Bay Area to Central Valley
High-Speed Train

Partially Revised FINAL Program Environmental Impact Report

April 2012

CALIFORNIA
High-Speed Rail Authority

Bay Area to Central Valley
High-Speed Train (HST)
Partially Revised Final Program
Environmental Impact Report

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Bay Area to Central Valley High-Speed Train
Partially Revised Final Program
Environmental Impact Report

Pursuant to:
California Environmental Quality Act, P.R.C. 21000 et seq.; State of California CEQA Guidelines, California Administrative Code, 15000 et seq.

Prepared by the

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PREFACE

P.1.1 What Is This Document?

This document is a Partially Revised Final Program Environmental Impact Report (EIR) for the Bay Area to Central Valley High-Speed Train (HST). The Partially Revised Final Program EIR document was prepared to address November 2011 court rulings in the *Town of Atherton* litigation (*Atherton 1* and *Atherton 2*) challenging the 2010 *Bay Area to Central Valley High-Speed Train (HST) Revised Final Program EIR/EIS.* In that litigation, the Superior Court found that the 2010 Revised Final Program EIR certified by the California High Speed Rail Authority (Authority) did not fully comply with the California Environmental Quality Act (CEQA), and identified the following issues requiring additional work:

- Recirculation is required to address noise, vibration, and construction impacts of shifting Monterey Highway.
- Recirculation is required to address traffic impacts on surrounding local roads due to narrowing Monterey Highway.
- Recirculation is required to address the impacts of potentially moving freight tracks closer to adjacent land uses along the San Francisco Peninsula.
- Recirculation is required to address impacts of reduced access to surface streets from potential lane closure along the San Francisco Peninsula.

In addition, the Court concluded that the Authority's CEQA finding on traffic impacts associated with narrowing Monterey Highway were not supported by substantial evidence.

The remainder of the 2010 Revised Final Program EIR either was not challenged in litigation and is presumed adequate, or was challenged in litigation and determined by the Court to comply with CEQA. The complete text of the 2009 ruling in *Atherton 1*, and the 2011 rulings in *Atherton 1* and *Atherton 2*, can be reviewed on the Authority's website at http://www.cahighspeedrail.ca.gov/ba_cv_program _eir.aspx.

To comply with the court rulings, the Authority recirculated revised portions of the prior 2010 Revised Program EIR and 2008 Final Program EIR in a document called the Bay Area to Central Valley HST Partially Revised Draft Program EIR (Partially Revised Draft Program EIR) for 45 days. By the close of the 45-day public comment period, the Authority received more than 50 written letters/submissions and verbal statements at the public meeting, totaling more than 400 individual comments.

This Partially Revised Final Program EIR is a multi-volume document that includes the text of the Partially Revised Draft Program EIR, with some textual modifications in response to comments; comments on the Partially Revised Draft Program EIR; a list of persons, organizations and agencies commenting on the Partially Revised Draft Program EIR; responses to the significant environmental points raised in the comments; and the full text of the 2010 Revised Final Program EIR, including volumes 1 and 2 (text and responses to comments) and the 2008 Final Program EIR, including volumes 1 and 2 (text and appendices) and volume 3 (responses to comments).

P.1.1 How Do I Use This Document?

The Partially Revised Final Program EIR includes three distinct stages of the Authority's program EIR process for the Bay Area to Central Valley study area: (1) one volume consists of the 2012 revised and recirculated portions of the August 2010 Revised Final Program EIR and 2008 Final Program EIR and comments and responses thereupon; (2) two volumes consist of the 2010 revised and recirculated portions of the May 2008 Final Program EIR; and (3) three volumes comprising the May 2008 Final Program EIR. The following identifies the components of each part of the Partially Revised Final Program EIR.

PARTIALLY REVISED FINAL PROGRAM EIR

The Partially Revised Final Program EIR is organized into nine (9) chapters that collectively address the issues identified by the Superior Court in the *Town of Atherton* rulings from November 2011.

Chapter 1, Introduction and Summary: Describes the basis for recirculating portions of the prior Program EIR analysis; summarizes the revised material being recirculated; identifies the public comment period for the revised and recirculated material, the notices provided to the public, and how many comments were received; describes how the Revised Final Program EIR will be used by the Authority; and describes the relationship of the Program EIR to second-tier, project-level EIR work in progress.

Chapter 2: Additional Noise & Vibration Analysis
This chapter adds to Chapter 3.4 of the 2008 Final Program EIR. It analyzes noise and vibration effects of shifting a stretch of Monterey Highway between San Jose and Gilroy to implement the high-speed train project. It also analyzes noise and vibration related to the potential for moving freight rail activity to outside tracks along the San Francisco Peninsula and South of San Jose between Tamien and Lick, placing freight closer to adjacent land uses in some locations.

Chapter 3: Additional Traffic Analysis
This chapter adds to Chapter 3.1 of the 2008 Final Program EIR. It analyzes the traffic impacts on surrounding local streets resulting from the lane reduction on a stretch of Monterey Highway between San Jose and Gilroy to implement the high-speed train project. It also analyzes traffic impacts resulting from lane closures on adjacent parallel streets in some locations along the San Francisco Peninsula where the current Caltrain right of way would be expanded to accommodate the high-speed train project. Additional analysis is also provided for the potential loss of traffic lanes along the Oakland to San Jose corridor in the City of Hayward.

Chapter 4: Revised Construction Impacts Discussion
This chapter revises Chapter 3.18 from the 2008 Final Program EIR to clarify the construction impacts anticipated with the adjustments to Monterey Highway and movement of tracks in an active rail corridor to implement the high-speed train project.

Chapter 5: New Information and Effect on Program EIR Analysis
This chapter describes an assessment of new information and changed conditions since the Authority's September 2, 2010 decisions based on the Revised Final Program EIR, including the Draft 2012 Business Plan and the Revised 2012 Business Plan, and discusses the implications for the programmatic environmental analysis.

Chapter 6: Staff Recommendation of a Preferred Network Alternative for Connecting the Bay Area to the Central Valley and Information in Partially Revised Final Program EIR
This chapter discusses the information contained in the Partially Revised Final Program EIR, and in the 2008 Final Program EIR and 2010 Revised Final Program EIR, and concludes that the new and revised information does not change the previous staff recommendation that the Pacheco Pass Network Alternative serving San Francisco via San Jose is the Preferred Network Alternative.

Chapter 7: Unavoidable Adverse Impacts
This chapter discusses how the information contained in this revised material affects the unavoidable and adverse impacts described in Chapter 9 of the 2008 Final Program EIR and Chapter 8 of the 2010 Revised Final Program EIR.

Chapter 7A: Additional Design Features and Mitigation Strategies
This chapter includes additions to project design features and mitigation strategies based on input received in comments on the Partially Revised Draft Program EIR.

Chapter 8: List of Preparers identifies the authors of the Partially Revised Final Program EIR.

Chapter 9: **Sources Used in Document Preparation** identifies primary sources of information used in preparation of the Partially Revised Final Program EIR.

Chapters 10 – 19: Responses to Comments
The Partially Revised Final Program EIR includes copies of all written comments received during the public review period for the Partially Revised Draft Program EIR (January 6, 2012 to February 21, 2012) and transcripts of all verbal comments received during the public meeting in San Jose on February 9, 2012. Each letter/submission and comment is assigned a unique letter/submission number and comment number. Following each comment letter, a response is provided, referenced by comment number. Where appropriate, the response indicates where to find more information on the topic in the Partially Revised Final Program EIR.

2010 REVISED FINAL PROGRAM EIR

The Partially Revised Final Program EIR includes the two volumes of the 2010 Revised Final Program EIR.

The 2010 Revised Final Program EIR, Volume 1, includes a summary (ch. 1); and revised/new text of: the revised project description and revised impact analyses for San Jose to Gilroy (ch. 2); Union Pacific Railroad's statements refusing to allow use of its rights-of-way and the potential for needing additional property for the HST alignment alternatives (ch. 3); impacts to Union Pacific Railroad freight operations (ch. 4); revised information on costs and operations (ch. 5); a comparison of the HST network and alignment alternatives (ch. 6); identification of the preferred alternative (ch. 7); unavoidable adverse impacts (ch. 8); list of preparers (ch. 9); and sources used in document preparation (ch. 10).

The 2010 Revised Final Program EIR, Volume 2, includes all comments received on the March 2010 Revised Draft Program EIR and responses to those comments.

2008 FINAL PROGRAM EIR

The Revised Final Program EIR also includes the three volumes of the 2008 Final Program EIR.

The 2008 Final Program EIR, Volume 1, includes a summary and the entire text of: the project purpose and need and objectives (ch. 1); a description of the alternatives (ch. 2); the environmental setting, impacts analysis, and discussion of mitigation strategies (ch. 3); project costs and operations (ch. 4); economic growth and growth-related impacts (ch. 5); HST station area development (ch. 6); a comparison of the HST network and alignment alternatives (ch. 7); identification of the preferred alternative (ch. 8); unavoidable adverse impacts (ch. 9); public and agency involvement (ch. 10); outreach (ch. 11); list of preparers (ch. 12); distribution (ch. 13); sources used in document preparation (ch. 14); a glossary (ch. 15); index (ch. 16), and acronyms (ch. 17).

The 2008 Final Program EIR, Volume 2, includes all appendices.

The 2008 Final Program EIR, Volume 3, includes all comments received on the July 2007 Draft Program EIR and responses to those comments.

P.1.2 What Has Changed Since the Partially Revised Draft Program EIR?

The following updates, additions, and revisions have been made since the Partially Revised Draft Program EIR was circulated in January and February 2012 and have been included in this Partially Revised Final Program EIR.

Change	Location
Updated text to refer to Partially Revised Final Program EIR.	• All chapters
Updated text regarding the public comment process on the Partially Revised Draft Program EIR and preparation of Partially Revised Final Program EIR.	• Chapter 1
Clarification of noise screening measurement.	• Chapter 2, sections 2.1 and 2.3
Added text regarding additional mitigation strategies.	• Chapter 2, section 2.5
Added text indicating that no additional or unique vibration impacts would occur due to Monterey Highway.	• Chapter 2, section 2.5
Added Santa Clara County as an agency to work with on establishing traffic management measures as part of a second-tier project.	• Chapter 2, section 2.5
Updated text on San Francisco Peninsula traffic data collection dates.	• Chapter 3, section 3.1
Added text and tables related to AM traffic data and analysis.	• Chapter 3, section 3.2
Added clarifying text that the typical construction impacts also include highway capacity improvement projects.	• Chapter 4, section 3.18.3
Added additional construction noise mitigation strategies.	• Chapter 4, section 3.18.6
Revised text related to level of significance with implementation of mitigation strategies.	• Chapter 4, section 3.18.6
Updated discussion of the Draft 2012 Business Plan and Revised 2012 Business Plan.	• Chapter 5
Updated discussion of preferred alternative to incorporate comments received during public comment period for Partially Revised Draft Program EIR.	• Chapter 6
Clarified additional environmental resource topics potentially affected by grade separations.	• Chapter 7, Table 7-1
New Chapter 7A added with additional mitigation strategies and design practices based on responses to comments.	• Chapter 7A
Updated and added sources used in document preparation.	• Chapter 9

P.1.3 What Happens Next?

At the completion of this revised program environmental review process, the Authority will consider whether to certify the Partially Revised Final Program EIR. If the Authority certifies the Partially Revised Final Program EIR as complying with CEQA, it will then consider whether to take the following actions:

- Select a network alternative, alignment alternatives, and station location options for further study in second-tier, project-level EIRs; and
- Adopt CEQA findings of fact; and mitigation monitoring and reporting program. This may include a statement of overriding considerations.

Assuming the Authority decides to go forward with development of the HST system in the Bay Area to Central Valley study area, the Authority would focus future project analysis on the network alternative, alignment alternatives, and station options selected through this program environmental review process. Site-specific location and design alternatives for the alignment and station options selected at the program-level, including impact avoidance and minimization alternatives and strategies, would be further investigated and considered during second-tier, project-level environmental review.

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1 INTRODUCTION AND SUMMARY

The California High-Speed Rail Authority (Authority) has recirculated portions of its 2008 Final Program Environmental Impact Report (EIR) and 2010 Revised Final Program EIR to address November 2011 court rulings in the *Town of Atherton* litigation challenging the 2010 *Bay Area to Central Valley High-Speed Train (HST) Revised Final Program EIR.* This chapter describes the basis for circulating the Partially Revised Draft Program EIR, the contents of this document, the public comment period, how the Authority will use this document in its decision making, and the relationship of this document to the Authority's project-level EIRs.

1.1 Basis for Circulating Bay Area to Central Valley High-Speed Train Partially Revised Draft Program EIR

The Partially Revised Draft Program EIR was circulated to address specific topics identified by the Sacramento Superior Court as part of two California Environmental Quality Act (CEQA) challenges. The original case, *Atherton 1* (Sacramento Superior Court No. 34-2008-8000022), challenged the Authority's July 2008 certification of the Bay Area to Central Valley HST Final Program EIR (2008 Final Program EIR) for compliance with CEQA and its selection of the Pacheco Pass Network Alternative for further analysis in second-tier EIRs. This case resulted in a final judgment in November 2009, requiring the Authority to undertake additional analysis in specified areas. In response to the *Atherton 1* final judgment, the Authority prepared a Revised Draft Program EIR, circulated it for public comment, and issued a Revised Final Program EIR in August 2010. In September 2010, the Authority made a new decision to certify the Revised Final Program EIR for compliance with CEQA. The Authority also made a new decision to approve the Pacheco Pass Network Alternative, as well as approved CEQA findings, a mitigation plan, and a statement of overriding considerations.

In October 2010, the petitioners in the *Atherton 1* case challenged the adequacy of the Authority's actions under CEQA and the *Atherton 1* final judgment. An additional lawsuit was filed on the same day, called *Atherton 2* (Sacramento Superior Court No. 34-2010-8000679), also challenging the Authority's action as not complying with CEQA. The court considered the two cases together and on November 10, 2011, issued a ruling in each case. In the rulings, the Court held as follows:

- Recirculation is required to address noise, vibration, and construction impacts of shifting Monterey Highway.
- Recirculation is required to address traffic impacts on surrounding local roads due to narrowing Monterey Highway.
- Recirculation is required to address the impacts of potentially moving freight tracks closer to adjacent land uses along the San Francisco Peninsula.
- Recirculation is required to address impacts of reduced access to surface streets from potential lane closure along the San Francisco Peninsula.

In addition, the Court concluded that the Authority's CEQA finding on traffic impacts associated with narrowing Monterey Highway was not supported by substantial evidence.

The remainder of the 2010 Revised Final Program EIR either was not challenged in litigation and is presumed adequate, or was challenged in litigation and determined by the Court to comply with CEQA. The complete text of the 2009 ruling in *Atherton 1*, and the 2011 rulings in *Atherton 1* and *Atherton 2*, can be reviewed on the Authority's website at http://www.cahighspeedrail.ca.gov/ba_cv_program_ eir.aspx.

1.2 Summary of Partially Revised Final Program EIR

The Authority has recirculated portions of its 2008 Final Program EIR and 2010 Revised Final Program EIR to address the *Atherton* November 2011 court rulings described above. The requirement to revise and recirculate portions of the program EIR does not require the Authority to start the program EIR process anew. (*Protect the Historic Amador Waterways v. Amador Water Agency* [2004] 116 Cal.App.4th 1099, 1112.) Recirculation of the EIR "may be limited by the scope of the revisions required." (*Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* [2007] 40 Cal.4th 412, 449.) Where the scope of revisions is limited to certain chapters or portions of the EIR, a lead agency need only recirculate the chapters or portions that have been modified. (*Id.*; citing CEQA Guidelines, § 15088.5, subd. (c).)

Accordingly, this document contains the following information and analysis:

Chapter 2: Additional Noise & Vibration Analysis
This chapter adds to Chapter 3.4 of the 2008 Final Program EIR. It analyzes noise and vibration effects of shifting a stretch of Monterey Highway between San Jose and Gilroy to implement the high-speed train project. It also analyzes noise and vibration related to the potential for moving freight rail activity to outside tracks along the San Francisco Peninsula and South of San Jose between Tamien and Lick, placing freight closer to adjacent land uses in some locations.

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Chapter 7: Unavoidable Adverse Impacts
This chapter discusses how the information contained in this revised material affects the unavoidable and adverse impacts described in Chapter 9 of the 2008 Final Program EIR and Chapter 8 of the 2010 Revised Final Program EIR.

Chapter 7A: Additional Design Features and Mitigation Strategies
This chapter includes additions to project design features and mitigation strategies based on input received in comments on the Partially Revised Draft Program EIR.

Chapter 8: List of Preparers

Chapter 9: Sources Used in Document Preparation

Chapters 10-19: Responses to Comments
This chapter includes comments received on the Partially Revised Draft Program EIR and responses to those comments.

1.3 Public and Agency Involvement

The Authority has involved the public and other public agencies in the program environmental review process pursuant to the requirements of CEQA. This section describes the public and agency involvement efforts in the preparation of prior Bay Area to Central Valley HST environmental documents and the Partially Revised Draft Program EIR.

1.3.1 Prior 2008 Draft Program EIR/EIS and Final Program EIR/EIS Notification and Circulation

Notice regarding the availability and the circulation of the 2007 Draft Program EIR/EIS was provided pursuant to CEQA and NEPA requirements. The Draft Program EIR/EIS was released for public review and comment on July 16, 2007. All 1,300 comments submitted to the Authority during this review period were addressed and responded to as part of the May 2008 Final Program EIR/EIS. The draft and final documents and/or notices were distributed to approximately 3,600 statewide contacts, including federal, state, and local elected officials; federal, state, and local agency representatives; chambers of commerce; environmental and transportation organizations; special interest groups; media; private entities; and members of the public. The Draft and Final Program EIR/EIS were made available for viewing and downloading at the Authority's website (www.cahighspeedrail.ca.gov) and also available at libraries in Fremont, Gilroy, Merced, Modesto, Mountain View, Oakland, Pleasanton, Palo Alto, Sacramento, San Francisco, San Jose, and Stockton. Newspaper announcements and postcards were distributed announcing a total of 8 public hearings that were held on the Draft Program EIR/EIS in 2007 in San Francisco, San Jose, Livermore, Oakland, Gilroy, Merced, Stockton, and Sacramento.

1.3.2 Prior 2010 Revised Draft Program EIR and Revised Final Program EIR Notification and Circulation

The Authority circulated the March 2010 Revised Draft Program EIR to comply with the final judgment in the *Town of Atherton* litigation on the 2008 Final Program EIR/EIS.

Notice regarding the availability and the circulation of the March 2010 Revised Draft Program EIR was provided pursuant to CEQA. In accordance with CEQA, a Notice of Completion was filed with the State Clearinghouse on March 11, 2010 initiating the required 45-day public comment period that extended to April 26, 2010. A total of 3,755 comments were submitted to the Authority during this review period and were addressed as part of the August 2010 Revised Final Program EIR. The Revised Draft and Final Program EIR documents and/or notices were distributed to over 53,000 statewide contacts, including federal, state, and local elected officials; federal, state, and local agency representatives; chambers of commerce; environmental and transportation organizations; special interest groups; media; private entities; and members of the public. The Revised Draft and Final Program EIR, as well as the 2008 Final Program EIR, were made available to the public through the Authority website (www.cahighspeedrail.ca.gov) and also available at libraries in Fremont, Gilroy, Livermore, Merced, Modesto, Menlo Park, Mountain View, Oakland, Pleasanton, Palo Alto, Sacramento, San Francisco, San

Jose, Stockton, and Tracy. The Authority held two Public Meetings in San Jose on April 7, 2010 to receive comments from the public and public agencies on the Revised Draft Program EIR. Newspaper announcements, notices, and postcards were distributed announcing the public meeting.

1.3.3 Notification and Circulation of the Partially Revised Draft Program EIR

The Authority circulated a January 2012 Partially Revised Draft Program EIR to address November 2011 court rulings in the *Town of Atherton* litigation challenging the 2010 *Bay Area to Central Valley High-Speed Train (HST) Revised Final Program EIR/EIS.*

Notice regarding the availability and the circulation of the January 2012 Partially Revised Draft Program EIR was provided pursuant to CEQA. The Partially Revised Draft Program EIR was made available to the public through the Authority website (www.cahighspeedrail.ca.gov) on January 5, 2012. The Partially Revised Draft Program EIR was distributed on January 5, 2012 as well. Either a printed copy or a CD along with a Notice of Availability was sent to over 360 state, federal, and local agencies, elected officials, Native American groups, other groups, and individuals who previously commented. In accordance with CEQA, a Notice of Completion was filed with the State Clearinghouse on January 6, 2012 initiating the required 45-day public comment period that extended to February 21, 2012. Notices were also posted at 9 county clerk offices within the project area. The Partially Revised Draft Program EIR and a Notice of Availability and of a Public Meeting was also made available to 16 libraries for public viewing. These libraries, listed in Table 1-1, also had copies of the 2008 Final Program EIR/EIS and the 2010 Revised Final Program EIR available to the public. The Notice of Availability and Notice of a Public Meeting was distributed to over 24,000 individuals on the program mailing list on January 6, 2012 and published in 11 newspapers throughout Bay Area and Central Valley including the San Jose Mercury News, Sacramento Bee, Daily Republic, Oakland Tribune, San Francisco Examiner, Modesto Bee, Merced Sun Star, Fresno Bee, Stockton Record, Palo Alto Daily News, and Gilroy Dispatch.

Table 1-1
Partially Revised Draft Program EIR Library Viewing Locations

Library	Location
Fremont Main Library, Reference Department	2400 Stevenson Boulevard Fremont, CA 94538
Gilroy Library	7387 Rosanna Street Gilroy, CA 95020
Livermore Public Library	1188 S Livermore Ave. Livermore, CA 94550
Menlo Park Library	800 Alma Street Menlo Park, CA 94025
Merced County Library	2100 "O" Street Merced, CA 95340
Stanislaus County Library, Government Documents Section	1500 "I" Street Modesto, CA 95354
City of Mountain View General Public Library	585 Franklin Street Mountain View, CA 94040
Oakland Public Library	125 14th Street Oakland, CA 94612
Palo Alto Main Library	1213 Newell Road Palo Alto, CA 94303
Pleasanton Public Library	400 Old Bernal Avenue Pleasanton, CA 94566
California State Library, Government Publications Section	914 Capitol Mall, Room 402 Sacramento, CA 95814

Library	Location
Sacramento Central Library	828 I St. Sacramento, CA 95814
San Francisco Main Library, Government Information Center, 5th Floor	100 Larkin Street San Francisco, CA 94102
Dr. Martin Luther King Jr. Library, Reference Department, Room 285	150 East San Fernando Street San Jose, CA 95112
Cesar Chavez Central Library	605 North El Dorado Street Stockton, CA 95202
Tracy Branch Library	20 E. Eaton Avenue Tracy, CA 95376-3100

The Authority held a Public Meeting in San Jose on February 9, 2012 to receive comments from the public and public agencies on the Partially Revised Draft Program EIR. The meeting was held from 4:00 p.m. to 7:00 p.m. at the San José City Hall, City Council Chambers, 200 East Santa Clara St, San José CA 95113.

A. COMMENTS ON THE PARTIALLY REVISED DRAFT PROGRAM EIR

Written comments on the Partially Revised Draft Program EIR were sent to the Authority in the form of letters, electronic mail, and submissions through the Authority's website. Comments from the public meeting were transcribed as well. Table 1-2 lists the number of those providing comments during the public comment period including those from the public meetings. Some of the letters received listed multiple agencies or individuals. More than 50 people provided over 400 comments during the circulation period (either through written letters or oral testimony).

Table 1-2
Comment Submittals on the Partially Revised Draft Program EIR

Type of Commenter	Number of Commenters	Number of Comments
Federal Agencies	1	1
Tribes	1	5
State Agencies	1	1
Local Agencies	17	258
Businesses/Organizations	10	65
Individuals	20	91
Public Meeting	6	15
Total	**56**	436

The verbal and written comments received during the public comment period addressed the broad spectrum of issues related to an EIR. Some comments addressed the information in the Partially Revised Draft Program EIR. Other comments addressed the content of the prior program EIRs. Many commenters expressed their views on traffic impacts on the San Francisco Peninsula; how information in the Draft 2012 Business Plan affects the program EIR; and that the Authority should not continue to propose and consider a four-track alignment on the Peninsula, and should instead limit the consideration to only the "Blended System" as proposed by Senator Simitian, Congresswoman Eshoo and Assembly Member Gordon in April of 2011. The comments are included following the text for the Partially Revised Final Program EIR.

1.4 California High-Speed Rail Authority's Use of Partially Revised Final Program EIR

Following the public comment period on the Partially Revised Draft Program EIR, the Authority has prepared this Partially Revised Final Program EIR. The Partially Revised Final Program EIR includes the full text of the Partially Revised Draft Program EIR with changes based on the comments incorporated and written and verbal comments received on the Partially Revised Draft Program EIR and responses to comments; and the complete 2-volume text of the 2010 Revised Final Program EIR and 3-volume text of the 2008 Final Program EIR.

The *Town of Atherton* November 2011 court rulings require the Authority to rescind its 2010 Revised Final Program EIR certification, rescind its approval of the Pacheco Pass Network Alternative, and make a new decision based on a corrected Program EIR. It is anticipated that the Authority Board will consider rescinding its September 2010 certification of the Revised Final Program EIR and decision approving the Pacheco Pass Network Alternative at an upcoming, publicly noticed meeting. Following the public comment period on the Partially Revised Draft Program EIR, the Authority has prepared this Partially Revised Final Program EIR including responses to the comments received during the comment period. At a publicly noticed meeting, the Authority will consider the Partially Revised Final Program EIR, along with the 2008 Final Program EIR and 2010 Revised Final Program EIR, and the whole record before it, in determining whether to make the following decisions:

- Certify the Partially Revised Final Program EIR (including the 2008 Final Program EIR and the 2010 Revised Final Program EIR) for compliance with CEQA.
- Approve findings of fact, a statement of overriding considerations, and a mitigation monitoring and reporting program in compliance with CEQA.
- Approve a network alternative, preferred alignments, and preferred station locations for further study in project-level EIRs.

The 2008 Program EIR examined eleven representative network alternatives that would utilize the Altamont Pass, six that would use the Pacheco Pass, and four that would utilize the Pacheco Pass with Altamont Pass for local service, depicted in Chapter 7 of that document. The purpose of this revised program EIR process is to provide the necessary analysis to support the selection of a network alternative to connect the Bay Area and Central Valley, via the Altamont Pass, via the Pacheco Pass, or via both passes.

1.5 Relationship of Bay Area to Central Valley High-Speed Train Program EIR Process to Project-Level EIR Processes

The *Town of Atherton* CEQA litigation has been ongoing since 2008. During the ensuing years, the court has not required the Authority to halt its second-tier, project-level environmental studies for the Bay Area to Central Valley sections, which include the San Francisco to San Jose and the San Jose to Merced sections. The Authority has therefore continued with its project-level EIR work for these sections, as well as for other sections within the 800-mile high-speed train system. The development of the San Jose to Merced section project-level Draft EIR is underway, but not yet complete. In May of 2011, the Authority put on hold its work on the Draft EIR for the San Francisco to San Jose section.

