

Appendix B – Related Projects and Plans

This appendix describes related projects and plans that establish the mid- and long-term transit context of a future East Bay Hub in southern Alameda County. Included are key projects and plans for service providers that could connect with the future East Bay Hub, including the Capital Corridor Joint Powers Authority (CCJPA) and the San Joaquin Regional Rail Commission (SJRR). Also included are projects and plans for Bay Area Rapid Transit (BART), the California High-Speed Rail (HSR), and the Dumbarton Corridor—a travel market that offers opportunities for the East Bay Hub—as well as Caltrain’s future service plans on the Peninsula, at the west end of the Dumbarton Corridor.

Mid-Term Projects and Plans

The Mid-Term Planning Horizon is approximately 2030 (approximately a 10-year horizon) to synchronize with both the 2018 California State Rail Plan (2027 planning horizon) and the Metropolitan Transportation Commission (MTC) Plan Bay Area 2050 planning horizons. The following rail expansion projects and services are assumed to be in place in the mid-term:

- CCJPA – South Bay Connect
- San Mateo County Transit District (SamTrans) – Dumbarton Corridor Transportation Study (express bus service phase)
- SJRR / San Joaquin Joint Powers Authority (SJPA) – Valley Rail Program
- Santa Clara Valley Transportation Authority (VTA) – BART Silicon Valley Phase II
- BART – Irvington Station
- Peninsula Corridor Joint Powers Board (PCJPB) – Caltrain Business Plan (mid-term operational scenario)
- California High Speed Rail Authority (CHSRA) – Merced-Bakersfield HSR Interim Service
- Tri-Valley - San Joaquin Valley Regional Rail Authority (the Authority) – Valley Link

Each mid-term project considered in the Southern Alameda County Integrated Rail Analysis (SoCo Study) is discussed below in more detail.

CCJPA – South Bay Connect

The South Bay Connect project would shift the Capitol Corridor route between Oakland and Newark from the Union Pacific (UP) Niles Subdivision to the UP Coast Subdivision, avoiding conflicts with freight traffic along the existing route and providing a more direct route through Fremont on the Centerville Line (Figure B-1). The project would discontinue Capitol Corridor service at Hayward and Fremont (Centerville) stations, but would include construction of a new intermodal station in Ardenwood that could provide integrated transbay connections via the Dumbarton Express, AC Transit’s U line, Stanford University’s Marguerite shuttles, and other bus services. Although no new roundtrips are proposed, the

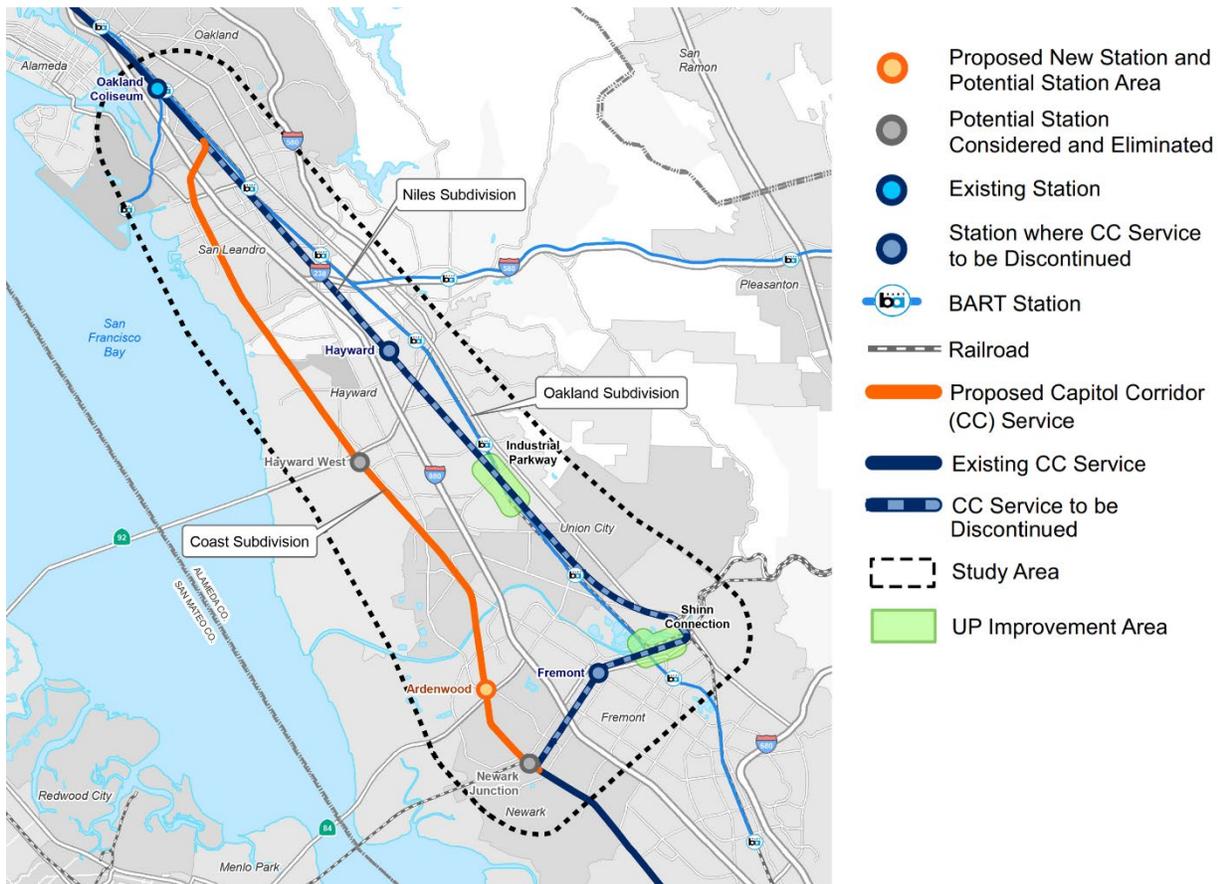
shift to the UP Coast Subdivision will prepare the service for future growth and provide direct connections to and from the future East Bay Hub in southern Alameda County.

Potential rail infrastructure upgrades under the South Bay Connect project include the following:

- Rail track and tie replacements
- Installation of new signal technology
- Right-of-way safety and security modifications such as fencing
- New sidings or passing tracks to reduce train idling
- At-grade crossing safety improvements
- New Niles and Oakland Subdivision connection near Industrial Parkway
- Grade separation at Industrial Parkway
- New freight rail connection near Niles Junction

The estimated project cost is approximately \$264 million. Planning commenced in 2019 and will conclude with a final environmental impact report (EIR) in spring 2023. Construction is currently envisioned to begin in 2024 and continue through 2026.

Figure B-1. CCJPA – South Bay Connect Project



Source: Capitol Corridor Joint Powers Authority, <https://www.fremont.gov/3773/South-Bay-Connect>

SamTrans – Dumbarton Corridor Transportation Study (Express Bus Service Phase)

SamTrans evaluated multimodal improvements within the Dumbarton Corridor as part of the Dumbarton Corridor Transportation Study (November 2017). The study included several recommendations for transit service within the mid-term timeframe.

Short-term improvements focus on enhanced bus service, including two new transbay bus routes serving BART's Union City Station (one connecting with Menlo Park/Redwood City and another with Mountain View/Sunnyvale) and service enhancements on existing Dumbarton Express routes. Frequency on all four routes would be every 15 minutes (peak) and every 20 to 30 minutes (off-peak). Supporting arterial improvements would include transit priority treatments, such as signal priority and queue jump lanes along Decoto Road (between I-880 and Union City Station), Bayfront Expressway, and Willow Road and bus-only lanes along Bayfront Expressway. Estimated capital costs for the short-term improvements are approximately \$51 million.

