REGIONALRAIL
next stop....the future!

san francisco bay area
REGIONAL RAIL PLAN

METROPOLITAN TRANSPORTATION COMMISSION

BART

Caltrain

FINAL REPORT | SEPTEMBER 2007

FRONT COVER IMAGE: Computer Simmulation of Downtown San Jose, 2050 – California High Speed Rail Authority
BACK COVER IMAGE: MTC Archives

REGIONALRAIL
next stop....the future!

Regional Rail Plan for the San Francisco Bay Area

Final Report

September 2007

EarthTech
A tyco International Ltd. Company

DMJM HARRIS | AECOM

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ES.1 INTRODUCTION

The Metropolitan Transportation Commission, the Peninsula Corridor Joint Powers Board (Caltrain), the Bay Area Rapid Transit District (BART), and the California High-Speed Rail Authority (CHSRA) joined efforts over the past two years to develop a long-range vision for improving the passenger rail system we have in place and expanding its reaches to serve future Bay Area travel demand. It has been a half-century since the last comprehensive look at the San Francisco Bay Area's rail system. When Bay Area voters approved Regional Measure 2 in 2004, the measure specified and provided funding for the preparation of a comprehensive master plan for Bay Area rail.

The purpose of creating the Regional Rail Plan is threefold:

- To comprehensively identify a vision for a robust, interconnected system of Bay Area passenger rail improvements and expansions to guide investment decisions;
- To create a safe, fast, reliable, and integrated passenger and freight rail network that addresses the tremendous growth anticipated in transportation demand; and
- To sustain and enhance the economic vitality of Northern California, while minimizing the impact on the environment, by providing excellent transit service that strengthens existing downtowns and economic centers.

Why Rail Is Important to the Bay Area

A Growing Region

By 2050, the region's population is anticipated to grow by over 40 percent for a total of 10 million people. This population growth will place tremendous pressure on the existing transportation network.

In-Commuting from Neighboring Sacramento and San Joaquin Valleys

The greatest increase in travel growth into the Bay Area over the next few decades is anticipated to come from our Sacramento and Central Valley neighbors. Without stronger transit systems leading to the main Central Valley cities and connecting them to each other, there will be fewer opportunities for the cities to plan for the kind of compact development that the Bay Area is moving towards.

International Trade and Regional Freight Movement

A freight traffic demand is expected to grow in excess of 350 percent over the next 50 years. Expanded and improved rail infrastructure will be needed to support the demands of freight and passenger growth to mitigate the explosive growth of truck traffic on our roads.

High Levels of Traffic Congestion

Bay Area polls often find persistent traffic congestion as the primary concern for our residents. As the volume of traffic exceeds a road's capacity, the speed of traffic decreases exponentially rather than gradually.

Consequences of Not Addressing Bay Area Rail Needs

High Cost to Our Economy

The adverse economic impacts of congestion and inadequate transit access are already becoming apparent. Congestion would have been about 50 percent worse if not for the region's public transit system, according to the Texas Transportation Institute's 2005 Mobility Study Performance Measure Summary.

High Cost to Our Environment

Without an expanded rail system, the natural environment may also suffer. Promoting development in walkable communities near transit is our best hope for taking development pressure off open space and farms.

High Energy Consumption and Greenhouse Gas Emissions

A fast growing environmental concern is global climate change, and the transportation sector is responsible for 40 percent of California's greenhouse gas emissions, and up to 50 percent in the Bay Area. Offering real transportation choices will be critical for cutting greenhouse gas emissions.

Regional Rail Vision

Ring the Bay with Rail

A long-term vision of many in the region is to ring the Bay, connecting the three major Bay Area cities (San Francisco, Oakland, and San Jose), with a fast, frequent and integrated passenger rail network.

The Right Technology Should Be Used With the Right Corridor

A broad range of rail technologies, including BART and conventional passenger trains like Amtrak are considered in this plan. Emerging technologies such as non-Federal Railroad Administration compliant Electric Multiple Unit (EMU) trains are also explored.

The BART & Caltrain Systems Are the Backbone

The BART and Caltrain systems serve as the backbone of the regional rail network and it is clear there will be capacity constraints and renovation needs for the existing systems. This reinvestment should be a top regional priority over the next few decades.

The BART System's Outward Expansion Is Nearly Complete

While BART will always remain at the core of the region's rail system; its outward expansion potential is limited. Once the extension to San Jose is completed, and the existing lines are brought to logical terminals in Livermore, Santa Clara and East Contra Costa County, no additional outward extensions of the BART technology are contemplated. Higher-speed express trains would better serve outlying suburban markets. Instead, BART will evolve toward a higher-frequency, highly productive metro system.

The Bay Area Needs a Regional Rail Network

As the BART system becomes more of a high-frequency, close stop spacing urban subway system, it needs to be complemented with a larger regional express network serving longer-distance trips. These trains would run largely on existing tracks, some shared with freight and others in their own rights-of-way with specialized signaling and dispatch systems.

Rail Infrastructure Must Be Expanded to Accommodate Growth In Passenger and Freight Traffic

To allow the region's economy to continue growing while meeting increased passenger needs, the freight and passenger rail systems must be increasingly accommodated. Certain freight corridors require additional mainline tracks to support high-frequency freight and passenger services.

High-Speed Rail Provides Opportunities to Enhance and Accelerate Regional Rail Improvements

High-Speed Rail complements and supports the development of regional rail — a statewide high-speed train network would enable the operation of fast, frequent regional services along the high-speed lines and should provide additional and accelerated funding where high-speed and regional lines are present in the same corridor.

- **Rail Transit and Focused Transit-Oriented Developments Must Go Hand in Hand:** If the region is to make a substantial investment in rail infrastructure, land development surrounding the stations/stops and along the rail corridor must be fully integrated with rail services and they must be supportive of one another. Regional and local policies and programs that support focused land-uses must be in place to make this happen.
- **Institute a New Governance Structure for Delivery of Rail Services:** Delivering high-quality, efficient rail services will require institutional changes from the multiple transit operators and multiple providers of regional rail that are in place today. The region must set a course of action to initiate and implement the necessary institutional changes.
- **Successor to Resolution 3434 Needed to Advocate for Rail Funding:** Having a consensus agreement in place will help the region articulate a shared vision about rail expansions that includes Resolution 3434; define improvements that go beyond Resolution 3434 that should be considered in subsequent RTP updates; and provide a strong advocacy platform to aggressively compete for scarce public/private, regional, state and federal funds.

ES.2 STUDY PROCESS

Recognizing that Resolution 3434 represents MTC's regional rail investment over the next 25 years as adopted first in the 2001 Regional Transportation Plan and reaffirmed in the subsequent plan update, Resolution 3434 is included as part of the "base case" network (see ES-1). Therefore, the study effort focused on defining options for rail improvements and expansions beyond Resolution 3434.