Project-level EIR work is ongoing for the Merced to Fresno section, which overlaps in part with the study area for this Partially Revised Program EIR. A project-level Draft EIR/EIS for the Merced to Fresno section has circulated for public and agency comment, and the final EIR/EIS is under preparation. The Merced to Fresno section includes a wye interchange to connect to the San Jose to Merced section. Although this wye interchange is analyzed in the Merced to Fresno Draft EIR/EIS, the Authority will not make a decision regarding the wyes based on the Merced to Fresno project-level EIR/EIS. Instead, the Authority will examine the wyes further in a subsequent project-level EIR/EIS. Depending on the outcome of the program EIR process, the wye connection to the San Francisco Bay Area could be studied in a project-level Draft EIR/EIS for either a San Jose to Merced section for a Pacheco Pass network alternative, or a more northerly section for an Altamont Pass network alternative.

The *Town of Atherton* November 2011 court rulings require the Authority to rescind its 2010 Revised Final Program EIR certification and rescind its approval of the Pacheco Pass Network Alternative. At the conclusion of this revised program EIR process, the Authority will make a new decision on a network alternative, preferred alignments, and preferred station locations. The new program EIR decision may require adjustment to the environmental work that is underway in the project-level EIRs.

1.6 Summary of Environmental Impacts and Mitigation Strategies

Table 1-3 provides a summary of the environmental impacts and mitigation strategies identified in this document.

Table 1-3
Summary of Environmental Impacts and Mitigation Strategies

TOPIC	Significance Conclusion	Mitigation Strategies	Significance Conclusion with Mitigation Strategies
Noise/Vibration from Potentially Moving Freight Trains to Outside Tracks on Expanded Right-of-way on San Francisco Peninsula	Significant (consistent with 2008 Program EIR conclusion)	See mitigation strategies listed in Chapter 2	Noise: less than significant Vibration: significant and unavoidable
Noise/Vibration from Monterey Highway Shift	Significant (consistent with 2008 Program EIR conclusion; also described as separate significant impact for clarity)	See mitigation strategies listed in Chapter 2	Noise: less than significant Vibration: significant and unavoidable
Noise/Vibration from Potentially Moving Freight Trains to Outside Tracks on Expanded Right-of-way Between Tamien and Lick	Significant (consistent with 2008 Program EIR conclusion)	See mitigation strategies listed in Chapter 2	Noise: less than significant Vibration: significant and unavoidable
Traffic Impacts of Potential Lane Loss on San Francisco Peninsula	Significant	See mitigation strategies listed in Chapter 3	Significant and unavoidable
Traffic Impacts from Monterey Highway Narrowing (on Monterey Highway itself and on surrounding roadways)	Significant	See mitigation strategies listed in Chapter 3	Significant and unavoidable
Traffic Impacts of Potential Lane Loss in Hayward	Significant	See mitigation strategies listed in Chapter 3	Significant and unavoidable
Construction Impacts	Significant	See mitigation strategies listed in Chapter 4	Significant and unavoidable in some resource areas
Significant Traffic Impacts at Interim Terminus Stations under Phased Implementation	Significant	See mitigation strategies listed in Chapter 5	Significant and unavoidable
Significant Impacts to Connecting Commuter Rail Service from HST riders boarding at Interim Terminus Stations under Phased Implementation	Significant	See mitigation strategies listed in Chapter 5	Significant and unavoidable
Adverse Impacts from Grade Separation	Significant	See mitigation strategies listed in Chapter 5	Significant and unavoidable

2 NOISE & VIBRATION

This chapter provides additional noise and vibration impacts analysis in two areas identified by the November 2011 *Town of Atherton* rulings. In the rulings, the court held that the Program EIR's discussion of noise and vibration required further analysis in two areas: (1) noise and vibration impacts associated with potentially placing freight trains on the outside tracks of the Caltrain right-of-way, closer to adjacent residences and businesses along the San Francisco Peninsula and (2) noise and vibration impacts associated with the shift of Monterey Highway to implement the high-speed train project. Additional analysis is also provided for potentially placing freight trains closer to adjacent residences and businesses for a short portion south of San Jose. The following new text addresses these areas and adds to the 2008 Final Program EIR, Chapter 3.4. Changes to text from the Partially Revised Draft Program EIR are shown with a bar in the margin; added text is noted with underlining and deleted text is noted with strikeout.

A noise and vibration screening analysis was conducted as part of the 2008 Final Program EIR to identify potential areas of impact on sensitive receptors. The methodology, analysis, and conclusions identified in the discussion presented below were conducted to clarify and confirm the conclusions identified in the 2008 Final Program EIR. Out of an abundance of caution, additional methodology was utilized for Monterey Highway to identify whether any additional or different impacts existed or mitigation strategies beyond those previously identified should be added.

2.1 Regulatory Requirements and Methods of Evaluation (addition to Section 3.4.1 of 2008 Final Program EIR)

The methodology and CEQA significance criteria discussion presented in the 2008 Final Program EIR, Section 3.4.1 remain accurate. The reader is referred to that document for additional context for how noise and vibration impacts along the alignments in the study area were assessed as having a low, medium, or high impact rating. The following discussion adds to the discussion of methodology and clarifies the method of assessing environmental impacts for the potential movement of freight train tracks and the shift of Monterey Highway. The following text is an addition to Section 3.4.1 of the 2008 Final Program EIR.

A. POTENTIAL MOVEMENT OF FREIGHT TRAIN TRACKS DUE TO HST

As described in Chapter 3.4 of the 2008 Final Program EIR, a noise and vibration screening analysis was conducted for the HST alignment alternatives in accordance with the Federal Railroad Administration (FRA) (U.S. Department of Transportation 2005) and Federal Transit Administration (FTA) (U.S. Department of Transportation 2006) criteria and guidelines. The FRA has established criteria for assessment of noise and vibration impacts for high-speed ground transportation projects with speeds over 125 mph. In areas with train speeds that would be equal to or less than 125 mph, a corresponding screening procedure developed by the FTA was used in the assessment of the HST Alignment Alternatives.[1] For the proposed HST corridor from San Francisco to San Jose, the FTA criteria were used to assess the noise and vibration impacts associated with the HST alignment alternatives within the shared-use Caltrain corridor because it is expected that HST, Caltrain, and freight trains would all run at speeds below 125 mph. This screening level of analysis encompassed all rail activity within the corridor, including freight and passenger rail service. Therefore, potential changes in alignment of individual existing tracks (e.g., freight or passenger) within a rail corridor and/or the addition of new tracks within an existing corridor or with expansion of the corridor, do not

[1] Although the screening methodologies are the same for the FRA and FTA, the distance used to screen for a particular corridor is dependent on train speed. The FRA's guidance manual refers to the FTA's when train speeds are equal to or below 125, and the FTA's refers to the FRA guidance when speeds are above 125.

alter the methodology of a screening analysis. Table 4.1 of the FTA Guidance Manual (2006) provides screening distances for various types of rail projects involving different vehicle technologies and corridor types. The corridor between San Francisco and San Jose is an active rail corridor with passenger and limited freight service. The FTA Guidance Manual classifies this as a "commuter rail mainline" corridor and uses a screening distance of 375 feet from ~~track~~ the centerline of the guideway (i.e., alignment).[2]

By design, screening produces a conservative estimate of the number of sensitive receivers that could be affected along different corridors under consideration. Screening allows for a comparison of the potential number of impacted receivers (homes, schools, etc.) between different alternative alignments, but it is a rough measure and not intended to provide specific information on impacts to individual properties within a corridor. The method identifies all potentially impacted developed lands by type of use within the study area. Subsequent project-level analysis is likely to indicate lower levels of potential impact by consideration of structures or land forms blocking the path to the receptor.

For the screening analysis, the impact metrics and impact ratings are defined in Table 2-1 (same as Table 3.4-1 in the 2008 Final Program EIR). The rating scheme is designed to indicate the potential for noise and vibration impacts along the HST alignment alternatives.

Table 2-1
Unchanged Table 3.4-1—Ratings Used for Noise and Vibration Analysis

Rating	Impact Metric	
	Noise	Vibration
Low	Less than 80	Less than 40
Medium	80–200	40–100
High	Greater than 200	Greater than 100

Source: Authority 2008

Impact Metric = (Residential Population in the Impact Area/Mile) + 0.3 × (Mixed Use Population in the Impact Area /Mile) + (100 × Number of Hospitals in the Impact Area)/Mile + (250 × Number of Schools in the Impact Area)/ Mile

B. POTENTIAL LANE NARROWING AND SHIFTING OF MONTEREY HIGHWAY

The noise and vibration study area for the HST project in the San Jose to Central Valley Corridor was determined using FRA's and FTA's noise screening procedure. The FRA and FTA screening distances, measured from the centerline of the HST right-of-way (i.e., alignment) adjacent to Monterey Highway, was 375 feet for the segment of Monterey Highway that would be narrowed from six lanes to four lanes and where the roadway would be shifted east. This screening distance encompassed and identified noise sensitive receptors adjacent to and well beyond the limits of potential noise exposure that would result from an eastern shift of Monterey Highway traffic lanes. The prior analysis conducted in the 2008 Final Program EIR captured the number of people that may be exposed to impact-level noise that could occur from the shifting of Monterey Highway. Out of an abundance of caution, an additional methodology based on Federal Highway Administration (FHWA) guidelines was utilized for Monterey Highway to identify whether any additional or different impacts would occur or mitigation strategies beyond those previously identified would be needed.

[2] Guideway – Supporting structure to form a track for rolling or magnetically-levitated vehicles (FTA 2006). In other words, guideway is not the track, it is the base upon which the track is placed.

In addition to noise from HST operations, noise from changes in traffic volume and major roadway realignment due to the project have been considered. Because parts of Monterey Highway would be narrowed from six lanes to four lanes and other areas would be shifted up to 60 feet closer to noise sensitive receptors to accommodate the HST alignment, the potential for traffic noise impacts resulting from these changes were considered. FRA adheres to FHWA guidance and methodology for traffic noise impact assessment when traffic noise impacts are anticipated. In contrast to FRA, FHWA does not use screening distances for initial impact assessment, but rather uses defined Noise Abatement Criteria (NAC) for assessing traffic noise impacts at noise sensitive receptors. The FHWA traffic NAC and guidance are outlined in Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR Part 772), which also requires that the Traffic Noise Model (TNM) be used for traffic noise assessment.

In portions of the project where Monterey Highway would be narrowed or shifted, the potential for noise impacts exists at locations where the highway lanes would be shifted closer to noise sensitive receptors. FHWA guidance regarding the physical alteration of an existing highway states that "changes in the horizontal alignment that reduce the distance between the source and the receiver by half or more result in a Type I project" (U.S. Department of Transportation 2010). By this definition, the realignment of Monterey Highway as part of the HST project would be classified as a Type I project.[3] FHWA requires identification of highway traffic noise impacts and examination of potential abatement measures for all Type I projects receiving federal-aid funds.

Vibration impact screening for highways is assumed to result in less-than-significant impacts for ground-borne vibration. In addition, FHWA does not have adopted vibration impact assessment criteria.

C. CEQA SIGNIFICANCE CRITERIA (No change from the 2008 Final Program EIR)

At the programmatic level, the project would cause a significant noise or vibration impact under CEQA if it would result in:

- Potential exposure of persons to or generation of noise levels in excess of standards established by the FRA for high-speed ground transportation and by the FTA for rail projects.
- Potential exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

2.2 Affected Environment (addition to Section 3.4.2 of 2008 Final Program EIR)

The affected environment presented in the 2008 Final Program EIR, Section 3.4.2 remains accurate. The reader is referred to that document for additional context. The following text is an addition to Section 3.4.2 of the 2008 Final Program EIR.

A. EXISTING NOISE ENVIRONMENT

All regional freeways considered in the study area are major contributors to the ambient noise environment. The HST Alignment Alternatives would primarily follow or parallel existing rail tracks. Along the proposed alignment alternative on the San Francisco Peninsula, along with freeway and

[3] FHWA classifies projects into three Types to determine the need for a noise analysis (23 CFR, Part 772.5).

roadway noise, the Caltrain passenger service is a major contributor to the ambient noise levels, especially at grade crossings, where horn noise dominates the noise environment within 0.25 mi of the intersections. In this corridor, freight traffic also occurs, but comprises a small percentage of the total rail traffic on the corridor when compared to the existing Caltrain passenger service, which runs over 90 trains per day through the corridor (Caltrain 2011).[4]

Also in southern San Jose and as far as Gilroy to the south, Caltrain, Amtrak, and freight rail are major contributors to the ambient noise levels. Along the proposed alignment alternative between San Jose and Gilroy, the alignment alternative would follow along Monterey Highway, which would contribute roadway noise. Within the project area, Monterey Highway is six lanes wide for approximately six miles from Hollywood Avenue to south of Blossom Hill Road, and four lanes wide south of Blossom Hill Road.

In the urban areas and suburban areas of the San Francisco Peninsula and San Jose, the ambient noise is estimated to range from L_{dn} 57 to 66 dBA. In many of the residential areas close to the international airports at San Francisco (SFO) and San Jose (SJC), the ambient levels exceed L_{dn} 65 dBA.

2.3 Environmental Consequences (addition to Section 3.4.3 of 2008 Final Program EIR)

The environmental consequences discussion presented in the 2008 Final Program EIR, Section 3.4.3 remains accurate. The reader is referred to that document for additional context. The following text is an addition to Section 3.4.3 of the 2008 Final Program EIR.

A. POTENTIAL MOVEMENT OF FREIGHT TRAIN TRACKS DUE TO HST ON THE SAN FRANCISCO PENINSULA

The HST alternative in the San Francisco to San Jose Corridor is intended to be a four-track, shared-use alignment that would integrate with existing Caltrain passenger service as well as UPRR freight service. The conceptual operating plan anticipates the local Caltrain and freight trains travel predominantly on the outside two tracks and the high-speed trains and express Caltrain trains to travel predominantly on the two inside tracks. However, depending on additional operational study related to integration of the HST with existing passenger and freight services, any of these train services could potentially run on the tracks placed on the outer portion of the newly expanded right-of-way. This would result in trains, including freight, running closer to existing homes, schools, and other noise-sensitive land uses. As described above, the screening analysis performed for this corridor is consistent with FTA methodology which takes into account the potential for freight and passenger trains to be closer to adjacent land. The two additional tracks in the corridor are accounted for because the screening distance is measured from the centerline of the rail corridor (i.e., alignment), and at 375 feet the potential impact area is sufficiently wide on either side of the centerline to capture the anticipated expansion of the right-of-way and potential for movement of freight trains to the outside tracks. The expansion of the right-of-way and potential movement of

[4] The rail corridor in the peninsula is owned by the Caltrain provider, the Peninsula Corridor Joint Powers Board (JPB), who manages train scheduling and determines on which track different trains operate. Freight service is allowed in the corridor when there is a window between passenger trains of at least 30 minutes headway. The Trackage Rights Agreement between the JPB and Southern Pacific Transportation Company (executed in November 1991) specifies that the JPB will make at least one of these windows available between 10:00 am and 3:00 pm each day in both northbound and southbound directions. Between midnight and 5 a.m., at least one main track of the Peninsula Main Line is available for freight with an adequate number of thirty (30) minute headway windows. Although this agreement does not explicitly limit the number of freight trains allowed per day in the corridor, in practice an average of about four freight trains travel in the corridor between Santa Clara Junction in San Francisco each 24 hour period. For the purposes of this evaluation, it is assumed that approximately four freight trains travel in the corridor, two trains during the daytime and two at night.

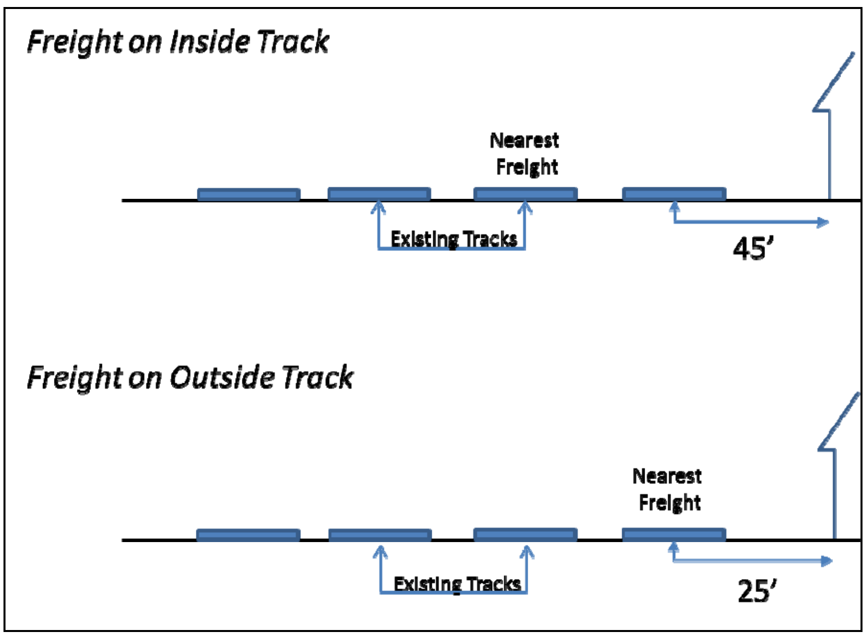
freight train tracks contributes to the overall medium ranking for noise in this corridor, as indicated in Table 3.4-4 of the 2008 Final Program EIR. The vibration analysis and rankings (medium for San Francisco to Dumbarton and high for Dumbarton to San Jose) also incorporate this in the screening methodology. Note that this impact rating takes into account the benefit of the elimination of grade crossings for existing passenger and freight rail in this corridor.

Based on the FTA methodology, the limited expansion of the existing Caltrain rail corridor has little to no effect on the number of properties captured in the screening analysis, or to the noise and vibration effects to properties just outside the right-of-way.

A representative, conservative scenario was developed to illustrate the consequences of moving freight trains closer to adjacent land uses. This scenario considered a four-track alignment where adjacent land uses were assumed to be just 25 feet from the closest track. Two scenarios were simulated (see Figure 2-1 below):

1. Freight trains operate on the inside tracks of a four-track alignment, approximately 45 feet from the adjacent sensitive land use (similar to where freight trains run under existing conditions).
2. Freight trains operate on the outside tracks, approximately 25 feet from the adjacent sensitive land use.

Figure 2-1
Freight Operations on Four-Track Alignment



The difference in noise level associated with freight trains being moved 20 feet closer to the sensitive land use was approximately 0.5 dBA in the 24 hour noise exposure level (Ldn) used to characterize noise impacts using FTA methodology. The vibration level would increase roughly 2.4 VdB, generally considered to be an imperceptible amount. This scenario conservatively assumed that all four freight trains in a 24 hour period would run on the track closest to the adjacent land use, and also assumed that all four freight trains would run at night (10 pm to 7 am).

This example underscores that the potential for freight trains to use outside tracks in a four-track, shared right of way does not change the conclusions in the 2008 Final Program EIR, Chapter 3.4 for the San Francisco to San Jose corridor. Noise impacts between San Francisco and San Jose are medium, vibration impacts are medium (San Francisco to Dumbarton) and high (Dumbarton to San Jose), and both are significant under CEQA at the program level.

B. POTENTIAL LANE NARROWING AND SHIFTING OF MONTEREY HIGHWAY

To accommodate the HST, Monterey Highway is proposed to be narrowed from six lanes to four lanes and the lanes shifted east generally within the existing right-of-way from approximately Southside Drive to south of Blossom Hill Road (approximately 3.3 miles). The alignment is expected to be generally at grade; however, some areas may be raised or lowered for grade separations, depending on design details not available at the program level. At some locations north and south of Capitol Expressway, the narrowed four lanes and right-of-way of Monterey Highway may need to be shifted to the east up to 25 feet. In addition, the existing four lanes south of Blossom Hill Road would be shifted east within existing right-of-way and in some locations the right-of-way itself would also be shifted east up to 60 feet to accommodate the HST. This would occur in several locations less constrained by existing development. Figure 2-2 illustrates the approximate affected area along Monterey Highway that would require narrowing and/or the right-of-way shifted to the east.

The shift of Monterey Highway could have adverse or beneficial traffic noise impacts on nearby noise sensitive receptors, including residences. If the roadway is shifted east closer to sensitive receptors, traffic noise effects could be adverse; and if the highway is shifted farther away from sensitive receptors on the west, traffic noise effects could be beneficial. The lane reduction as part of the narrowing would have a beneficial traffic noise impact, depending on where the reduced lanes are shifted. Four locations were analyzed at the program level to evaluate potential traffic noise impacts as a result of Monterey Highway being narrowed and the lanes and right-of-way being shifted east. Table 2-2 provides the analysis for the four locations.

Under FHWA guidance, highways are assumed to result in a less than significant impact for vibration. The shift of Monterey Highway traffic lanes to the east would therefore have no additional or unique vibration impacts beyond those described for the San Jose to Central Valley corridor in the 2008 Final Program EIR, Chapter 3.4.

In summary, the anticipated noise impacts from lane narrowing on Monterey Highway and shifting the highway to the east vary, but overall involve significant impacts associated with the highway changes. It should be noted that traffic noise at residences located on the west side of Monterey Highway would be reduced in each of these areas due to any shift of traffic lanes to the east. However, that reduction may not be noticeable because the adjacent train noise would be the dominating noise source, as it is in the existing condition, at the residences located west of Monterey Highway. These impacts have been considered together with the FRA screening methodologies for assessing noise, and do not change the prior conclusion of medium noise impacts and medium vibration impacts for the Pacheco alignment within the San Jose to Central Valley Corridor. In addition, this information does not change the conclusion of the 2008 Final Program EIR that noise and vibration impacts in the San Jose to Central Valley Corridor would be significant under CEQA based on the FRA methodology. Out of an abundance of caution, the significant noise impacts associated with shifting Monterey Highway are also considered a separate significant noise impact under CEQA in this corridor.

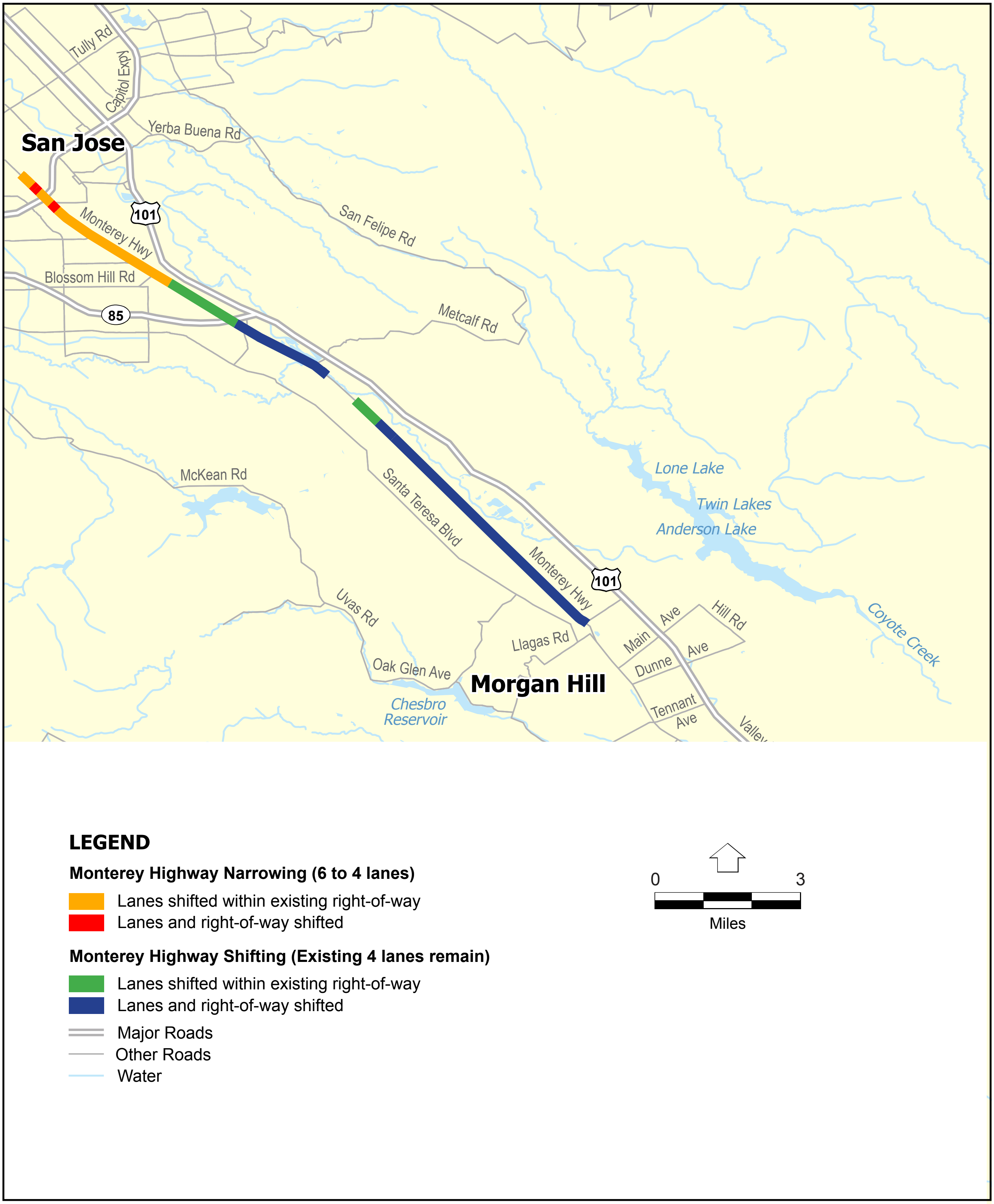


Figure 2-2

Proposed Monterey Highway Modifications

Bay Area to Central Valley HST Partially Revised Final Program EIR

Table 2-2
Noise Impacts Related to Monterey Highway Narrowing or Shifting

Monterey Highway Narrowing/ Shifting	Noise Impact	Receptors Considered / Included as part of 2008 FRA Noise Screening	Significant Impact
Monterey Highway Narrowing (6 to 4 lanes)			
Traffic lanes shifted east within existing right-of-way (Southside Drive to south of Blossom Hill Road)	Traffic noise levels reduced by 1 to 2 decibels (dB) as a result of the roadway realignment and lane reduction (less traffic).	Yes	No, beneficial
Traffic lanes and right-of-way shifted east up to 25 ft (Southside Drive to Fehren Drive and Capitol Expressway Ramp to Senter Road)	Right-of-way acquisition on east side and removal of existing property walls with traffic lanes closer to sensitive receptors to the east; increase in noise levels by greater than 5 dB without replacement in kind of property walls (similar noise levels with replacement of property walls)	Yes	Yes
Monterey Highway Shifting (Existing 4 lanes remain)			
Traffic lanes shifted east within existing right-of-way (Blossom Hill Road to Bernal Road and south of Coyote Ranch Road to Bailey Avenue)	Traffic noise levels increased by 1 to 2 dB as a result of the roadway realignment.	Yes	Yes
Traffic lanes shifted east up to 60 ft (Bernal Road to just south of Metcalf Road and Bailey Avenue to Cochrane Road)	Right-of-way acquisitions on east side and removal of existing property walls with traffic lanes closer to sensitive receptors to the east; increase in noise levels by greater than 2 to 3 dB with replacement in kind of property walls (any existing walls would be removed due to acquisitions)	Yes	Yes

C. POTENTIAL MOVEMENT OF FREIGHT TRAIN TRACKS DUE TO HST FROM SAN JOSE TO LICK

The HST alternative in the San Jose to Central Valley Corridor from approximately Tamien to Lick (a point near Pull Way in San Jose) is intended to use dedicated track within the Caltrain-owned right-of-way, adjacent to the existing Caltrain passenger service, as well as adjacent to UPRR freight service. To provide space for the addition of the HST tracks, the existing UPRR tracks would need to be relocated from their central position to a new position to the east side of the right-of-way up to 25 feet in some locations. The track on the east side would continue as the dedicated freight service track. Similar to the San Francisco Peninsula, the screening analysis performed for this segment is consistent with FTA methodology and takes into account the potential for freight and passenger trains to be closer to adjacent land uses for limited periods of time. The addition and movement of tracks in the corridor is accounted for and contributes to the overall medium impact rating for noise and vibration in the Pacheco corridor as indicated in Table 3.4-4 of the 2008 Final Program EIR. As noted above, potential shifts of this magnitude are accounted for in the methodology. Therefore, these movements of tracks would not be anticipated to change the medium impact rating in the analysis provided in Table 3.4-4. In addition, this information would not change the conclusion of the 2008 Final Program EIR that noise and vibration impacts in the San Jose to Central Valley Corridor would be significant under CEQA.

