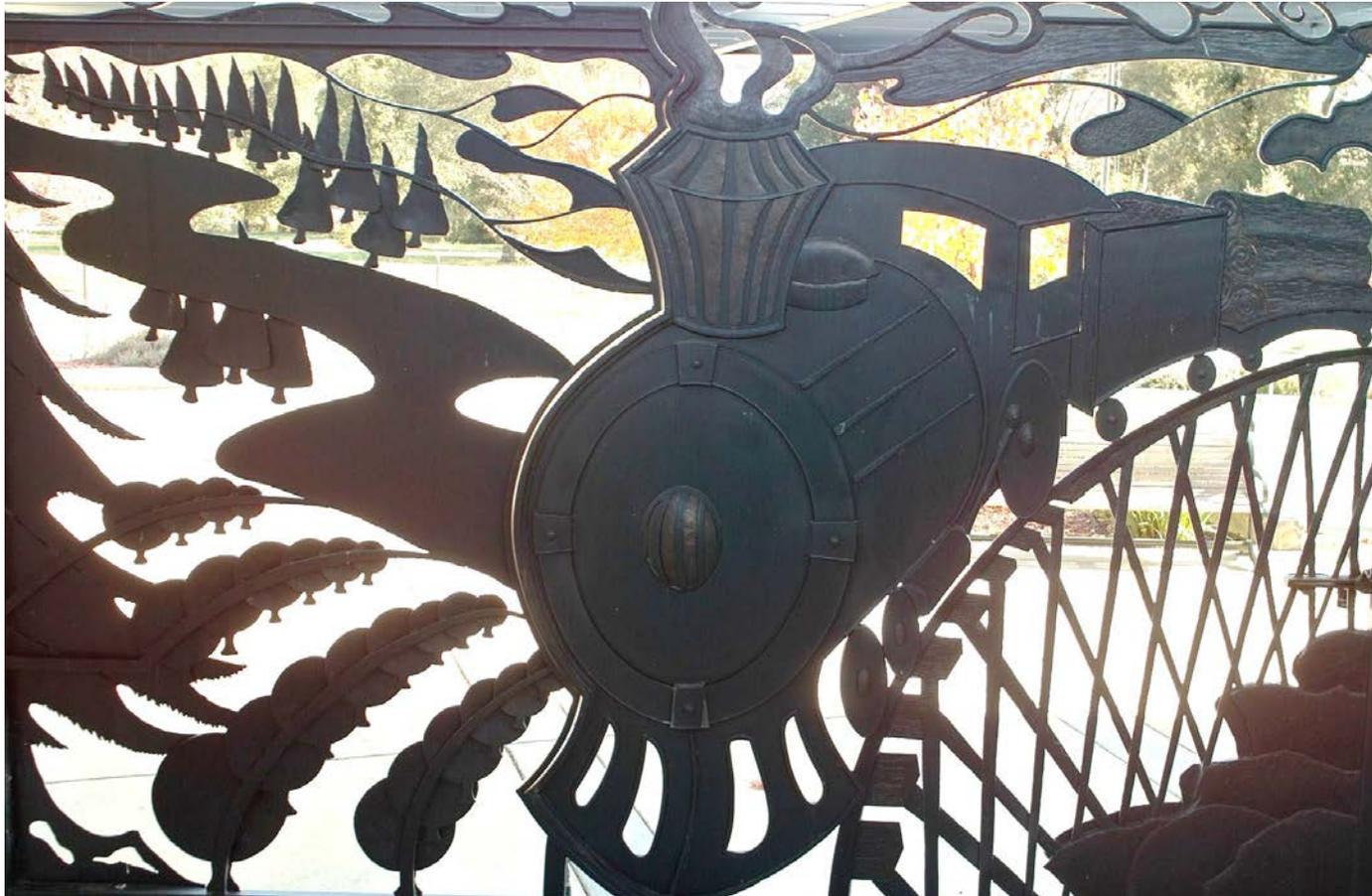
SMART PASSENGER RAIL FEASIBILITY STUDY

SOLANO HUB TO SONOMA/MARIN PROJECT:

- CALTRANS SUSTAINABLE TRANSPORTATION PLANNING
- Total Project Cost: \$836,739 including a local match of \$96,000

WE WILL KNOW BY END OF 2017

QUESTIONS AND FEEDBACK





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<http://www.SonomaMarinTrain.org>

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