Mid-term improvements and associated capital costs (estimated at the time of the study) encompass the following four projects:

- One express lane in each direction on the Dumbarton Bridge, including supporting arterial express lanes and other improvements. (\$753 million)
- Enhanced bus service along University Avenue to and from U.S. 101 express lanes via a new busway within the Dumbarton Rail right-of-way (between Middlefield Road and University Avenue) and a new connector between the busway and U.S. 101 express lanes. (\$97 million)
- A rail-based shuttle service between Redwood City and Newark, operating on the Dumbarton Rail right-of-way (double-tracked for future-proofing), with a new park-and-ride facility in Newark. This would be an interim service until unknowns related to regional freight rail and connections to BART's Union City Station are resolved. (\$967 million)
- A new Willow Road Transit Center along the Dumbarton Rail right-of-way east of Willow Road. (\$8 million)

SJRRC / SJJPA – Valley Rail Program

The Valley Rail Program consists of a series of projects to enhance commuter and intercity rail service among the Sacramento area, the San Joaquin Valley, and the San Francisco Bay Area (Figure B-2). Valley Rail implements two new daily round-trips for the Amtrak San Joaquins service to better connect San Joaquin Valley travelers with the Sacramento area, as well as an extension of Altamont Corridor Express (ACE) between Sacramento and Merced, which builds upon ACE funding from Senate Bill (SB) 132. In addition, Valley Rail will convert the entire fleet, including the thruway bus network, to renewable diesel fuel, providing greenhouse gas (GHG) benefits across the entire existing (449 track miles) and proposed expanded (119 track miles) San Joaquins and ACE services.

Major components of the Program include the following projects:

- The **Lathrop–Ceres Extension and Ceres–Merced Extension** would extend ACE service south, first to Ceres and then to Merced. New stations would be provided at North Lathrop (connection with the existing ACE route), downtown Manteca, Ripon, Modesto, Ceres, Turlock, Livingston or Atwater, and Merced. California Environmental Quality Act (CEQA) environmental work has already been completed for the Lathrop–Ceres Extension, while a project-level EIR for the subsequent Ceres–Merced Extension is scheduled for certification in fall 2021. Final design and construction would take place in 2022 to 2024, with anticipated commencement of service to Merced in 2025. Estimated costs are approximately \$300 million for the Lathrop–Ceres Extension and \$350 million for the Ceres–Merced Extension.
- The **Sacramento Extension** would provide two additional daily roundtrips on the San Joaquins using a new route north of Stockton via the UP Sacramento Subdivision, with stations at Lodi, Elk Grove, Sacramento City College, Midtown Sacramento, Old North Sacramento, and Natomas (where a potential shuttle would connect passengers with Sacramento International Airport). The project also includes extension of one daily ACE roundtrip north to Sacramento and Natomas using the same route. CEQA clearance was completed in October 2020, and construction is anticipated to begin in 2021. The estimated cost of the project is \$500 million.
- The **Stockton Diamond Grade Separation Project** will grade-separate the crossing of the UP Fresno Subdivision and the BNSF Stockton Subdivision just south of downtown Stockton, removing a major bottleneck for both freight and passenger trains in the northern California megaregion and helping to set the stage for future growth in ACE and San Joaquins service, including additional trains to and from Sacramento (Natomas) as part of the Sacramento Extension. The project will construct a new flyover for the two north–south UP mainline tracks to allow them to cross above the two east–west BNSF mainline tracks (Figure B-3). The project began in early 2020, with CEQA and National Environmental Policy Act (NEPA) environmental documentation expected to be completed in fall 2021. Construction is currently envisioned to take place between May 2023 and May 2026. The project is estimated to cost approximately \$237 million.

Other, smaller components of the Valley Rail Program include the relocation of the existing San Joaquins station in Madera to a new location along Avenue 12, construction of a new San Joaquins station in Oakley, and the Stockton Diamond Grade Separation Project.

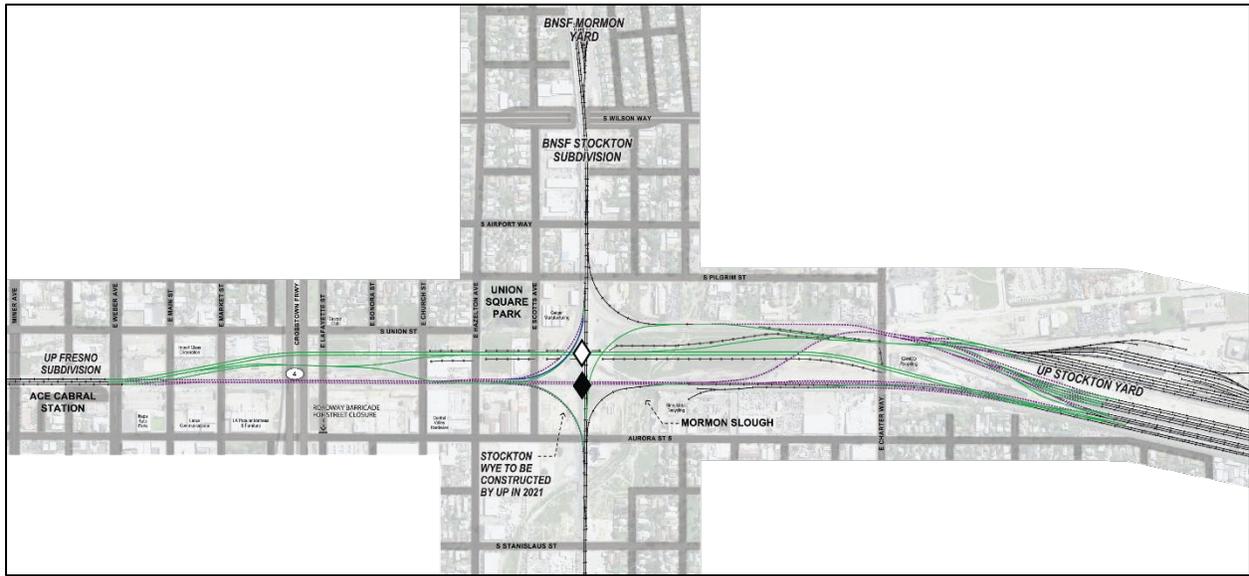
The proposed initial service plan with completion of the Valley Rail Program includes four roundtrips to and from Merced on weekdays, three of which would operate to and from Natomas and one of which would operate to and from San Jose. Timed connections at North Lathrop would allow passengers on Merced–Natomas trains to transfer to and from Stockton–San Jose trains.