2.4 Role of Design Practices in Avoiding and Minimizing Effects

The role of design practices in avoiding and minimizing effects presented in the 2008 Final Program EIR, Section 3.4.4 remains accurate and unchanged. The reader is referred to that document for additional context.

2.5 Mitigation Strategies and CEQA Significance Conclusions

The following text in Section 3.4.5 on page 3.4-22 of the 2008 Final Program EIR has been revised with the text below.

Based on the analysis above, and considering the design practices described in Section 3.4.4, each of the HST Alignment Alternatives would have significant noise and vibration impacts, as detailed in Table 3.4-4.

The HST Alignment Alternatives would create significant long-term noise and vibration impacts from introduction of a new transportation system. At the same time, the HST Alignment Alternatives would create some long-term noise reduction benefits because noise sources would be eliminated with grade separation of existing grade crossings. It is possible that at the future project-level of analysis, refined data and information would confirm that some sections of the alignment alternatives would result in less-than-significant noise and vibration impacts (i.e., through the Transbay Tunnel); however, for purposes of the programmatic analysis, the long-term noise and vibration impacts are considered significant for all sections. In addition, the HST Alignment Alternatives would involve significant short-term noise and vibration impacts from construction.

As discussed above, the corridor between San Jose and the Central Valley includes implementation of the HST along Monterey Highway, and results in shifting the highway. This particular condition results in additional significant noise and vibration impacts that are unique to this corridor. The San Francisco to San Jose Corridor includes the potential for freight trains to be closer to existing adjacent land uses than currently. This particular condition is also unique to this corridor, however, it is subsumed within the prior analysis of noise effects, which were already considered to have significant noise and vibration impacts.

General mitigation strategies are discussed in this program-level review of potential noise impacts associated with proposed alternatives that would reduce the impacts. General vibration mitigation strategies are less predictable at a program level of analysis because of the site-specific nature of vibration transmission through soil along the alignment. More detailed mitigation strategies for potential noise and vibration impacts would be developed in the next stage of environmental analysis. State-of-the-art ~~N~~noise and vibration mitigation measures can generally be applied to the source (train and associated structures), the path (area between train and receiver), and/or the receiver (property or building). An HST system would be designed and developed to meet state-of-the-art technology specifications for noise and vibration, based on the desire to provide the highest-quality train service possible. Trains and tracks would be maintained in accordance with all applicable standards to provide reliable operations.

Treatments, such as sound insulation or vibration controls to affected buildings, can be effective at reducing noise impacts. Although such treatments may be difficult to implement for the potentially numerous properties adjacent to the right-of-way, and would require protracted implementation procedures and separate design considerations, they have potential to be appropriate in some circumstances. The most feasible and effective mitigation treatments are typically those involving blocking the line of sight. These mitigation measures can often be applied to the path within the right-of-way, either under or adjacent to the tracks. Potential noise impacts can be reduced substantially by the installation of sound barrier walls constructed to shield receivers from train noise. For vibration mitigation, several track treatments may be considered for reducing train vibrations. Determining the most appropriate treatment would depend on the site-specific ground conditions along the corridor. This program-level analysis has identified areas where future analysis should be given to potential HST-induced vibrations. The type of vibration mitigation and expected effectiveness will be determined as part of the second-tier project-level environmental analyses.

In accordance with Title 23 CFR 772, noise abatement is considered where traffic noise impacts are predicted in areas of frequent human use that would benefit from a lowered noise level. Potential noise abatement measures that are typically considered include the following: avoiding the impact by using horizontal and vertical design alternatives, constructing noise barriers, acquiring property to serve as a buffer zone, using traffic management measures to regulate types of vehicles and speeds, and acoustically insulating public-use or nonprofit institutional structures.

The following mitigation strategies for noise and vibration impacts associated with the shift of Monterey Highway and the potential to move freight train tracks closer to adjacent land uses are added to the end of Section 3.4.5:

A. NOISE BARRIERS FOR MONTEREY HIGHWAY

Noise barriers would be an effective strategy for mitigating Monterey Highway traffic noise as well as noise from the high-speed train. The location and height of potential barriers depends on the results of more detailed noise analysis and design. For Monterey Highway traffic noise impacts, the noise barrier may be located at the high-speed train right-of-way line, the roadway right-of-way line, or potentially at the private property line. Where existing property walls must be removed, such walls would be replaced at the appropriate locations to achieve noise reduction benefits.

B. BUILDING SOUND INSULATION

There may be circumstances where mitigation at the receiver is appropriate. As stated above, receiver mitigation such as building sound insulation or related treatments for individual properties may be difficult to implement. At the program level of analysis, this strategy is considered appropriate for continued consideration. It may be particularly relevant for consideration in areas along the shift of Monterey Highway and along the San Francisco Peninsula.

C. ACQUIRING PROPERTY TO SERVE AS A NOISE BUFFER ZONE

There may be limited circumstances where acquisition of property to service as a noise buffer may be appropriate. This strategy is considered appropriate for consideration as part of project-level environmental review.

D. TRAFFIC MANAGEMENT MEASURES FOR MONTEREY HIGHWAY

Develop traffic management measures, including vehicle speed limits and vehicle type limitations, for Monterey Highway. Work with the City of San Jose <u>and Santa Clara County</u> to establish appropriate traffic management measures to reduce Monterey Highway traffic noise.

<u>In addition to the above mitigation strategies, the Authority will consider vertical profile variations as part of second-tier project planning and environmental review, in consultation with local agencies.</u>

<u>Sound barriers close to HST vehicles can reduce noise by 6 to 10 dB, sound barriers at the right-of-way line 5-8 dB, and building sound insulation 5 to 15 dB. The effectiveness of noise easements would depend on the particular facts of each case.</u>

Consistent with the conclusions about noise and vibration in the 2008 Final Program EIR, the above mitigation strategies are expected to reduce to a less than significant level the noise impacts from shifting the Monterey Highway, as well as the noise impacts of the potential for freight trains on the Peninsula to be closer to nearby land uses. Vibration mitigation is less predictable at the program level of analysis, and therefore the vibration impacts are considered significant even with application of mitigation strategies. Additional environmental assessment would allow a more precise evaluation in the second-tier, project-level environmental documents.

2.6 Subsequent Analysis

The discussion of subsequent analysis presented in the 2008 Final Program EIR, Section 3.4.6 remains accurate and unchanged. The reader is referred to that document for additional context.

3 TRAFFIC, TRANSIT, CIRCULATION, AND PARKING IMPACT ANALYSIS

This chapter provides additional traffic analysis in two areas identified by the November 2011 *Town of Atherton* rulings. In the November 2011 rulings, the court held that the traffic analysis required further analysis in two areas: (1) traffic impacts associated with the loss of traffic lanes parallel to the Caltrain right-of-way in certain areas along the San Francisco Peninsula; and (2) traffic impacts from the narrowing of Monterey Highway from six lanes to four lanes for approximately 3.3 miles and impacts on surrounding streets resulting from the narrowing. The following new text addresses these areas, and adds to the 2008 Final Program EIR, Chapter 3.1. The information related to the narrowing of Monterey Highway supersedes the analysis in the 2010 Revised Final Program EIR. Additional analysis is also provided for the potential loss of traffic lanes along the Oakland to San Jose Corridor in the City of Hayward. Changes to text from the Partially Revised Draft Program EIR are shown with a bar in the margin; added text is noted with underlining and deleted text is noted with strikeout.

3.1 Regulatory Requirements and Methods of Evaluation (addition to Section 3.1.1 of 2008 Final Program EIR)

The methodology and CEQA significance criteria presented in the 2008 Final Program EIR, Section 3.1.1 remain accurate and unchanged. The reader is referred to that document for additional context. The following discussion adds to the discussion of methodology and clarifies the method of assessing environmental impacts for the potential loss of traffic lanes parallel to the Caltrain right-of-way in the San Francisco to San Jose Corridor and the narrowing of traffic lanes on Monterey Highway. The following text is an addition to Section 3.1.1 of the 2008 Final Program EIR.

A. POTENTIAL LOSS OF TRAFFIC LANES PARALLEL TO THE CALTRAIN RIGHT-OF-WAY ALONG THE SAN FRANCISCO PENINSULA

In a transportation context, a permanent impact occurs when the project's required right-of-way affects an adjacent roadway, such as when additional right-of-way is needed to provide sufficient width to physically accommodate the rail corridor. The permanent loss of roadway capacity can cause localized congestion, or can increase congestion on nearby roadways and intersections by causing a shift in traffic volume to parallel streets. A detailed traffic analysis identifying changes in local traffic patterns, intersection and roadway congestion, and construction-period road closures is not feasible at this stage of project development because the project design has not sufficiently progressed to determine these location-specific effects.

A number of roadways on the San Francisco Peninsula run directly alongside and adjacent to the existing Caltrain right-of-way. As it is anticipated that additional right-of-way would be required to construct and operate the four track configuration necessary to accommodate HST, Caltrain, and existing freight rail in the corridor, it is possible that lane closures may be required on limited segments of some of these roadways. For the level of design presently available, typical cross-section widths[1] were used to determine if lane closures were possible on these adjacent roadway segments. Data collected between 2008 ~~2009~~ and ~~December 2011~~March 2012 was used to analyze the existing conditions on roadways and intersections adjacent to the rail corridor. The Metropolitan Transportation Commission's (MTC) travel demand model for the 2009 update to the Regional Transportation Plan (RTP) was used to project the future (2035) traffic volumes for those same

[1] This typical section width ranges from 75 feet for anticipated at-grade sections to 95 feet for a 4-track trench section.

adjacent roadways and intersections (MTC Model). Potential impacts associated with these closures are provided in an analysis that considers:

- Loss of access to properties along the roadway segment due to lane reductions.
- Volume/Capacity (V/C) ratios on these roadway segments and whether they have capacity to absorb the loss of a lane or lanes.
- Existing V/C ratios on alternate routes that motorists may use if V/C ratios on the affected roadway segments fall below an acceptable level of service.
- The potential to affect intersection level of service (LOS) at intersections that would be directly affected by lane closures, or at nearby intersections that would be likely to receive traffic diverted from roads with lane closures.

The traffic analyses in this section use a dual baseline approach. That is, the HST project's traffic impacts are evaluated using two scenarios. The first compares against current conditions ("existing" vs. "existing plus HST"). The second scenario compares impacts between future year background conditions with and without the project ("2035 No Project" vs. "2035 plus HST").[2]

The final step was to consider and augment the mitigation strategies identified in section 3.1.5 of the 2008 Final Program EIR. Once the project design has reached a sufficient level of definition, the subsequent project-level environmental analysis will evaluate location-specific impacts and necessary mitigation measures more precisely.

B. POTENTIAL NARROWING OF TRAFFIC LANES ON MONTEREY HIGHWAY AND IMPACTS ON SURROUNDING STREETS

Additional analysis is provided to determine the effect of narrowing Monterey Highway in the San Jose to Central Valley Corridor. Monterey Highway is planned to be narrowed from six lanes to four lanes from Southside Drive to Blossom Hill Road, a distance of about 3.3 miles (as shown in Figure 2-2). The reduction of capacity on Monterey Highway may cause congestion on the highway, and may increase congestion on the surrounding street network by causing a shift in traffic from the highway to surrounding streets. This analysis considers both these aspects of the narrowing, and the difference in the methodologies used to evaluate each aspect are explained below. Santa Clara Valley Travel Demand Model (VTA Model) from Spring 2011 was used to model the effects of the narrowing on Monterey Highway and the surrounding street network. The model does not take into account the trips taken off the road network by travelers shifting to the HST service.

The dual baseline approach discussed above was also used for Monterey Highway. Traffic conditions on Monterey Highway with and without the proposed narrowing were analyzed. The data included the projected traffic operating conditions under existing, existing plus HST, 2035 No Project and 2035 plus HST conditions.[3] Impacts were determined by comparing the existing condition to existing plus HST condition and the 2035 No Project condition to the 2035 plus HST condition.

The traffic impacts that the HST project would have on the surrounding street network due to the narrowing of Monterey Highway are primarily dependent on two factors (1) traffic that is diverted from Monterey Highway to the surrounding street network due to the proposed narrowing and (2) traffic removed from this network because trips by automobile that would otherwise use the network

[2] The analysis in the 2008 Final Program EIR generally utilized the year 2030 to reflect future conditions and analyze project alternatives, including the No Project Alternative. The background conditions year used in this analysis of traffic impacts is 2035. The year 2030 continues to be referenced in this Partially Revised Draft Program EIR in some instances, and there are no significant differences in the level of major roadway improvements assumed to be in operation in 2035 as compared with 2030.

[3] Existing conditions as modeled by the VTA Model reflect conditions in the year 2010.

are diverted to the HST. These factors were considered together to determine the potential traffic impacts on the region. The VTA Model was used to determine the amount of traffic diverted to neighboring streets and the route choice of the diverted traffic. The model reassigns the diverted traffic to roadways where capacity exists, insofar as the model's determination of residual traffic capacity, volume to capacity ratios, and resulting estimates of link speeds. It is not possible to determine the precise route choice of the traffic diverted from Monterey Highway due to the narrowing. For the purposes of this study, and based on professional experience, the route choices of the diverted traffic as determined by the VTA model are used.

Based on the VTA model, roadway segments projected to be operating at LOS E or worse during existing and 2035 peak hours and projected to experience an increase or decrease in traffic (100 trips or more) with HST due to the narrowing, were identified. This effect was considered along with traffic reduction in regional roadways due to mode shift from automobiles to HST to determine the impacts on the street network.

Mitigation strategies were identified to augment those identified in Section 3.1.5 of the 2008 Final Program EIR specifically as it relates to impacts on Monterey Highway and the surrounding street network. Once the project design has reached a sufficient level of definition, the subsequent project-level environmental analysis will evaluate location-specific impacts and necessary mitigation measures more precisely.

C. POTENTIAL LOSS OF TRAFFIC LANES PARALLEL TO THE UPRR RIGHT-OF-WAY ALONG THE EAST BAY IN HAYWARD

Additional analysis is provided to determine the effect of the potential loss of a traffic lane on a limited stretch of roadway directly alongside and adjacent to the UPRR right-of-way in Hayward along the Oakland to San Jose Corridor. Additional right-of-way would be required to accommodate HST if UPRR right-of-way were unavailable. For the level of design presently available, typical cross-section widths were used to determine if a lane closures were possible.[4]

D. CEQA SIGNIFICANCE CRITERIA

Under CEQA, a proposed project should be analyzed for the potential effects listed below (California Department of Transportation 2003).

- An increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the V/C, or congestion at intersections).
- Either individually or cumulatively exceeding an LOS standard established by the county congestion management agency for designated roads or highways.
- A substantial increase in hazards attributable to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Inadequate parking capacity.
- Inadequate emergency access.
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).
- Rail, waterborne, or air traffic impacts.

[4] Refer to Figure 3-2a of the 2010 Revised Final Program EIR.

Under CEQA, the proposed project would have a significant impact related to transportation and traffic if the project would result in:

- Substantial increase in traffic on roadways that exceeds the V/C.
- Substantial interference with goods movement.
- Substantial interference with or lack of connectivity with other transit systems. [5]

3.2 Affected Environment (addition to Section 3.1.2 of 2008 Final Program EIR)

The affected environment presented in the 2008 Final Program EIR, Section 3.1.2 remains accurate and unchanged. The reader is referred to that document for additional context. The following text is an addition to Section 3.1.2 of the 2008 Final Program EIR.

A. POTENTIAL LOSS OF TRAFFIC LANES PARALLEL TO THE CALTRAIN RIGHT-OF-WAY ALONG THE SAN FRANCISCO PENINSULA

This corridor includes the areas on the west side of the San Francisco Bay along the Caltrain rail line, from the city of San Francisco to the city of San Jose. This is a highly urbanized area with higher density land uses surrounding the corridor that generates high volumes of regional and local automobile traffic on freeways, state highways, and on local roads.

The major intercity highway links in the corridor are the US 101 freeway links. Some freeway links in this corridor are very congested, operating at LOS E in generalized peak hour in the peak direction. This congestion extends to the local road network and many intersections in the area function at a relatively poor level of service, with long delays at traffic signals and high V/C ratios. In many areas along the corridor there are parallel roadways that flank the existing Caltrain right-of-way and many roads that cross the corridor, either at-grade at controlled (gated) crossings, or using grade-separated structures such as over and undercrossing. The level of service of these parallel and crossing roads and associated intersections varies greatly with many operating under free-flowing traffic conditions, and others that are affected by the peak hour congestion that is common in the region.

B. POTENTIAL NARROWING OF TRAFFIC LANES ON MONTEREY HIGHWAY AND IMPACTS ON SURROUNDING STREETS

Monterey Highway is a segment of El Camino Real, the original trail developed by Spanish missionaries to link the California missions in the 18th and 19th centuries. As California developed, so did Monterey Highway. This history is reflected in its design.

Monterey Highway was the original route of US 101 and some portions carried this designation until the early 1980s. Until the late 1940s, US 101 followed Monterey Highway all the way from Gilroy to downtown San Jose. In the late 1940s, a bypass of San Jose was built, starting at what is now Blossom Hill Road. In the early 1970s, a bypass was built from south of Gilroy to Cochrane Road in Morgan Hill. In the early 1980s, US 101 was completed between Blossom Hill Road and Cochrane Road and widened to its present eight lanes in the 1990s.

[5] Inadequate parking capacity, addressed in the 2008 Final Program EIR, was removed from Appendix G of the CEQA Guidelines in 2010. Inadequate parking is no longer considered an environmental impact per se. Rather, this issue only falls within the purview of CEQA if there is substantial evidence that a significant secondary environmental impact may occur as a result of an identified lack of parking. Parking issues fall outside the scope of environmental review and are not required to be addressed as part of this Partially Revised Draft Program EIR. Parking demand and availability is considered part of the overall traffic congestion analysis as discussed below.

Each of the US 101 projects diverted traffic off Monterey Highway, so that currently the highway carried carries much less traffic than it was originally designed to support. As it was used as an original route for US 101, Monterey Highway is wider than an average arterial. The width of the six-lane portion of Monterey Highway from South side Drive to Blossom Hill Road varies from 105 to 125 feet, including outside shoulders. The existing peak hour roadway LOS along Monterey Highway, between Southside Drive in southern San Jose and Bailey Road near Morgan Hill, varies mostly between A and C, showing uncongested conditions even during peak hours in most locations.[6] However, in a few locations, the LOS degrades to LOS D during peak hours, denoting delays and some traffic backup.

No portion of Monterey Highway exists as a freeway; therefore, travel speeds are limited. US 101, which runs parallel to Monterey Highway, tends to provide a faster north/south travel alternative, even during peak travel times, and hence serves to divert some traffic from Monterey Highway.

C. POTENTIAL LOSS OF TRAFFIC LANES PARALLEL TO THE UPRR RIGHT-OF-WAY ALONG THE EAST BAY IN HAYWARD

The Oakland to San Jose Corridor includes the areas on the east side of San Francisco Bay along I-880 from the City of Oakland to the City of San Jose. The area of potential lanes closures in the City of Hayward is bounded by East A Street, East Winton Avenue, and the UPRR right-of-way which operates freight traffic and also Amtrak Capitol Corridor passenger service. The areas immediately east and west of UPRR include newer residential development with local streets providing access.

3.3 Environmental Consequences (addition to Section 3.1.3 of 2008 Final Program EIR)

The environmental consequences discussion presented in the 2008 Final Program EIR, Section 3.1.3 remains accurate and unchanged. The reader is referred to that document for additional context. The following text is an addition to Section 3.1.3 of the 2008 Final Program EIR.

A. POTENTIAL LOSS OF TRAFFIC LANES PARALLEL TO THE CALTRAIN RIGHT-OF-WAY ALONG THE SAN FRANCISCO PENINSULA

No Project Alternative

The programmed or funded major roadway improvements assumed to be in operation by 2030 include some capacity improvements to improve regional circulation and individual interchange function but generally no systemwide capacity improvements (e.g., major new highway construction) and would not result in a general improvement or stabilization of conditions of existing highways across the study area. Smaller local projects involving improvements to local roadways, intersections, and bicycle and pedestrian routes are generally not included in the 2030 No Project Alternative as these items are not programmed many years in advance. Many of these local projects would occur over the project study area and most of them would be related to the traffic generated by nearby development (such as a new traffic signal for a development). It is anticipated that these local improvements would have little or no impact on regional travel demand or capacity.

High-Speed Train Alternative

The HST corridor on the San Francisco Peninsula may impact adjacent roadways by requiring right-of-way from public streets to accommodate the HST project with existing Caltrain and freight service. If existing roadway capacity is removed, it could result in impacts that include additional traffic congestion during peak travel times, loss of on-street parking used by adjacent residents and businesses, changes in circulation patterns, and street closures. The potential lane closures

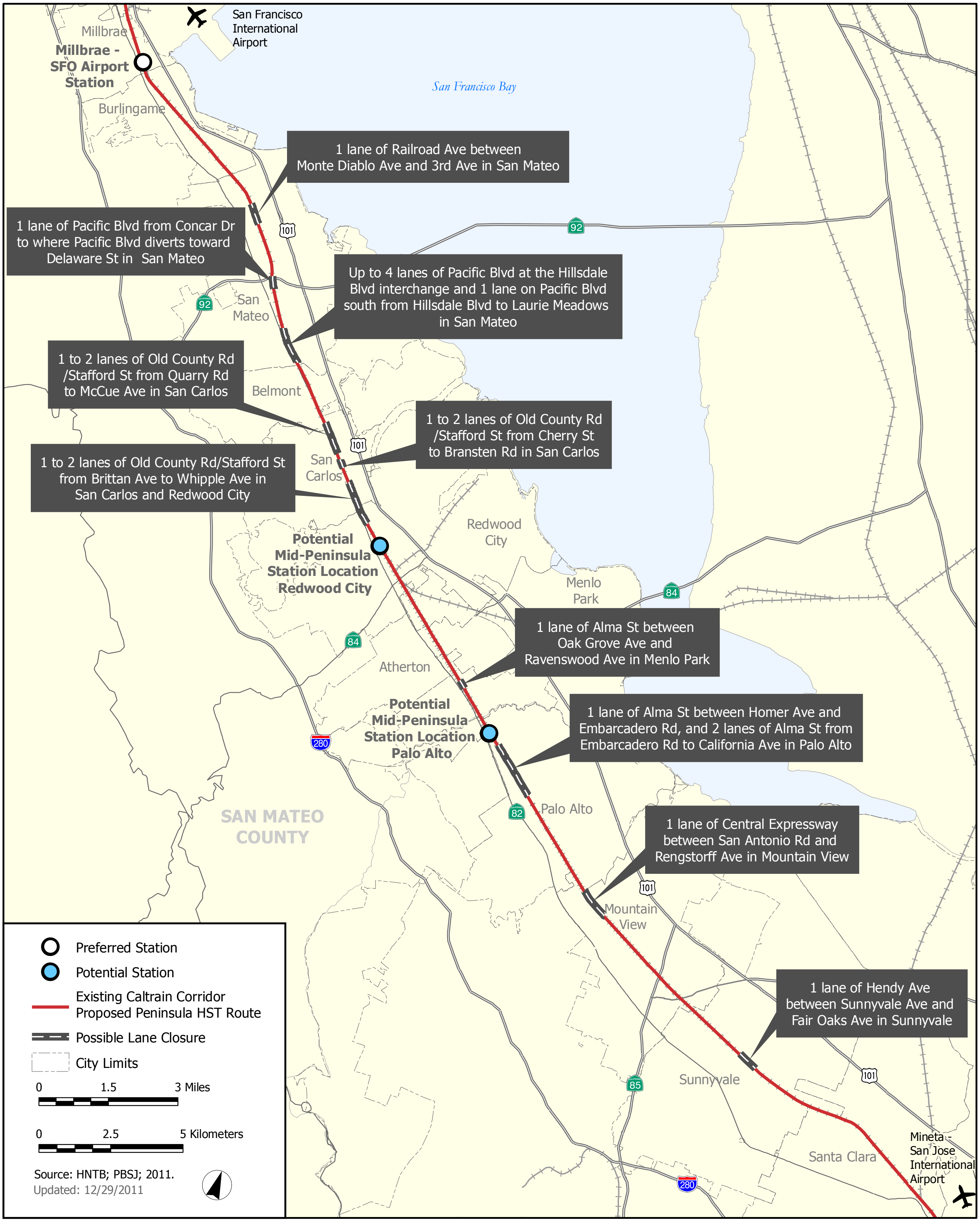
[6] VTA, Spring 2011.

discussed in this analysis include all possible closures identified with the available level of design. Through design modifications at the project EIR level, some of the closures assumed for this analysis may actually not be required. However, the following is provided as a conservative evaluation of the potential impacts of the HST project on adjacent streets due to removal of existing traffic lanes. Eight potential lane reductions along the following roadway segments were identified and are shown in Figure 3-1:

- One lane of Railroad Avenue between Monte Diablo and 3rd Avenue, in San Mateo, approximately 0.47 mile in length.
- One lane of Pacific Boulevard from Concar Drive to where the Pacific Boulevard alignment diverts from the railroad corridor toward Delaware Street, in San Mateo, approximately 0.27 mile in length.
- Up to four lanes of Pacific Boulevard at the Hillsdale Boulevard Interchange and one lane on Pacific Boulevard south from Hillsdale Boulevard to Laurie Meadows Drive, in San Mateo, approximately 0.81 mile in length.
- One to two lanes of Old County Road/Stafford Street from Quarry Road to McCue Avenue, from Cherry Street to Bransten Road, and from Brittan Avenue to Whipple Avenue, in San Carlos and Redwood City, approximately 1.91 miles in length from Quarry Road to Whipple Avenue.
- One lane of Alma Street between Oak Grove Avenue and Ravenswood Avenue, in Menlo Park, approximately 0.20 mile in length.
- One lane of Alma Street between Homer Avenue and Embarcadero Road and two lanes on Alma Street from Embarcadero Road to California Avenue, in Palo Alto, approximately 1.28 miles in length.
- One lane of Central Expressway between San Antonio Road and Rengstorff Avenue, in Mountain View, approximately 0.69 mile in length.
- One lane of Hendy Avenue between Sunnyvale Avenue and Fair Oaks Avenue, in Sunnyvale, approximately 0.46 mile in length.

