



METROPOLITAN  
TRANSPORTATION  
COMMISSION

Joseph P. Bort MetroCenter  
101 Eighth Street  
Oakland, CA 94607-4700  
TEL 510.817.5700  
TDD/TTY 510.817.5769  
FAX 510.817.7848  
E-MAIL info@mtc.ca.gov  
WEB www.mtc.ca.gov

## *Memorandum*

TO: Partnership TAC

DATE: August 13, 2007

FR: Lisa Klein

W. I.

RE: Transportation 2035 Vision: Draft Scenario Network Definitions

In July 2007, the MTC Planning Committee authorized staff to proceed with a performance-based approach to developing the Transportation 2035 Vision. As illustrated in [Attachment A](#), the approved approach calls for assessing three investment scenarios relative to a set of specific state-directed performance targets, which represent a subset of the Transportation 2035's "Three E" principles and goals. Staff will then apply land use and pricing sensitivity tests to each of the investment scenarios to see how such policy measures could help the region achieve the targets.

This memo provides a brief update on the performance targets and describes the draft scenario network definitions and next steps for the analysis. The key Transportation 2035 project milestones are outlined in a separate memo ([See Item 4a](#)) and the pricing and land use sensitivity tests are described in a separate memo ([See Item 4e](#)) included in your packet.

### **Performance Targets**

The MTC Planning Committee authorized staff to move forward with the performance targets reviewed by PTAC in June. Since then, MTC staff have had discussions with the Air District about the appropriate target for particulate matter. It appears likely the Air District will recommend a more aggressive target as noted below. In addition, further discussions will occur during the week of August 13 on the Equity target. The performance targets are:

- **Economy: Congestion**  
Reduce person hours of delay by 20 percent below today's levels by 2035 (Governor's Strategic Growth Initiative)
- **Environment: Carbon Dioxide (CO<sub>2</sub>) and Particulate Matter (PM) Emissions**  
Reduce CO<sub>2</sub> emissions by 40 percent below 1990 levels by 2035  
Reduce PM-2.5 and PM-10 emissions by 10 percent below today's levels by 2035.<sup>1</sup>  
(California Global Warming Solutions Act of 2006 and Governor's Strategic Growth Initiative<sup>2</sup>)
- **Environment: Vehicle Miles Traveled (VMT)**  
Reduce VMT per capita by 10 percent compared to today by 2035 (SB 375 (Steinberg), prior to amendment)
- **Equity: TBD**  
Discussions to date have highlighted three areas of particular interest: transportation cost, exposure to transportation-related health risks and access to opportunities. On August 14, MTC staff will

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<sup>1</sup> The Air District may recommend revising the targeted reduction to 45 percent based on the reductions needed to bring the Bay Area into attainment with all applicable PM standards.

<sup>2</sup> Carbon dioxide only. See note above regarding PM target.

review specific potential measures with a small group of public stakeholders, MTC Advisors and partners. Staff will report on this discussion at the August 20 Partnership TAC meeting.

## **Draft Scenario Network Definitions**

To understand how transportation system expansion and enhancements help us to reach toward the targets, the MTC Planning Committee authorized staff to proceed with analysis of three modally based investment scenarios. Because this is a visioning effort, the scenarios are defined to be distinct enough to reveal differences in performance and are not constrained to expected revenues. The three scenarios are described below with additional detail in attachments to this memo.

### **Freeway Performance**

This scenario aims to maximize the efficiency and improve the management and reliability of the existing freeway infrastructure while minimizing traditional expansion of the system. This scenario, developed in consultation with Caltrans District 4 and the Bay Area congestion management agencies, will define strategies to help attain Transportation 2035 targets, including improved air quality, by maintaining optimal vehicle speeds and reduced congestion for both businesses and travelers.

The Freeway Performance scenario comprises the following key elements: (1) full deployment of the traffic operations system (TOS) infrastructure to improve efficiency of the freeway system and to manage non-recurrent congestion by minimizing the impacts of incidents on travel time reliability, (2) implementation of ramp metering on the region's entire freeway system to accomplish demand management and maximize use of the freeway system's available capacity, (3) corridor management to balance freeway and arterial traffic through comprehensive integration of all travel modes using improved arterial operations and signal coordination, (4) deployment of vehicle infrastructure integration (VII) technology that will allow the Bay Area to exploit the capabilities of intelligent cars to enhance safety and increase capacity, and (5) closing of critical gaps in the region's HOV lane system through use of shoulders by buses and short-distance and easily implemented gap closures<sup>3</sup>. It is acknowledged that the performance benefits of some of these elements may not be easily captured through the use of the regional demand model. In those cases, we are exploring alternative methodologies to quantify their effect based on available research and previous application of these strategies in other locations.

This scenario includes projects included in the 2007 TIP. Proposed projects from the Transportation 2030 Vision or through Proposition 1B's CMIA program will also be considered where they support the Freeway Performance concept described above.

### **High-Occupancy/Toll (HOT) Lanes/Express & Local Bus Service (Attachments B and C)**

This scenario aims to achieve the targets by completing the region's HOV system and expanding and enhancing reliable travel options. The regional HOT network is a means to fund completion of the region's HOV network and a tool to manage the system over time. The complete HOV/HOT network serves a system of greatly enhanced express buses, which is complemented by local bus service enhancements; both are designed to attract travelers through high quality service.

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<sup>3</sup> In all, this scenario would add 43 HOV lane miles for a total system of 533 lane miles

The HOT lanes network, which is the subject of the Regional HOT Lanes Network Study currently underway, comprises some 750 lane-miles of HOT lanes.<sup>4</sup> [Attachment B](#) shows the HOT network and lists the main HOT lane corridors. The network would be created by converting approximately 490 miles of existing and funded carpool lanes to HOT lanes and adding approximately 260 lane miles to close gaps and extend the carpool/HOT system. Buses and qualifying carpools would use the HOT lanes free of charge; other vehicles would pay a toll to use the lanes. The toll, which would be collected electronically, would vary based on congestion level. The number of toll paying vehicles would be monitored and controlled through toll rates so the HOT lanes do not become overcrowded and slow down.