Resolution 3434 rail projects include:

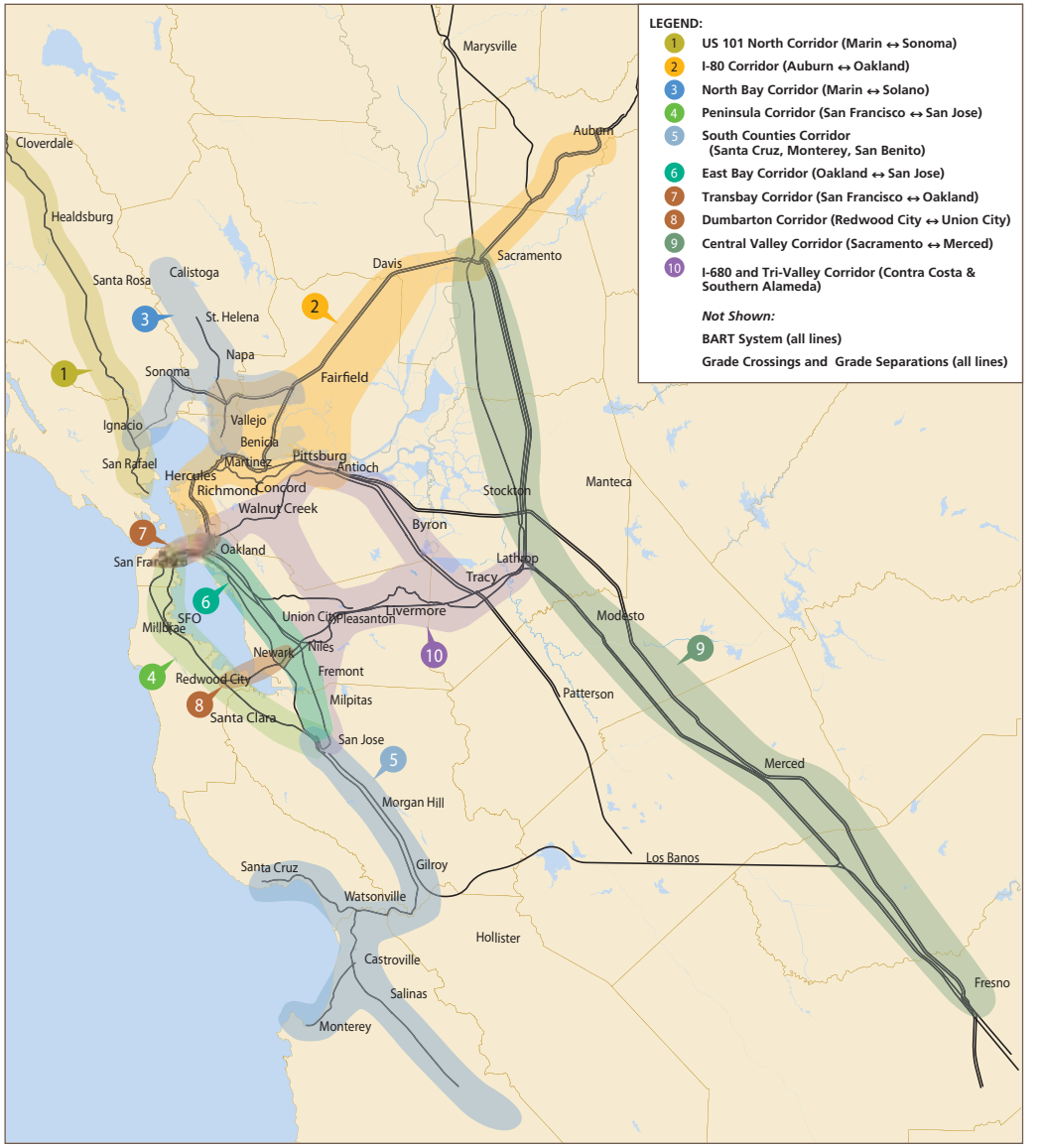
1. BART/East Contra Costa Rail (eBART)
2. ACE/Increased Services
3. BART/I-580 Rail Right-of-Way Preservation
4. Dumbarton Bridge Rail Service
5. BART/Fremont-Warm Springs to San Jose Extension
6. Caltrain/Rapid Rail/Electrification and Extension to Downtown San Francisco/ Transbay Transit Center
7. Caltrain/Express Service
8. SMART (Sonoma-Marin Rail)
9. Capitol Corridor/Increased Services
10. BART/Oakland Airport Connector

Fig. ES-1 Resolution 3434

The study area was divided up into the corridors shown in Figure ES-2, which were defined as areas connecting between major population centers where a substantial portion of the trunk travel is along the defined route. The corridors are geographically distinct, but they may overlap at major regional centers, where some rail infrastructure may be shared. The twelve corridors are:

- BART System (all lines)
- US 101 North Corridor (Marin – Sonoma)
- North Bay Corridor (Marin – Solano)
- I-80 Corridor (Auburn – Oakland)
- East Bay Corridor (Oakland – San Jose)
- Transbay Corridor (San Francisco – Oakland)
- Peninsula Corridor (San Francisco – San Jose)
- South Counties Corridor (Santa Cruz, Monterey, San Benito)
- Dumbarton Corridor (Redwood City – Union City)
- I-680 & Tri-Valley Corridor (Contra Costa & Southern Alameda)
- Central Valley Corridor (Sacramento – Merced)
- Grade Crossings and Grade Separations (all lines)

Fig. ES-2 **Study Corridors**



Study Alternatives

Twelve study alternatives were initially identified for Regional Rail with and without High-Speed Rail. With additional stakeholder and Steering Committee input, the alternatives were winnowed to the following:

- Existing: Includes existing Capitol Corridor, Amtrak San Joaquin, Altamont Commuter Express (ACE) and Caltrain standard passenger rail, along with BART services.
- Baseline — Year 2030: Encompasses MTC's Regional Transit Expansion Program (Resolution No. 3434), including nine new rail extensions and significant service expansions to existing rail lines; introduces Sonoma-Marin Rail Transit Project (SMART), Dumbarton, and eBART, as well as enhancements to the Capitol Corridor, Amtrak San Joaquin, ACE and Caltrain. It also includes BART "Core Capacity" improvements.

- Alternative 1 — Year 2050 — Regional Rail with BART Systemwide Expansion Focus: No high-speed rail; standard passenger rail shared with freight (capacity improvements as needed); freight dispatching optimized on shared lines; separate freight and passenger tracks on high capacity corridors; short-haul freight between Port of Oakland and Central Valley via Altamont; BART "Regional Expansion;" New BART Transbay Tube; and new San Francisco Subway.
- Alternative 2 — Year 2050 — Regional Rail with Railroad-Based Services Expansion Focus: No high-speed rail; lightweight passenger rail system separated from freight on high volume corridors (higher speed, grade separated and electrified system); Transbay rail tunnel to allow extension of Peninsula electrified service to connect with East Bay; freight operating practices independent from passenger operations; and BART "Mass Transit" provider with additional stations and short extensions.
- High-Speed Rail — Year 2050 — Entry from East via Altamont Pass: Starting with the recommended Regional Rail network without High-Speed Rail, revisions were made to the regional network to reflect the inclusion of a high-speed alignment entering the Bay Area from the East.
- High Speed Rail — Year 2050 — Entry from South via Pacheco Pass: Starting with the recommended Regional Rail network without High-Speed Rail, revisions were made to the regional network to reflect the inclusion of a high-speed alignment entering the Bay Area from the South.

Evaluation Criteria

The evaluation of the study alternatives was conducted on a corridor-by-corridor level using the following criteria:

- Engineering Feasibility: Railroad track, stations, maintenance facilities, major structures, signal and communication systems and potential electrification.
- Capital Cost Estimates were developed for each corridor option, based on the engineering feasibility analysis.
- Travel Demand: Travel forecasts were derived from two modeling systems: (1) MTC's intraregional travel model and (2) the statewide interregional model developed for MTC and California High-Speed Rail Authority to evaluate high-speed rail alternatives in the state.
- Operational Impacts: "Sketch plan" evaluation of capacity based upon readily available information.
- Connectivity: Major connectivity stations and their potential services, organized by importance in terms of population served and operators present.
- Environmental Issues: Corridor options were screened to identify major environmental concerns including impacts to natural resources, section 4(f) impacts, environmental justice, and right-of-way impacts.