Figure B-2. SJRRC/SJJP – Valley Rail Program



Source: San Joaquin Regional Rail Commission, https://acerail.com/valley_rail/

Figure B-3. SJRRC/SJPA – Stockton Diamond Grade Separation Project



LEGEND

-  Proposed Flyover Location
-  Existing at-Grade Stockton Diamond
-  Proposed Track
-  Existing Tracks (to remain)
-  Proposed Elevated Structure on Retaining Wall
-  Track Removal (existing)
-  Phase 1 - Shift Wye Track

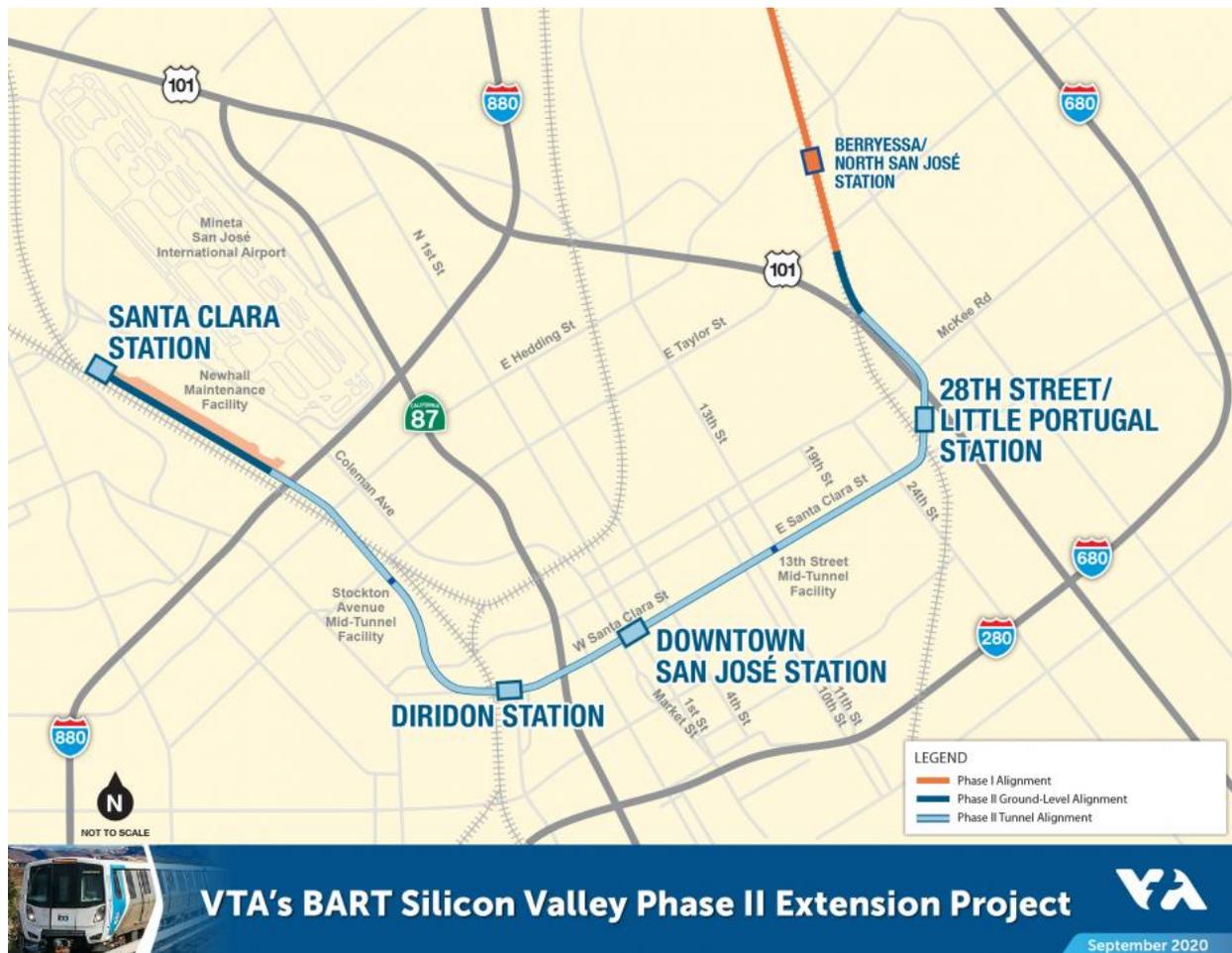


Source: San Joaquin Regional Rail Commission, <https://www.stocktondiamond.com/>

VTA – BART Silicon Valley Phase II

VTA is currently in detailed design and engineering for Phase II of the BART extension to Silicon Valley. Phase II will extend service 6 miles from the current (Phase I) terminus at Berryessa into downtown San Jose and Santa Clara. Stations will be located at 28th Street/Little Portugal, downtown San Jose, Diridon Station, and Santa Clara Station (Caltrain/ACE) (Figure B-4). Environmental clearance has already been completed, and construction is scheduled for 2022 to 2028, followed by testing in 2028 to 2030 and subsequent opening. Average weekday ridership for Phase II is estimated at 52,000 by 2035. The estimated cost of Phase II is \$6.9 billion (in year-of-expenditure dollars).

Figure B-4. VTA – BART Silicon Valley Phase II



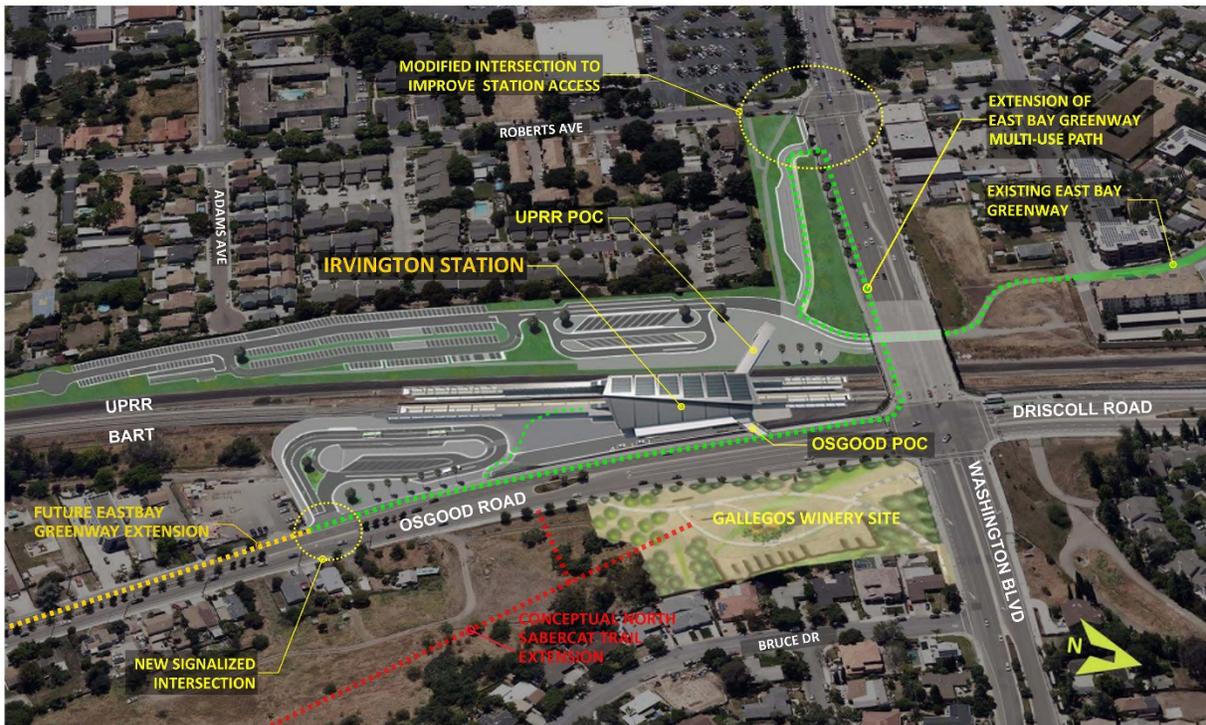
Source: VTA, 2020, <https://www.vta.org/projects/bart-sv/phase-ii>

BART – Irvington Station

Work is currently underway by BART on a new infill station in the Irvington district of Fremont, at the intersection of Washington Boulevard with Osgood Road/Driscoll Road. The station would be located approximately halfway between Fremont and Warm Springs/South Fremont stations. A station at this location was evaluated as part of the Warm Springs Extension, which opened in 2017, but was deferred due to funding issues.