To take advantage of the HOT lanes, enhancements to and expansion of regional express bus services are identified to serve the morning and afternoon peak periods. These service improvements augment existing regional express bus services. The additional service supplies are estimated to be: 820,000 service hours, 19 million vehicle miles, and 500 vehicles.<sup>5</sup> The regional express bus service improvements are accompanied by supporting infrastructure improvements such as new park-and-ride lots, transit hubs, and direct HOV/HOT access ramps.

In addition, local bus improvements are included in the scenario to complement and support improved regional express bus services and existing BART, railroad-based commuter rail, and ferry services. The general approach is to identify major trunk corridors, and to improve the service levels of the local bus transit that operate in these corridors, along with improvements to the complementary feeder services. Consideration will be made to incorporating the potential benefits of transit priority measures, such as transit signal priority, to protect or enhance the speed and on-time reliability of key routes serving major corridors. The express and local bus service improvements are informed in part by previous and current planning efforts, such as MTC's Bay Area Transportation Blueprint for the 21<sup>st</sup> Century (2000), and have been defined in collaboration with Bay Area transit operators. [Attachment C](#) shows the Regional Express Bus corridors and lists examples of enhanced and expanded local bus routes.

### **Regional Rail and Water Transit Scenario ([Attachments D and E](#))**

This scenario focuses on expanding rail and ferry services to provide attractive transit options and achieve the targets by increasing transit usage, especially for longer trips. Rail improvements are typically high capacity and capital intensive. Ferry system enhancements also can provide additional transit capacity in highly congested and high-use corridors.

The rail improvements in this scenario reflect the Regional Rail Plan prepared by MTC, California High-Speed Rail Authority (CHSRA), BART, and Caltrain, along with a coalition of rail passenger and freight operators, as required by Regional Measure 2. The Plan identifies improvements and extensions of railroad, rapid transit, and high-speed rail services for the near, intermediate, and long-terms. The Plan identifies the most promising high-speed rail routes between the Bay Area and Central Valley for purposes of informing the routing decision to be made by the CHSRA when they certify their environmental document. The final Plan will produce three plan outcomes: regional rail only, regional rail with high speed rail to the east, and regional rail with high speed rail to the south. The rail network to be tested in this scenario will be regional rail with high-speed rail.

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<sup>4</sup> The Regional HOT Lane Network Study will review issues and options related to governance and cross-subsidization among HOT lane corridors.

<sup>5</sup> Totals do not reflect improvements to MUNI lines 9X, 9AX, 9BX, and 14X that are still to be defined.

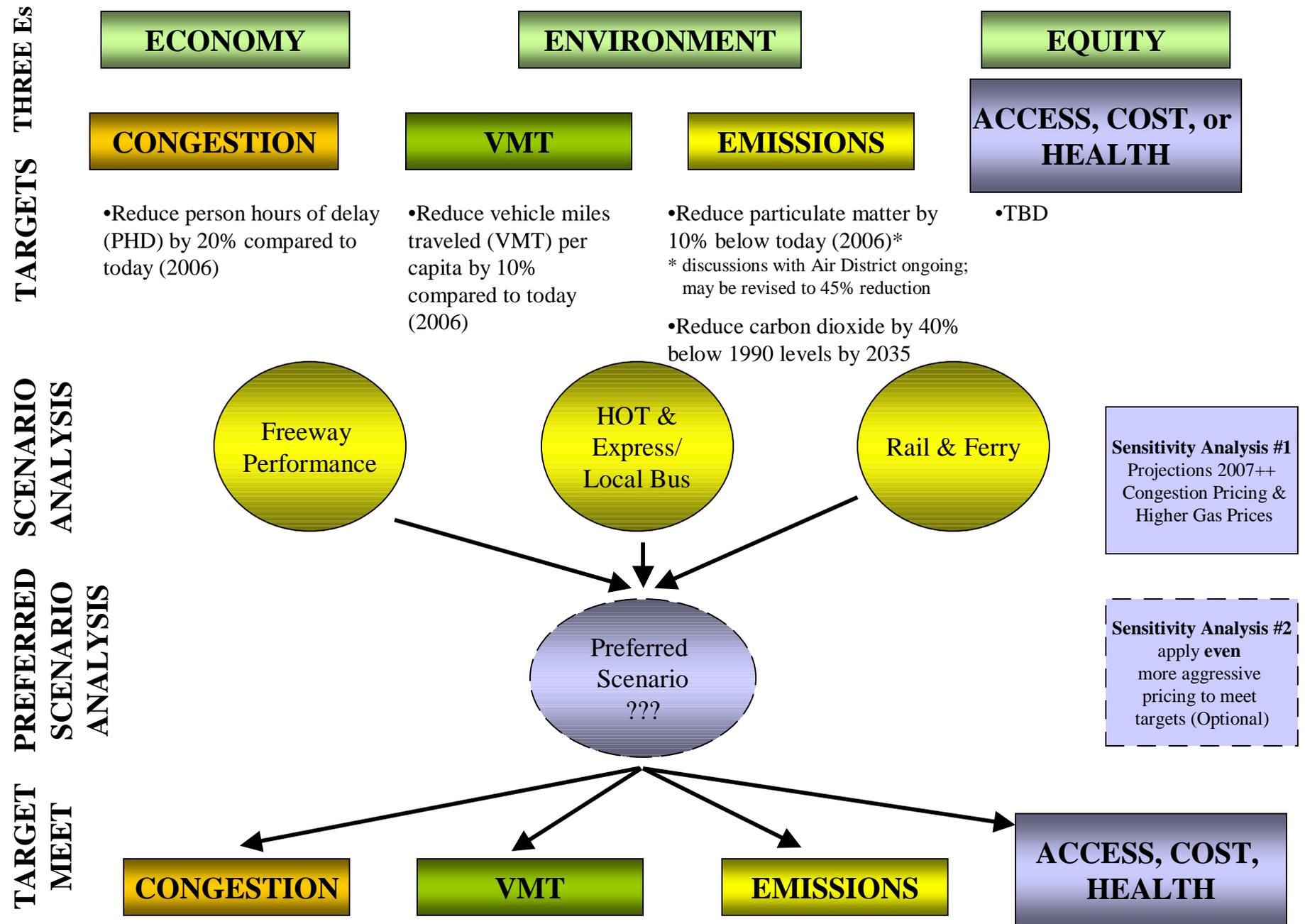
[Attachment D](#) outlines the recommended rail expansion projects. Note that the near-term timeframe includes improvements programmed for implementation in MTC's Resolution 3434.