- Implementation Issues: Consistency with existing transportation plans, existing corridor ownership and usage (including freight traffic requirements), major environmental issues that may present implementation risk, and other factors.

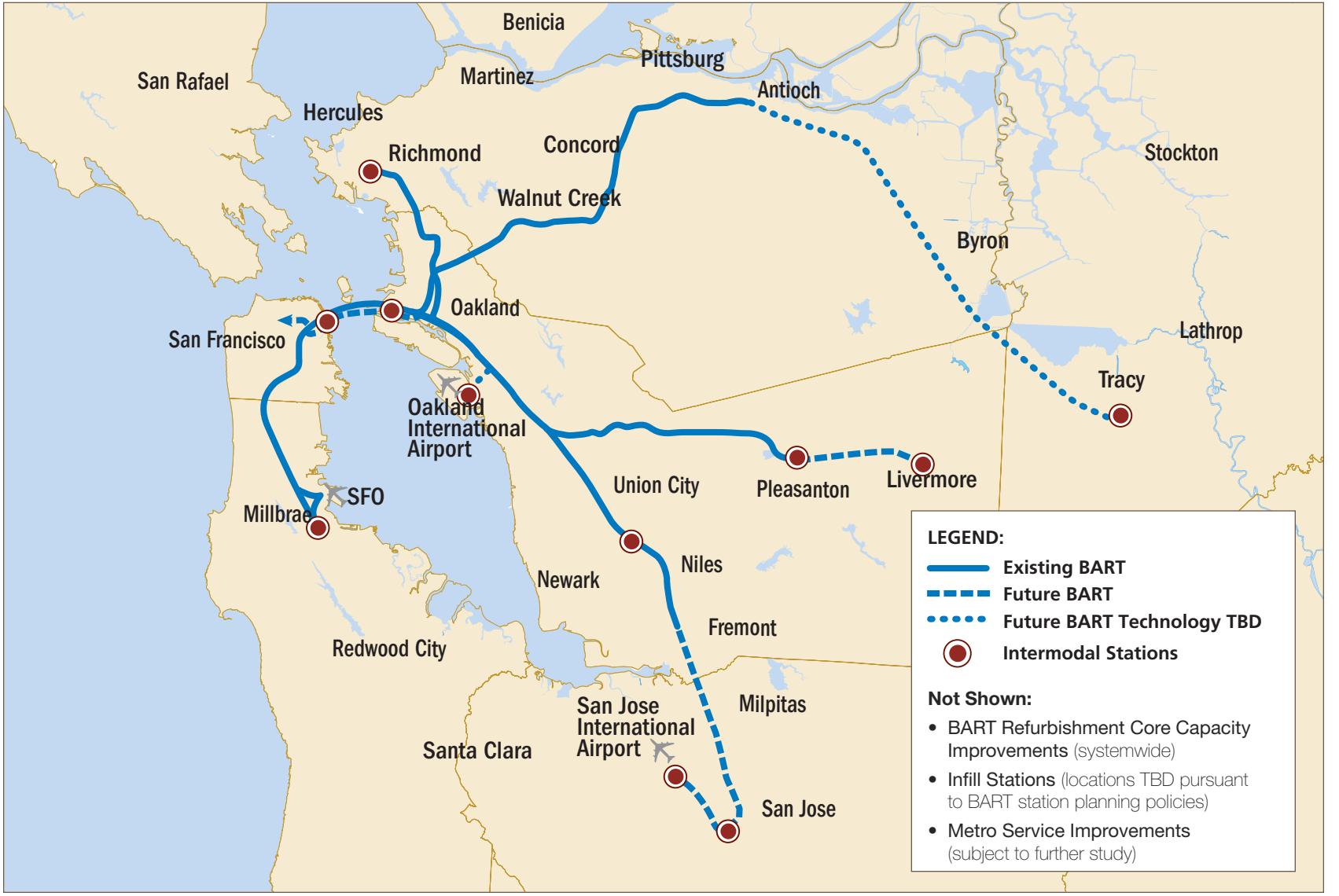
ES.3 RECOMMENDATIONS

Regional Rail Without High-Speed Rail

The two systemwide alternatives — Alternative 1 Regional Rail with BART Systemwide Expansion and Alternative 2 Regional Rail with Railroad-Based Services Expansion — were evaluated on a corridor-by-corridor basis taking into account the evaluation criteria described above. For each corridor, a recommended corridor treatment has been identified. In some cases, the recommended alternative consists of a blend of the two system alternatives or includes refinements suggested by the evaluation process. Maps of the recommendations are shown in Figures ES-3 through ES-6.

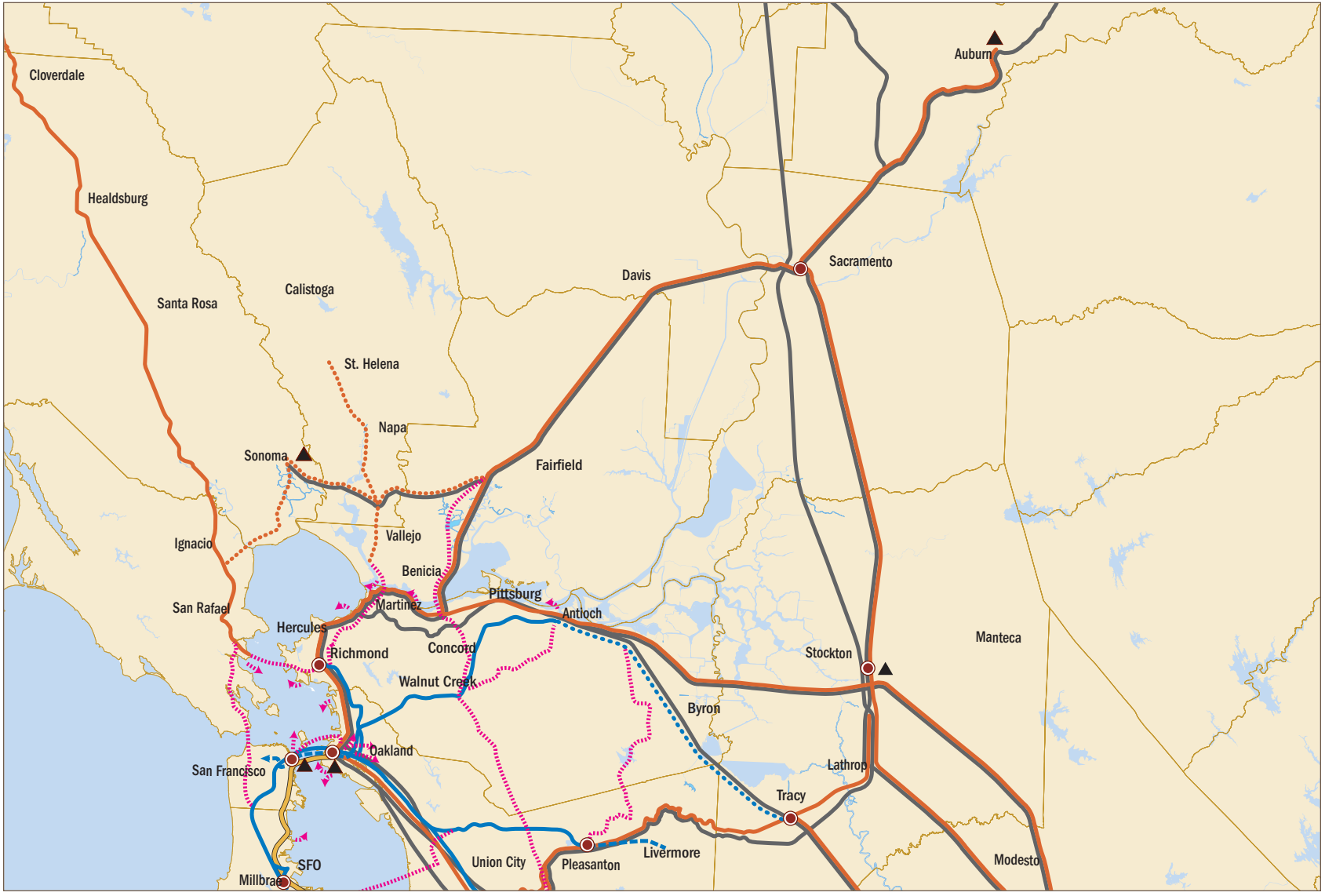
- BART — Reinvest in existing system to improve reliability and make the following improvements:
  - Improve Core Capacity by making modifications to vehicles, stations, track and signals as they are replaced and upgraded to accommodate passenger growth over the long term
  - Implement Resolution 3434 extensions to Warm Springs, Santa Clara County, and eastern Contra Costa County.
  - Implement improvements to connect BART with standard railroad services and regional bus lines in various corridors including a one-station extension to an intermodal with ACE at Isabel/Stanley
  - Construct 4th track through Oakland to facilitate throughput and improve transfer convenience between East Bay and Transbay lines
  - Develop Infill stations at various locations keyed to local land use opportunities in accordance with BART station planning policies
  - Further define “Metro” service plan to increase capacity, coverage and reliability to inner Bay Area including the Oakland - Transbay – San Francisco zone; service plan may provide for new skip stop or expanded mid-line turnback capability.
  - In the longer term, pursue construction of a second Bay Crossing with new subway line to improve coverage to San Francisco in the long term (paired with rail tunnel)