This reduction in lanes may result in circulation, access, or parking impacts. Some of these impacts could include complete closure of streets with circulation diverted to surrounding roadways; conversion of two-way streets to one-way streets; increasing congestion and reduced levels of service as discussed below; changes to adjacent on-street bicycle facilities; limitations or elimination of access to some parcels; requirements for new frontage roads or new access routes; and reduction in on-street parking which could have secondary impacts related to land use viability. In some locations, there could be land use implications (acquisitions) resulting from mitigation for circulation and parking impacts.

For purposes of this programmatic analysis, and in light of the corridor being evaluated as a whole at the program level, an analysis of the potential traffic impacts for each of the eight potential lane reductions was conducted and is provided below. This analysis was based on AM (morning) and PM (evening) peak hour V/C and LOS calculations. The typical weekday AM and PM peak hours generally carry a greater amount of traffic than any other time period and are used to determine project impacts. ~~as PM peak conditions are generally more impacted than AM (morning) peak hour conditions in this region.~~ Table 3-1a ~~and~~ through Table 3-1d ~~1b~~ summarize the findings of the lane



CALIFORNIA
High-Speed Rail Authority

Figure 3-1
San Francisco to San Jose Possible Lane Closures
Bay Area to Central Valley HST Partially Revised Final Program EIR

closure analysis using the dual baseline approach discussed above (existing vs. existing plus HST, and 2035 No Project vs. 2035 plus HST).[7]

The analysis identified that the loss of parallel lanes in limited areas along the San Francisco to San Jose Corridor has the potential to cause ~~significant~~ traffic congestion at a number of intersections, such that this increased congestion would be considered a significant impact~~s~~.[8] As indicated in Table 3-1a, when comparing the existing conditions to existing conditions plus HST in the AM peak hour, there would be a significant increase in traffic congestion at the Churchill Avenue/Alma Street intersection. When comparing the anticipated AM peak hour future condition in 2035 without HST to the future condition in 2035 plus HST in Table 3-1b, there would be an increase in traffic congestion at a second intersection as well, Page Mill Road/El Camino Real. ~~the impact would be limited to the Ravenswood Avenue/Alma Street intersection (due to the loss of one traffic lane on Alma Street~~

In the PM peak hour, the congestion impact would be limited to two intersections, Ravenswood Avenue/Alma Street and Churchill Avenue/Alma Street, for existing conditions versus existing conditions plus HST (Table 3-1c). When comparing the anticipated future condition in 2035 without HST to the future condition in 2035 plus HST ~~in~~ (Table 3-1d~~b~~), there would be a significant increase in traffic congestion at ~~number of areas experiencing a significant traffic congestion impact increases as a result of four areas of lane closures to include seven~~ eight intersections: Hillside Boulevard/El Camino Real ramps (northbound and southbound), Brittan Avenue/El Camino Real, Howard Avenue/El Camino Real, Ravenswood Avenue/Alma Street, Embarcadero Road/El Camino Real, Churchill Avenue/Alma Street, and Page Mill Road/El Camino Real.

For purposes of this programmatic analysis, and in light of the corridor being evaluated as a whole at the program level, this increase in ~~impact is considered a new significant~~ traffic congestion is considered a new significant impact for the San Francisco to San Jose Corridor, even though the impact is limited to certain areas. However, if design refinement (at the project level) avoids these lane closures, impacts could be avoided and mitigation may not be required.

B. POTENTIAL TRAFFIC IMPACTS FROM THE NARROWING OF MONTEREY HIGHWAY FROM SIX TO FOUR LANES AND IMPACTS ON SURROUNDING STREETS

No Project Alternative

As discussed above in the Affected Environment, peak hour roadway LOS along Monterey Highway in the San Jose to Central Valley Corridor under existing conditions, without HST, shows mostly uncongested (LOS A and C) conditions, with a few locations at LOS D, denoting delays and some traffic backup. Preliminary projections for year 2035 evening peak-hour volumes along Monterey Highway, without HST, between Southside Drive and Bailey Road, indicate that traffic volumes are expected to be higher in the southbound direction than in the northbound direction, leading to LOS E or F, showing congested travel conditions in the corridor. In the northbound direction, approximately 60% of the Monterey Highway corridor is projected to operate under LOS C or better, showing mostly uncongested travel conditions. Many major roadways surrounding this stretch of Monterey Highway operate at LOS E or worse under the No Project Alternative.

[7] All diverted traffic from these lane closures is assumed to be diverted to other local roads, which have been assessed for impacts. No trip reductions have been included for mode diversions from automobile to HST, as it is assumed that the majority of these trips are closely tied to nearby and adjacent land use. This represents the most conservative scenario.

[8] To the extent any projected loss of parking from these lane closures increases or decreases traffic congestion, the lane closure analysis has taken into account projected loss of parking in determining the level of traffic impacts, as well as taking into account all other impacts of the lane closures as discussed above. In some instances, as shown in the tables~~Tables 3-1a and 3-1b~~, service is projected to improve with the project, based on changes in circulation patterns or future traffic improvements.

High-Speed Train Alternative

As discussed above in the Affected Environment, Monterey Highway in the San Jose to Central Valley Corridor is six lanes wide for approximately six miles from Hollywood Avenue to south of Blossom Hill Road, and four lanes wide south of Blossom Hill Road. Monterey Highway from approximately Southside Drive to south of Blossom Hill Road (approximately 3.3 miles) is proposed to be narrowed from six lanes to four lanes to provide a cost-effective right-of-way corridor for HST by minimizing property acquisition along the HST alignment. The San Jose Envision 2040 General Plan update was adopted by the City Council in November 2011, which made the modification of Monterey Highway official City policy. In addition, the City and Caltrans are pursuing relinquishment of portions of Monterey Highway (State Route 82) in San Jose, from the jurisdiction of Caltrans to the City of San Jose, to further facilitate any corridor modifications necessitated by the ongoing development of the HST project.

The reduction of lanes on a portion of Monterey Highway, together with HST, may create traffic impacts to Monterey Highway itself, as discussed immediately below. In addition, the narrowing of the Monterey Highway and HST may have traffic impacts on the local street network. These latter impacts, also discussed below, are considered along with the impacts of the mode shift from automobile to HST.

Effects of the Narrowing on Monterey Highway

With the reduction of lanes on a portion of Monterey Highway, traffic congestion on the Monterey Highway itself is projected to increase slightly in both directions. The VTA Model (Spring 2011) was used for conducting this analysis. The assumptions of this forecast consider a base scenario with Monterey Highway being six lanes from Southside Drive to south of Blossom Hill Road, and a project scenario with four lanes on Monterey Highway for this section. The forecast does not incorporate the mode shift to HST, and therefore represents a conservative scenario.

As shown in Table 3-2a, analyzing existing vs. existing plus HST conditions, traffic on this stretch of Monterey Highway peaks northbound during the morning peak hour and southbound during the evening peak hour. All segments of Monterey Highway between Southside Drive and Bailey Road operate at LOS D or better during existing peak hours, without the narrowing. Even with the narrowing, only two segments of Monterey Highway (between Capitol Expressway and Senter Road, and Senter Road and Branham Lane) are projected to degrade by one level of service to LOS E in the northbound direction during the morning peak hour. These potential impacts are significant. All other segments are projected to operate at LOS D or better, during both peak hours in both directions.

In 2035, even without the narrowing, two to four of the eight segments of Monterey Highway presented in Table 3-2b are projected to operate at LOS E or worse depending on the peak hour and travel direction. With the narrowing, one to five of the eight segments are projected to have potentially significant impacts, depending on the peak hour and travel direction.[9] Thus, the narrowing of Monterey Highway is considered a new significant traffic impact for this specific 3.3 mile segment of Monterey Highway.

[9] These impacts are based on modeling conducted using the VTA's latest model as of Spring 2011 and hence are different from the impacts presented in the 2010 Revised Final Program EIR, which used an earlier version of the VTA model.

Table 3-1a
San Francisco to San Jose High Speed Train Corridor
Possible Lane Closures Existing Conditions Scenario Analysis
AM Peak Hour Levels of Service and Vehicle Delay

Potential Lane Reductions and Segments and Intersections Analyzed	Existing[1]		Existing + HST		Existing to Existing +HST Impact*
	LOS	Delay or V/C	LOS	Delay or V/C	
1 lane of Pacific Blvd. from Concar Dr. to where the Pacific Blvd. alignment diverts from the railroad corridor					
19th Ave/Pacific Blvd	A	7.3	A	0	LTS
19th Ave/Delaware St	C	26.1	C	26.3	LTS
Pacific Blvd/Delaware St	B	14.3	B	14.2	LTS
Up to 4 lanes of Pacific Blvd. at the Hillsdale Blvd. Interchange and 1 lane on Pacific Blvd. south from Hillsdale Blvd. to Laurie Meadows Dr.#					
Hillsdale Blvd WB Ramps/Pacific Blvd	A	8.3	NA	NA	NA
Hillsdale Blvd EB Ramps/Pacific Blvd	A	8.7	NA	NA	NA
Hillsdale Blvd/Pacific Blvd (at-grade)	NA	NA	C	28.3	LTS
Hillsdale Blvd/El Camino Real NB Ramps	D	39.5	D	37.6	LTS
Hillsdale Blvd/El Camino Real SB Ramps	C	34.2	C	31.4	LTS
42nd Ave/Pacific Blvd	C	32.7	B	18.3	LTS
42nd Ave/El Camino Real	C	30.2	C	27.9	LTS
1 to 2 lanes of Old County Rd. and Stafford St. from Quarry Rd. to McCue Ave., from Cherry St. to Bransten Rd., and from Brittan Ave. to Whipple Ave.					
Harbor Blvd/Old County Rd	C	25.6	C	26.1	LTS
Harbor Blvd/El Camino Real	B	19.7	C	21.5	LTS
Holly St/Old County Rd	C	34.7	C	29.6	LTS
Holly St/El Camino Real	D	36.4	D	39.5	LTS
Brittan Ave/Old County Rd	C	27.3	C	27.5	LTS
Brittan Ave/El Camino Real	D	37.6	D	40.6	LTS
Howard Ave/Old County Rd	C	24.5	C	23.4	LTS
Howard Ave/El Camino Real	C	30.7	C	34.6	LTS
Whipple Ave/El Camino Real	C	34.7	D	36	LTS
Whipple Ave/Stafford St	B	11.4	A	0	LTS
1 traffic lane on Alma St. between Oak Grove Ave. and Ravenswood Ave.					
Oak Grove Ave/Alma St	B	14.7	A	8.3	LTS
Oak Grove Ave/El Camino Real	C	28.5	C	28.3	LTS
Ravenswood Ave/Alma St	D	31.5	D	31.6	LTS
Ravenswood Ave/El Camino Real	D	39.6	D	39.5	LTS

Potential Lane Reductions and Segments and Intersections Analyzed	Existing[1]		Existing + HST		Existing to Existing +HST Impact*
	LOS	Delay or V/C	LOS	Delay or V/C	
1 traffic lane of Alma St. between Homer Ave. to Embarcadero Rd. and 2 traffic lanes on Alma St. from Embarcadero Rd. to California Ave.					
University Ave / El Camino Real NB Ramps [East]	B	14.2	C	23.9	LTS
Palm Dr / El Camino Real SB Ramps [West]	C+	21.3	C+	21.9	LTS
Homer Ave/Alma St	A	6.8	A	6.5	LTS
Embarcadero Rd/El Camino Real	D	39.2	D	39.1	LTS
Churchill Ave/Alma St	D	42.0	E+	55.8	**S**
Page Mill Rd/El Camino Real	D	50.6	E-	76	LTS
1 lane of Central Expressway between San Antonio Rd. and Rengstorff Ave.					
SB Central Expy between San Antonio Rd and Rengstorff Ave	A	833/3800** = 0.22	A	833/1900 = 0.44	LTS
1 lane of Hendy Ave. between Sunnyvale Ave. and Fair Oaks Ave.					
Sunnyvale Ave/Hendy Ave	B+	11.7	B+	11.6	LTS
Sunnyvale Ave/Evelyn Ave	C	30.9	C	30.8	LTS
Fair Oaks Ave/Evelyn Ave	C	24.8	C	26.7	LTS

* Project Impact: LTS (less than significant); S (significant)

[#] A loss of four lanes of Pacific Blvd at the Pacific Blvd/Hillsdale Blvd interchange would eliminate the interchange. It is assumed that the interchange will be rebuilt as an at-grade intersection further east, and thus the existing + project for the rebuilt, at-grade intersection is compared with existing conditions for the current interchange.

** Assumed base capacity per lane is 1900 vph.

Notes:

1. The existing traffic volumes used in the analysis were collected in 2008, 2009, 2010, and 2012.
2. Traffic re-routing to represent possible lane closures were determined by AECOM. A conservative approach was employed to shift diverted traffic onto the most likely parallel facility rather than disperse the diverted traffic to several parallel facilities. This approach increased the likelihood of identifying a significant impact as a result of the possible lane closures.
3. Intersection Delay, V/C, and Level of Service were determined using the TRAFFIX 8.0 computer program. TRAFFIX is a commonly used software package in the Bay Area and is consistent with the procedures of the Highway Capacity Manual.

Table 3-1b
San Francisco to San Jose High Speed Train Corridor
Possible Lane Closures 2035 Baseline Scenario Analysis
AM Peak Hour Levels of Service and Vehicle Delay

Potential Lane Reductions and Segments and Intersections Analyzed	2035 No Project[1]		2035 + HST		2035 No Project to + HST Impact*
	LOS	Delay or V/C	LOS	Delay or V/C	
1 lane of Pacific Blvd. from Concar Dr. to where the Pacific Blvd. alignment diverts from the railroad corridor					
19th Ave/Pacific Blvd	A	7.3	A	0	LTS
19th Ave/Delaware St	C	28.4	C	28.7	LTS
Pacific Blvd/Delaware St	C	15.6	C	15.5	LTS
Up to 4 lanes of Pacific Blvd. at the Hillsdale Blvd. Interchange and 1 lane on Pacific Blvd. south from Hillsdale Blvd. to Laurie Meadows Dr. #					
Hillsdale Blvd WB Ramps/Pacific Blvd	A	8.8	NA	NA	NA
Hillsdale Blvd EB Ramps/Pacific Blvd	A	9.5	NA	NA	NA
Hillsdale Blvd/Pacific Blvd (at-grade)	NA	NA	C	31.4	LTS
Hillsdale Blvd/El Camino Real NB Ramps	D	46.2	D	46.6	LTS
Hillsdale Blvd/El Camino Real SB Ramps	C	34.2	C	32	LTS
42nd Ave/Pacific Blvd	D	36.5	B	18.3	LTS
42nd Ave/El Camino Real	C	32.2	C	29.7	LTS
1 to 2 lanes of Old County Rd. and Stafford St. from Quarry Rd. to McCue Ave., from Cherry St. to Bransten Rd., and from Brittan Ave. to Whipple Ave.					
Harbor Blvd/Old County Rd	C	26.1	C	27.6	LTS
Harbor Blvd/El Camino Real	C	21.1	C	23.1	LTS
Holly St/Old County Rd	D	40.3	D	40.3	LTS
Holly St/El Camino Real	D	40.1	D	45.5	LTS
Brittan Ave/Old County Rd	C	28.1	C	30.2	LTS
Brittan Ave/El Camino Real	D	40.1	D	46.3	LTS
Howard Ave/Old County Rd	C	24.4	C	23.7	LTS
Howard Ave/El Camino Real	C	31.2	D	37.5	LTS
Whipple Ave/El Camino Real	D	41.6	D	44.6	LTS
Whipple Ave/Stafford St	B	12.3	A	0	LTS

Potential Lane Reductions and Segments and Intersections Analyzed	2035 No Project[1]		2035 + HST		2035 No Project to + HST Impact*
	LOS	Delay or V/C	LOS	Delay or V/C	
1 traffic lane on Alma St. between Oak Grove Ave. and Ravenswood Ave.					
Oak Grove Ave/Alma St	C	16.6	A	8.6	LTS
Oak Grove Ave/El Camino Real	C	29.8	C	29.5	LTS
Ravenswood Ave/Alma St	E	40.8	E	42.5	LTS
Ravenswood Ave/El Camino Real	D	46.6	D	46.4	LTS
1 traffic lane of Alma St. between Homer Ave. to Embarcadero Rd. and 2 traffic lanes on Alma St. from Embarcadero Rd. to California Ave.					
University Ave / El Camino Real NB Ramps [East]	B	15.8	C	30.8	LTS
Palm Dr / El Camino Real SB Ramps [West]	C+	21.4	C+	22.2	LTS
Homer Ave/Alma St	A	7.4	A	6.9	LTS
Embarcadero Rd/El Camino Real	D	46.5	D	49.5	LTS
Churchill Ave/Alma St	E+	55.7	F	89.5	**S**
Page Mill Rd/El Camino Real	E-	79.3	F	132.6	**S**
1 lane of Central Expressway between San Antonio Rd. and Rengstorff Ave.					
SB Central Expy between San Antonio Rd and Rengstorff Ave	A	1032/3800** = 0.27	A	1032/1900 = 0.54	LTS
1 lane of Hendy Ave. between Sunnyvale Ave. and Fair Oaks Ave.					
Sunnyvale Ave/Hendy Ave	B+	11.8	B+	11.7	LTS
Sunnyvale Ave/Evelyn Ave	C	31.6	C	31.4	LTS
Fair Oaks Ave/Evelyn Ave	C	26.2	C	28.6	LTS

* Project Impact: LTS (less than significant); S (significant)

\# A loss of four lanes of Pacific Blvd at the Pacific Blvd/Hillsdale Blvd interchange would eliminate the interchange. It is assumed that the interchange will be rebuilt as an at-grade intersection further east, and thus the 2035 Plus Project conditions for the rebuilt, at-grade intersection is compared with 2035 Baseline conditions for the current interchange.

** Assumed base capacity per lane is 1900 vph.

Notes:

1. The existing traffic volumes used in the analysis were collected in 2008, 2009, 2010, and 2012.
2. The future traffic projections were obtained from the MTC Regional Travel Demand Model. These projections were post-processed by AECOM to arrive at future intersection turning movement volumes.
3. Traffic re-routing to represent possible lane closures were determined by AECOM. A conservative approach was employed to shift diverted traffic onto the most likely parallel facility rather than disperse the diverted traffic to several parallel facilities. This approach increased the likelihood of identifying a significant impact as a result of the possible lane closures.
4. Intersection Delay, V/C, and Level of Service were determined using the TRAFFIX 8.0 computer program. TRAFFIX is a commonly used software package in the Bay Area and is consistent with the procedures of the Highway Capacity Manual.

Table 3-~~1a~~ 1c
San Francisco to San Jose High Speed Train Corridor
Possible Lane Closures Existing Conditions Scenario Analysis
PM Peak Hour Levels of Service and Vehicle Delay

Potential Lane Reductions and Segments and Intersections Analyzed	Existing[1]		Existing + HST		Existing to Existing +HST Impact*
	LOS	Delay or V/C	LOS	Delay or V/C	
1 lane of Pacific Blvd. from Concar Dr. to where the Pacific Blvd. alignment diverts from the railroad corridor					
19th Ave/Pacific Blvd	A	7.3	A	0.0	LTS
19th Ave/Delaware St	C	28.3	C	28.6	LTS
Pacific Blvd/Delaware St	C	16.5	C	16.6	LTS
Up to 4 lanes of Pacific Blvd. at the Hillsdale Blvd. Interchange and 1 lane on Pacific Blvd. south from Hillsdale Blvd. to Laurie Meadows Dr.#					
Hillsdale Blvd WB Ramps/Pacific Blvd	A	8.9	NA	NA	NA
Hillsdale Blvd EB Ramps/Pacific Blvd	A	8.8	NA	NA	NA
Hillsdale Blvd/Pacific Blvd (at-grade)	NA	NA	C	26.6	LTS
Hillsdale Blvd/El Camino Real NB Ramps	D	43.1	D	44.7	LTS
Hillsdale Blvd/El Camino Real SB Ramps	D	37.4	D	43.9	LTS
42nd Ave/Pacific Blvd	D	44.2	C	21.5	LTS
42nd Ave/El Camino Real	C	31.4	C	28.4	LTS
1 to 2 lanes of Old County Rd. and Stafford St. from Quarry Rd. to McCue Ave., from Cherry St. to Bransten Rd., and from Brittan Ave. to Whipple Ave.					
Harbor Blvd/Old County Rd	C	25.2	C	27.1	LTS
Harbor Blvd/El Camino Real	C	~~27.6~~ 26.2	C	~~28.3~~ 26.8	LTS
Holly St/Old County Rd	D	43.5	C	34.4	LTS
Holly St/El Camino Real	C	34.8	D	37.2	LTS
Brittan Ave/Old County Rd	C	33.2	D	36.3	LTS
Brittan Ave/El Camino Real	D	~~48.2~~ 38.7	D	~~54.9~~ 44.7	LTS
Howard Ave/Old County Rd	C	32.2	C	34.0	LTS
Howard Ave/El Camino Real	C	32.5	D	38.3	LTS
Whipple Ave/El Camino Real	D	39.3	D	40.5	LTS
Whipple Ave/Stafford St	B	14.1	A	0.0	LTS
1 traffic lane on Alma St. between Oak Grove Ave. and Ravenswood Ave.					
Oak Grove Ave/Alma St	C	18.1	B	12.4	LTS
Oak Grove Ave/El Camino Real	C	30.8	C	29.9	LTS
Ravenswood Ave/Alma St	F	77.9	F	108.0	**S**
Ravenswood Ave/El Camino Real	D	45.2	D	45.8	LTS

Potential Lane Reductions and Segments and Intersections Analyzed	Existing[1]		Existing + HST		Existing to Existing +HST Impact*
	LOS	Delay or V/C	LOS	Delay or V/C	
1 traffic lane of Alma St. between Homer Ave. to Embarcadero Rd. and 2 traffic lanes on Alma St. from Embarcadero Rd. to California Ave.					
University Ave / El Camino Real NB Ramps [East]	C+	21.2	C	28.1	LTS
Palm Dr / El Camino Real SB Ramps [West]	C	24.4	C	29.1	LTS
Homer Ave/Alma St	B+	11.4	A	9.9	LTS
Embarcadero Rd/El Camino Real	D	48.7	E	60.4	LTS
Churchill Ave/Alma St	~~C~~ E+	~~25.0~~ 56.4	~~C~~ E	~~32.6~~ 72.6	~~LTS~~ **S**
Page Mill Rd/El Camino Real	D	49.1	E	63.2	LTS
1 lane of Central Expressway between San Antonio Rd. and Rengstorff Ave.					
SB Central Expy between San Antonio Rd and Rengstorff Ave	A	1330/3800** = 0.35	B	1330/1900 = 0.70	LTS
1 lane of Hendy Ave. between Sunnyvale Ave. and Fair Oaks Ave.					
Sunnyvale Ave/Hendy Ave	B	13.4	B	12.2	LTS
Sunnyvale Ave/Evelyn Ave	C-	32.2	C-	32.2	LTS
Fair Oaks Ave/Evelyn Ave	C	28.1	C	29.5	LTS

* Project Impact: LTS (less than significant); S (significant)

\# A loss of four lanes of Pacific Blvd at the Pacific Blvd/Hillsdale Blvd interchange would eliminate the interchange. It is assumed that the interchange will be rebuilt as an at-grade intersection further east, and thus the 2035 Plus Project conditions for the rebuilt, at-grade intersection is compared with 2035 Baseline conditions for the current interchange.

** Assumed base capacity per lane is 1900 vph.

Notes:

1. The existing traffic volumes used in the analysis were collected in 2009, 2010, ~~and~~ 2011, and 2012
2. Traffic re-routing to represent possible lane closures were determined by AECOM. A conservative approach was employed to shift diverted traffic onto the most likely parallel facility rather than disperse the diverted traffic to several parallel facilities. This approach increased the likelihood of identifying a significant impact as a result of the possible lane closures.
3. Intersection Delay, V/C, and Level of Service were determined using the TRAFFIX 8.0 computer program. TRAFFIX is a commonly used software package in the Bay Area and is consistent with the procedures of the Highway Capacity Manual.