The ferry improvements in this scenario are based on the San Francisco Bay Area Water Transit Authority's (WTA) 2003 Implementation and Operations Plan as well as recent discussions with existing ferry operators and the WTA. (See [Attachment E](#).) Improvement include enhancements to the six existing ferry routes that take passengers from various locations in the Bay to San Francisco. New routes to San Francisco would originate from Redwood City, South San Francisco, Hercules/Rodeo, Antioch/Pittsburgh-Martinez and Richmond. A Berkeley to San Francisco via Mission Bay in Alameda is also planned as is new service to South San Francisco from Oakland.

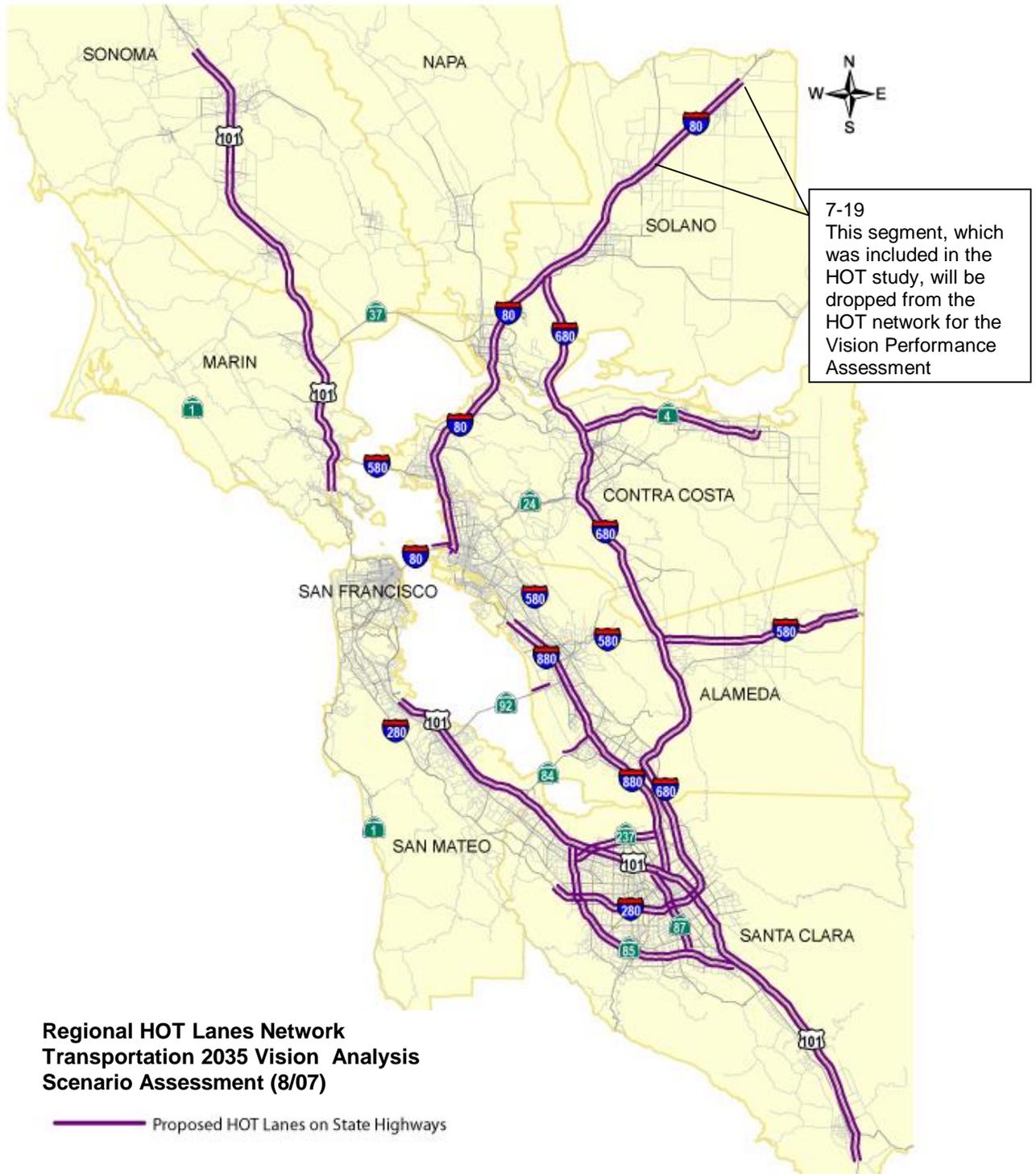
### **Next Steps**

Travel demand forecasting for these alternatives began in early August and will continue through the end of early September. In mid-September, MTC staff will conduct land use and pricing sensitivity analyses (as described in Item 4e) on each of the investment scenarios. MTC staff will report back on our progress to the MTC Planning Committee and Joint Policy Committee in September, and to the extent possible, we may share some preliminary results in advance of the October 26 MTC/ABAG fall forum.