Fig. ES-3 2050 Regional Rail Without High-Speed Rail (BART System)



- US 101 North — Implement SMART project; service plan in the early years will have trains operating on 30-minute headways during peak periods with an approximate 90-minute schedule between Larkspur and Cloverdale. Make capacity and operational improvements over the long term to support 20-minute peak headways and higher ridership levels.
- North Bay — Preserve corridor in near and intermediate terms and consider as appropriate to develop north-south and east-west services using standard equipment in the long term with service frequencies on each route of approximately 60 minutes throughout the day and timed transfers at key locations.
- I-80 & East Bay — Expand the East Bay rail network from San Jose to Sacramento to 3 tracks with 4 track sections from Oakland to Richmond and in Solano County to support operation of standard higher speed railroad rolling stock compatible with freight traffic. Reduce travel time between Sacramento and San Jose to 149 minutes. Some of the service in the inner East Bay may be provided by shorter distance trains operating between Union City and Hercules.
- Transbay — Provide near term investments in BART Core Capacity including provision of higher-capacity cars, track and signaling and operational improvements; in the longer term, provide new transbay tube and San Francisco BART line paired with rail tunnel in long-term future to distribute passengers and relieve overcrowding on the existing tube.

Fig. ES-4 **2050 Regional Rail Without High-Speed Rail (North)**



- Peninsula — Expand Caltrain to 3 or 4 tracks where feasible and operate with lightweight electric multiple-unit equipment for rapid acceleration and frequent express and local service. Operate trains at 7-1/2 minute headways during peak periods and 15 minutes off peak.
- South Counties — Extend service to Salinas with further expansion using standard equipment to provide rail connections to Monterey and Santa Cruz. Approximate hourly service would be provided on all lines with timed transfers at key locations.
- Dumbarton — In the near term, implement service between Union City and Redwood City with standard railroad rolling stock. In the longer term, separate passenger-only trackage from Redwood City to Union City to support operation of lightweight equipment compatible with Peninsula train operations allowing Dumbarton trains to interline with Peninsula services. Peak period trains would operate at 30-minute headways between Union City and the Peninsula with hourly service throughout the day.
- Tri Valley / I-680 — Add trackage to the existing UPRR line and/or put segments of the abandoned SPRR back in service to support expanded and improved passenger service along the ACE rail corridor and to accommodate regional freight trains. Hourly service would be provided in both directions with 30 minute service for peak period peak direction trains; approximate 100-minute running time between Stockton and San Jose. Develop regional bus options in the I-680 corridor.
- Central Valley — Provide a regional corridor service between Sacramento and Merced over the long term, interlined with ACE services and complementing the San Joaquin long haul trains. Regional trains would operate on hourly schedules between Merced and Sacramento. Additional trains would operate from Modesto to Oakland or San Jose also on an hourly schedule resulting in 30-minute service over Altamont Pass between the San Joaquin Valley and the Bay Area.