The City of Fremont has since secured \$120 million in funding for the station through Alameda County Transportation Commission's Measure BB (approved by voters in 2014) and an additional \$2 million in funding through MTC's Regional Measure 2. Planning and environmental work, led by the City of Fremont, was completed in 2019 and the preliminary engineering work, led by BART, was completed in 2020. The station is currently in the final design phase and is expected to open in 2026.

Figure B-5. BART – Irvington Station



IRVINGTON STATION DESIGN

AERIAL STATION PLAN
TENTATIVE AND PRELIMINARY 05/06/2020

Source: BART, 2020, <https://www.bart.gov/about/projects/wsx/news>

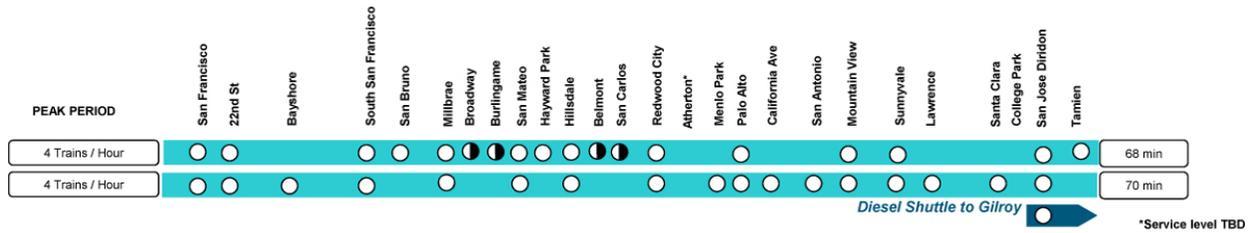
PCJPB – Caltrain Business Plan (Mid-Term Operational Scenario)

As part of ongoing development of the Caltrain Business Plan, PCJPB is exploring a mid-term operational scenario that is being considered for implemented in the mid- to late 2020s as an interim step toward achieving the long-term (2040) service vision (which is described in more detail with the long-term projects and plans).

The cornerstone of a mid-term scenario is an expansion of Caltrain service to 8 trains per hour per direction (TPHPD), which would accomplish very limited capital improvement compared with the Moderate Growth Scenario. The service structure would have limited flexibility, operating similar to a hybrid of “zone express” and “skip-stop” patterns. Despite the limitations in service structure, many stations would see substantial improvements under 8 TPHPD, with 20 of 24 mainline stations receiving at least 4 TPHPD and nearly half receiving 8 TPHPD.

An illustrative service plan for 8 TPHPD is provided in Figure B-5.

Figure B-6. Caltrain Service Plan



Source: Caltrain Business Plan, January 2020

Diesel service to and from Gilroy would terminate at San Jose with a timed transfer to the mainline service. Gilroy service could be increased to up to five roundtrips daily.

Key investments required to achieve a mid-term operational scenario of 8 TPHPD include the following:

- Expansion of the electric multiple unit (EMU) fleet (and, as a result, additional train storage)
- Elimination of “holdout” rules at remaining stations (South San Francisco, Broadway, and College Park)
- Level boarding to ensure reliability and minimize dwell times
- Conversion of the remaining diesel service south of Tamien to a shuttle service terminating at San Jose (Diridon)
- Minor track work at San Jose (Diridon) to accommodate increased train traffic

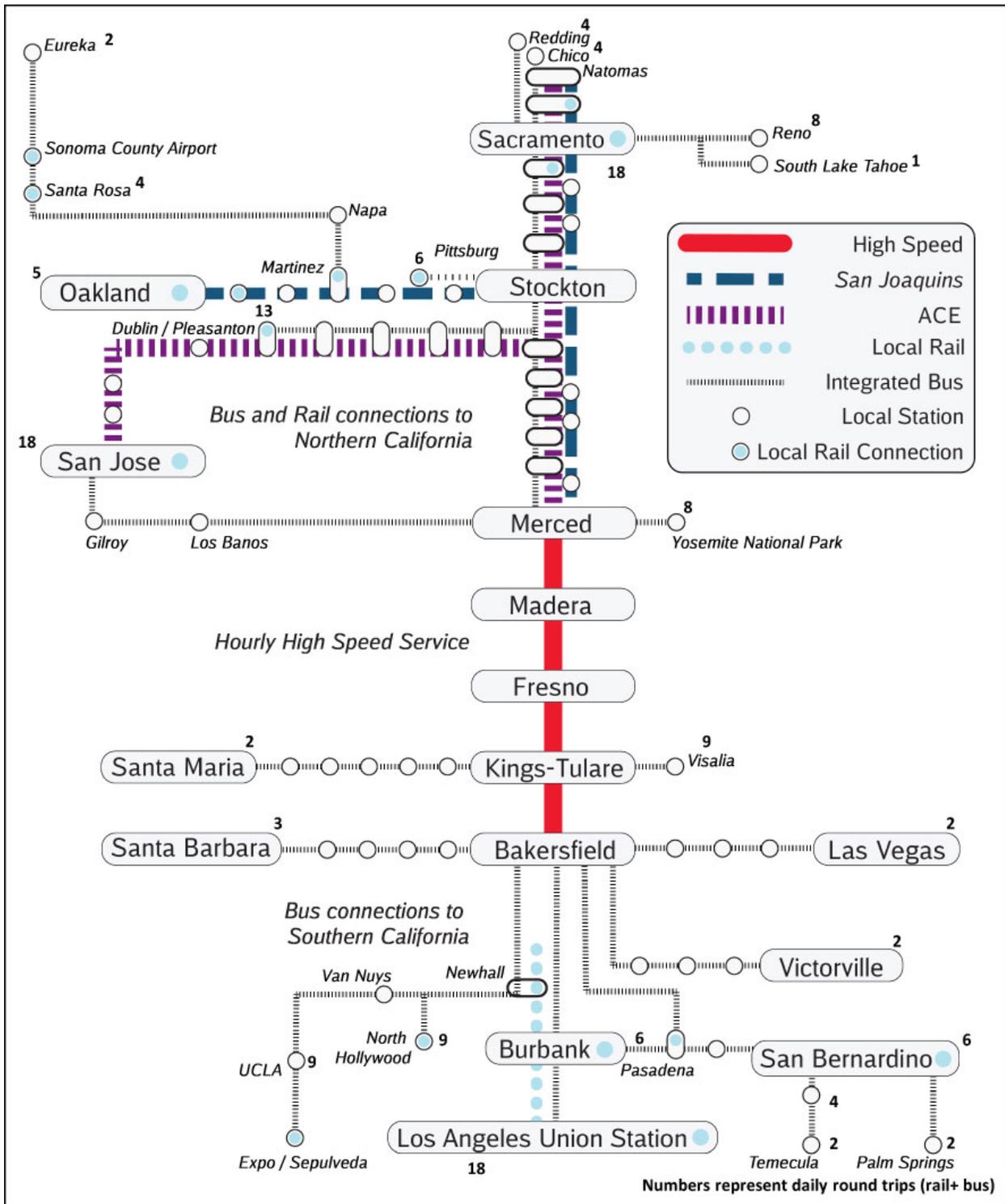
By 2030, average weekday ridership on Caltrain could increase to 92,900 under the base scenario (electrification with 6 TPHPD) and 113,200 under the interim vision (8 TPHPD), excluding the effects of the Downtown Extension in San Francisco (which may increase ridership by approximately 30,000).

CHSRA – Merced–Bakersfield HSR Interim Service

The Central Valley segment of the statewide HSR system extends between Merced and Bakersfield and will be the first segment in revenue service, currently anticipated to open in 2029. The HSR Interim Service would operate at hourly headways on this initial segment, with the northern terminus at Merced served by 18 daily roundtrips (Figure B-6). At Merced, connections to and from the Bay Area would be provided by ACE and the San Joaquins, as well as integrated bus services.