# Attachment A: Transportation 2035 Plan Scenario Performance Assessment for Strategic Expansion



### Attachment B-1: Regional HOT Lanes Network HOT Lanes Network/Express & Local Bus Scenario



**Attachment B-2: Regional HOT Lanes Network, cont.  
HOT Lanes Network/Express & Local Bus Scenario**

**HOT Lane Network Corridors in Year 2035**

Route	County	Limits	Lane Miles*	HOV Eligibility**
SR 4	CC	Antioch (Main St) - Concord (I-680)	38.4	2+
I-80	ALA-CC	Carquinez Bridge - Bay Bridge	42.5	3+
I-80	SOL	Vacaville (I-505) - Carquinez Bridge	54.2	3+
SR 84 Dumbarton Bridge	ALA	Fremont/Newark (I-880 - toll plaza)	3.5	3+
SR 85	SCL	Mountain View (US 101) - South San Jose (US 101)	52.5	3+
SR 87	SCL	South San Jose (SR 85) - San Jose (US 101)	18.3	2+
SR 92 San Mateo-Hayward Bridge	ALA	Hayward (Clawiter - toll plaza)	1.6	3+
US 101	MRN-SON	Windsor (Windsor River Rd) - Corte Madera (SR 1)	103.6	3+
US 101	SM-SCL	Morgan Hill (Cochrane Rd) - Millbrae (Millbrae Ave)	106.0	3+
US 101	SCL	SR 25 – Morgan Hill (Cochrane Rd)	29.6	2+
SR 237	SCL	Milpitas (I-880) - Mountain View (SR 85)	19.5	3+
I-280	SLC	Los Altos Hills (Magdalena Ave.) - San Jose (US 101)	30.3	3+
I-580	ALA	San Joaquin County Line - Pleasanton (I-680)	42.0	3+
I-680	CC-ALA-SCL	Benicia Bridge - San Jose (US 101)	118.8	3+
I-680	SOL	Cordelia (I-80) - Benicia Bridge	24.7	3+
I-880	ALA-SCL	Oakland (98th Ave) - Santa Clara (US 101)	63.0	3+
I-880 Bay Bridge Approach	ALA	Oakland (16th St - toll plaza)	1.8	3+
<b>TOTAL</b>			<b>750.2</b>	

\* Reflects total mileage in both directions

\*\* 2+ indicates vehicles with 2 or more persons travel free

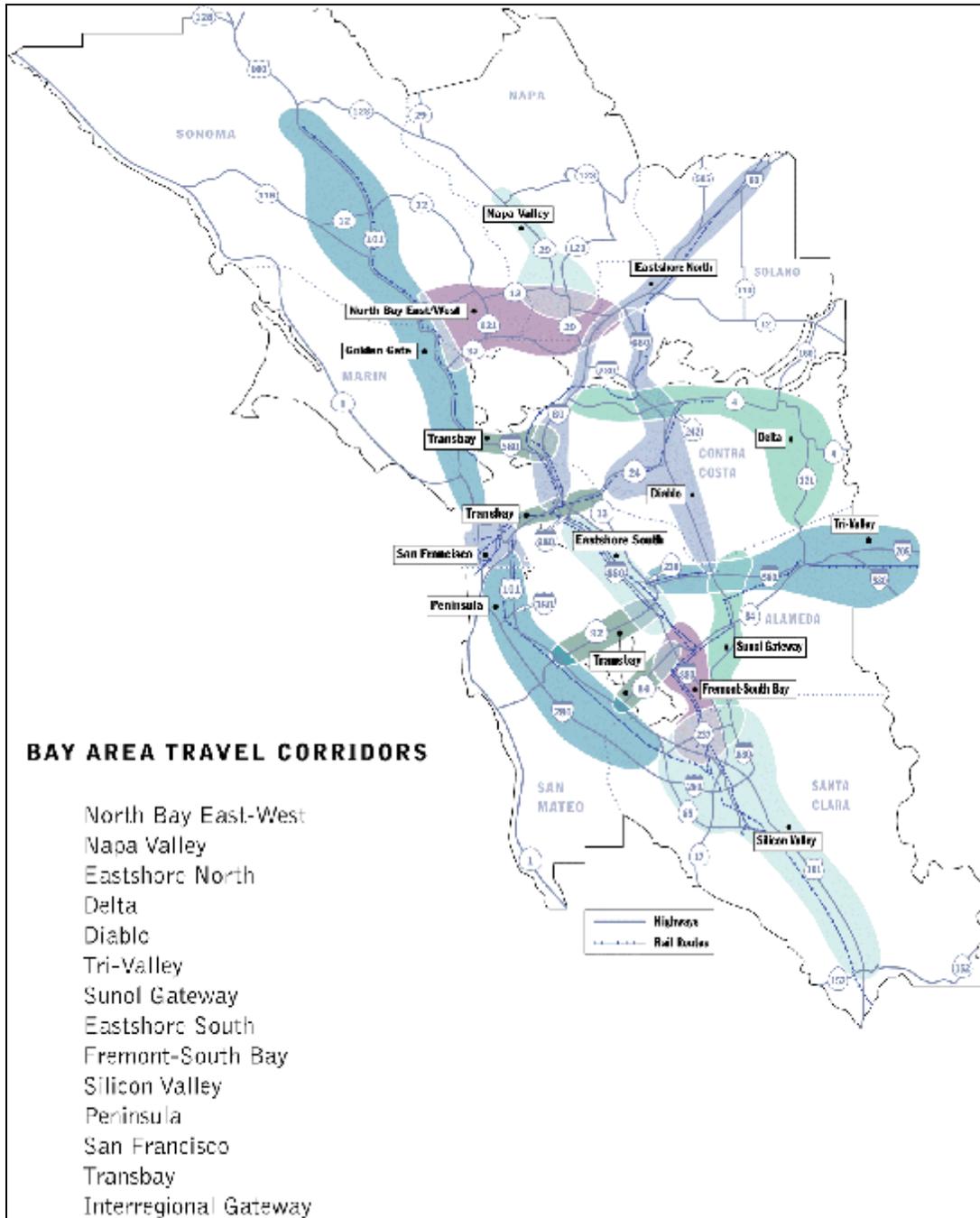
3+ indicates vehicles with 3 or more persons travel free