Fig. ES-5 **2050 Regional Rail Without High-Speed Rail (Central)**

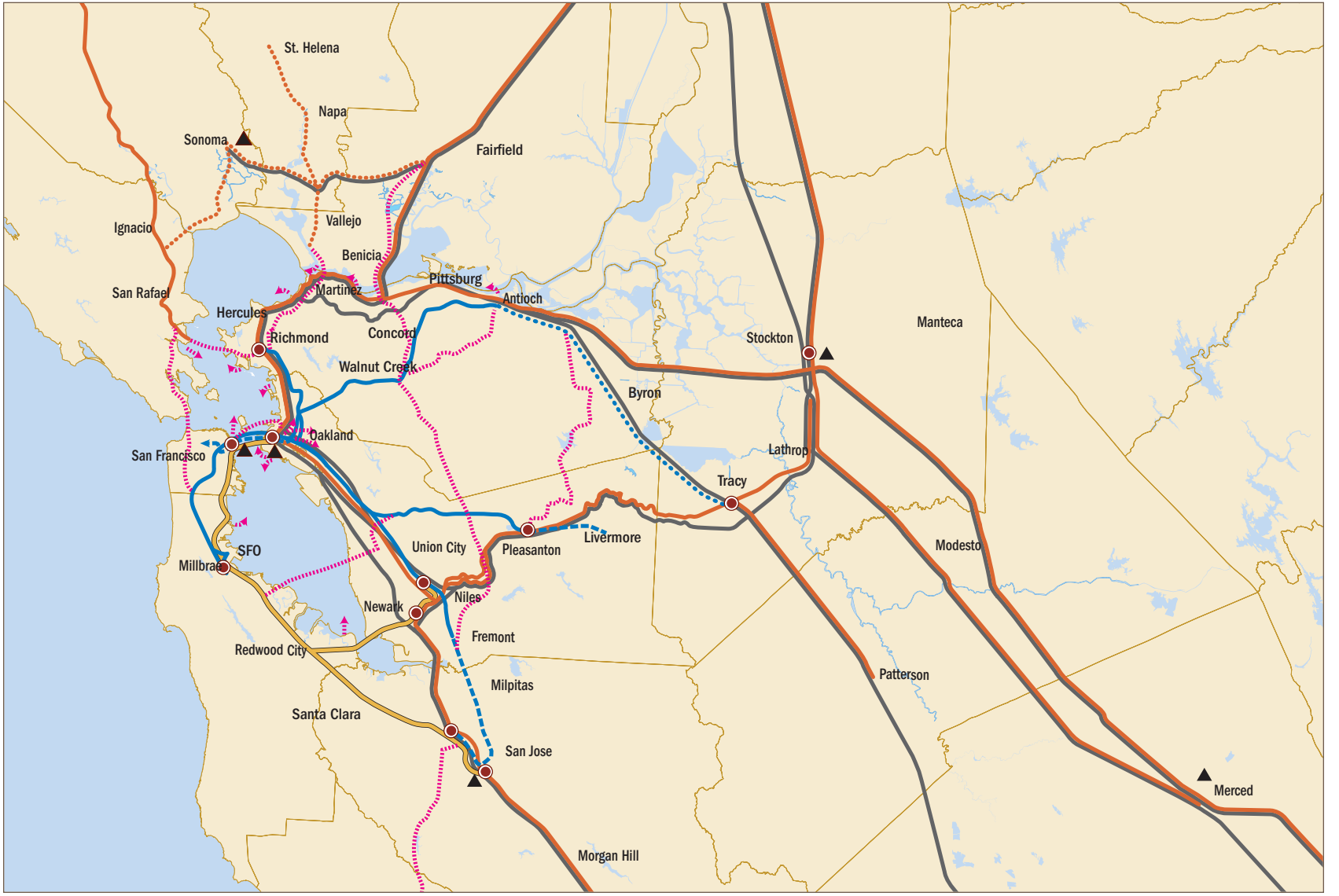
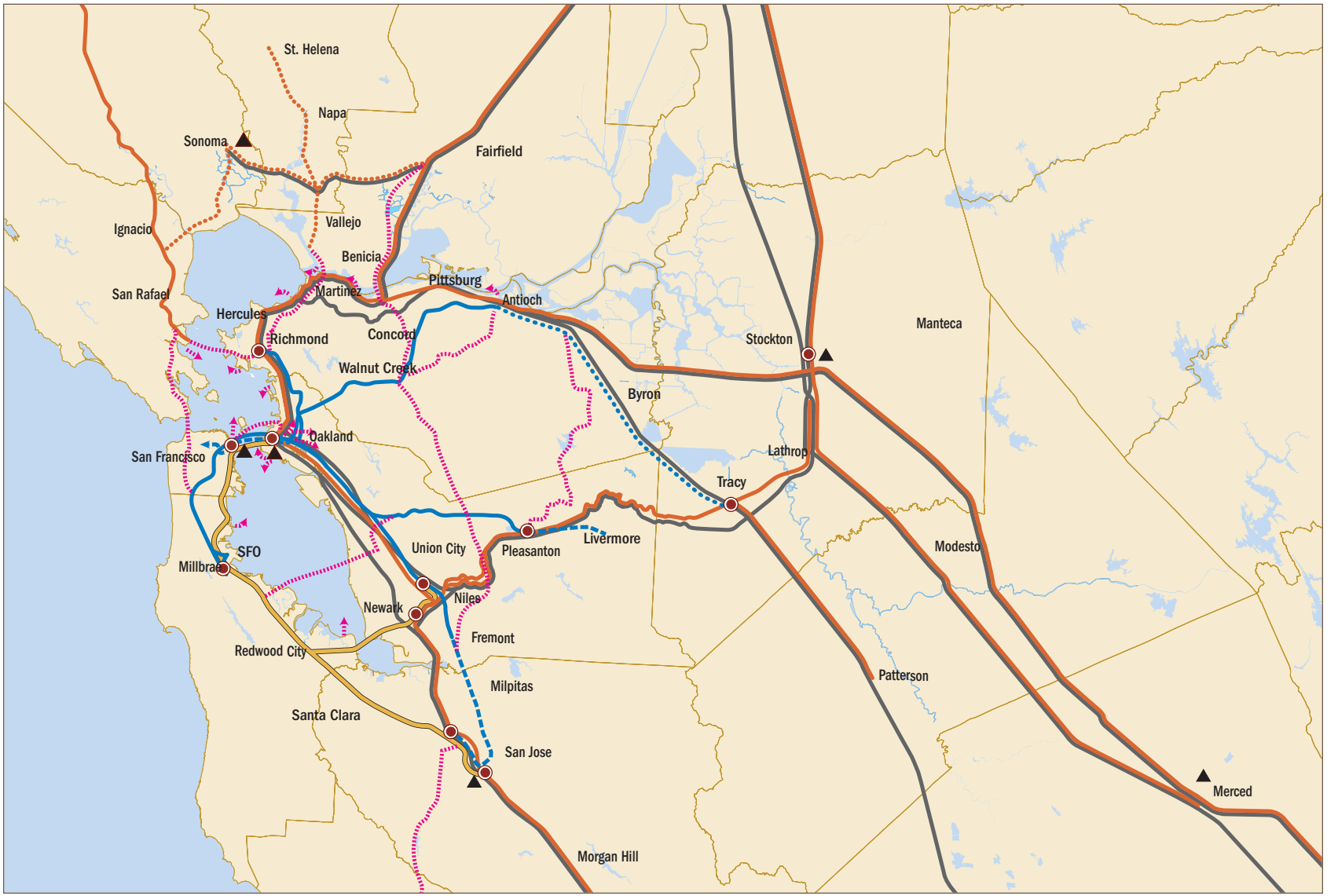


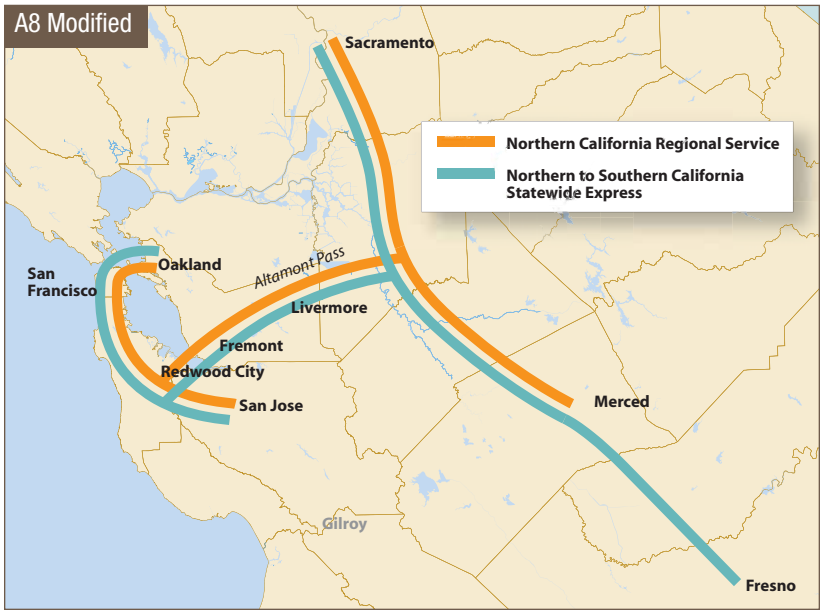
Fig. ES-6 **2050 Regional Rail Without High-Speed Rail (South)**