Based on CHSRA’s 2020 Business Plan, subsequent phases of the HSR program will open in 2031 (Silicon Valley to Central Valley) and 2033 (full Phase 1 system between San Francisco and Los Angeles/Anaheim).

Figure B-7. California High-Speed Rail Merced to Bakersfield Interim Service



Source: California High-Speed Rail Authority, Central Valley Segment System Management & Operations Interim Financial Plan, 2020

The Authority – Valley Link

The Valley Link project will provide a new rail connection across the Altamont Pass, linking the Tri-Valley area (eastern Alameda County and southeastern Contra Costa County) with San Joaquin County. The alignment would extend east from BART's Dublin/Pleasanton Station, initially within the median of Interstate 580 (I-580) and then along a former Southern Pacific (SP) right-of-way across the Altamont Pass. The alignment would run along existing UP right-of-way to Tracy and Lathrop. The service would terminate at a new transfer station at North Lathrop to allow passengers to transfer to and from ACE trains. Intermediate stations would be provided at Isabel Avenue and at Southfront Road in Livermore, and at West Tracy/Mountain House, downtown Tracy, and River Islands (a new planned community) (Figure B-7).

Trains would operate as frequently as every 12 minutes in both directions to allow for coordinated scheduling with BART at Dublin/Pleasanton Station. A potential Initial Operating Segment (IOS) could extend from Dublin/ Pleasanton to Greenville or Southfront or West Tracy/Mountain House.

The estimated cost of the project is approximately \$2.3 billion to \$2.9 billion. Estimated ridership for the full project (between Dublin/Pleasanton and North Lathrop) is up to approximately 13,400 passengers daily in 2025 and up to approximately 33,000 passengers daily in 2040.

Figure B-8. Valley Link Project



Source: Tri Valley – San Joaquin Valley Regional Rail Authority, Project Feasibility Report, 2019

Long-Term Projects and Plans

The Long-Term Horizon envisions unified rail corridors that could accommodate a variety of operators throughout the Northern California Megaregion. However, several operators have projects or programs in planning that are anticipated to be in operation in the long term. The long-term projects and plans include the following:

- CCJPA – Capitol Corridor Vision
- SJRRC – Altamont Corridor Vision
- SamTrans – Dumbarton Rail Project
- City of San Jose – Diridon Integrated Station Concept Plan
- BART / CCJPA – Link21
- PCJPB – Caltrain Business Plan (Long Range Service Vision)
- CHSRA – California HSR Phase 1 Service (San Francisco to Anaheim)

Each long-term project or plan is described below.

Capitol Corridor Vision

The Capitol Corridor Vision is a three-step process to define a long-term vision for the Capitol Corridor Service. The first step was the 2014 Vision Plan Update, which identified design principles and conceptual alternatives for the service, including an operating plan with up to four trains per hour per direction. The second step was the 2016 Vision Implementation Plan, which identified an “initial study corridor”, consisting of a package of preferred engineering alternatives for each route segment, for further evaluation. The third and final step will be the Vision Communications Plan, which will involve public outreach and building the business case for the proposed improvements, including economic and ridership analysis.

The key elements of the overall vision include speed, frequency, reliability, connectivity, electrification, level boarding, and clockface headways. The preferred engineering alternatives identified in the Vision Implementation Plan are summarized in Table B-1. Some elements listed may be implemented in the Mid-Term Horizon, but much of the program would be implemented in the Long-Term Horizon.

Table B-1. Capitol Corridor Vision Initial Study Corridor

Route Segment	Preferred Engineering Alternatives
Corridor-wide (San Jose– Auburn)	<ul style="list-style-type: none"> • Electrification (overhead wires, substations, electric multiple units) • Signaling upgrades to allow safe operation at closer train spacing • Curve straightening and grade leveling for faster speeds (up to 125 mph north of the Carquinez Strait, lower in the Bay Area) • Station retrofits with center-island high-level platforms and expanded access (e.g., new bus bays) • Grade separation at all intersections (some minor intersections would be closed)

Route Segment	Preferred Engineering Alternatives
San Jose–Oakland	<ul style="list-style-type: none"> • Realignment to Coast Subdivision between North Elmhurst and Newark Junction • New storage and maintenance facility near Tamien Station • Diridon Station hub improvements (primarily funded / implemented as part of HSR) • Additional tracks in segment near Diridon shared with Caltrain and HSR • Reconstruction of existing stations in Santa Clara • Replacement of existing single-track berm segment through Alviso Wetlands with new double-track bridge built to accommodate sea level rise • New station at or near Ardenwood Park-and-Ride, with BRT connections to the Peninsula • Double-tracking of remaining single-track segments north to Oakland • New viaduct in the Oakland Subdivision right-of-way in East Oakland, adjacent to BART viaduct, with new intermodal Oakland Coliseum Station
Jack London Square	<ul style="list-style-type: none"> • Passenger rail tunnel beneath 2nd Street or between Embarcadero and 2nd Street • Potential freight rail tunnel below Embarcadero • New subway station, ideally with a direct connection to a new BART station to be built as part of the second Transbay Tube
Oakland–Richmond	<ul style="list-style-type: none"> • New passenger-only tracks within existing right-of-way • Rebuilding of existing stations as needed
Richmond–Suisun/Fairfield	<ul style="list-style-type: none"> • New inland alignment between Hercules and Martinez <ul style="list-style-type: none"> ○ Partial use of an existing BNSF alignment ○ New Franklin Canyon tunnel / State Route 4 alignment • New elevated station on Martinez waterfront • New high-level crossing of Carquinez Strait
Suisun/Fairfield–Sacramento	<ul style="list-style-type: none"> • Conversion of existing right-of-way to passenger use-only • New double-tracked freight line between the Delta and Sacramento in the former Sacramento Northern right-of-way • New tunnel under Downtown Sacramento, shared with and partly funded by HSR, with new underground platforms at Sacramento Valley Station
Sacramento–Auburn	<ul style="list-style-type: none"> • Passenger-only right-of-way with additional tracks • New elevated station in Roseville • New station in Rocklin • Relocated station in Auburn

Sources: Capitol Corridor Joint Powers Authority, 2014 Vision Plan Update, 2014; Capitol Corridor Joint Powers Authority, Capitol Corridor Vision Implementation Plan, 2016

The vision also includes substantial improvements to freight rail, including new freight-only alignments and additional track capacity, to help achieve the goal of a passenger-only right-of-way between San Jose and Auburn. The estimated total capital cost of these improvements is on the order of approximately \$15.8 billion, although more than half of that is for the segment between Richmond and Sacramento. Of the total, the segment between San Jose and Oakland is estimated to cost \$3.7 billion.

Altamont Corridor Vision

The Altamont Corridor Vision is a long-term vision to provide safe, frequent, and reliable regional rail service in the Altamont Corridor. With electrified, “universal” passenger-dedicated infrastructure separated from freight, predominantly double-tracked and mostly grade-separated, it would be possible to provide one-seat service at the megaregional level, including potential interlining with the HSR initial operating segment between Merced and Bakersfield. Service frequency would be every 15–30 minutes during peak periods, with travel times as fast as 60 minutes (by express train) from Stockton to the Bay Area (Oakland, San Jose, or Redwood City). The estimated funding need for the vision is \$9.7 billion for Stockton to San Jose, of which \$6.6 billion would be for North Lathrop to Newark.

Specific improvements by route segment are summarized in Table B-2.