Table 3-~~1b~~ 1d
San Francisco to San Jose High Speed Train Corridor
Possible Lane Closures 2035 Baseline Scenario Analysis
PM Peak Hour Levels of Service and Vehicle Delay

Potential Lane Reductions and Segments and Intersections Analyzed	2035 No Project[1]		2035 + HST		2035 No Project to + HST Impact*
	LOS	Delay or V/C	LOS	Delay or V/C	
1 lane of Pacific Blvd. from Concar Dr. to where the Pacific Blvd. alignment diverts from the railroad corridor					
19th Ave/Pacific Blvd	A	7.3	A	0.0	LTS
19th Ave/Delaware St	C	32.5	C	33.3	LTS
Pacific Blvd/Delaware St	C	21.3	C	20.8	LTS
Up to 4 lanes of Pacific Blvd. at the Hillsdale Blvd. Interchange and 1 lane on Pacific Blvd. south from Hillsdale Blvd. to Laurie Meadows Dr. #					
Hillsdale Blvd WB Ramps/Pacific Blvd	A	9.5	NA	NA	NA
Hillsdale Blvd EB Ramps/Pacific Blvd	A	9.3	NA	NA	NA
Hillsdale Blvd/Pacific Blvd (at-grade)	NA	NA	C	30.9	LTS
Hillsdale Blvd/El Camino Real NB Ramps	D	48.8	E	64.4	**S**
Hillsdale Blvd/El Camino Real SB Ramps	D	39.4	E	75.0	**S**
42nd Ave/Pacific Blvd	E	68.9	C	22.9	LTS
42nd Ave/El Camino Real	D	37.5	C	34.0	LTS
1 to 2 lanes of Old County Rd. and Stafford St. from Quarry Rd. to McCue Ave., from Cherry St. to Bransten Rd., and from Brittan Ave. to Whipple Ave.					
Harbor Blvd/Old County Rd	C	26.3	D	42.9	LTS
Harbor Blvd/El Camino Real	~~D~~ C	~~36.4~~ 32.8	D	~~39.8~~ 35.2	LTS
Holly St/Old County Rd	D	51.3	D	53.9	LTS
Holly St/El Camino Real	D	38.3	D	45.9	LTS
Brittan Ave/Old County Rd	C	34.9	D	41.6	LTS
Brittan Ave/El Camino Real	~~F~~ D	~~88.2~~ 46.6	~~F~~ E	~~129.4~~ 75.6	**S**
Howard Ave/Old County Rd	C	33.3	D	36.8	LTS
Howard Ave/El Camino Real	D	37.1	E	57.7	**S**
Whipple Ave/El Camino Real	E	73.4	E	76.9	LTS
Whipple Ave/Stafford St	C	17.0	A	0.0	LTS

Potential Lane Reductions and Segments and Intersections Analyzed	2035 No Project[1]		2035 + HST		2035 No Project to + HST Impact*
	LOS	Delay or V/C	LOS	Delay or V/C	
1 traffic lane on Alma St. between Oak Grove Ave. and Ravenswood Ave.					
Oak Grove Ave/Alma St	C	23.1	B	13.5	LTS
Oak Grove Ave/El Camino Real	C	33.4	C	32.4	LTS
Ravenswood Ave/Alma St	F	190.2	F	319.4	**S**
Ravenswood Ave/El Camino Real	E	65.6	E	65.9	LTS
1 traffic lane of Alma St. between Homer Ave. to Embarcadero Rd. and 2 traffic lanes on Alma St. from Embarcadero Rd. to California Ave.					
University Ave / El Camino Real NB Ramps [East]	C+	22.3	D	42.7	LTS
Palm Dr / El Camino Real SB Ramps [West]	C	26.8	C-	33.9	LTS
Homer Ave/Alma St	B	12.5	B+	11.2	LTS
Embarcadero Rd/El Camino Real	E	71.6	F	104.9	**S**
Churchill Ave/Alma St	~~C~~ E	~~30.3~~ 64.7	~~D~~ F	~~48.6~~ 86.2	~~LTS~~ **S**
Page Mill Rd/El Camino Real	E	66.5	F	109.0	**S**
1 lane of Central Expressway between San Antonio Rd. and Rengstorff Ave.					
SB Central Expy between San Antonio Rd and Rengstorff Ave	A	1698/3800** = 0.45	D	1698/1900 = 0.89	LTS
1 lane of Hendy Ave. between Sunnyvale Ave. and Fair Oaks Ave.					
Sunnyvale Ave/Hendy Ave	B	13.7	B	12.5	LTS
Sunnyvale Ave/Evelyn Ave	C-	33.6	C-	33.7	LTS
Fair Oaks Ave/Evelyn Ave	C	30.7	C-	32.2	LTS

* Project Impact: LTS (less than significant); S (significant)
\# A loss of four lanes of Pacific Blvd at the Pacific Blvd/Hillsdale Blvd interchange would eliminate the interchange. It is assumed that the interchange will be rebuilt as an at-grade intersection further east, and thus the 2035 Plus Project conditions for the rebuilt, at-grade intersection is compared with 2035 Baseline conditions for the current interchange.
** Assumed base capacity per lane is 1900 vph.

Notes:
1. The existing traffic volumes used in the analysis were collected in 2009, 2010, ~~and~~ 2011, and 2012
2. The future traffic projections were obtained from the MTC Regional Travel Demand Model. These projections were post-processed by AECOM to arrive at future intersection turning movement volumes.
3. Traffic re-routing to represent possible lane closures were determined by AECOM. A conservative approach was employed to shift diverted traffic onto the most likely parallel facility rather than disperse the diverted traffic to several parallel facilities. This approach increased the likelihood of identifying a significant impact as a result of the possible lane closures.
4. Intersection Delay, V/C, and Level of Service were determined using the TRAFFIX 8.0 computer program. TRAFFIX is a commonly used software package in the Bay Area and is consistent with the procedures of the Highway Capacity Manual.

Table 3-2a
Existing Peak Hour Traffic Conditions on Monterey Highway With and Without the Narrowing

Monterey Highway Segment		Northbound							Southbound						
		Existing[1]			Existing + HST[2]				Existing[1]			Existing + HST[2]			
From	To	Volume	V/C	LOS	Volume	V/C	LOS	Impact[3]	Volume	V/C	LOS	Volume	V/C	LOS	Impact[3]
Morning Peak Hour															
Southside Dr.	Capitol Expy.	2,213	0.78	C	1,683	0.89	D	LTS	307	0.11	A	304	0.16	A	LTS
Capitol Expy.	Senter Rd.	2,396	0.84	D	1,863	0.98	E	**S**	444	0.16	A	450	0.24	A	LTS
Senter Rd.	Branham Ln.	2,281	0.8	D	1,725	0.91	E	**S**	460	0.16	A	462	0.24	A	LTS
Branham Ln.	Chynoweth Ave.	1,951	0.68	B	1,509	0.79	C	LTS	425	0.15	A	423	0.22	A	LTS
Chynoweth Ave.	Blossom Hill Rd.	1,656	0.58	A	1,304	0.69	B	LTS	708	0.25	A	717	0.38	A	LTS
Blossom Hill Rd.	Bernal Rd.	1,007	0.35	A	956	0.33	A	LTS	242	0.08	A	240	0.08	A	LTS
Bernal Rd.	Metcalf Rd.	2,218	0.74	C	2,205	0.74	C	LTS	279	0.09	A	279	0.09	A	LTS
Metcalf Rd.	Bailey Rd.	1,760	0.59	A	1,745	0.58	A	LTS	73	0.02	A	70	0.02	A	LTS
Evening Peak Hour															
Southside Dr.	Capitol Expy.	503	0.18	A	496	0.26	A	LTS	2,008	0.7	C	1,637	0.86	D	LTS
Capitol Expy.	Senter Rd.	581	0.2	A	566	0.3	A	LTS	2,038	0.72	C	1,617	0.85	D	LTS
Senter Rd.	Branham Ln.	581	0.2	A	574	0.3	A	LTS	1,951	0.68	B	1,534	0.81	D	LTS
Branham Ln.	Chynoweth Ave.	564	0.2	A	552	0.29	A	LTS	1,385	0.49	A	1,182	0.62	B	LTS
Chynoweth Ave.	Blossom Hill Rd.	886	0.31	A	869	0.46	A	LTS	1,262	0.44	A	1,072	0.56	A	LTS
Blossom Hill Rd.	Bernal Rd.	281	0.1	A	277	0.1	A	LTS	736	0.25	A	662	0.23	A	LTS
Bernal Rd.	Metcalf Rd.	506	0.17	A	502	0.17	A	LTS	1,189	0.4	A	1,170	0.39	A	LTS
Metcalf Rd.	Bailey Rd.	252	0.08	A	244	0.08	A	LTS	744	0.25	A	722	0.24	A	LTS

Source: VTA Model, Spring 2011.
V/C = volume-to-capacity ratio.
[1] Base - Monterey Highway - 6 lanes from Southside Drive to Blossom Hill Road, 4 lanes from Blossom Hill Road to Bailey Road
Project - Monterey Highway - 4 lanes from Southside Drive to Bailey Road
[2] Does not account for trips that would be diverted from auto to high-speed train
[3] Impact: LTS (less than significant); S (significant)

Table 3-2b
2035 Peak Hour Traffic Conditions on Monterey Highway
With and Without the Narrowing

		Northbound							Southbound						
Monterey Highway Segment		**2035 No Project [1]**			**2035 + Project[2]**				**2035 No Project[1]**			**2035 + Project [2]**			
From	**To**	**Volume**	**V/C**	**LOS**	**Volume**	**V/C**	**LOS**	**Impact[3]**	**Volume**	**V/C**	**LOS**	**Volume**	**V/C**	**LOS**	**Impact[3]**
Morning Peak Hour															
Southside Dr.	Capitol Expy.	2,311	0.81	D	1,835	0.97	E	**S**	1,378	0.48	A	1,222	0.64	B	LTS
Capitol Expy.	Senter Rd.	2,667	0.94	E	1,936	1.02	F	**S**	2,122	0.74	C	1,568	0.83	D	LTS
Senter Rd.	Branham Ln.	2,481	0.87	D	1,824	0.96	E	**S**	2,039	0.72	C	1,486	0.78	C	LTS
Branham Ln.	Chynoweth Ave.	2,600	0.91	E	1,845	0.97	E	LTS	2,337	0.82	D	1,696	0.89	D	LTS
Chynoweth Ave.	Blossom Hill Rd.	2,393	0.84	D	1,913	1.01	F	**S**	2,488	0.87	D	1,866	0.98	E	**S**
Blossom Hill Rd.	Bernal Rd.	1,721	0.59	A	1,750	0.6	B	LTS	1,978	0.68	B	2,032	0.7	C	LTS
Bernal Rd.	Metcalf Rd.	3,206	1.07	F	3,171	1.06	F	LTS	3,006	1	F	2,925	0.98	E	LTS
Metcalf Rd.	Bailey Rd.	2,653	0.88	D	2,549	0.85	D	LTS	2,960	0.99	E	2,971	0.99	E	LTS
Evening Peak Hour															
Southside Dr.	Capitol Expy.	1,726	0.61	B	1,368	0.72	C	LTS	2,401	0.84	D	1,854	0.98	E	S
Capitol Expy.	Senter Rd.	2,178	0.76	C	1,551	0.82	D	LTS	2,597	0.91	E	1,840	0.97	E	LTS
Senter Rd.	Branham Ln.	2,137	0.75	C	1,527	0.8	D	LTS	2,511	0.88	D	1,781	0.94	E	**S**
Branham Ln.	Chynoweth Ave.	2,620	0.92	E	1,807	0.95	E	LTS	2,514	0.88	D	1,846	0.97	E	**S**
Chynoweth Ave.	Blossom Hill Rd.	2,737	0.96	E	1,963	1.03	F	**S**	2,244	0.79	C	1,844	0.97	E	**S**
Blossom Hill Rd.	Bernal Rd.	2,235	0.77	C	2,329	0.8	D	LTS	2,118	0.73	C	2,238	0.77	C	LTS
Bernal Rd.	Metcalf Rd.	3,321	1.11	F	3,349	1.12	F	LTS	2,869	0.96	E	2,914	0.97	E	LTS
Metcalf Rd.	Bailey Rd.	3,226	1.08	F	3,240	1.08	F	LTS	2,622	0.87	D	2,689	0.9	E	**S**

Source: VTA Model, Spring 2011.
V/C = volume-to-capacity ratio.
[1] Base - Monterey Highway - 6 lanes from Southside Drive to Blossom Hill Road, 4 lanes from Blossom Hill Road to Bailey Road
Project - Monterey Highway - 4 lanes from Southside Drive to Bailey Road
[2] Does not account for trips that would be diverted from auto to high-speed train
[3] Impact: LTS (less than significant); S (significant)

Effects of Monterey Highway Narrowing on Surrounding Streets
The traffic impacts that the HST Project would have on the street network due to the narrowing of Monterey Highway from Southside Drive to Blossom Hill Road are primarily dependent on two factors (1) traffic that is diverted from the Monterey Highway to the surrounding street network due to the proposed narrowing and (2) traffic diverted from the region to the HST. These factors are presented together in order to analyze the potential traffic impacts on the region.

Traffic Diverted from Monterey Highway

Traffic Diversions - The potential effects of Monterey Highway narrowing on the surrounding roadway network were modeled using the spring 2011 VTA model. The model does not take into account the trips taken off the road network by travelers shifting to the HST service. The Monterey Highway study corridor includes major roadways surrounding the narrowed portion of Monterey Highway as shown in the following figures.

Figures 3-2a and 3-3a show existing condition roadway segments projected to operate at LOS E or worse (red bands) during the morning and evening peak hour respectively. These figures reflect the roadway network without the narrowing of Monterey Highway. Based on the model, about 500 to 600 vehicles per hour per direction would be diverted from Monterey Highway to other facilities during the peak hour, as a result of the proposed narrowing. Yellow bands in Figures 3-2b and 3-3b indicate roadways which would operate at LOS E or worse under existing conditions and would also experience an increase in traffic (100 trips or more) in existing plus HST conditions, due to the proposed narrowing. Links projected to operate at LOS C or better under existing conditions and projected to decline to LOS E or worse in existing plus HST conditions, are also denoted by yellow bands. Green bands in the figures represent links projected to operate at LOS E or worse in existing conditions where traffic volumes would be expected to decrease (by 100 trips or more) in existing plus HST conditions.

As can be seen from these figures, under existing conditions during the AM peak hour, only three roadway segments (segments of SR 87 and US 101) which operate at LOS E or worse in the existing conditions scenario are projected to experience increased traffic volume (100 trips or more) in existing plus HST conditions due to the narrowing. In the evening peak hour, none of the roadway segments which operate at LOS E or worse would experience an increase in traffic volume (100 trips or more) in existing plus HST conditions due to the narrowing.

In comparison, the effect due to the narrowing of Monterey Highway on the surrounding street network is projected to be more pronounced in 2035. Figures 3-4a and 3-5a show 2035 No Project roadway segments projected to operate at LOS E or worse (red bands) during the morning and evening peak hour respectively. These figures reflect the roadway network without the narrowing of Monterey Highway. As shown in the figures, several roadways are projected to operate under congested traffic conditions during the 2035 peak hours without the narrowing (with the evening peak hour being more congested of the two).

Based on the model, approximately 700 to 800 vehicles per hour per direction would be diverted from Monterey Highway to other facilities during the 2035 peak hour in 2035 plus HST conditions, as a result of the proposed narrowing. The addition of traffic to roadways already operating at LOS E or worse could lead to substantial traffic impacts. Yellow bands shown in Figures 3-4b and 3-5b indicate roadways which would operate at LOS E or worse under the 2035 No Project conditions and would also experience an increase in traffic (100 trips or more) in 2035 plus HST conditions due to the proposed narrowing. Links projected to operate at LOS C or better under the 2035 No Project conditions and projected to decline to LOS E or worse in 2035 plus HST conditions due to the additional traffic, are also denoted by yellow bands. Green bands in the figures represent links projected to operate at LOS E or worse in the 2035 plus HST scenario where traffic volumes would be expected to decrease (by 100 trips or more).

In summary, traffic volumes are expected to decline on Monterey Highway as a result of less capacity. As travelers shift route choices additional results of this shift would include slower speeds on Monterey Highway, and an increase in traffic volumes on other nearby roadways. Some of these roadways, primarily the major freeways, would operate under congested conditions in the base scenario and the additional traffic could lead to significant impacts. These roadways include US 101, I-280, SR-87 and SR-85.

While many of these traffic volume changes shown in the figures due to the narrowing are logical, some differences, farther afield from Monterey Highway, are less so. The reason for these traffic volume differences is due to the sensitivity of the VTA model to minor network changes anywhere in the system of roadways, given the high levels of traffic assigned to the peak hours. When minor changes are made to an otherwise saturated network in a traffic model, false indications of significant impacts are a possible result. Therefore, while the VTA model is a very valuable tool for estimating "big picture" transportation requirements, analysis of the model output needs to be coupled with common sense as well as engineering judgment. While the diversion of 700 to 800 vehicles (off Monterey Highway to other facilities) per peak hour, per direction in 2035 is a realistic projection, given the proposed reduction of one lane per direction, the precise route choice of the diverted traffic is less clear. The travel forecast model reassigns the diverted traffic to roadways where capacity exists, insofar as the model's determination of residual traffic capacity, volume to capacity ratios, and resulting estimates of link speeds.

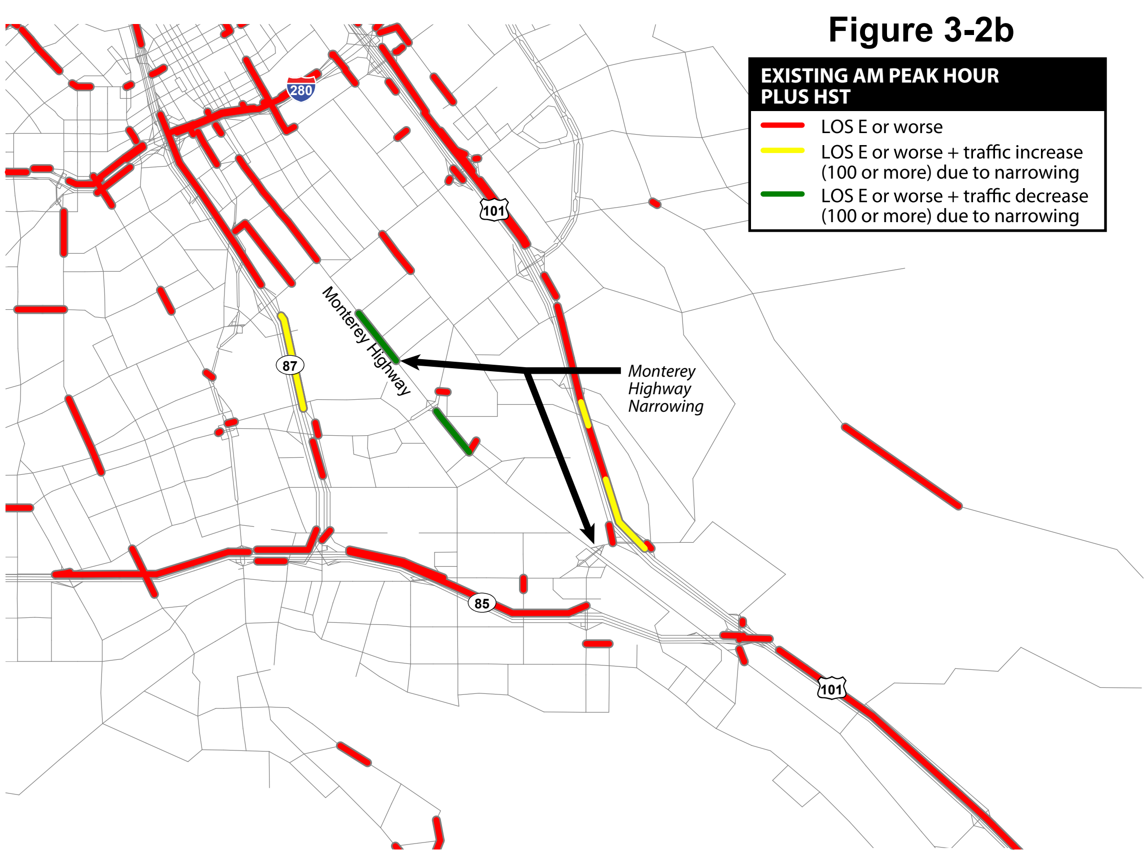
In Santa Clara County, motorists shift their time of day travel to utilize available roadway capacity, or to avoid congested roadway segments. Constructing a new roadway or widening an existing roadway typically attracts traffic from adjacent roadways, provided that the new route choice leads to shorter travel times. Conversely, a reduction in roadway capacity shifts travelers to adjacent roadways as traffic cascades across the network, seeking a balance between cost (of travel) and convenience. If the peak hour of travel demand is fully occupied, then travelers then shift their time of travel to shoulder hours as a function of time and space.

Combined Effect of Traffic Diverted From Monterey Highway onto Surrounding Roadways, HST Related Regional Traffic Reductions from Mode Shift, and Increased Traffic at San Jose Station

The VTA model does not reflect HST Project conditions insofar as the HST would lead to a mode shift of vehicle trips from the regional roadway network to HST. The traffic diverted as a result of the proposed highway narrowing can be compared to the trips removed from the roadway network by HST and new ingress/egress vehicular trips to the proposed San Jose HST Station to more fully assess the effects of the HST Project on the Monterey Highway study corridor.

The HST system would divert traffic from intercity roadways to the HST trains. The specific roadway segments which would be affected by this trip reduction cannot be determined by the model, but for purposes of this evaluation, it is assumed that these trip reductions would occur primarily on US 101 and to a somewhat lesser extent on the other major roadways in the study area. As presented in Table 3.1-2 of the 2008 Final Program EIR approximately 5,000 automobile trips would be diverted from US 101 between San Jose and Gilroy to the HST during the total 2030 morning and afternoon peak period under the Pacheco Pass Alternative. This would translate to a diversion of about 900 automobile trips per hour off of US 101 under the 2035 peak hour.

As stated above, new ingress/egress vehicular traffic to the proposed San Jose HST Station, would add traffic to the roadway network. Traffic is projected to increase on roadways surrounding the