Regional Rail with High Speed Rail

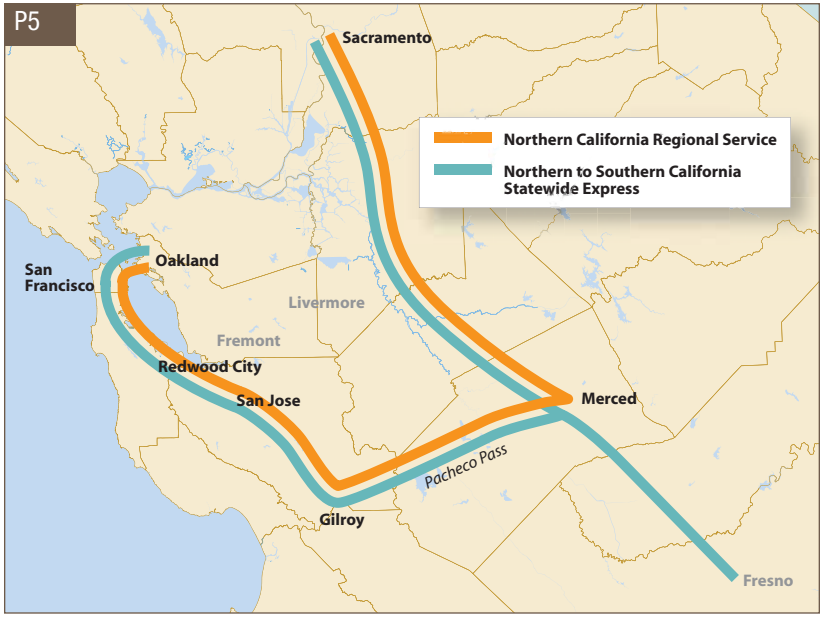
- The Regional Rail analysis identified numerous opportunities to operate regional "overlay" services across high speed lines within Northern California – these regional services would serve five distinct regional sub-markets including: Northern San Joaquin Valley, Altamont/Tri Valley, South Counties, East Bay and Peninsula. Implementation of these services would require provision of 4 tracks at regional stations as well as approaching and departing the regional stations.
- The Regional Rail plan evaluated eight alternative configurations for high speed lines connecting Bay Area metropolitan centers with the Central Valley and Southern California.
- Both Altamont and Pacheco options have similar total cost ranging from $16 – $18 billion (Year 2006) depending upon the configuration. These costs are generally about $1-billion higher to accommodate regional services, depending upon the alternative.
- An Altamont alignment with a Dumbarton Bridge crossing utilizing the Peninsula trackage to provide direct service to San Jose and San Francisco with a long term tunnel connection to Oakland would have generally higher ridership and generally lower cost than other alternatives. This alternative would be stageable from Phase 1 peninsula improvements.

San Francisco and San Jose via SF Peninsula with Oakland via Transbay Tube ("A8 Modified")



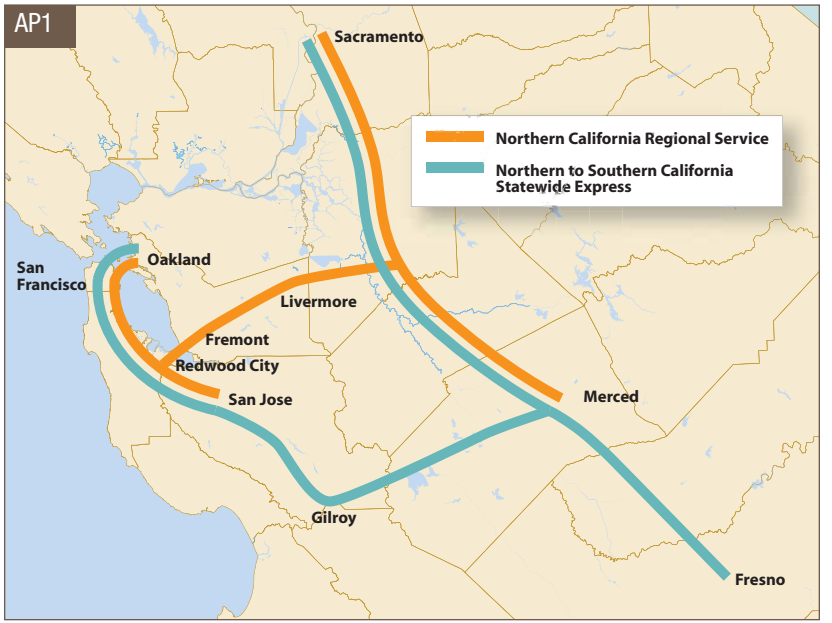
- Such an Altamont alternative would serve nearly 20-million Northern California regional trips (between points from Merced and to the north) in Year 2030.
- A Pacheco alignment using the Peninsula with a long-term tube connection to Oakland would have highest ridership and lower cost than an option which would require construction of a second line in the East Bay to reach Oakland.
- Such a Pacheco alternative would result in highest service levels to the major metropolitan centers as San Jose, San Francisco, and Oakland would be served by all trains.

San Jose, San Francisco & Oakland via Transbay Tube ("P5")



- Altamont and Pacheco alternatives have similar total regional ridership levels of approximately 54-million to 56-million Northern California trips in Year 2030 (including both intra-regional trips within Northern California as well as inter-regional trips to points south of Merced).
- An Altamont alignment would have higher regional ridership (between points located from Merced and north) of 20-million trips in Year 2030 vs. about 16-million trips for a Pacheco alignment – by contrast, a Pacheco alignment would have higher ridership between Northern California and Southern California (between points located from Fresno and south) of 40-million trips in Year 2030 vs. about 34-million trips for an Altamont alignment.
- If either Altamont or Pacheco were selected as the sole option, 4-track sections would be needed at regional stations as well as approaching and departing regional stops. These four-track sections would be required along the Altamont route between Fremont and Tracy and along the Pacheco route between San Jose and Gilroy. By contrast, with an Altamont + Pacheco option, two-track sections would suffice from San Jose to Gilroy and from Fremont to Tracy; additionally, a lower-cost bridge connection at the Dumbarton crossing could be developed thereby reducing the cost of a combination alternative by as much as $1-billion compared to simply building both of the alignments separately.

San Francisco & SJ via Peninsula plus Oakland via Transbay Tube ("AP1")



- The Altamont + Pacheco alternative would cost about $21-billion and would carry nearly 57-million Northern California riders (100-million statewide riders) in Year 2030. Numerous regional overlay routes could be provided while maintaining highest service levels between Southern California and the three Bay Area metropolitan centers. It would provide the fastest travel time between San Jose and points south as well as a faster travel time between San Jose and Sacramento compared to a Pacheco only alternative.
- Regardless of which Altamont or Pacheco options would be developed, an initial phase of investment in the Peninsula alignment between San Jose and San Francisco would help make Caltrain, with an express/limited stop ridership potential of 6.3-million riders per year in 2030 "high speed rail ready"

There are a number of ways in which various high-speed rail segments could be implemented within Northern California. A project of the magnitude of high-speed rail would take a number of years to deliver from the point of view of environmental clearance, permitting and construction, regardless of funding availability. Given these unknowns, as well as choices regarding specific route alternatives, it is difficult to specify a sequencing of segments at this point in time. Any sequencing which would be developed should, if possible, take into account the ability to utilize portions of the completed network as soon as possible, regardless of the availability of the entire network.

Initial Bay Area Segment

Clearly the San Francisco Peninsula is a location which could be improved with or without high-speed rail. In accordance with both the phasing policy of CHSRA as well as the recommended Regional Rail options is improvement of the Peninsula corridor to make it "high-speed ready" for operation as a grade-separated, higher speed alignment suitable for use of electric multiple unit equipment. High-Speed rail limited stop trains could serve Peninsula destinations as a regional overlay to the long distance trains along with continued operation of local services.