**Direct Connectors**

Exist Today	New
US 101/SR 85 Mtn View	SR 4/I-680 – WB 4 to SB 680 and NB 680 to EB 4 only
US 101/SR 85 S. San Jose	I-580/I-680 – WB 580 to SB 680 and NB 680 to EB 580 only
SR 237/I-880	I-80/I-680 – WB 80 to SB 680 and NB 680 to EB 80 only

# Attachment C-1: Express Bus Enhancements HOT Lanes Network/Express & Local Bus Scenario

## Regional Express Bus Corridors



**Attachment C-2: Express Bus Enhancements, cont.  
HOT Lanes Network/Express & Local Bus Scenario**

**Draft Proposed Enhanced or New Express Bus Routes**

Potential Sponsor	Route Name	Route Description	Service Frequency, AM Peak	Service Frequency, Mid-Day	Service Frequency, PM Peak
<b>Golden Gate</b>	<b>40/42</b>	San Rafael - El Cerrito			add 5 AM round trips and 4 PM round trips daily
<b>Golden Gate</b>	<b>72/72x</b>	Santa Rosa - San Francisco			add 12 peak direction round trips and 6 reverse commute round trips daily
<b>Golden Gate</b>	<b>New</b>	San Rafael - San Francisco			timed transfer with Marin-Sonoma rail; 8 one-way trips daily
<b>Vallejo</b>	<b>New</b>	Vallejo - Novato	60	120	60
<b>Napa CTPA</b>	<b>New</b>	Calistoga - Vallejo	30	60	30
<b>Napa CTPA</b>	<b>New</b>	Napa - Fairfield/Suisun City	30	225	30
<b>Fairfield</b>	<b>90</b>	Fairfield/Suisun City - El Cerrito			add 4 AM round trips and 4 PM round trips daily
<b>Vallejo</b>	<b>New</b>	Vallejo - Emeryville	30	-	30
<b>Tri-Delta</b>	<b>300</b>	Brentwood - Pittsburg/Bay Point			add 4 AM round trips and 6 PM round trips daily
<b>Tri-Delta</b>	<b>New</b>	Brentwood - Hillcrest	15	30	15
<b>CCCTA</b>	<b>930</b>	Antioch - Walnut Creek			add 4 AM one-way trips and 2 PM one-way trips daily
<b>Tri-Delta</b>	<b>DEX</b>	Antioch - Hacienda Bus Park			add 6 AM one-way trips and 6 PM one-way trips daily
<b>CCCTA</b>	<b>New</b>	Concord - Emeryville	30	60	30
<b>CCCTA</b>	<b>New</b>	Concord - Berkeley	30	60	30
<b>Fairfield</b>	<b>40</b>	Vacaville - Walnut Creek			add 6 AM, 8 mid-day, and 5 PM round trips daily
<b>LAVTA</b>	<b>70X</b>	Pleasant Hill - Dublin			add 10 AM, 8 mid-day, and 10 PM round trips daily
<b>LAVTA</b>	<b>New</b>	Livermore - Dublin/Pleasanton	15	15	15
<b>LAVTA</b>	<b>New</b>	Livermore - Great America	60	60	60
<b>SCVTA</b>	<b>180</b>	Fremont - San Jose			add 8 AM round trips and 9 PM round trips daily
<b>SCVTA</b>	<b>New</b>	Gilroy - San Jose	30	60	30
<b>Fairfield</b>	<b>New</b>	Fairfield/Suisun City - San Francisco	30	-	30
<b>WestCAT</b>	<b>LYNX</b>	Hercules - San Francisco			add 20 mid-day and 18 evening round trips daily
<b>AC Transit</b>	<b>New</b>	Oakland - San Francisco	8	10	8
<b>AC Transit</b>	<b>New</b>	Union City - San Mateo	7.5	15	7.5
<b>AC Transit</b>	<b>New</b>	Dumbarton Bridge	30	60	30
<b>MUNI</b>	<b>9X</b>		5	5	5
<b>MUNI</b>	<b>9AX</b>		5	-	5
<b>MUNI</b>	<b>9BX</b>		5	-	5
<b>MUNI</b>	<b>14X</b>		9	-	10