Table B-2. Altamont Corridor Vision ACE Improvements

Route Segment	Improvements
San Joaquin County (North Lathrop to Altamont Pass)	<ul style="list-style-type: none"> • Oakland Subdivision option: <ul style="list-style-type: none"> ○ Two new main tracks, in a combination of at-grade and aerial alignments, on north / west side of UP right-of-way ○ Upgrades to existing ACE corridor, including existing Tracy Station • Tracy Subdivision option: <ul style="list-style-type: none"> ○ Two new main tracks, entirely at-grade, on north side of UP right-of-way ○ Curve flattening for higher speeds ○ Improvements to Downtown Tracy Station
Altamont Pass	<ul style="list-style-type: none"> • New tunnel and aerial alignment to remove the majority of the slower curves
Tri-Valley (Livermore to Pleasanton)	<ul style="list-style-type: none"> • Railroad alignment option: <ul style="list-style-type: none"> ○ At-grade through Livermore, mostly within UP right-of-way, with some curve flattening; two new main tracks and upgrades to proposed Greenville Station and existing Livermore Station ○ New tunnel through Pleasanton for higher speeds and elimination of grade crossings ○ Aerial and at-grade west of Pleasanton to Niles Canyon, with some curve flattening ○ Integration with Valley Link (Greenville to Dublin / Pleasanton) to provide connection with BART • Highway alignment option: <ul style="list-style-type: none"> ○ At-grade alignment in I-580 median via Valley Link (Greenville to Dublin / Pleasanton) and in I-680 median ○ Aerial alignment at Dublin / Pleasanton Station (new aerial station above BART) ○ Aerial segments at selected transition points into / out of freeway medians
Niles Canyon and Fremont	<ul style="list-style-type: none"> • New tunnel through Niles Canyon to remove slow curves and avoid impacts to Alameda Creek • Two new main tracks in Fremont, at-grade within existing UP right-of-way • Curve flattening for higher speeds • Upgrades to Fremont-Centerville Station

Source: San Joaquin Regional Rail Commission / Tri Valley – San Joaquin Valley Regional Rail Authority, Altamont Corridor Vision: Universal Infrastructure, Universal Corridor, 2019

SamTrans – Dumbarton Rail Project

DUMBARTON CORRIDOR TRANSPORTATION STUDY (RAIL PHASE)

In addition to the mid-term improvements previously described, the Dumbarton Corridor Transportation Study (November 2017) identified longer-term improvements to transit service in the Dumbarton Corridor.

Mid- to long-term improvements (implementable by 2030) include frequency enhancements for bus service to every 10 minutes (peak) and every 15 to 20 minutes (off-peak) and extension of the rail shuttle from Newark to Union City to connect with BART. Estimated capital costs are \$82 million for the bus frequency enhancements and \$295 million for the rail shuttle extension.

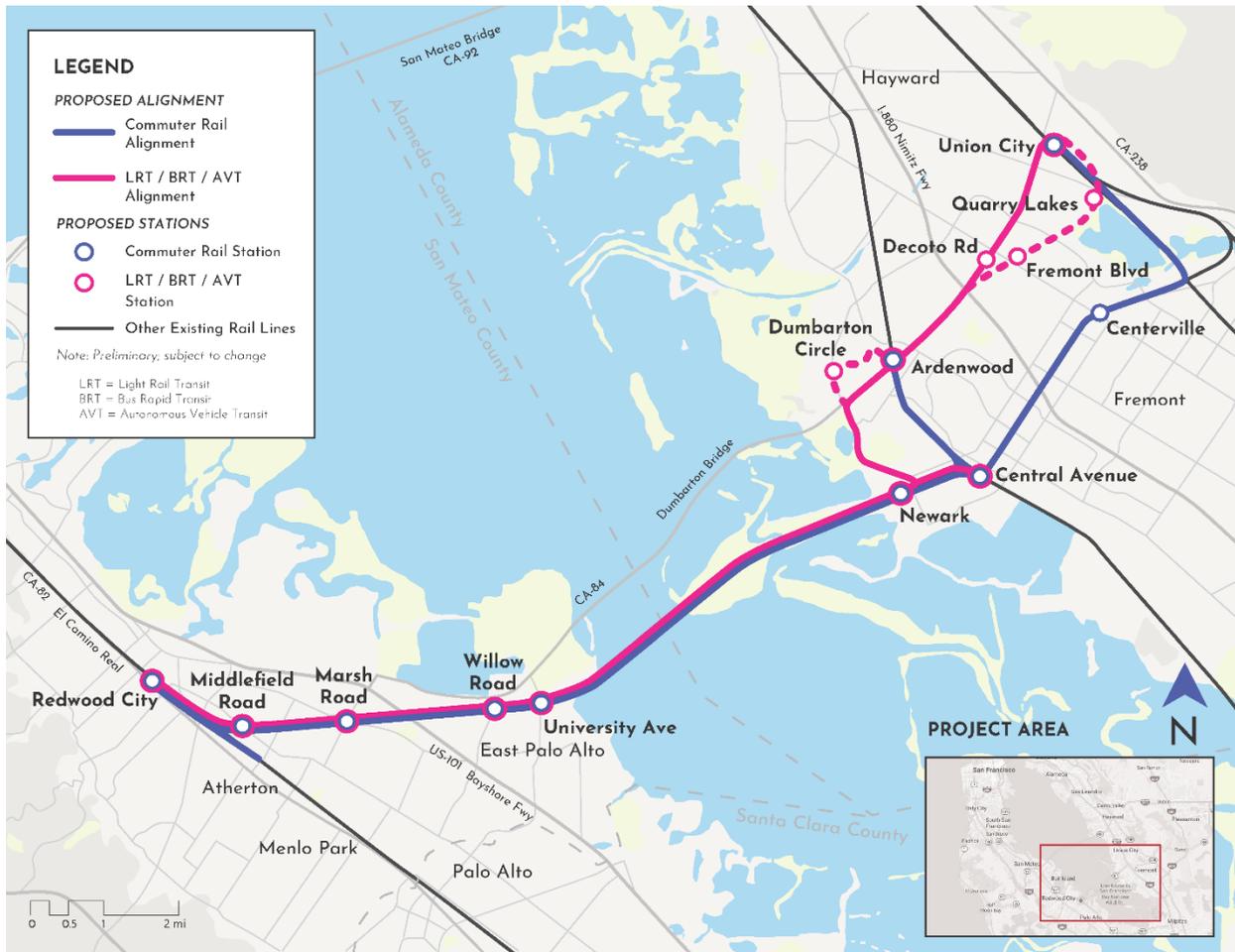
Long-term improvements (2035 and beyond) encompass a new commuter rail service interlined with the Caltrain mainline to allow for one-seat rides between the Tri-Valley/Central Valley and the Peninsula (and continuing north to San Francisco or south to San Jose). These improvements would include electrification of the Dumbarton Line and new electric rolling stock for compatibility with Caltrain, as well as upgrades to the Caltrain mainline at Redwood Junction and other locations. The estimated capital cost of the new commuter rail service is \$327 million (incremental cost above the rail shuttle service). Estimated daily transbay ridership in the Dumbarton Corridor in 2040, across bus and rail, would be approximately 23,300, potentially increasing to 27,000 under future land use assumptions with high-intensity employment.

DUMBARTON RAIL PROJECT

The Dumbarton Rail Project builds on the planning work completed in the 2017 Dumbarton Corridor Transportation Study and explores options for providing a high-quality, high-capacity mass transit connection in the Dumbarton Rail Corridor to connect southern Alameda County with the Peninsula. The project formally began in 2018 as a public–private partnership between SamTrans and Cross Bay Transit Partners, LLC (Facebook and Plenary Americas). Pre-environmental work is ongoing, to be followed by NEPA/CEQA scoping, alternatives evaluation, and identification of a preferred alternative.