Possible Altamont Pass Improvements ("A8 Modified")

Early Elements

- Electrification of Dumbarton Service
- Separate Passenger Only Trackage Through Tri-Valley Area
- New High Speed Alignment over Altamont

Later Elements

- 4 Track Stations and Approach Tracks (Fremont – Tracy)
- Tracy Intermodal
- Tunnel Beneath Niles Canyon
- New High Bridge at Dumbarton
- BART Extension to Livermore Station

Possible Pacheco Pass Improvements ("P5")

Early Elements

- Two-track connection San Jose to Valley Line
- Improve ACE for Regional Service

Later Elements

- 4 Track Stations and Approach Tracks (San Jose – Gilroy)
- Gilroy Multimodal for South Counties Service
- Tunnel Beneath Niles Canyon
- New High Bridge at Dumbarton
- BART Extension to Livermore Station

Possible Altamont + Pacheco Pass Improvements ("AP1 Modified")

In the event both the Altamont and Pacheco alignments were included in the high speed rail network, an even broader set of segments would be available and there would be more choices for advancing individual projects on either or both alignments depending upon funding and priorities.

Early Elements

- Electrification of Dumbarton Service
- Separate Passenger Only Trackage Through Tri-Valley Area
- New High Speed Alignment over Altamont
- New Express Tracks SJ – Central Valley via Pacheco

Later Elements

- Tracy Intermodal
- Tunnel Beneath Niles Canyon
- New High Bridge at Dumbarton
- BART Extension to Livermore Station
- Gilroy Intermodal for South Counties Service

ES.4 SUPPORT STRATEGIES

Land Use

By 2050, the Bay Area will add 40 percent more residents, San Joaquin County's population will more than triple, and Sacramento County will grow 132 percent. It is imperative that our regions continue to plan and focus our growth and development in core areas; produce quality, higher density housing (particularly affordable housing) for our residents; and make tighter connections between our land-uses and transportation infrastructure.

The Regional Rail Plan calls for a comprehensive land-use strategy that optimizes opportunities to better plan and provide for supportive land-uses at rail stations, key connectivity points, and along rail corridors. Rail project implementation must be fully integrated with supportive land-uses in order to establish the ridership markets that will be needed to justify these hefty investments. While land-use authority remains the prerogative of local governments, agencies involved in the Regional Rail Plan should integrate land-use into decision-making regarding where, when, and how to expand and improve our rail system. The following are the key considerations to enhance existing programs:

1. Monitor, Update and Expand Rail Station TOD Policies
2. Adopt Ridership Development Plans for the Broader Commute Shed
3. Seek State Bond Monies for Infill and Transit-Oriented Development
4. Expand the Resources Available to Help Cities
5. Create a One-Stop Shop for Technical Assistance
6. Encourage Local Municipalities to Adopt Supportive Station Area Policies

Governance

The Bay Area has four providers of regional passenger rail services: Caltrain, BART, Altamont Commuter Express (ACE), and Capitol Corridor. New services identified in MTC Resolution 3434 will result in development of additional rail corridors involving additional jurisdictions and added complexity due to additional geographic overlaps. For these reasons, and as required by the enabling legislation authorizing and funding conditions for this Regional Rail Plan, the governance strategy was considered with respect to modifications which would support implementation of the Regional Rail Plan.

A literature review was conducted to identify various governance structures that would have potential applicability to Northern California:

- Decentralized — Characterized by multiple service providers with separate governance structures, as represented by the status quo in Northern California
- Regional Federation — A loose form of association under an umbrella organization responsible for implementation of joint initiatives. Services are delivered within the region of the federation by separate operating entities each having separate staffs and reporting to separate boards.
- Regional Rail Authority — This model illustrates the functional consolidation of all regional passenger rail services. All passenger rail services are unified under a single governance structure responsible for all aspects of rail ranging from planning and design to maintenance and operations.
- Consolidated Regional Rail — Consolidated authorities may have broad power ranging from funding through maintenance and operations over multiple modes with large geographic areas.

Two workshops with general managers and elected representatives from Bay Area rail providers were held to consider the issues and models as well as potential risks and benefits. The following potential benefits and risks were identified with respect to moving toward a more centralized form of regional rail governance:

Potential Benefits

- Schedule Coordination
- Centralized Operations
- Uniform Fare Structure and Collection
- Railroad Negotiations
- Procurement Economies of Scale
- Improved Customer Service
- Streamlined Administration

Potential Risks

- Reduced Local Accountability and/or Autonomy, perceived or real
- Potential for Higher Labor Costs
- Potential for Work Stoppages

Consensus emerging out of the partner workshops is that:

- A single or consolidated authority carries higher degree potential risks
- Existing regional coordination efforts are consistent with the evolution of a federation model
- Additional steps toward a federation model include strategies to coordinate fares, schedules and wayfinding, centralize operations and dispatching, joint right-of-way negotiations, and regional procurement.

These questions ultimately are policy issues for resolution by MTC and affected rail operators.

Findings and Recommendations

1. MTC and Bay Area rail operators have engaged in a series of initiatives to improve the customer experience of rail transit as an integrated system — e.g., trip planning, customer information and fare collection — these initiatives should be fully deployed and the customer experience further integrated through coordinated joint efforts involving the operators under the direction of MTC.
2. The Bay Area is increasingly engaged both from the perspective of economic, demographic and travel factors with adjoining Northern California areas especially with respect to the Northern San Joaquin Valley to the East but also including counties to the South and North.
3. From the Regional Rail planning process it has become apparent that there is no single existing entity in greater Northern California which spans the geographic scale of the emerging "megaregion".
4. A greater integration of project development, planning and initiatives aimed at further integrating and enhancing the customer experience could be gained by formalizing relationships between planning, funding, construction as well as maintenance and operations of rail services through a "federation" of Northern California entities.
5. In the longer term, a new federation could, with new funding and a mandate to implement regional rail solutions. These would include efforts such as addressing right-of-way needs, access to private freight lines, and dispatch of public sector or joint corridors.
6. To this end, it is recommended that near term steps be undertaken to formalize a rail federation.
7. As such in the near term no new rail operators should be "chartered" or established which would provide new services that are interconnected with the regional network.

Funding

The estimated total capital investment for this plan is about $45 billion in 2006 dollars. Overall, finding public and private revenues to fund capital construction is a sizeable challenge, which the region has tackled successfully in the past. However, the much bigger challenge is securing additional revenues to pay for operating costs. This is why complementary land-use strategies are so important to maximize ridership and minimize the need for additional operating subsidies.

Forging regional consensus behind a program of projects to advocate for and pursue federal, state and regional funding has proven to be a critical first step in delivering high-priority rail expansions. Resolution 3434 is a roughly $13.5 billion program of rail, regional express bus, and ferry enhancements and expansions. The financial plan for Resolution 3434 is comprised of an array of federal, state and local sources and matched funds to projects based on project competitiveness and eligibility. MTC is currently developing a Resolution 3434 Strategic Plan, scheduled for release in 2008, to provide a financial framework for successful program and project delivery.