Potential Sponsor	Route Name	Route Description	Service Frequency, AM Peak	Service Frequency, Mid-Day	Service Frequency, PM Peak
Golden Gate	2	Marin Headlands - San Francisco		add 4 AM one-way trips and 4 PM one-way trips daily	
Golden Gate	8	Tiburon - San Francisco		add 7 AM one-way trips and 7 PM one-way trips daily	
Golden Gate	10	Marin City - San Francisco		add 6 AM, 7 mid-day, and 6 PM round trips daily	
Golden Gate	New	E. Corte Madera - San Francisco	30	-	30
Golden Gate	18	College of Marin - San Francisco		add 2 AM one-way trips and 2 PM one-way trips daily	
Golden Gate	24	Lagunitas - San Francisco		add 6 AM one-way trips and 6 PM one-way trips daily	
Golden Gate	26/27	Sleepy Hollow - San Francisco		add 2 AM one-way trips and 2 PM one-way trips daily	
Golden Gate	New	San Rafael - San Francisco	30	-	30
Golden Gate	New	Peacock Gap - San Francisco	30	-	30
Golden Gate	New	Santa Venetia - San Francisco	30	-	30
Golden Gate	38	Terra Linda - San Francisco		add 4 AM one-way trips and 4 PM one-way trips daily	
Golden Gate	44	Lucas Valley - San Francisco		add 5 AM one-way trips and 5 PM one-way trips daily	
Golden Gate	New	East Novato - San Francisco	30	-	30
Golden Gate	54	San Marin - San Francisco		add 6 AM one-way trips and 6 PM one-way trips daily	
Golden Gate	56	Novato - San Francisco		add 4 AM one-way trips and 4 PM one-way trips daily	
Golden Gate	58	Novato - San Francisco		add 6 AM one-way trips and 6 PM one-way trips daily	
Golden Gate	70/80	Santa Rosa - San Francisco		add 6 AM, 7 mid-day, and 6 PM round trips daily	
Golden Gate	73	Santa Rosa - San Francisco		add 5 AM one-way trips and 5 PM one-way trips daily	
Golden Gate	74	Petaluma - San Francisco		add 4 AM one-way trips and 4 PM one-way trips daily	
Golden Gate	76	East Petaluma - San Francisco		add 2 AM one-way trips and 2 PM one-way trips daily	
Golden Gate	New	Sebastopol - San Francisco	30	-	30
Golden Gate	New	Sonoma Valley - San Francisco	30	-	30
Benicia	New	Benicia-Sun Valley Mall- DVC	60	60	60
Benicia	New	Vallejo-Benicia-Walnut Creek	30	60	15
WestCAT	JX	Hercules - El Cerrito		add 30 mid-day and 6 evening round trips daily	
AC Transit	B	Trestle Glen		add 11 AM, 10 PM, and 4 evening one-way trips daily	
AC Transit	C	40th/Piedmont		add 7 AM, 24 mid-day, 9 PM, and 2 evening one-way trips daily	
AC Transit	CB	Broadway Terrace		add 14 AM, 14 PM, and 2 evening one-way trips daily	
AC Transit	DB	Dumbarton Local		add 21 AM, 18 mid-day, 21 PM, and 17 evening round trips daily	
AC Transit	DB1	Dumbarton Exp		add 10 AM, 9 PM, and 5 evening one-way trips daily	
AC Transit	E	Claremont		add 10 AM, 12 PM, and 3 evening one-way trips daily	
AC Transit	F	Berkeley		add 12 AM, 12 mid-day, 12 PM, and 7 evening round trips daily	
AC Transit	FS	Shattuck Exp		add 13 AM, 14 PM, and 4 evening one-way trips daily	

Potential Sponsor	Route Name	Route Description	Service Frequency, AM Peak	Service Frequency, Mid-Day	Service Frequency, PM Peak
AC Transit	G1	Solano Exp	add 12 AM, 13 PM, and 3 evening one-way trips daily		
AC Transit	New	San Pablo Exp	8	15	8
AC Transit	H	Arlington/Hopkins	add 7 AM, 9 PM, and 1 evening one-way trips daily		
AC Transit	J	Emeryville	add 13 AM, 24 mid-day, 15 PM, and 17 evening round trips daily		
AC Transit	L	Richmond San Pablo	add 9 AM and 7 PM one-way trips daily		
AC Transit	LA	Richmond Parkway	add 6 AM, 21 mid-day, 7 PM, and 16 evening round trips daily		
AC Transit	NL	Macarthur Rapid	add 12 AM, 12 mid-day, 10 PM, and 11 evening round trips daily		
AC Transit	NX1	MacArthur Exp 1	add 15 AM, 9 PM, and 5 evening one-way trips daily		
AC Transit	NX2	MacArthur Exp 2	add 15 AM and 9 PM one-way trips daily		
AC Transit	NX3	MacArthur Exp 3	add 7 AM and 8 PM one-way trips daily		
AC Transit	NX4	MacArthur Exp 4	add 9 AM, 11 PM, and 1 evening one-way trips daily		
AC Transit	O	Alameda	add 6 AM, 16 mid-day, 5 PM, and 6 evening round trips daily		
AC Transit	OX	Bay Farm Exp	add 4 AM and 6 PM one-way trips daily		
AC Transit	P	Piedmont	add 23 AM, 24 mid-day, 17 PM, and 4 evening one-way trips daily		
AC Transit	S	Hesperian Exp	add 9 AM, 11 PM, and 5 evening one-way trips daily		
AC Transit	SA	Wash Manor	add 9 AM, 10 PM, and 4 evening one-way trips daily		
AC Transit	SB	Union City Blvd	add 8 AM, 9 PM, and 4 evening one-way trips daily		
AC Transit	U	Stanford	add 7 AM, 6 PM, and 6 evening one-way trips daily		
AC Transit	V	Park	add 29 AM, 25 PM, and 7 evening one-way trips daily		
AC Transit	W	Shoreline	add 7 AM, 8 PM, and 2 evening one-way trips daily		
AC Transit	Z	West Berkeley	add 8 AM, 9 PM, and 5 evening one-way trips daily		