The pre-environmental work identified two main alignment options depending on the selected technology: one alignment for commuter rail and another alignment for either light rail transit (LRT), bus rapid transit (BRT), or autonomous vehicle transit (AVT). Commuter rail would be compatible with existing regional/ commuter rail systems operating on both sides of the Bay, including Caltrain, Capitol Corridor, and ACE, while LRT, BRT, and AVT would generally be incompatible with regional/commuter rail systems (Figure B-8).

Figure B-9. SamTrans – Dumbarton Rail Project



Source: SamTrans, Dumbarton Rail Corridor Project Fact Sheet, 2020

The estimated construction costs are approximately \$3.2 billion for commuter rail, \$3.1 billion for light rail, and \$2.4 billion for BRT or AVT. Average weekday ridership in 2040 would be 14,600 to 17,800 for commuter rail, 16,900 to 19,800 for LRT/BRT, and 20,600 to 24,300 for AVT. Service would begin by 2028.

City of San Jose – Diridon Integrated Station Concept Plan

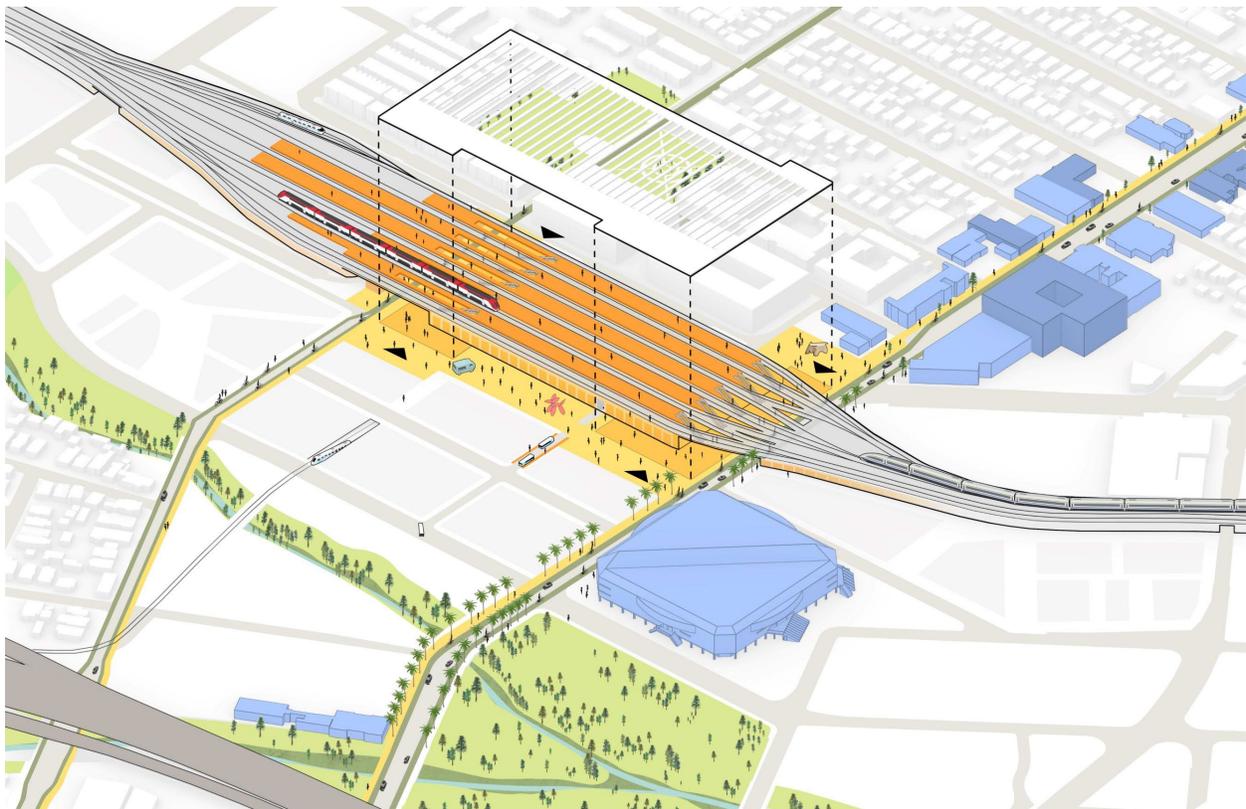
Substantial planning work has been conducted for future improvements at the San Jose (Diridon) Station to facilitate the creation of a megaregional transit hub. These improvements tie in with significant transit-oriented redevelopment being proposed by Google adjacent to the station under the Diridon Station Area Plan.

In 2018–2020, the City of San Jose and its partners developed the Diridon Integrated Station Concept Plan to establish a recommended spatial layout for the San Jose (Diridon) Station that incorporates existing and future transit service, including an electrified Caltrain commuter rail service, Phase 2 of the

BART extension to San Jose and Santa Clara, and HSR service (Figure B-9). As the planning work thus far has focused on developing the spatial layout of the station, there is no expected opening date available at this time. The next steps for the project include continued planning, analysis, and conceptual design work to refine the plan, as well as comprehensive evaluation of implementation of environmental strategies, funding and financing, and implementation and governance structures.

Future daily ridership at the Diridon Station in 2040, with completion of all the proposed transit service improvements, is expected to exceed 100,000 passengers.

Figure B-10. City of San Jose – Diridon Station Improvements



Source: City of San Jose, Integrated Concept Plan, 2019

BART / CCJPA – Link21

Link21 is a long-range transportation program sponsored by BART and CCJPA to provide a new transbay rail crossing and dramatically transform the passenger rail network serving the 21-county Northern California Megaregion by providing direct, mainline rail access between San Francisco and the East Bay and a second transbay connection for BART (Figure B-10). The project is currently in Phase 0, primarily involving program definition. Subsequent phases include program identification (starting in 2022), project selection (starting in 2024), and project delivery (starting in 2029), with service scheduled to begin in 2040.

Figure B-12. Caltrain Long Range Service Vision Growth Scenario Characteristics

	Metric	Baseline Growth	Moderate Growth	High Growth
 Frequency	Number of Stations Served by Frequent Service (>4 TPHPD)	13 Stations	21 Stations	24 Stations
	Longest Wait Times At Major Stations Served by All Trains	22 minutes	12 minutes	8 minutes
 Connectivity	Percentage of Station Pairs Connected Without/(With) a Transfer	84% (91%)	96% (98%)	99% (99%)
	Number of Station Pairs Not Connected at All	95	17	2
 Network Integration	Timed Connections at Regular Intervals	No	Yes	Yes
 Ridership	Daily Ridership (capacity constrained)	151,700 Riders	177,200 Riders	207,300 Riders
	Comfortable Peak Hour Train Loads?	No	Some Crowding	Yes
 Travel Time	Travel Time, San Francisco (STC) to San Jose (Diridon)	69-73 Minutes	61 Minutes	60 Minutes
	Average Travel Time per Rider, All Origin-Destination Pairs	33 Minutes	32 Minutes	31 Minutes
 Infrastructure	Passing Tracks Needed	<1 Mile	<5 Miles	15-20 Miles