Funding for Regional Rail Plan investments beyond current Resolution 3434 commitments will likely come from multiple sources, as follows:

- Federal: Federal funding categories include New Starts, Small Starts/Very Small Starts, and other Federal Transit Administration funding categories. Most of these funding sources are dependent on annual appropriations from the federal government, though some programs are multi-year.
- State: In 2006, California voters passed Proposition 1B, which provided roughly $20 billion for transportation purposes statewide; that amount includes $2 billion for freight-related infrastructure improvements (including rail freight) and another $1.3 billion for Bay Area transit improvements. In 2008, California voters are slated to decide on a High-Speed Rail Bond that will provide a substantial down payment towards the implementation of state-of-the-art high-speed rail system connecting the Bay Area to southern California. Other matching state and federal funding sources, as well as the CHSRA's broad contracting powers to secure private sector funds, will be pursued to fully implement the envisioned high-speed rail system.
- Regional: Regional funding has been an important contributor to the funding and delivery of numerous transportation projects in the Bay Area. Regional Measures 1 and 2 toll bridge funds are fully committed to projects and programs identified in their respective expenditure plans. Any potential surplus of toll revenues generated would be directed toward the regional bridge seismic program. Per the Streets and Highways Section 3091(h), the MTC/Bay Area Toll Authority shall, by January 1, 2020, submit a 20-year toll bridge expenditure plan for RM2 to the Legislature for adoption. Further, this expenditure plan shall have, as its highest priority, replacement of transit vehicles. When the expenditure plan is developed, there may be potential opportunities to advocate for toll bridge funding for rail expansion projects identified in this Regional Rail Plan.

- Local: Local transportation sales tax measures have been the bulwark of the Bay Area's transportation funding over the past two decades. To date, seven of the nine Bay Area counties have successfully enacted voter-approved transportation sales tax initiatives. Future local sales tax funds, developer fees and private capital may be available for rail projects.
- Public/Private Partnerships: Private investment, mainly from the rail freight operators (Union Pacific and BNSF Railway) will be an important funding source to implement the railroad-based improvements recommended in this plan. The private railroads have and will continue to be funding partners to improve freight and passenger rail service to implement improvements that are mutually beneficial to both. As an example, the $2 billion in Proposition 1B funding for freight infrastructure improvements requires up to a 50 percent match; the private railroads have indicated their interest in participating financially with local entities to secure some of this funding for local rail freight improvements.
- Creative Financing: New revenue streams may be available in the future. Two examples of potentially emerging opportunities include:
  - Congestion Pricing — Pricing of access to crowded major highway facilities could be used to implement rail improvements. This strategy could off-set some of the social equity issues associated with congestion pricing in that proceeds from a pricing strategy could be used to support basic transportation needs for those not able to afford priced highway options.

  - Carbon Credits — As initiatives are developed to fight global warming, participation in development of rail lines, especially those which would be electrified, or conversions to more energy-efficient lightweight equipment could be funded by private investors interested in receiving credits for reduction of pollutants and greenhouse gases.

ES.5 IMPLEMENTATION

Implementation of the Regional Rail Plan will require a comprehensive approach. The following key considerations pertain to plan implementation:

- Phasing — The Regional Rail Plan report identifies a possible phased implementation plan which addresses near term (Year 2015) medium term (Year 2015 – 2030) and long term (post Year 2030 to Year 2050 and beyond) timeframes
- Funding — Assembly of nearly $50-billion present-day dollars for development of the Northern California regional rail network, including Resolution 3434 commitments and BART reinvestment, will require significant new sources of funds; funding is a top priority concern

- Governance / Rights-of-Way Arrangements — Opportunities for joint programs or for new initiatives, which could be undertaken in the near term under a federation of existing operators, may be pursued further as part of potential new legislation. In the longer term, a regional rail federation could provide an umbrella under which negotiations with freight rail operators for acquisition of rights-of-way and operating rights could proceed.
- Land Use Policies — Existing policies developed separately by BART, MTC and other entities governing station area developments could be unified and broadened to pertain to the Northern California "mega-region" to assure that the highest densities are developed along rail corridors and around stations/major connectivity points, thereby establishing the ridership markets and providing convenient access to the regional rail network.
- Integration with Other Planning Efforts — This Regional Rail Plan only focused on a single transportation mode – rail. Therefore, this plan will ultimately need to be integrated with other regional planning efforts such as the Regional High-Occupancy Toll (HOT) Network Study, regional express bus plans, Water Transit Authority's Ferry Operations and Implementation Plan, MTC's Freeway Performance Initiative, and other regional and local planning efforts. To this end, local jurisdictions should include identification of necessary rail rights-of-way in General Plans.

ES.6 NEXT STEPS

Projects advanced under the Regional Rail Plan would be implemented in accordance with existing project planning, funding and project development procedures.

The following specific follow-on efforts are recommended:

- Governance — Regional Rail governance strategy is a near-term priority. The Commission and the affected rail operators should develop an Action Plan to implement the key governance initiatives outlined in the Regional Rail Plan. No new rail operators should be "chartered" or established which would provide new services that are interconnected with the regional network.
- Rights-of-Way — It is recognized that obtaining right-of-way and/or securing access to freight lines for development and operation of regional rail passenger services is a critical priority. Accordingly, the Action Plan should identify a single entity to:
  1) identify and inventory future Bay Area rail rights-of-way needs and identify potential funding options;
  2) develop near-term inventory of proposed rail improvements that would allow additional rail passenger slots to be acquired; and
  3) negotiate railroad rights-of-way and access to private freight lines on behalf of all regional rail entities. (Residual Regional Measure 2 funding allotted to the preparation of this plan should be made available to support the development of the Action Plan.)

- Evaluation Measures — MTC adopted rail system expansion and improvement criteria during the development of its Resolution 3434 transit expansion program, and is currently developing a Resolution 3434 Strategic Plan to provide a framework for successful program and project delivery. This Regional Rail Plan helps inform the next generation of rail expansion beyond Resolution 3434.
- Travel Market and Ridership Analysis — Detailed ridership studies to evaluate corridor service options
- Land Use Analysis – Sensitivity testing should be performed for Regional Rail projects to reflect on-going refinements to land use visioning, particularly more focused land use patterns
- Service Model — Additional analysis and testing should be used to identify specific operating plans including routings and frequencies

- Cost Analysis — Cost estimates prepared for the Regional Rail plan are planning-level, order-of-magnitude cost and will be refined to reflect the level of detail of the project description as projects are further developed
- Environmental Clearance & Community Impacts — As rail projects and services are developed, full environmental review and public involvement will be provided to refine project specifics and identify mitigation measures,
- BART Operations — BART will be leading its own effort to address passenger needs including development of criteria for infill stations, how to best implement its 30-year capital plan and strategic vision, constructing higher frequency line segments, skip-stop services and other improvements considered in this plan
- High-Speed Rail — The CHSRA has released a Draft Environmental Impact Report/Environment Impact Statement (EIR/EIS) for the Bay Area to Central Valley portion of a statewide high-speed rail system which provides information on high-speed rail options, costs, benefits and potential impacts. The CHSRA will be accepting comments through October 2007 on the draft environmental document to inform the decision making process regarding preferred high-speed rail alignments and station locations within the Bay Area to Central Valley study area. The Regional Rail process will provide input to the CHSRA as it prepares its final environmental document and decides on the preferred routing for high-speed rail between the Bay Area and Central Valley.

CHSRA

Metropolitan Transportation Commission
Joseph P. Bort MetroCenter
101 Eighth Street
Oakland, CA 94607
info@mtc.ca.gov | www.mtc.ca.gov