**Attachment C-3: Local Bus Enhancements, cont.  
HOT Lanes Network/Express & Local Bus Scenario**

**Draft Proposed Enhanced or New Local Bus Routes**

**Note: For illustrative purposes, only CCTA and Marin Transit local bus improvements are presented.**

**We will receive local bus and light rail improvements from 19 operators.**

<b>Operator</b>	<b>Route Name</b>	<b>Existing or New Service (or Modified Alignment)</b>	<b>Corridors Served</b>	<b>Start of Line</b>	<b>End of Line</b>
CCCTA	110 Clayton Rd	Existing	Clayton Rd	DVC	Clayton/Kirker Pass
CCCTA	114 Monument	Existing	Monument Blvd.	Pleasant Hill BART	Concord BART
CCCTA	121 San Ramon	Modified	San Ramon Blvd.	Walnut Creek BART	Dublin BART (or New W.Dublin BART)
CCCTA	Martinez/Walnut Creek	New	Pacheco/CC Blvd/N.Main	Martinez Amtrak	Walnut Creek BART
CCCTA	115 Treat Blvd.	Modified	Treat Blvd.	Pleasant Hill BART	N.Concord BART
CCCTA	Ygnacio Valley Rd	New	Ygnacio Valley Rd	Walnut Creek BART	Clayton/Kirker Pass
CCCTA	Geary Rd	New	Geary Rd/Pleasant Hill Rd	Pleasant Hill BART	Lafayette BART
CCCTA	124 Concord Blvd.	Modified	Concord Blvd/Cowell Rd	Concord BART	Concord BART
CCCTA	118 Amtrak/Concord BART	Modified	Arnold/Muir	Amtrak	Concord BART
CCCTA	108 Amtrak/North Concord BART	Modified	Arnold Industrial Way	Amtrak	N.Concord BART
CCCTA	104 Downtown WC	Existing	Main St./Locust St.	Walnut Creek BART	Broadway Plaza
CCCTA	115E East Willow Pass Rd.	Modified	E. Willow Pass Rd	Concord BART	N.Concord BART
CCCTA	308 Amtrak/Concord BART	Modified	Alhambra, Willow Pass Rd	Amtrak	Concord BART
CCCTA	San Ramon Local	New	W. Bollinger Canyon/W. Crow Canyon	San Ramon Transit Center	San Ramon Transit Center
CCCTA	314 Clayton Rd/Monument Blvd	Existing	Monument Blvd, Clayton Rd.	DVC	Clayton/Kirker Pass
Marin Transit	71 Hwy 101	Existing	Hwy 101	Marin City	Redwood & Olive, Novato
Marin Transit	17 Mill Valley	Existing	Miller Ave	Marin City	San Rafael Transit Center
Marin Transit	19 Tiburon	Existing	Tiburon Blvd	Tiburon Ferry	Marin City
Marin Transit	22 San Rafael	Existing	Sir Francis Drake	Sausalito	San Rafael Transit Center
Marin Transit	22x	New	Sir Francis Drake	Sausalito	San Rafael Transit Center
Marin Transit	23 Fairfax	Existing	Red Hill/ SFD	Manor	San Rafael Transit Center
Marin Transit	23x	New	Red Hill/SFD	Manor	San Rafael Transit Center
Marin Transit	29 Greenbrae	Existing	SFD/Anderson	San Anselmo	San Rafael Transit Center
Marin Transit	35 Canal	Existing	Francisco Blvd	Kerner & Larkspur	San Rafael Transit Center
Marin Transit	45 Northgate	Existing	Lincoln	San Rafael Transit Center	Northgate/Kaiser
Marin Transit	49 San Rafael	Existing	Grand/Hamilton	San Rafael Transit Center	Ignacio Blvd/Hwy 101

Operator	Route Name	Existing or New Service (or Modified Alignment)	Corridors Serviced	Start of Line	End of Line
Marin Transit	51 Novato Local	Existing	Novato Blvd	Ignacio Blvd/ Hwy 101	San Marin
Marin Transit	52 Novato	Existing	Novato Blvd/101	San Rafael Transit Center	Redwood & Olive, Novato
Marin Transit	221 Twin Cities	Existing	Tamalpais	Corte Madera	
Marin Transit	233 Santa Venetia	Existing	N. San Pedro	San Rafael Transit Center	Santa Venetia
Marin Transit	259 Marinwood	Existing	La Gallinas	Marin Civic Center	Hwy 101 and Lucas Valley Rd
Marin Transit	61 South Route	Existing	Panoramic Hwy	Marin City	Bolinas
Marin Transit	68 North Route	Existing	Sir Francis Drake	San Rafael Transit Center	Inverness
Marin Transit	62 Coastal Route	Existing	Shoreline Hwy	Bolinas	Pt Reyes Station

## Attachment D: Regional Rail Improvements Regional Rail and Water Transit Scenario

The Regional Rail Plan recommends the following services and improvements for regional rail without high-speed rail. For purposes of this scenario, these regional rail improvements will be augmented as appropriate to accommodate high-speed rail over both Altamont Pass and Pacheco Pass.

**BART** – Reinvest in existing system to improve reliability and make the following improvements:

- Improve Core Capacity by making modifications to vehicles and stations as well as track and signals to accommodate passenger growth over the long term
- Implement connectivity 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 4<sup>th</sup> 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
- 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)

The Transbay Tube under San Francisco Bay is the backbone of the system, with a throughput of 24-27 trains in each direction during the peak hour. Baseline improvements would improve service reliability and increase capacity of transbay car fleet with operation on 120-second headways. The Regional Rail Plan includes the provision of a second tube and San Francisco subway to relieve the existing tube.

Regionally, BART currently operates five lines as follows:

- Pittsburg/Bay Point ↔ Daly City: Service is provided on weekdays every 15 minutes early mornings, during peak periods, midday and evenings. Service is provided every 20 minutes late evenings and all day Saturdays and Sundays.
- Richmond ↔ Daly City: Service is provided on weekdays every 15 minutes during peak periods and midday and on Saturdays every 20 minutes during peak periods and midday. No Sunday service.
- Dublin/Pleasanton ↔ Millbrae: Service is provided on weekdays every 15 minutes early mornings, during peak periods, midday and evenings. Service is provided every 20 minutes late evenings and all day Saturdays and Sundays.
- Fremont ↔ Daly City: Service is provided on weekdays every 15 minutes during peak periods and midday and on Saturdays every 20 minutes during peak periods and midday. No Sunday service.
- Fremont ↔ Richmond: Service is provided on weekdays every 15 minutes early mornings, during peak periods, midday and evenings. Service is provided every 20 minutes late evenings and all day Saturdays and Sundays.

The Baseline anticipates reductions in headways to provide 12-minute service on all regional lines. In the longer term, in conjunction with the Regional Rail Plan, BART is considering development of a “Metro” service plan which would further reduce headways in the inner core to as low as 3-5 minutes depending upon the number of routes present.

- **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 term and 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 with 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 equipment compatible with freight traffic.

Current Capitol Corridor schedules provide approximate 60-minute headways during peak periods and shoulders of peak periods with approximately 190-minute running time in the Sacramento – Oakland segment and variable headways (14 trains daily) with approximate 70-minute running time Oakland to San Jose. Baseline improvements will reduce headways Sacramento – Oakland segment to approximately 40 minutes with 90-minute headways Oakland – San Jose. Regional rail plan improvements will further reduce aggregate headways Sacramento – Oakland to as low as 15 minutes and will 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; provide new transbay tube and San Francisco BART line paired with rail tunnel in long-term future.