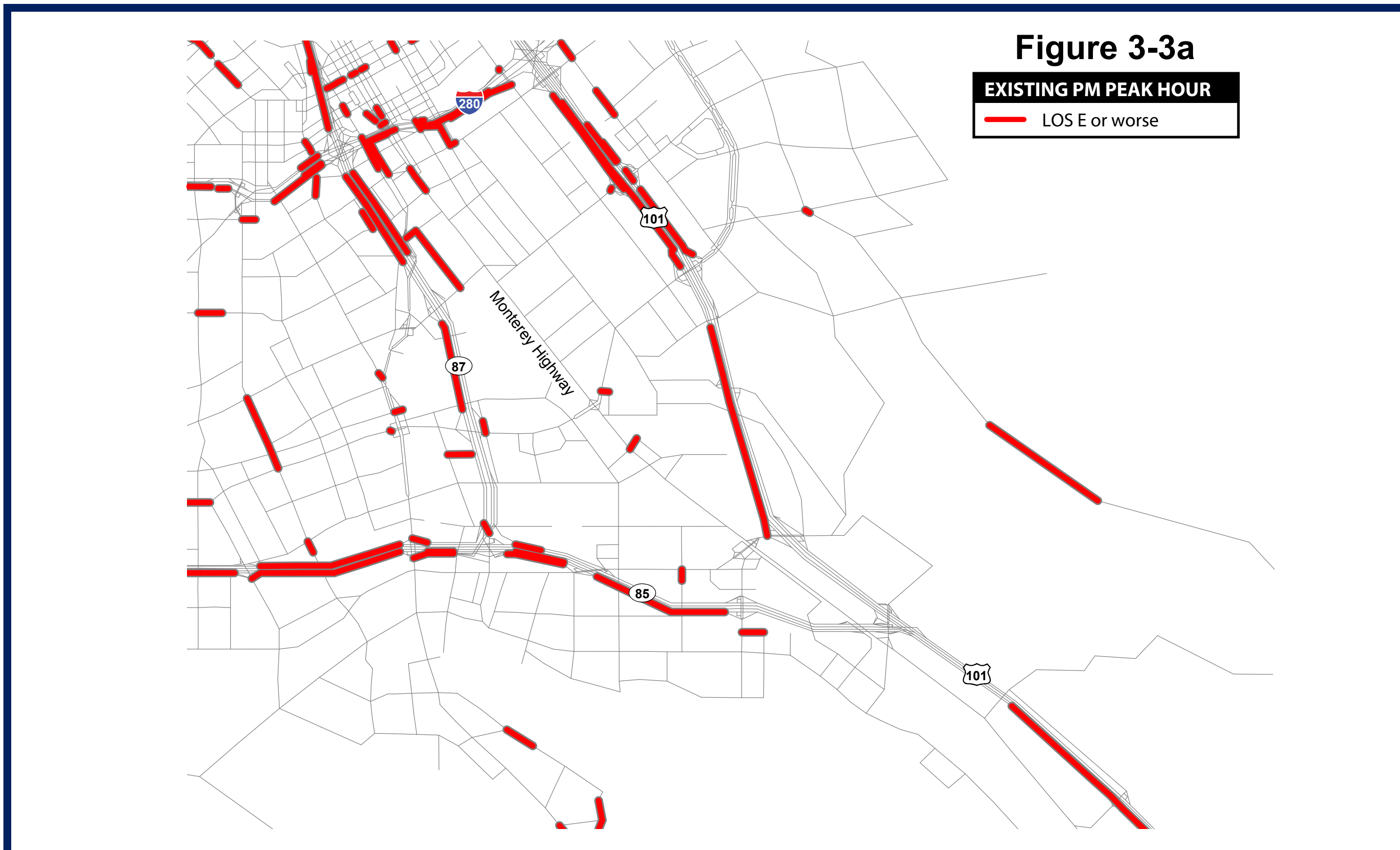


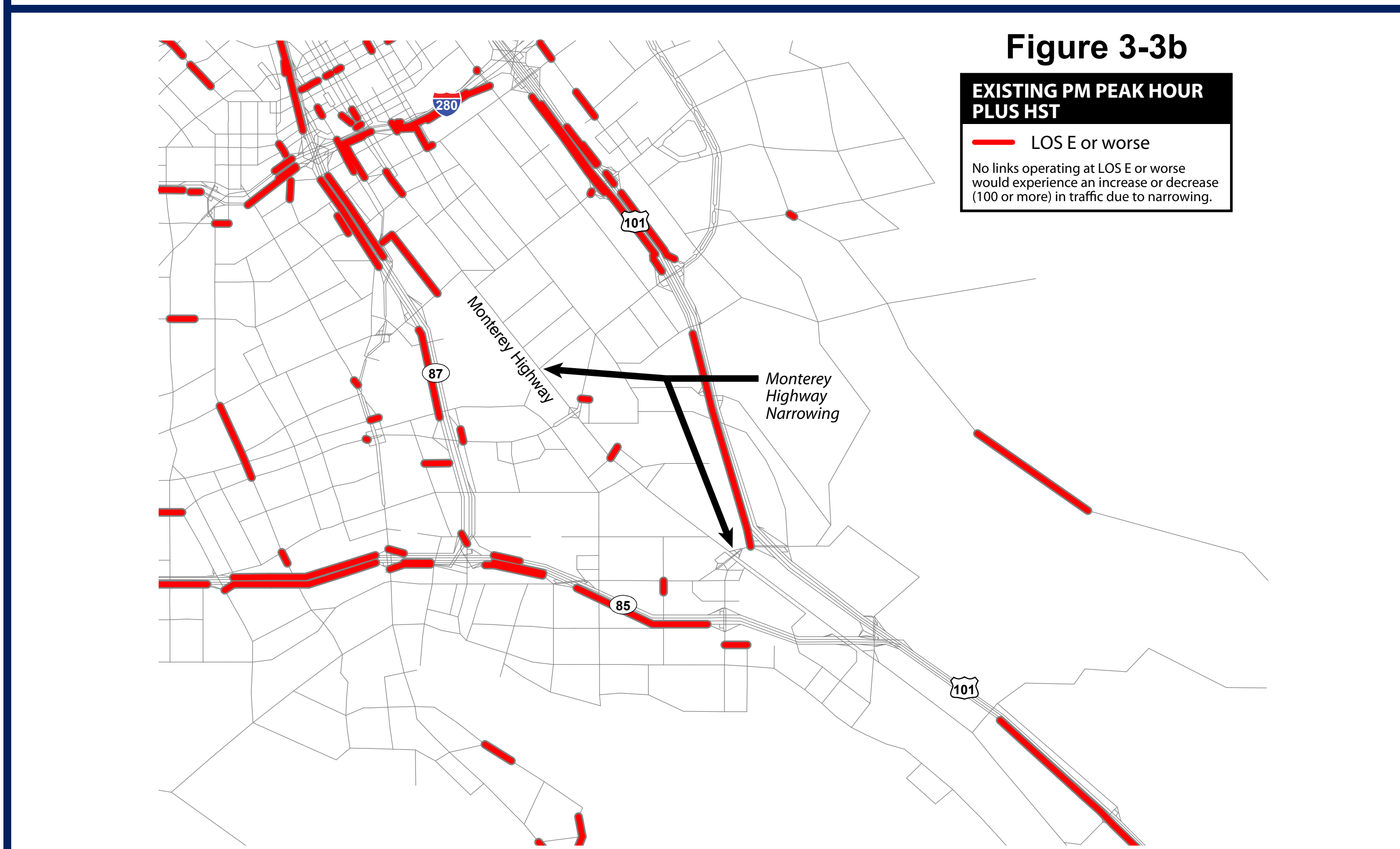
CALIFORNIA High-Speed Rail Authority

Figure 3-2a/3-2b

Roadways at LOS E or Worse Under Existing AM Peak Hour

Bay Area to Central Valley HST Partially Revised Final Program EIR



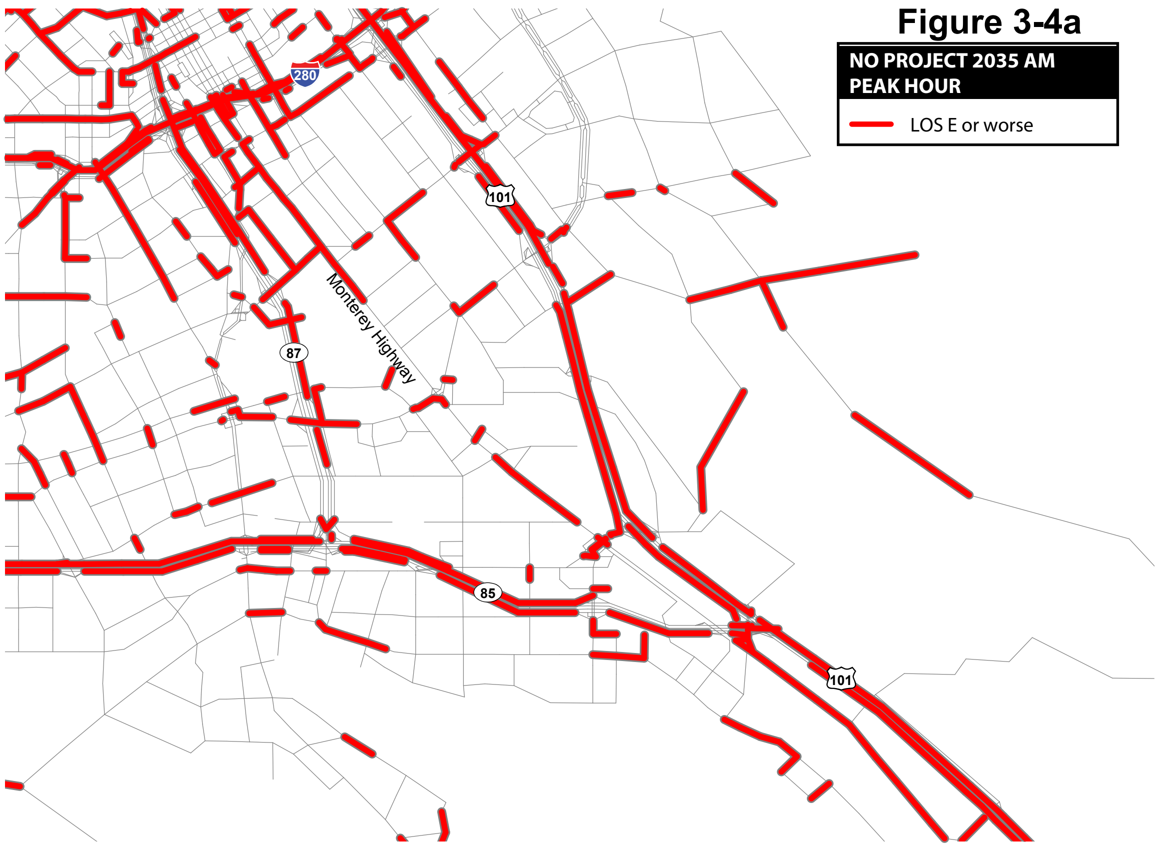


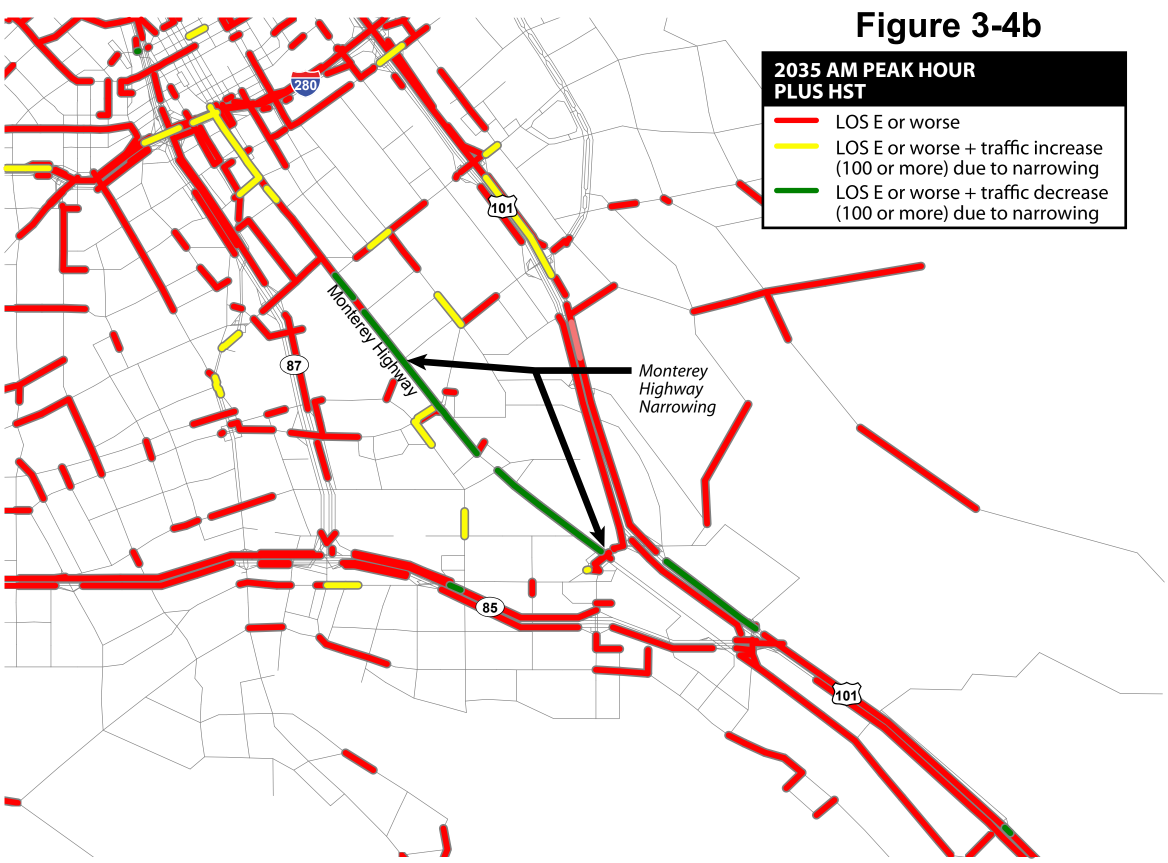
CALIFORNIA High-Speed Rail Authority

Figure 3-3a/3-3b

Roadways at LOS E or Worse Under Existing PM Peak Hour

Bay Area to Central Valley HST Partially Revised Final Program EIR



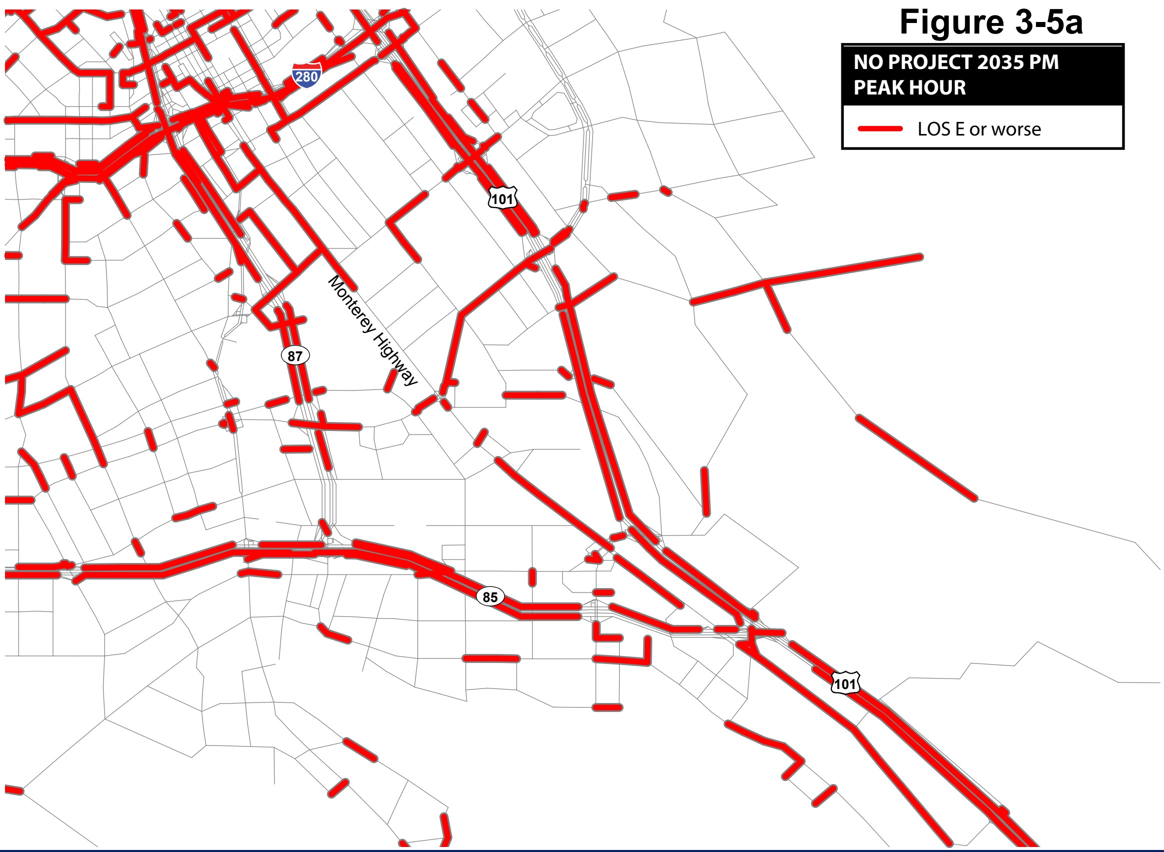


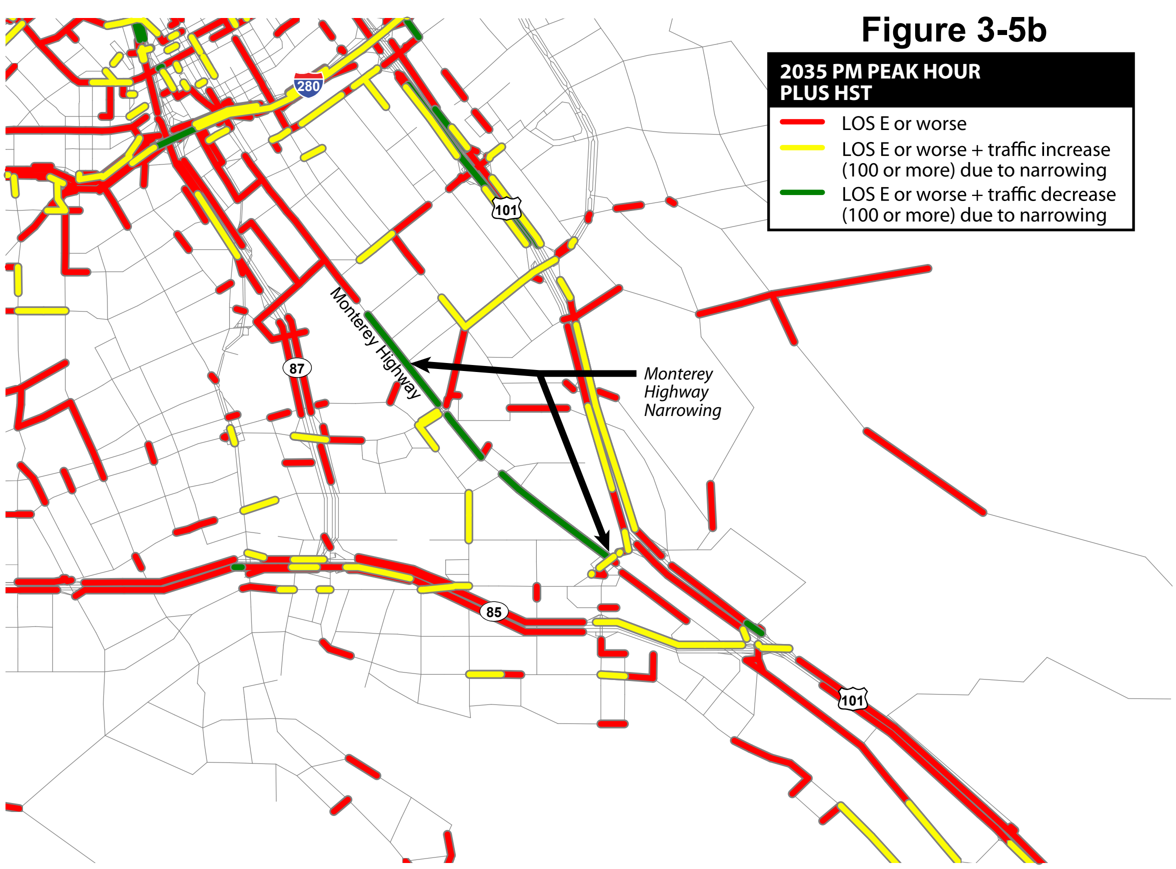
CALIFORNIA High-Speed Rail Authority

Figure 3-4a/3-4b

Roadways at LOS E or Worse Under 2035 AM Peak Hour

Bay Area to Central Valley HST Partially Revised Final Program EIR





CALIFORNIA
High-Speed Rail Authority

Figure 3-5a/3-5b

Roadways at LOS E or Worse Under 2035 PM Peak Hour

Bay Area to Central Valley HST Partially Revised Final Program EIR

proposed station and is projected to lead to an increase in the V/C ratio of the cordon surrounding the proposed San Jose station.

Viewing the combined effects of narrowing Monterey Highway, the mode shift from automobile to HST, and station area traffic increases at San Jose, there is some possibility that the mode shift to HST will offset local traffic congestion from narrowing Monterey Highway. While motorists would shift travel routes as a result of the proposed narrowing of a portion of Monterey Highway, an equal or greater number of motorists would be removed from south San Jose roadways altogether as a result of mode shifts from automobile to HST. By 2035, the Santa Clara County roadway network would be sufficiently congested such that any small decrease in roadway demand would be insignificant on a regional and subregional level. As demonstrated in the Bay Area, Santa Clara County and City of San Jose, travelers would shift their route choices, both in terms of the time and space, to optimize travel time and cost tradeoffs. Considering the uncertainty of the potential for the mode shift from automobile to HST to offset the impacts from narrowing Monterey Highway on the surrounding roadways, the narrowing is considered a significant traffic impact on the surrounding street network.

In summary, for purposes of this programmatic analysis and taking into consideration the mode shift from automobiles to HST where applicable, the narrowing of Monterey Highway is considered a new significant traffic impact both on the affected 3.3 mile segment of the Monterey Highway itself, and on the surrounding roadway network. Mitigation strategies are identified below.

C. POTENTIAL LOSS OF TRAFFIC LANES PARALLEL TO THE UPRR RIGHT-OF-WAY ALONG THE EAST BAY IN HAYWARD

<u>No Project Alternative</u>

Smaller local projects involving improvements to local roadways, intersections, and bicycle and pedestrian routes are generally not included in the 2030 No Project Alternative as these items are not programmed many years in advance. Many of these local projects would occur over the project region and that much of it would be related to the traffic generated by nearby development (such as a new traffic signal for a development). It is assumed that no improvements would be made to the local streets in Hayward in the vicinity of the HST project’s needs for additional right-of-way between East A Street and East Winton Avenue.

<u>High-Speed Train Alternative</u>

The HST on the Oakland to San Jose Corridor may impact a parallel roadway along the Niles/I-880 alignment in the City of Hayward by requiring right-of-way from public streets to accommodate the HST project assuming that no portion of the UPRR right-of-way is available (see Section 3.2.2 of the 2010 Final Revised Program EIR). If existing roadway capacity is removed east of the UPRR tracks and south of the Hayward Amtrak Station along Meckland Avenue/Martin Luther King Drive between East A Street and north of East Winton Avenue (approximately 0.6 mile), it could result in localized impacts that include additional traffic congestion during peak travel times, loss of on-street parking used by adjacent residents, changes in circulation patterns, and street closures. For purposes of this programmatic analysis, the traffic impact at this location is considered a new significant impact for the Oakland to San Jose Corridor, even though the impact is limited to a certain area. However, if design refinement (at the project level) avoids these lane closures, impacts could be avoided and mitigation may not be required.

3.4 Role of Design Practices in Avoiding and Minimizing Effects (addition to Section 3.1.4 of 2008 Final Program EIR)

The design practices presented in the 2008 Final Program EIR, Section 3.1.4 remain accurate and unchanged. The reader is referred to that document for additional context. The following text is an addition to Section 3.1.4 of the 2008 Final Program EIR.

A. POTENTIAL LOSS OF TRAFFIC LANES PARALLEL TO THE CALTRAIN RIGHT-OF-WAY ALONG THE SAN FRANCISCO PENINSULA

An approach to avoid and minimize effects of the potential loss of traffic lanes parallel to the Caltrain right-of-way along the San Francisco to San Jose Corridor could include modifying the HST alignment either horizontally and/or vertically. Design solutions that avoid these lane closures include but are not limited to the following:

- Adjustment Vertical Alignments. Where the rail alignment would overlap the road, the vertical alignment of the road or rail corridor could be adjusted to separate them:
  - The vertical alignment for the rail corridor could be raised on an aerial structure partially above the roadway such that the aerial structure would overhang the roadway. Columns supporting the aerial structure would be positioned to accommodate the roadway such that the roadway travel lanes would not be permanently impacted.
  - The vertical alignment for the rail corridor could be lowered in a trench with the road continuing to operate above the depressed rail corridor. The roadway would be partially supported by a cantilevered structure over the trench such that the roadway travel lanes would not be permanently impacted.
- Lane Width Reductions. Existing travel lanes could be narrowed to standard minimum widths to provide additional space to accommodate the rail corridor. The reduced travel lane widths would follow standards set forth by the jurisdiction in which the roadway is located.
- Realignment of Roadway Segment. The horizontal alignment of the roadway segment could be shifted such that it does not conflict with the rail right-of-way.
- Reduction of On-Street Parking. In cases where lane width reductions cannot accommodate the width required for the rail corridor and where a shift in the roadway is not possible due to potential impacts to private property (such as residences), the existing on-street parking could be reduced on one or both sides, as necessary, prioritizing maintaining parking for residences and commercial property.

3.5 Mitigation Strategies and CEQA Significant Effects (addition to Section 3.1.5 of 2008 Final Program EIR)

The mitigation strategies and CEQA significant effects presented in the 2008 Final Program EIR, Section 3.1.5 remain accurate and unchanged. The reader is referred to that document for additional context. The following text is an addition to Section 3.1.5 of the 2008 Final Program EIR.

A. POTENTIAL LOSS OF TRAFFIC LANES PARALLEL TO THE CALTRAIN RIGHT-OF-WAY ALONG THE SAN FRANCISCO PENINSULA AND IN HAYWARD ALONG THE UPRR RIGHT-OF-WAY

Strategies for lane closures related to additional right-of-way requirements:

- Determine the amount of diverted traffic onto parallel facilities and make improvements to those facilities to accommodate the diverted traffic.
- Realign the roadway to replace any loss of capacity.

- Change the affected roadway to one way to maintain access to properties along roadway and assess the diversion of the traffic eliminated onto parallel facilities, mitigating any new effects as required.
- Use physical barriers for protection to separate bicycle lanes from moving traffic.
- Restriping of parking spaces to fit with changed circulation patterns and/or to maintain number of spaces.
- Calculate project-related level of impact at intersections and roadways that are affected by these lane closures in combination with other cumulative projects and growth. Work with local jurisdictions and congestion management agencies to determine "fair share contribution" to fund reasonable share of necessary improvements.

The above mitigation strategies would be refined and applied at the project level and are expected to substantially avoid or lessen impacts to a less-than-significant level in most circumstances where lane closures are required due to the need for additional right-of-way along the San Francisco to San Jose Corridor and in the East Bay in the City of Hayward. At the project level, it is expected that lane closure impacts would be mitigated to a less-than-significant level, but it is possible that at some locations impacts would not be mitigated to the less-than-significant level. Sufficient information is not available at this programmatic level to conclude with certainty that the above mitigation strategies would reduce impacts to a less-than-significant level in all circumstances. This document therefore concludes that traffic impacts associated with lane closures may be significant, even with the application of mitigation strategies. Additional environmental assessment will allow a more precise evaluation in the second-tier, project-level environmental analyses. The co-lead agencies will work closely with local government agencies at the project level to implement mitigation strategies.

B. POTENTIAL NARROWING OF TRAFFIC LANES ON MONTEREY HIGHWAY AND IMPACTS ON SURROUNDING STREETS

The degradation of LOS projected for segments of Monterey Highway as discussed above will require that a Transportation Impact Analysis be prepared at the project-level to evaluate specific impacts and identify mitigation measures. At the program level, mitigation strategies include:

- Optimizing signal timings (for the revised traffic volumes and capacity)
- Synchronizing signals (Coordinating the timing of the signals between successive intersections, and automatically adjusting the traffic signals to facilitate the movement of vehicles through the intersections. This will help in reducing overall stops and delays. This works well if the distance between adjacent signals is a quarter of a mile or less).
- Selectively adding new turn lanes at intersections, if feasible based on project-based design. (For example, adding two left-turn lanes instead of an existing single left-turn lane. The traffic analysis will show which intersections would require additional turn lanes. Adding turn lanes would be much more economical/affordable than adding whole lanes.)
- Promoting more transit usage in the corridor by increasing frequency of popular transit services.

Mitigation strategies for traffic impacts on neighboring streets due to the narrowing of Monterey Highway, if necessary, would also include signal timing optimization, signal synchronization and selectively adding new turn lanes at intersections.

Sufficient information is not available at this programmatic level to conclude with certainty that the above mitigation strategies would reduce impacts on Monterey Highway or to neighboring streets due to narrowing of Monterey Highway to a less-than-significant level in all circumstances. This document therefore concludes that traffic impacts may be significant, even with the application of mitigation strategies.

3.6 Subsequent Analysis (addition to Section 3.1.6 of 2008 Final Program EIR)

The subsequent analysis presented in the 2008 Final Program EIR, Section 3.1.6 remains accurate and unchanged. The reader is referred to that document for additional context. The following text is an addition to Section 3.1.6 of the 2008 Final Program EIR.

A transportation impact analysis will be conducted at the project-level, which will include a detailed evaluation of traffic, parking, pedestrian, bicycle, transit, construction and cumulative transportation impacts of the proposed HST project. This information will identify:

- Changes in traffic volumes on regional roadways that result from HST construction and operations;
- Changes in traffic volumes on local streets that result from passengers accessing/leaving HST stations, from project construction, and from other HST related roadway changes, and the effect of these changed volumes on roadway operations and critical intersections;
- The number of parking spaces required and the placement of the parking facilities. Potential parking impacts will be evaluated based on the existing and future parking supply and the projected parking demand. Parking demand will be based upon the patronage and mode of access forecasts at each proposed station, including parking and related circulation impacts for adjacent neighborhoods;
- Potential impacts to transit including potential for inadequate capacity of feeder bus service, potential for traffic congestion from project to disrupt or delay bus service that serve or run near stations or other transit operations. Potential impacts of project construction on transit service will also be evaluated in detail;
- The effect of the project and project construction on existing and planned pedestrian and bicycle facilities. Potential impacts on pedestrian and bicycle connections to and across HST facilities will be analyzed. Detailed information and analysis of potential traffic impacts including impacts to pedestrian and bike facilities and feasible mitigation measures will be included in project-level EIR/EIS; and
- Cumulative potential traffic impacts due to the proposed project. Detailed information and analysis of impacts and feasible mitigation measures will be included in project-level EIS/EIR.

4 CONSTRUCTION

This chapter revises Section 3.18 from the 2008 Final Program EIR. This chapter is in addition to the treatment of construction impacts contained in various resource area sections in Chapter 3 of the 2008 Final Program EIR. Readers are referred to those chapters for more information about construction impacts by resource area. Changes to text from the Partially Revised Draft Program EIR are shown with a bar in the margin; added text is noted with underlining and deleted text is noted with strikeout.

3.18 Construction Methods and Impacts

This section describes the construction methods and related types of impacts considered for the No Project and HST Alignment Alternatives~~[1]~~. Construction methods are the basis for assessing and qualifying the potential environmental impact from construction activities. These construction methods would be used to prepare, construct, and implement the typical highway, airport, and HST alignment improvements that make up the alternatives, including adjustments to Monterey Highway and other rail and transportation facilities that may be affected.

3.18.1 Construction Method Approach

This section identifies the types of construction (highway and rail alignment) associated with the alternatives, describes the typical sequence and methods for each type of construction, and discusses potential construction-related impacts. The construction of highway improvements is a common element of both the No Project and the HST Alignment Alternatives. Improvements that make up the alternatives are grouped by type of construction and their relationship to the system alternatives, as indicated in Table 3.18-1.

Table 3.18-1
System Alternative Construction Types

Improvement Type	System Alternative	
	No Project	HST Alignment
Expanded Highway	X	X
Monterey Highway Lane Reduction and Shift		<u>X</u>
HST Alignment		X
HST Station/Facility		X
X = Common construction type.		

3.18.2 Planned Highway Improvements and Monterey Highway and other Roadway Adjustments

Improvements to existing highways that are planned and programmed are included in the No Project and HST Alignment Alternatives. The improvements to existing highways include:

- Safety improvements.
- Straightening the alignment.
- Interchange improvements.