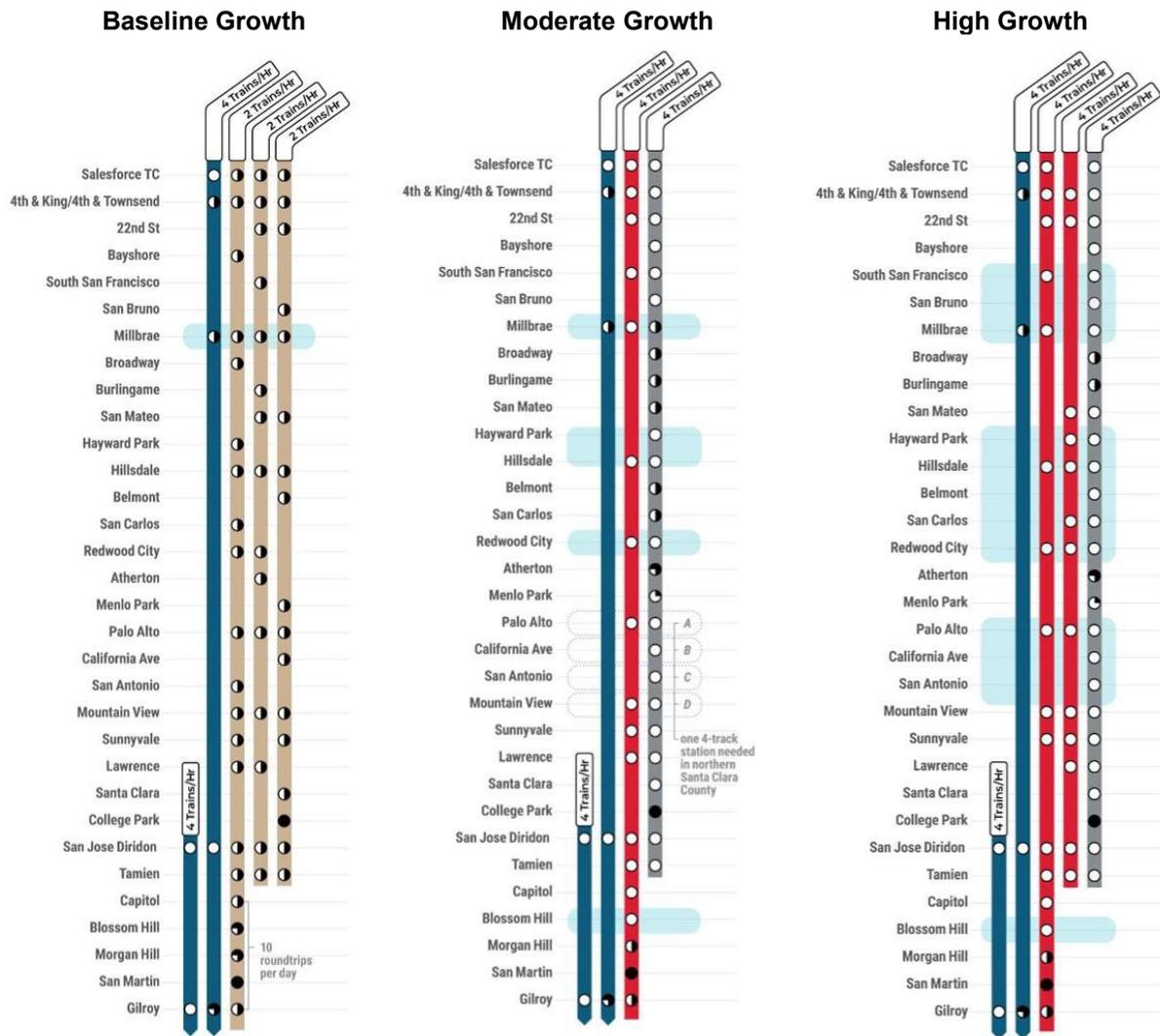
Source: Caltrain, *Choosing a Long Range Vision: Caltrain Business Plan, 2019*

The Moderate Growth Scenario vision includes the following key features:

- Fast and frequent all day (every day) service
 - Total peak hour frequencies of eight Caltrain trains per direction
 - Faster, all-day Baby Bullet service with express service every 15 minutes
 - Significantly increased off-peak and weekend service levels
 - User-friendly, show-up-and-go service with easy-to-understand schedules
- Increased capacity
 - Provides the capacity to triple today’s ridership, serving nearly 180,000 people a day
 - Adding more than five freeway lanes worth of regional capacity
- Regional connectivity
 - End-to-end service connecting Gilroy to downtown San Francisco (all day, both ways)
 - Comprehensive local service providing coverage to every community
 - Regular service making transfers and connections easier and more predictable

Potential service types and stopping patterns under each growth scenario are summarized in Figure B-12Figure B-.

Figure B-13. Caltrain Service Types and Stopping Patterns



Source: Caltrain, *Choosing a Long Range Vision: Caltrain Business Plan, 2019*

The vision also establishes the following basic policy guidelines regarding future Caltrain service:

- A mixture of express and local Caltrain services operated in an evenly spaced, bi-directional pattern
- Minimum peak hour frequencies as described below:
 - 8 trains per hour per direction on the PCJPB-owned corridor between Tamien Station in San Jose and San Francisco, extended to Salesforce Transit Center at such time as the Downtown Extension is completed
 - 4 trains per hour per direction between Blossom Hill and Tamien Stations, subject to securing necessary operating rights

- 2 trains per hour per direction between Gilroy and Blossom Hill Stations, subject to securing necessary operating rights
- Off-peak and weekend frequencies of between 2 and 6 trains per hour per direction north of Blossom Hill and hourly between Gilroy and Blossom Hill, with future refinements to be based on realized demand
- Accommodation of HSR trains, in accordance with the terms of existing and future blended system agreements between PCJPB and CHSRA

Delivery of these services will occur through the incremental development of corridor projects and infrastructure to be further defined through individual planning process, feasibility studies, and community engagement. At this time, such infrastructure is conceptually understood to include the following:

- Investments in rail systems including a new, high performance signal system
- Station modifications including platform lengthening, level boarding, and investments in station access facilities and amenities to support growing ridership and improve customer experience
- New and modified maintenance and storage facilities in the vicinity of both terminals as well as the expansion of the electrified Caltrain fleet
- A series of short, 4-track stations and overtakes at various points throughout the corridor
- Completion of key regional and state partner projects including
 - The Downtown Extension to the Salesforce Transit Center
 - The reconstruction of Diridon Station and surrounding rail infrastructure
 - The reconstruction and electrification of the rail corridor south of Control Point (CP) Lick to the Gilroy Station
 - Additional improvements to allow for the operation of HSR service between Gilroy and San Francisco
 - The substantial grade separation of the corridor as well as safety upgrades to any remaining at-grade crossings, undertaken in a coordinated strategic manner driven by the desires of individual local jurisdictions as well as legal requirements associated with any proposed 4-track segments

CHSRA – California HSR Phase 1 Service (San Francisco to Anaheim)

While the HSR Interim Service will connect Merced and Bakersfield initially, completion of the rest of the Phase 1 system will extend service in stages, first extending west and north to San Jose and San Francisco and then south to Los Angeles and Anaheim. Stops would include Gilroy, San Jose, Millbrae (SFO), and San Francisco in northern California and Palmdale, Burbank (Airport), Los Angeles (Union Station), Norwalk, Fullerton, and Anaheim in southern California.

The Silicon Valley to Central Valley Line is scheduled to open first in 2031, allowing for service to and from San Francisco via an electrified Caltrain corridor with blended operations. Forecasted annual ridership in the first full year of operation (2032) on the Silicon Valley to Central Valley Line would range from 7.0 million (low estimate) to 12.1 million (high estimate).

The remainder of the Phase 1 system, for service to and from Los Angeles and Anaheim will open in 2033, with forecasted annual ridership from 29.3 million (low estimate) to 50.0 million (high estimate) by 2040.