Currently, the maximum number of trains operating in the peak hour is 27 or 28. Baseline improvements will support reliable headways of 2 minutes in existing tube. The Regional Rail Plan includes a second tube and San Francisco line to distribute passengers and relieve overcrowding on the existing tube.

- **Peninsula** – Expand Caltrain to 3 or 4 tracks where feasible and operate with lightweight electric multiple-unit equipment to for rapid acceleration and frequent express and local service on the Peninsula.

Current service plan includes a mix of locals, limited stop trains and “Baby Bullet” express trains with aggregate headways of approximately 15 minutes during peak periods and 30 minutes off peak. Locals operate on approximate 95-minute schedules and express trains on approximate 60-minute schedule. Baseline improvements to the service plan will add trains to reduce aggregate headways to 10 minutes peak period and 20 minutes off peak. The Regional Rail plan anticipates the operation of additional trains to resulting in 7-1/2 minute headways during peak periods and 15 minutes off peak.

- **South Counties** – Caltrain currently operates 6 daily trains to Gilroy. Baseline improvements will enable an operating plan with 2-hour headways in the peak period, peak direction of travel. The Regional Rail Plan includes extension of service to Salinas with further expansion of rail services in South Bay cities 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** – The Baseline service includes approximately two trains per hour operating between Union City and the Peninsula. The Regional Rail Plan includes provision of separate passenger-only trackage to Union City to support operation of lightweight 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** – The existing ACE schedule includes 8 daily trains between Stockton and San Jose operating westbound in the am and eastbound in the pm. Trains operate on approximate 135 minute schedule. The Baseline improvements assumes the addition of trains resulting in 30 minute headways in peak travel direction only. Regional Rail plan would expand the Altamont and Tri Valley corridor lines to improve service reliability by adding trackage to the existing UPRR line and/or putting 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; develop regional bus options in I-680 corridor. Hourly service would be provided in both directions with 30 minute service for peak period peak direction trains with an approximate 100-minute running time between Stockton and San Jose.
- **Central Valley** – Currently Caltrans Division of Rail operates 8 long haul trains daily between Oakland and Bakersfield with 4 long haul trains daily between Sacramento and Bakersfield. The Division of Rail is currently revising its long range plan. The Regional Rail plan includes expansion of regional service in the Central Valley to 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.

### **High-Speed Rail – Altamont with Pacheco**

- **Altamont with Pacheco** – With a higher investment in Bay Area segments, high-speed trackage could be developed in both the Altamont Pass and Pacheco Pass. Northern California regional services would be primarily routed over Altamont and statewide trains from the south would be routed over Pacheco. With this option, four track sections would not be required. This would result in reduced cost compared to development of both segments with four track sections and would substantially reduce the right-of-way requirements at tight spots as well as reduce some of the adjacency impacts where the alignment would run through developed areas (most notably through Tracy, Livermore, Pleasanton and Fremont along the Altamont alignment and thorough Gilroy, Morgan Hill and San Jose along the Pacheco alignment.) Operating plans could be developed to include some “limited stop” service between Sacramento and Bay Area cities via Altamont in conjunction with regional trains making all stops. Although this solution would be the highest cost, it would combine the travel time advantages of both routes and would retain the high level of service to all three Bay Area population center for statewide trains operating from the south

**Attachment E: Ferry Service Improvements  
Regional Rail and Water Transit Scenario**

**Based on Water Transit Authority 2003 Implementation and Operations Plan**

Operator	Route Name	Existing or New	End Points	One-way Trip Time (min)	Peak Headway (min)	Off-Peak Headway (min)
City of Alameda	"Alameda/Oakland-SF"	Existing	Alameda/Oakland/San Francisco	22	22	28
City of Alameda/Harbor Bay	"Harbor Bay-SF"	Existing	Harbor Bay/San Francisco	27	28	-
Baylink	"Vallejo-SF"	Existing	Vallejo/San Francisco	57	22	28
Golden Gate Ferry	"Sausalito-SF"	Existing	Sausalito/San Francisco	23	22	28
Golden Gate Ferry	"Larkspur-SF"	Existing	Larkspur/San Francisco	36	20	28
Blue and Gold Fleet*	"Sausalito-SF"	Existing	Sausalito/San Francisco	20	-	28
Blue and Gold Fleet*	"Tiburon-SF"	Existing	Tiburon/San Francisco	21	22	28
Water Transit Authority	"Antioch/Martinez-SF"	New	Antioch/Pittsburg/Martinez/SF	95	28	40
Water Transit Authority	"Berkeley-SF"	New	Berkeley / San Francisco	28	22	32
Water Transit Authority	"Hercules-SF"	New	Hercules/ San Francisco	41	28	40
Water Transit Authority	"Oakland to South SF"	New	South San Francisco / Oakland	32	24	30
Water Transit Authority	"Oakland to South SF"	New	Harbor Bay/South San Francisco	37	28	-
Water Transit Authority	"Richmond-SF"	New	Richmond/San Francisco	33	24	32
Water Transit Authority	"Redwood City-SF"	New	Redwood City/San Francisco	51	28	28
Water Transit Authority	"Redwood City-SF"	New	Harbor Bay/Redwood City	60	28	-
Water Transit Authority	"Treasure Island-SF"	New	Berkeley/Treasure Island	23	28	-
Water Transit Authority	"Treasure Island-SF"	New	Oakland/Treasure Island	23	28	-
Water Transit Authority	"Treasure Island-SF"	New	Treasure Island/San Francisco	16	20	24
Water Transit Authority	Further Study	Further Study	Martinez/San Francisco	57	28	40
Water Transit Authority	Further Study	Further Study	Port Sonoma/San Francisco	59	30	34
Water Transit Authority	Further Study	Further Study	Moffett Field/ San Francisco	58	30	-