~~[1] See Section 3.0, Introduction, for an explanation of how this section fits together with the HST Network Alternatives presented in Chapter 7, as well as for an overview of the information presented in the other chapters.~~

- Access and terminal/station road improvements.
- Limiting access.
- Adding ramp meters.
- Adding a truck climbing lane.
- Adding new auxiliary lanes.
- Adding new HOV lanes.
- Adding new general use lanes.
- The construction along Monterey Highway to implement the high-speed train would involve both reducing the number of lanes from six to four generally within the existing highway right-of-way for approximately 3.3 miles, and shifting the highway to the east between 0 and 60 feet in some locations (see Figure 2-2).

3.18.3 Highway Improvement Process and Monterey Highway and other Roadway Adjustments

A. CONSTRUCTION WORKSITE CHARACTERISTICS

The worksite for a highway capacity improvement project is the existing highway right-of-way and additional right-of-way (including any temporary construction easements) that has been acquired for the project. The defining characteristic of this worksite is the need to maintain traffic on the existing highway during construction of the improvement.

During construction, traffic is first shifted to one side of the existing roadway while the opposite side is improved (e.g., new retaining walls and pavement installed to widen the roadway, barriers installed or replaced), then traffic is shifted back onto the newly improved portion while the other side is improved. Operational issues associated with construction are complicated and require significant coordination with the contractors and responsible agencies.

The worksite for Monterey Highway construction would be the existing highway right-of-way, the new right-of-way in areas where the highway would shift, and temporary construction easements to provide staging areas for equipment and materials. The defining characteristic of the Monterey Highway construction worksite is the need to maintain traffic flow during construction. To maintain traffic flow during construction, traffic would be first shifted to one side of the existing roadway while the opposite side is improved (e.g., new retaining walls, sidewalks, landscaping and pavement installed to widen the roadway, barriers installed or replaced), then shifted onto the newly improved portion while the other side is improved. During times of low traffic volumes, additional lanes would be coned off to provide temporary additional work space.

B. TYPICAL CONSTRUCTION SEQUENCE (CONSTRUCTION METHOD)

The typical construction sequence would be:

- Mobilization and site preparation—Clear any remaining buildings or other improvements from any new right-of-way.
- Initial traffic control phase—Implement a plan for the temporary protection and direction of traffic. The initial traffic control plan phase may include construction of new sound walls along the new edge of the right-of-way.
- Repeat for each traffic control phase—Remove the portions of existing structures; construct the portions of new structures and bridges, existing structure widening, and existing embankment

widening or excavations; and widen pavement and install temporary pavement markings. Repeat for the next phase of the traffic control plan.

- Final traffic control plan phase—Construct new wearing surface across entire width of each direction of roadway and install final pavement markings.
- Finishes—Construct elements such as signage and landscaping (this phase may start prior to the final traffic control phase).

Mobilization and Site Preparation

The key mobilization activity would be to develop a traffic control plan for the temporary protection and direction of traffic. If the capacity improvement project is expanding the highway right-of-way, site preparation would include clearing the new right-of-way of conflicting structures, obstructions, and utilities. This would also be the case for shifting Monterey Highway. If the highway project does not include new right-of-way, little site preparation work can be started until a plan for the traffic plan is implemented. This would be the case for narrowing Monterey Highway from six lanes to four lanes between Southside Drive and south of Blossom Hill Road.

Minor capacity improvement projects generally do not require sufficient excavation or embankment to justify developing new material sources or waste sites. Major highway widening may justify opening (or more likely re-opening) a quarry or other aggregate source and setting up a rock crusher. A project that includes replacing the existing structures or pavement may well include an aggregate (pavement) crushing plant to recycle used pavement into new aggregate. The crushing plant would not be mobilized until sufficient material has been removed to allow several months of continuous operation. (If the project does not require recycling, the contractor would dispose of the waste material, either as embankment material or at a disposal site.)

Initial Traffic Control Phase

Each traffic control phase would shift traffic away from that phase's work zone and would install temporary barriers to protect workers in the work zone from traffic. The shift can use some combination of closed lanes, narrowed lanes, and the pavement shoulder for through traffic.

Earthwork

The contractor would construct the required retaining walls, embankments, and excavations. The design would attempt to balance cut and fill requirements, but severe terrain or urban conditions may require imported fill or exported cut material. If the overall schedule permits, the embankments would be allowed to consolidate for a year or two before pavement is placed on them. The contractor would route any existing drainage that crosses the alignment through new and extended pipes or box culverts. The contractor would install inlets and pipes, detention basins, and outfalls for roadway drainage.

Structures

The contractor would construct grade separation, drainage, and other bridges or concrete boxes as required.

Pavement

The contractor would finish grading the new roadbed, install subbase, base rock, and bridge approach slabs, and may pave the new roadway. The new pavement would drain to the inlets previously constructed. The contractor would construct any transition sections required. The contractor would install pavement markings on the completed roadway.

Repeat For Each Traffic Control Phase

Subsequent traffic control phases would shift traffic onto the completed portion of the work to create a new work zone. The contractor would construct/reconstruct the portion of the pavement and structures in the new work zone, then shift the traffic to a new traffic control phase until all new pavement and structures are complete.

Final Traffic Control Plan Phase

For some roadway widening, when the temporary barrier is removed, the contractor would overlay a new pavement wearing surface across the entire roadway width. This paving could be done at night, when traffic volumes are reduced, and may take several nights. The contractor would install temporary pavement markings as the new top lift is installed. The contractor would install permanent markings after the new wearing course has aged for a week.

Finishes

Construction of the new pavement wearing course and markings may complete the project, or construction may continue with shoulder barriers, signage, and landscaping.

C. TYPICAL CONSTRUCTION IMPACTS

The general types of construction impacts associated with highway capacity improvement projects, Monterey Highway construction, or other locations where lane narrowing or adjustments are made include the following, which are considered significant under CEQA at the program level.

- **Construction Period Traffic Congestion:** Traffic control plan lane closures and lane narrowing to allow for demolition, construction, and paving would occur mainly at night, when traffic volumes are less, but could still potentially result in increased traffic congestion ~~both~~ on roadways, including Monterey Highway as well as on surrounding local streets during the construction period.
- **Construction Period Air Emissions:** Construction of highway capacity improvement projects, including Monterey Highway construction, would generate short-term air pollutant emissions (fugitive dust emissions, mobile source emissions, potentially asbestos) from demolition of existing structures and roadways, excavation, facilities construction, mobile source emissions from construction worker travel to and from the project site, mobile source emissions from delivery and hauling of construction supplies and debris to/from the work site, and emissions from heavy construction equipment.
- **Construction Period Noise and Vibration:** Construction of highway capacity improvement projects, including Monterey Highway construction, would generate noise and vibration impacts from heavy construction equipment, including jackhammers and pavement breakers, as discussed generally in Chapter 3.4 of the 2008 Final Program EIR.
- **Construction Period Energy:** Construction of highway capacity improvement projects, including, Monterey Highway construction, would result in a one-time, non-recoverable energy cost which would occur during the construction period.
- **Construction Period Runoff and Erosion:** Construction of highway capacity improvement projects, including Monterey Highway construction, has the potential to disrupt the existing roadway drainage system, potentially leading to runoff and erosion unless mitigation measures and/or design practices are imposed as a control measure.
- **Construction Period Aesthetics and Land Use Effects:** Construction of highway capacity improvement projects, including Monterey Highway construction, would result in staging areas

with construction equipment, signage, barriers, and potential nighttime lighting that may be visible from adjacent properties. Construction may be disruptive to adjacent land uses.

- **Construction Period Hazards and Waste:** Hazardous materials/wastes may be present in the project area and could be encountered during project construction, and construction activities may result in the release of small quantities of fuel through accidental release or upset.
- **Construction Period Cultural Resources:** Construction of highway capacity improvement projects, including Monterey Highway construction, could result in the discovery of previously unknown archaeological, paleontological, or historic resources.
- **Construction Period Biological Resources:** Depending on construction techniques, construction of highway capacity improvement projects, including Monterey Highway construction, could result in impacts on sensitive vegetation communities, special-status plants and wildlife, and water resources/wetlands. Additionally, sediment disturbance from construction could affect some fish species.
- **Construction Period Section 4(f) and 6(f) Resources:** Construction of highway capacity improvement projects, including Monterey Highway construction, could affect the use of public~~a~~ly owned parks and recreational uses.

~~In addition~~Highway capacity improvement projects, including Monterey Highway construction would generate waste pavement that would either be recycled, or if the material was unsuitable, placed in landfills. This impact is considered less than significant at the program level.

3.18.4 High-Speed Train Alignment Alternatives

This section applies to the HST Alignment Alternatives and the new construction associated with track alignment and system elements. The alignment would include at-grade, aerial, bridge, and tunnel components.

A. CONSTRUCTION WORKSITE CHARACTERISTICS

In most locations, particularly in urban areas, the worksite (new HST alignment) would be close to existing railroad tracks, within active rail corridors, or close to highway facilities. However, in some locations, the worksite would follow a new alignment independent of existing railroad or highway infrastructure through undeveloped areas. In areas where there is existing Caltrain and freight (UPRR) rail service, the worksite would need to maintain service during construction of the HST alignment and facilities. The construction worksite within active rail corridors may require temporary construction easements in some locations to create temporary "shoofly" tracks next to the existing tracks to provide continued service during HST construction. New grade crossings, temporary Caltrain station platforms, and associated signal system upgrades would be constructed as a requirement of the shoofly tracks. Additionally, access to freight rail sidings and leads would need to be maintained throughout the phased construction process. Caltrain and freight operations would shift onto the new shoofly tracks once they were complete. Close coordination between the Authority, Caltrain and the freight operator would be critical throughout the process.

The new trackway and worksite would have three primary characteristics in high-speed segments—long tangent sections connected by very large-radius horizontal curves, long sections of constant grade connected by long vertical curves, and underpasses or overpasses wherever the trackway crosses another surface transportation alignment (e.g., street, highway, railroad track). In urban areas, the curve radii are generally reduced because of development constraints, but the curves generally are still greater than the existing highway alignments.

In some locations, such as the Central Valley, the topography simplifies construction of an HST trackway. The major construction effort would be to clear obstructions from an appropriately straight alignment and to construct grade separation structures to carry crossing roads and other railroads over or under that alignment.

In other locations, especially where the HST system crosses mountain ranges, the topography would challenge the construction of an HST trackway. In challenging terrain, the major construction effort would consist of reshaping the earth (earthwork or cut and fill) and constructing bridges and tunnels to cross over or under the existing ground surface where it is impractical to achieve the alignment geometry through reshaping.

There would be additional infrequent, but important, worksites along the alignment. These additional worksites include:

- Traction power substations and signal/communications bungalows.
- Tunnel ancillary structures (e.g., tunnel emergency egress/access points, tunnel ventilation buildings, tunnel drainage pumping plants).

In addition, there would be temporary (construction-related) sites, such as:

- Access roads and yards.
- Embankment material and aggregate source sites.
- Tunnel spoil and other excavation material disposal sites.
- Rail welding, aggregate crushing, Portland cement concrete, and asphaltic concrete plant sites.
- Shoofly tracks and station platforms, as necessary, to maintain existing rail operations.

B. TYPICAL CONSTRUCTION SEQUENCE (CONSTRUCTION METHOD)

The typical construction sequence would be:

- Mobilization and site preparation—Clear the alignment of conflicting improvements, including buildings and utilities not already removed, and mobilize for construction, including establishing construction yards, building site access roads if necessary, developing aggregate sources and embankment material borrow pits, and preparing excavation material and tunnel spoil waste sites. Mobilizing for construction within an active rail corridor would include building temporary shoofly tracks, grade crossings, Caltrain station platforms, signal system upgrades, and access to freight sidings and leads.
- Heavy civil construction—Construct the trackbed, including embankments, cuts, bridges, or tunnels; construct crossing highway or railroad grade separation structures if not already in place; and construct supporting facilities, including central control building, vehicle maintenance buildings and storage yards, and passenger stations. Within an active rail corridor, HST construction as noted above would continue on one side of the right-of-way while passenger and freight rail operations continue on the other. Once completed, Caltrain and freight service would be shifted from the shoofly tracks onto the new, permanent tracks. To complete a four-track system within an active rail corridor, additional tracks would be constructed along with the associated grade separations, permanent station platforms and signal system generally within the existing right-of-way. The last step would be to shift all HST, Caltrain and freight service to the new four-track alignment and to relinquish the temporary construction easement.
- Railroad systems construction—Construct trackwork and special trackwork, traction electrification, and railroad signaling and communications on the trackbed and at the supporting facilities.
- Finishes—Construct elements such as signage and landscaping (this phase would overlap with railroad systems installation and system testing).

- System testing—equipment and system testing would culminate with a period of simulated full revenue service.

Mobilization and Site Preparation

Construction of the HST system would require a large workforce, a large fleet of construction equipment, large quantities of aggregate and embankment materials, and a large number of manufactured products. This initial phase would develop the construction yards and other temporary infrastructure required to assemble and organize these construction resources. The Authority's right-of-way acquisition program may have cleared the right-of-way of existing improvements (primarily buildings and utilities). If those improvements have not already been removed, the contractor would remove them during this phase.

During the construction mobilization phase, the contractor would set up construction yards to receive equipment and products, prepare sources (i.e. quarries and borrow pits) for aggregate and embankment materials, and cut pioneer roads as necessary to reach remote work sites (e.g., tunnel portals and shafts, bridge piers). The contractor would also remove or relocate any conflicting improvements (buildings, utilities, roads, track) that remain on the right-of-way.

Heavy Civil Construction

Construction of the high speed rail system would reshape a strip of land 40 to 100 ft wide to create a trackbed meeting the system's horizontal and vertical alignment requirements. (The width of the strip of land would be greater at special locations such as passenger stations or vehicle maintenance facilities.) The trackbed would be grade separated—meaning that other facilities, such as existing or future roads, tracks, or cattle paths, would cross the alignment above or below the high speed rail tracks. Where the terrain is too severe, or the crossing roadways and other tracks too numerous, bridges or tunnels would carry the trackbed over or under the terrain.

Reshape the earth means that the contractor would remove the existing vegetation and topsoil, excavate farther down (below the topsoil), or bring in embankment material and construct engineered fill as necessary to reach the design subgrade elevation, and cap the subgrade with compacted crushed aggregate subballast. The contractor would construct drainage ditches or subdrains on either side of the alignment. The contractor would also construct discharges from the ditches and subdrains at appropriate points.

In any of these grade separation cases, the contractor would build grade separation structures and roadwork or trackwork on or though the structures during the heavy civil construction phase. If the structure carries the high speed rail alignment over the crossing road or track, the structure would be constructed prior to the trackbed. If the structure carries the crossing road or track over the high speed rail alignment, the structure could be constructed either before or after the trackbed. Grade separation construction would sometimes include the modification of existing or construction of new traffic signal systems.

To construct a grade separation bridge, the contractor would remove the existing vegetation and topsoil under the future structure, construct foundations under piers and bridge abutments, construct piers and abutments, construct the bridge superstructure (girders and deck), and install finish elements such as approach slabs, metal railings, or solid concrete parapets. The foundations and superstructure types for any bridge would be selected in the design phase based on site-specific conditions from menus of likely foundations and superstructures. The foundation menu includes:

- Spread footings.
- Driven or drilled piling covered with a pile cap.

- Cast-in-drilled-hole (CIDH) piers.

The superstructure menu includes:

- Steel or precast concrete girders supporting a deck slab.
- A cast-in-place or precast concrete box with a deck slab integrated into the main girder.

Precast concrete girders would also be prestressed; cast-in-place concrete boxes may be prestressed or reinforced without prestress.

To construct a grade separation cut-and-cover concrete box, the contractor would excavate to a depth below the future box, then construct the box bottom slab, walls, and roof; backfill the sides and over the top of the completed box; and install finish elements such as lighting.

Construction of any of these structures would require heavy equipment access to the site and maneuvering room for the equipment. In addition, the cast-in-place concrete box option would require falsework to support the formwork that shapes the structure.

Bridges over severe terrain could be similar to grade separation bridges; however, because of the difficulty in locating intermediate piers, severe terrain bridges could require more elaborate long span or precast segmental superstructures. While special superstructures could reduce the access requirements for intermediate piers, they would still require access to both abutments and possible larger abutment work areas to prepare girders to be launched across the ravine being bridged.

Tunnels through severe terrain must be excavated from headings. If the tunnel is short (up to 6 miles long), it might be reasonable to construct it from a single heading. The selected HST system has no tunnels longer than 6 miles.

At each tunnel heading access site, there must be sufficient work area to accommodate:

- Worker and equipment staging.
- Tunnel utility infrastructure (fresh air supply, compressed air, water, electric power, and tunnel drainage).
- Tunnel spoil surge piles.
- Storage of excavation support materials (e.g., steel ribs, rock bolts and shotcrete, precast liner panels).

There must be room to transfer materials going into the tunnel from trucks to tunnel railcars, and to transfer spoil coming out of the tunnel from tunnel railcars or conveyor belts to trucks. These heading access site requirements are generally independent of the excavation method (tunnel boring machine, drill and blast, or road-header) or number of tunnel bores (two single-track tunnels or one double-track tunnel).

After the tunnel is excavated, many of the tunnel construction access sites would become permanent tunnel support sites, such as ventilation plants, pump stations, traction power substations, and emergency access points.

To avoid or limit potential impacts along the surface above the tunnels, the selected HST system has limited surface access for ventilation and/or evacuation through tunnel design. The potential impacts associated with construction access roads would be greatly limited, and avoided altogether in some sensitive segments (as defined at the project level), by using in-line construction, i.e., by using the new rail infrastructure as it is built to transport equipment to and from the construction site and to transport excavated materials away from the construction area and to appropriate re-use or disposal sites. To avoid the creation of access roads in sensitive areas (as defined at the project level), it may be necessary to conduct geologic exploration using helicopter transport for drilling equipment and restoring sites after use, which would result in minimal surface disruption. Small pilot tunnels would be used where more extensive subsurface geology information is needed.

The heavy civil construction phase may also include construction of alignment elements to support the subsequent railroad systems phase:

- Cable trough or duct banks.
- Foundations for poles supporting the overhead contact system.
- Site work for traction power substations.

Railroad Systems Construction

The railroad systems include trackwork, traction electrification, signaling, and communications. (The rail vehicles are another key system but are not discussed in this section.)

Trackwork includes both the typical track structure and special trackwork. Special trackwork is the track switches, frogs, crossing diamonds, etc., that make up turnouts and crossovers. Trackwork is the first rail system to be constructed, and it must be in place at least locally to start traction electrification and railroad signaling installation. Trackwork construction generally requires the welding of transportable lengths of steel running rail (traditionally 78 ft in length) onto longer lengths (approximately ¼ mile), which are placed in position on crossties or track slabs and field-welded into continuous lengths from special trackwork to special trackwork. Trackwork would also be required for reconstruction of passenger and freight rail operations within an active rail corridor.

Tie and ballast track construction typically requires that crossties and ballasts be distributed along the trackbed by truck or tractor. In sensitive areas, this operation can be accomplished by using the established right-of-way corridor with delivery of the material via the constructed rail line because in-line construction techniques are proposed. The top 4 inches or so of ballast can be delivered by railcar over the assembled track.

The traction electrification equipment to be installed includes traction power substations and the overhead contact system. The running rails, which serve as the power return current conductor, are also part of the electrical circuit. Traction power substations are typically fabricated and tested in a factory, then delivered by tractor-trailer to a prepared site adjacent to the alignment. Substation spacing depends on the power supply technology selected, but this document assumes one substation every 30 miles per the Engineering Criteria Report, January 2004.

The overhead contact system is assembled in place over each track from components (poles, brackets, insulators, conductors, and various hardware). The overhead contact system is connected by field-wiring to adjacent substations.

The signaling equipment to be installed includes wayside cabinets and bungalows (within established rights of way), wayside signals (at interlockings), switch machines, insulated joints, impedance bonds, and connecting cabling. The equipment supports several technologies—Automatic Train Protection, Automatic Train Control, and Positive Train Control—to control train separation, train routing at interlockings, and train speed.

The communications equipment to be installed includes System Control and Data Acquisition (SCADA), telephone, radio, closed-circuit television, and visual messaging. The equipment is located in the system central control facility, wayside communications bungalows, passenger stations, tunnel equipment rooms, traction power substations, signal bungalows, and other locations. Communications data likely would be carried on a fiber optic backbone running the length of the alignment.

Finishes

Landscaping, signage, architectural finishes, and similar items involve construction trades different from those required for heavy civil or railroad systems. The distinction between finishes and earlier phases of work is important for labor and material scheduling but not for the identification of work sites or overall construction methods. Finishes would be installed at the same construction worksites as the earlier phases of construction and would probably overlap the completion of the heavy civil and railroad systems work.

Testing and Start-Up

All work would be inspected and tested as stand-alone items as part of its construction. During system testing and start up, the work would be checked again to confirm that it functions as an integrated system. For example, integrated testing would confirm that the SCADA tunnel ventilation system status display at central control truly reflects the status of the ventilation systems, and that the ventilation equipment correctly responds to commands initiated at central control.

C. TYPICAL CONSTRUCTION IMPACTS

Overall, the HST Alignment Alternative construction sites would have numerous site-specific impacts on adjacent land uses and within active rail corridors. However, some construction impacts would be more universal in nature. Typical impacts may include the following, which are considered significant under CEQA at the program level.

- The worksite would generate traffic on public roads leading to the site and on private haul routes running along the alignment or between the alignment and construction yards. The traffic would include construction worker commuting, delivering construction supplies (e.g., bulk cement, asphalt, steel, fuel, manufactured products), and moving construction materials (primarily dirt from excavations to embankments, and aggregate). In sensitive areas, these operations can be accomplished using the established right-of-way corridor with delivery of the material via the constructed rail line because in-line construction techniques are proposed.
- The worksite would be cleared of ground cover for construction. As a result, rainstorms would produce greater runoff and erosion than would otherwise be the case. The high speed rail construction contractor would use silt fences, hay bales, and other measures to control runoff and erosion.
- The construction project has the potential to generate large quantities of material—from pavement demolition, clearing and grubbing, and soil/rock—that is anticipated to be suitable for reuse in the construction of the proposed HST facilities. Potential uses include aggregate for concrete and fill material for other portions of the line. The project itself would generate a much smaller volume of waste—product packaging, broken equipment, and site litter. The project may experience minor hydraulic fluid, motor oil, and fuel spills that would result in the disposal of contaminated soil. The project may generate a comparatively tiny volume of hazardous waste from building demolition. The high speed rail construction contractor would collect and dispose of solid waste appropriately.
- Some heavy civil construction activities, notably pile driving and rock excavation with explosives, would be inherently noisy. Most construction activities would use large pieces of construction equipment, and the equipment would generate noise. Most of the construction worksite would be sufficiently remote so that construction noise would not cause adverse impacts on adjacent

land uses. However, the portions of the worksite in urban areas may experience sufficient construction noise to have an impact on adjacent properties.

- Tunnel excavation would likely take place 24 hours per day. As a result, tunnel heading access sites would also be occupied 24 hours per day and would be illuminated at night. The nighttime illumination may have an impact on adjacent land uses.
- Roadway grade separations would connect to active roads at both ends of the grade separation worksite. Particularly in urban areas where the surrounding areas are not sensitive to noise impacts, roadway traffic may be such that the connection work must be performed overnight, when traffic volumes are less. The night connection work, if required, would be illuminated, and the illumination may have an impact on adjacent land uses.
- The following construction activities would generate short-term pollutant noise increases and air emissions (fugitive dust emissions, mobile source emissions, and asbestos):
  - Demolition of existing structures.
  - Excavation related to preparation of track beds and installation of rail.
  - Welding related to CWR operations.
  - Mobile emissions related to construction worker travel to and from project sites.
  - Mobile emissions related to the delivery and hauling of construction supplies and debris to and from project sites.
  - Stationary emissions related to fuel consumption by onsite construction equipment.
- Temporary construction easements may be required to construct temporary shoofly tracks next to existing tracks, new grade crossings, or temporary station platforms. These temporary construction easements may result in a need for additional real property on a temporary basis, and may involve temporary traffic, noise and vibration, and aesthetic/land use impacts.

3.18.5 High-Speed Train Stations/Facilities

This section applies to the HST Alignment Alternatives and the new construction associated with stations and maintenance facilities. These facilities would include urban and rural locations, potentially joint-operated and joint-developed locations, and at-grade, aerial, and underground locations. Passenger stations include improvements to existing railroad stations and newly constructed stations. Substations and maintenance facilities would be newly constructed structures.

A. CONSTRUCTION WORKSITE CHARACTERISTICS

In urban areas, most worksites would include an expansion of or improvements to existing train stations. In rural areas, most worksites would include new construction along a new alignment independent of existing railroads.

A unique characteristic of construction on existing railroad stations is the need to maintain capacity and passenger levels of service during the construction activities. Unlike highways, where traffic can be diverted to other facilities during construction, railroad stations must be able to accommodate demand and operations because passengers cannot typically be diverted to other facilities. As a result, railroad station improvements require significant coordination and planning to accommodate safe and convenient access for passengers and no disruptions to operations.

The worksite for a new railroad station or maintenance facility most likely would be a constrained parcel of land. The footprint of the new structure and parking area would be available for the contractor’s exclusive use. Because parking areas and tail track/storage track areas may be available, the contractor could make use of these areas as a construction yard. If necessary, adjacent landowners may furnish temporary easements for the contractor to use as a construction yard during construction.

B. TYPICAL CONSTRUCTION SEQUENCE (CONSTRUCTION METHOD)

The typical construction sequence would be:

- Demolition and site preparation—Vacate identified areas within existing structures. Construct new entrances to existing stations if necessary. Close the portion of existing structures to be removed. Construct/install construction fence and barriers. Demolish existing structures scheduled for removal on the worksite. For new facilities, perform earthwork, drainage work, and utility relocation/construction as necessary. For platform improvements or additional platform construction, the necessary track realignment and construction would be required.
- Structural shell and electrical/mechanical rough-in—Construct foundations and structural frames. Construct walls or platforms. Rough-in electrical and mechanical systems.
- Finishes and tenant improvements—Install electrical/mechanical equipment. Install finishes and communications equipment. Construct tenant improvements. The actual construction sequence may have several additional steps if the railroad agency determines that it needs to stage construction, such as completing and occupying a portion of the new work before removing the last of the existing structure for replacement.

<u>Demolition and Site Preparation</u>

The contractor would construct detour roadways, new station entrances, and other elements required to take existing facilities in the worksite out of service. The other elements could be as significant as constructing a new utility company primary service and switchgear if the existing facility is in the way of the expansion.

The contractor would close the roadway, parking, or portion of the station to be removed, install construction fences or barriers, and demolish the existing improvements.

<u>Structural Shell and Electrical/Mechanical Rough-In</u>

The contractor would construct foundations and the structural frame of the new station. The contractor would enclose the new building or construct new platforms and connect the structure to site utilities. The contractor would rough-in electrical and mechanical systems and would install specialty items such as elevators, escalators, and ticketing equipment.

<u>Finishes and Tenant Improvements</u>

The contractor would install electrical and mechanical equipment. The contractor would install communications and security equipment, finishes, and signage. The contractor may install tenant improvements, or developers and other tenants may have their own contractors construct tenant improvements.

C. TYPICAL CONSTRUCTION IMPACTS

The largest impact would be the daily disruption of station activities. There would be little construction impact outside of the station site. Other impacts may include the following, which are considered significant at the program level.

- Construction traffic in the vicinity of the station.

- Operations and planning coordination for platform improvements or new platforms that require trackwork realignment.
- The contractor must take care to maintain or replace the existing utilities as called for in the construction documents, but with care, drainage should not be a problem.
- There may be a substantial volume of demolition debris from the site preparation phase.
- Construction noise generally would be lost in the ambient station noise.
- Night work in the urban station areas would need to be assessed for impacts on residential and commercial (hotel) areas.

The additional worksites along the alignment may include:

- A central control facility.
- Revenue service vehicle storage and maintenance facilities.
- Maintenance-of-way shops and non-revenue vehicle storage.
- Traction power substations and signal/communications bungalows.
- Tunnel ancillary structures (e.g., tunnel emergency egress/access points, tunnel ventilation buildings, tunnel drainage pumping plants).

3.18.6 Mitigation Strategies and CEQA Significance Conclusions

The following mitigation strategies for construction impacts would apply to highway improvements, Monterey Highway adjustments, HST project construction, and HST construction within active rail corridors. These mitigation strategies are either identical to or consistent with mitigation strategies contained in the 2008 Final Program EIR for construction impacts within each subject matter chapter. These strategies can be refined and applied as part of second-tier, project-level EIRs and are anticipated to be effective at reducing construction impacts to a less than significant level.

Construction Period Traffic Mitigation Strategies

- Off-street parking for construction-related vehicles. Identify adequate off-street parking for all construction-related vehicles throughout the construction period. If adequate parking cannot be provided on the construction sites, designate a remote parking area and use a shuttle bus to transfer construction workers to the job site.
- Maintain pedestrian access. Prepare specific construction management plans to address maintenance of pedestrian access during the construction period. If sidewalks are maintained along the construction site frontage, provide covered walkways.
- Maintain bicycle access. Prepare specific construction management plans to address maintenance of bicycle access during the construction period.
- Restrict construction hours. Limit construction material deliveries to outside of peak traffic periods.
- Establish construction truck routes for delivery of all construction-related equipment and materials. Prohibit heavy construction vehicles from accessing the site via other routes.
- Protect public roadways during construction. Repair any structural damage to public roadways, returning any damaged sections to their original structural condition. Survey the condition of the public roadways along truck routes providing access to the proposed project site both before construction and after construction is complete. Complete a before-and-after survey report and submit to the Authority for review, indicating the location and extent of any damage.

- Maintain public transit access and routing. Coordinate with the appropriate transit jurisdiction before limiting access to public transit and limiting movement of public transit vehicles.
- Prepare a detailed construction transportation plan prior to commencing any construction activities, to address in detail the activities to be carried out in each construction phase. Such activities include, but are not limited to, the routing and scheduling of materials deliveries, construction employee arrival and departure schedules, employee parking locations, and emergency vehicle access. The plan would include a traffic control plan that addresses temporary road closures, detour provisions, allowable routes, and alternative access. The plan would also include communication protocols and procedures on how to inform the public on construction activities as well as temporary detours, closures, and changes in transit and existing rail operations.
- Limit construction during special events. Provide a mechanism to prevent roadway construction activities from reducing roadway capacity during special events that attract a substantial number of visitors. Mechanisms to maintain roadway capacity include police officers directing traffic, special event parking, and use of traffic cones and within-the-curb parking or shoulder lanes for through traffic.
- Minimize closure of any proximate highway facility during construction.
- Maintain passenger and freight rail operations within an active rail corridor through close coordination with Caltrain and freight operations (UPRR).
- Require construction contractors to coordinate construction methods, construction activities, best management practices, and mitigation with all applicable local jurisdictions that would be affected by construction.

Construction Period Air Quality Mitigation Strategies

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require that all trucks maintain at least 2 feet of freeboard.
- Pave, apply water three times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (previously graded areas inactive for 10 days or more).
- Enclose, cover, water twice daily, or apply (nontoxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion-control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Use alternative fuels for construction equipment when feasible.
- Minimize equipment idling time.
- Maintain properly tuned equipment.

Construction Period Noise and Vibration Mitigation Strategies

- Use enclosures or walls to surround noisy equipment, install mufflers on engines, substitute quieter equipment or construction methods, minimize time of operation, and locate equipment further from sensitive receptors.
- Suspend construction operations between 7:00 p.m. and 7:00 a.m. and/or on weekends and holidays in residential areas.
- Require construction contractor to comply with local sound control and noise-level rules, regulations, and ordinances.
- Equip each internal combustion engine with a muffler of the type recommended by the manufacturer.
- Specify the quietest equipment available be used.
- Turn off construction equipment during prolonged periods of nonuse.
- Require contractors to maintain all equipment and train their equipment operators to reduce noise levels and increase efficiency of operation.
- Phase construction activity, use low impact construction techniques, and avoid use of vibrating construction equipment where possible to avoid vibration construction impacts.
- Construct temporary soundwalls along shooflys and other temporary facilities for work conducted within an active rail corridor to reduce noise levels.
- Use "state-of-the-art" construction equipment, materials, and abatement techniques to mitigate construction noise and vibration impacts.
- Notify local residents prior to construction operations.
- Establish a program to receive and respond to residents' concerns regarding noise, vibration, and light disturbances.
- Require construction contractors to coordinate construction activities and mitigation with all applicable local jurisdictions that would be affected by construction.

Construction Period Energy Mitigation Strategies

- Develop and implement a construction energy conservation plan.
- Use energy efficient construction equipment and vehicles.
- Locate construction material production facilities onsite or in proximity to construction sites.
- Develop and implement a program encouraging construction workers to carpool or use public transportation for travel to and from construction sites.

Construction Period Aesthetics and Land Use Mitigation Strategies

- Plan hours of construction operations and locate staging sites to minimize impacts on adjacent residences and businesses.
- Screen construction sites, as appropriate, to minimize visual construction impacts.
- Develop traffic management plans to reduce barrier effects during construction.
- To the extent feasible, maintain connectivity during construction.

Construction Period Hazard Materials and Waste Mitigation Strategies

- Prepare a Site Management Program/Contingency Plan prior to construction to address known and potential hazardous material issues, including management of contaminated soil and groundwater, site-specific Health and Safety Plan to protect construction works and the public, and procedures to protect workers and the general public in the event that unknown contamination or buried hazards are encountered.

Construction Period Cultural Resources Mitigation Strategies

- Stabilization/Monitoring during Construction. Prepare a treatment plan for the protection of historic properties/resources, in close proximity to construction activities.
- Measures to Lessen Adverse Effects. Include stipulations in the contracts of the construction contractors to ensure appropriate preservation of cultural resources minimize project impacts on historic properties/structures.
- Monitoring (Architectural/Cultural Landscape). Monitor project construction documents and new construction to ensure conformance to design guidelines and treatment procedures agreed to by consulting parties. Monitor construction by a qualified professional to identify conditions that conflict with guidelines and treatment procedures.
- Minor Repairs and Reconstruction. Ensure that inadvertent damage to historic properties/resources is repaired in accordance with the Secretary of the Interior's Standards for Treatment of Historic Properties.
- Paleontological Resources. Educate workers, monitor construction, recover fossils, temporary diversion of construction equipment for fossil recovery, and develop protocols for the handling/disposition of fossils discovered during construction.

Construction Period Geology and Soils Mitigation Strategies

- Conduct geotechnical inspections during construction to verify that no new, unanticipated conditions are encountered related to slope stability/landslides.
- Identify areas of potentially difficult excavation to ensure safe practices and monitor conditions during and after construction.
- Follow regulatory requirements for excavations in oil and gas fields, consult with agencies regarding known areas of concern, use safe and explosion-proof equipment during construction, regularly test for gases, install monitoring systems and alarms in underground construction areas where subsurface gases are present, and install gas barrier systems or gas collection systems and passive or active gas venting systems in areas where subsurface gases are identified.

Construction Period Water Quality Mitigation Strategies

- Implement the Storm Water Pollution Prevention Plans (SWPPPs) and requirements of the National Pollutant Discharge Elimination System (NPDES) permits including Best Management Practices (BMPs) to minimize short-term increases in sediment transport caused by construction and may include measures to provide permeable surfaces where feasible and to retain and treat stormwater on site using catch basins and treatment (filtering) wet basins.
- Implement BMPs which would include practices to minimize impacts to stormwater, reduce erosion of exposed soil, and maintain water quality.
- Implement a spill prevention and emergency response plan to handle potential fuel or other spills.
- Incorporate biofiltration swales to intercept surface runoff.

Construction Period Biological Resources Mitigation Strategies

- Plant Communities: Conduct plant community construction monitoring, onsite and/or offsite revegetation/restoration, and purchase of credits from an existing mitigation bank.
- Prepare Biological Resources Management Plans (BRMP) that specify the design and implementation of biological resources mitigation measures, including habitat replacement and revegetation, protection during construction, performance (growth) standards, maintenance criteria, and monitoring requirements.
- Sensitive Plant Species: Conduct preconstruction focused surveys for sensitive plant species and map on construction drawings, construction monitoring, relocation of plants, seed collection, plant propagation, outplanting to a suitable mitigation site, and participation in an existing Habitat Conservation Plan (HCP).
- Weed Prevention: Implement weed prevention measures during construction that includes identification of areas with existing weed problems and measures to control traffic moving out of those areas (e.g., cleaning construction vehicles, limiting movement of fill).
- Sensitive Wildlife Species: Conduct reconstruction focused surveys for sensitive wildlife species and map on construction drawings, construction monitoring, restoration of suitable breeding and foraging habitat, purchase of credits from an existing mitigation bank, and participation in an existing HCP. Construction could be phased to avoid breeding season for sensitive wildlife species.

Construction Period Section 4(f) and 6(f) Resources Mitigation Strategies

- Develop and implement construction practices, including scheduling, to limit impacts on wildlife, wildlife corridors, and visitor use areas within public parks.

Construction Period Safety and Security Mitigation Strategies

- Prior to the commencement of construction, contractors would conform to safety training requirements of the respective rail operators (Caltrain and UPRR) when work occurs within an active rail corridor.
- Fencing and signage would be utilized to physically buffer construction sites from public space as well as to provide sufficient warning to the public. The vulnerability of construction sites would be minimized through the use of fencing which would act as a deterrent to vandalism and trespassing.

The above mitigation strategies are generally accepted best practices during construction and are consistent with the types of construction mitigation typically implemented with heavy civil construction projects. Consistent with the conclusions reached in the 2008 Final Program EIR, these mitigation strategies, at this program level of detail, are anticipated to be effective at avoiding construction impacts or reducing them to a less than significant level with regard to the following resource areas:

- Air quality
- Noise
- Energy
- Hazardous materials and wastes
- Geology and soils
- Hydrology and water resources

Sufficient information is not available at this programmatic level to conclude with certainty that the above mitigation strategies would reduce the impacts from construction of the project to a less than significant level in all circumstances with regard to the following resource areas:

- Vibration
- Traffic (specifically, localized increases in traffic and congestion near HST-station areas and during construction)
- Land use (specifically, neighborhood disruption)
- Aesthetics and visual quality (specifically, short-term visual quality impacts)
- Cultural resources
- Biological resources
- Parks and recreation

This document therefore concludes that construction impacts may be significant, even with the application of mitigation strategies, in the above-referenced areas.~~ of vibration, station-area traffic, neighborhoods, short-term visual quality, archeological and historical resources, wildlife movement corridors, and parks and recreation.~~ With regard to all other resource areas, consistent with the conclusions reached in the 2008 Final Program EIR, these mitigation strategies, at this program level of detail, are anticipated to be effective at avoiding construction impacts or reducing them to a less than significant level.

5 NEW INFORMATION AND CHANGED CONDITIONS SINCE SEPTEMBER 2, 2010, PRIOR DECISIONS

As part of the development of this document, new information subsequent to the Authority's September 2, 2010, decision has been considered to determine whether it has an effect on prior Program EIR analysis that would require revisions. This chapter discusses the types of new information reviewed and the conclusions about the information. The analysis has been guided by the consideration of whether the information constitutes "significant new information" under CEQA, as guided by CEQA Guidelines, § 15088.5. This chapter also includes a brief additional discussion and programmatic analysis related to grade separations. Changes to text from the Partially Revised Draft Program EIR are shown with a bar in the margin; added text is noted with underlining and deleted text is noted with strikeout.

5.1 New HST Project Information Subsequent to September 2, 2010, and Effect on Program EIR Analysis

5.1.1 Information on HST Project Sections

A review was performed of the documentation generated as part of development of project level EIR/EISs for the San Francisco to San Jose, San Jose to Merced, Sacramento to Merced, and Merced to Fresno sections of the HST project. Each of the HST project sections are at different stages in the project-level EIR/EIS process. The major environmental activities on the San Francisco to San Jose section were put on hold as of May 2011, and further work toward completing the San Francisco to San Jose Draft EIR/EIS was halted. The development of the Draft EIR/EIS for the San Jose to Merced section is underway, but not completed. The Draft EIR/EIS for the Sacramento to Merced section is underway, but environmental work on this section has been limited.

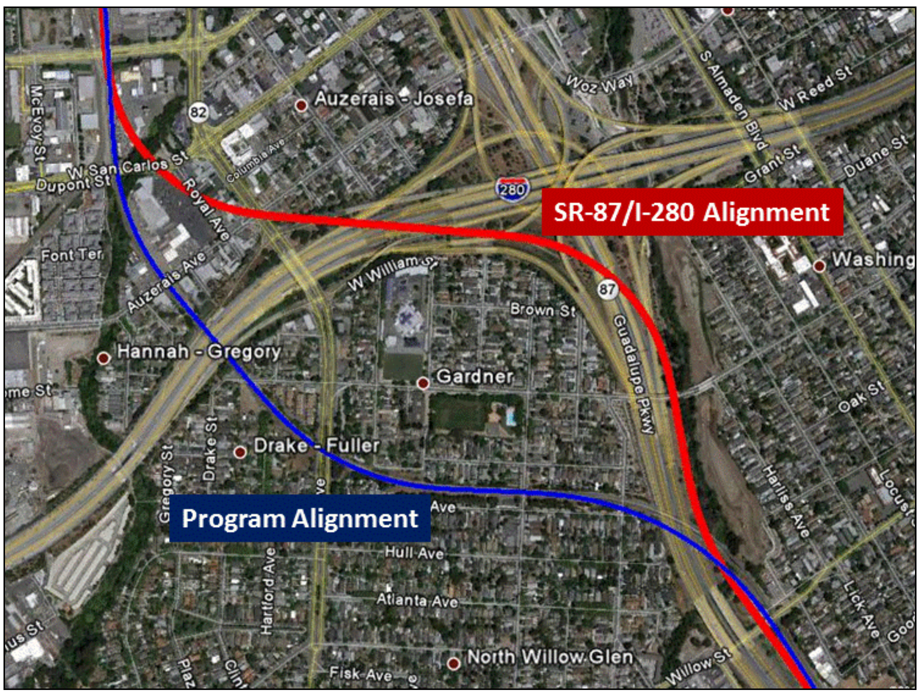
The major focus for the Authority has been on the Central Valley sections from Merced to Fresno and Fresno to Bakersfield, of which only the Merced to Fresno section overlaps with the study area for this Program EIR. The Merced to Fresno section Draft EIR/EIS circulated for public comment in the fall and preparation of the Final EIR/EIS is underway. This section, which has an overlap with the Bay Area to Central Valley Program EIR study area, has been based on a wye connection to a Pacheco Pass crossing to the Bay Area. As disclosed in that Draft EIR/EIS, however, the Authority will not make a decision on the wye area based on the Merced to Fresno EIR/EIS, and will study the wye connections to the Bay Area in a subsequent EIR/EIS, either for San Jose to Merced or for an alternative Altamont crossing, depending on the outcome of this Program EIR process. The portion of the Merced to Fresno second-tier project for which a decision is proposed is also tiered from the Authority's 2005 Statewide HST Program EIR.

The City of San Jose in cooperation with the Authority issued an in-progress draft of Visual Design Guidelines for the HST project within the City of San Jose. The Guidelines have not been approved or adopted by either the City of San Jose or the Authority at this time, but represent additional design concepts for the City of San Jose that may be carried forward as part of project-level EIR/EIS work.

Based on the review of the HST project documentation for the various sections subsequent to the September 2, 2010, prior programmatic decisions, it was determined that these project-level processes have not generated new information that would necessitate further revision of the Program EIR. Specifically, the project-level processes have resulted in refinements to the horizontal placement of the alignment alternatives and consideration of profile variations (below grade, at grade, above grade). This type of design detail is appropriately considered in second-tier, project-level environmental documents because it does not prevent adequate identification of the impacts of the programmatic decision at hand.

In contrast to the type of design refinement discussed above, additional work examining alternatives as part of the second-tier project-level environmental evaluation for San Jose to Merced has resulted in consideration of multiple different alignment options for the area immediately south of the San Jose station and approximately one mile to the south. The multiple alignments in this area have been developed as part of project-level alternatives screening to identify options that would reduce land use, noise, and community effects. Based on this work, the program alignment that would parallel the Caltrain Corridor in this roughly one-mile stretch approaching the San Jose station from the south has been replaced by an alignment that would cross over SR-87 and I-280 as shown in Figure 5-1. While many areas of the HST alignment in the San Jose to Merced area have been subject to refinements, the evolution of the design in this area has resulted in , a different design solution that departs from the Caltrain Corridor and represents a different linear alignment than the program alignment.

Figure 5-1
San Jose to Merced: SR-87/I-280 Alignment Comparison to Program Alignment



The SR-87/I-280 Alignment Alternative as shown in Figure 5-1 would have differences in environmental impact from the prior program alignment along the Caltrain corridor (also shown in Figure 5-1) in the following respects:

- Noise and vibration impacts based on programmatic screening, as well as consideration of the new location of the alignment as necessarily elevated to cross SR-87 and I-280, would result in the same medium ranking for noise and vibration for the San Jose station area, as well as for the alignment itself, which is categorized as part of the Pacheco alignment in the 2008 Final Program EIR. The screening process captures fewer sensitive receptors for the SR 87/I 280 Alignment Alternative than for the program alignment, but out of an abundance of caution the ranking is deemed medium. At the program level, for the Pacheco alignment as a whole, the difference in this one-mile area does not change the conclusion that noise and vibration impacts are significant under CEQA.
- Land use and community cohesion impacts would be lower for the SR-87/I-280 Alignment Alternative than for the program alignment because the HST would utilize the existing freeway

corridors for much of the station approach, requiring fewer residential and business displacements, and also would be located further from the Greater Gardner community. Land use, community, and property impacts in this area would still be considered significant under CEQA.

- Aesthetic and visual impacts would be slightly different. The program alignment, including elevated portions south of San Jose station were deemed to have low visual impacts in the 2008 Final Program EIR, and were considered significant under CEQA. The SR-87/I-280 alignment would traverse the two freeway corridors on a longer elevated structure than for the program alignment, but this structure would be over existing freeways. The low visual impact ranking would therefore be the same. As with the previous program alignment south of the station, the visual impacts are still considered significant under CEQA.

At the program level, other resource area impacts would be the same as described in the 2008 Final Program EIR.

5.1.2 Information on Altamont Corridor Rail Project

The Altamont Corridor Rail Project is a proposed regional intercity and commuter passenger rail project between Stockton and San Jose as a complementary project to the HST system. The Authority has worked under agreement with a regional partner, the San Joaquin Regional Rail Commission (SJRRC), to plan a joint-use rail line through the Altamont Pass that would support new regional intercity and commuter passenger rail services operating in northern California between Stockton and San José as well as eastern and southern Alameda County. The Authority and the SJRRC are proposing to develop a new joint-use rail line to improve connectivity and accessibility between the northern San Joaquin Valley and the Bay Area. The rail line would be designed and equipped to accommodate electrified lightweight passenger trains and could be used by HST-compatible equipment at intermediate speeds.

Subsequent to the Authority's 2010 Revised Final Program EIR, work has progressed on the Altamont Corridor Rail Project, resulting in a ~~January~~ February 2011 Preliminary Alternatives Analysis Report examining various route alternatives to identify those appropriate for consideration in an EIR/EIS. Based on a review of this documentation, it was determined that the information related to the Altamont Corridor Rail Project does not necessitate further revision of the Program EIR. This conclusion is based on the fact that the Altamont Corridor Rail Project has a different purpose and need and project objectives that are focused on regional transportation connectivity rather than the northern California/southern California connectivity of the HST. In addition, the Altamont Corridor Rail Project has different design and performance criteria than the HST, including slower speeds allowing for a more curved alignment than HST, and no requirement for passing tracks at stations. These differences distinguish the conceptual route alternatives in the Altamont Corridor Rail Project Preliminary Alternatives Analysis Report from HST alignments.

5.1.3 Draft 2012 Business Plan and Revised 2012 Business Plan

The Authority's Draft 2012 Business Plan (November 2011) and Revised 2012 Business Plan (April 2012)~~,~~ ~~which was released in November 2011,~~ have also been considered in the development of the~~is~~ Partially Revised Draft Program EIR and Partially Revised Final Program EIR. The purpose of the ~~Draft~~ Business Plan is to comply with the requirements of Public Utilities Code section 185033, which requires the Authority to develop a plan with the content specified in the statute, and offer it for public review and comment. The plan represents an implementation strategy for construction of the HST system. This implementation strategy describes a phased approach, consistent with how high-speed train projects are built around the world and how other major infrastructure in California has been developed, including the California State Water Project and State highway system. Consistent with statutory requirements, the Authority will consider adoption of the Revised 2012 Business Plan at a publicly noticed Board meeting. The following discussion refers to the Revised 2012 Business Plan, except where reference to the Draft

2012 Business Plan is helpful in identifying differences in the implementation strategy approach that evolved between November 2011 and March 2012.

A. THE DRAFT 2012 BUSINESS PLAN, THE REVISED 2012 BUSINESS PLAN, AND PHASED IMPLEMENTATION

The concept of phasing is not new for the HST system. Proposition 1A, passed by voters in 2008, contemplated that Phase 1 of the HST system would extend from San Francisco in the north to Los Angeles in the south, and that Phase 2 would then connect to Sacramento and San Diego.

The discussion of phasing in the Draft and Revised 2012 Business Plan expands on this initial phasing described in Proposition 1A, and illustrates how construction of the statewide HST would be accomplished in further sub-phases (phases of implementation), as funding is available and project-level environmental review for individual sections of the system is completed. The first ~~initial~~ construction ~~section (ICS)~~ is planned from north of Fresno to north of Bakersfield. Under the Revised 2012 Business Plan, t~~T~~his first construction ~~ICS~~ would then be extended ~~either over the Pacheco Pass to San Jose, as an Initial Operating Section north (IOS north), or~~ south to the San Fernando Valley, as an Initial Operating Section ("IOS") ~~south (IOS south)~~. The IOS ~~(either north or south)~~ would then be extended north to complete a "Bay to Basin" system extending from San Jose to the San Fernando Valley. The Bay to Basin system could then be extended to reach San Francisco in the north and Los Angeles/Anaheim in the south to complete Phase 1 of the system. Phase 2 of the system would expand Phase 1 to include from Merced north to Sacramento, and from Los Angeles south to San Diego.

The Revised 2012 Business Plan includes an emphasis on a blended system approach, early investments, and delivering early benefits to California travelers by using and leveraging investments as they are made. In contrast to the Draft 2012 Business Plan, which would have extending initial construction outward from the Central Valley and reach the urbanized areas of the San Franacisco Bay and the Los Angeles Basin last, the Revised 2012 Business Plan prioritizes early investments in these "bookend" sections to upgrade existing rail services, improve safety, and build train ridership as a foundation for the HST system. These early investments are intended to proceed in the same general timeframe as the ICS construction in the Central Valley, so that the book-end sections see improvements earlier than identified in the Draft 2012 Business Plan.

The ~~Draft~~Revised 2012 Business Plan, which includes the phased implementation of the HST system, reflects that the cost of building the system will be higher than originally anticipated. In addition, phased implementation recognizes that funding for construction will not become available all at once, and therefore construction of the system will take longer than originally anticipated. For example, the 2008 Final Program EIR anticipated that the HST system would be fully constructed in phases and operational in roughly 2020. The Revised~~Draft~~ 2012 Business Plan discloses that with phased implementation, and in light of increased costs and limits to financing, construction may take considerably longer, with completion of a Bay to Basin system in 2026, a Phase 1 blended system (see below) in 2028, and a full Phase 1 system occurring in 2033.

For the highly urbanized sections between San Francisco and San Jose, San Fernando Valley and Los Angeles, as well as Los Angeles to Anaheim, a concept called a "blended system approach" is also described in the ~~Draft~~Revised 2012 Business Plan. The blended system would provide an additional phasing option for the urbanized sections that have existing commuter rail corridors, which would allow for integrating HST service into an existing commuter rail system with certain, limited upgrades, in advance of construction of the currently planned shared or dedicated HST facilities. For example, a passenger traveling from Los Angeles could potentially travel on dedicated, fully constructed HST facilities to a particular station, such as San Jose, and then continue with a "one-seat ride" that would have the HST complete its journey to San Francisco on an upgraded and electrified commuter rail line at slower speeds. The blended system concept has the potential to provide earlier travel benefits by allowing some level of HST service to reach San Francisco, Los Angeles, and Anaheim with a smaller investment than would be required for the fully constructed HST facilities. This approach wasis highly conceptual at theis time of release of the Draft 2012 Business Plan in November 2011. The blended system approach remains conceptual in the Revised 2012 Business Plan, however, some additional information has been included. With respect to the Caltrain corridor between San Francisco and San Jose, the proposal is for a primarily two-track system shared by Caltrain and HST that would stay substantially within the existing right-of-way. Key improvements to support a blended system approach include an advanced signal system, electrification of the rail alignment, and infrastructure upgrades such as grade separations or grade crossing improvements.

The Revised Draft 2012 Business Plan illustrates the HST system and phased implementation with a crossing between the Bay Area and the Central Valley over the Pacheco Pass. The Revised 2012 Draft Business Plan identifies that it is illustrative, and is not intended to indicate any precommitment or approval of any project prior to CEQA compliance. is a draft, and is currently circulating for its own statutorily required public comment period which will close on January 16, 2012, and has not been approved by the Authority Board as of the release of this Partially Revised Draft Program EIR. If the Authority makes a different decision on the HST network alternative to connect the Bay Area to the Central Valley, the phased implementation approach described in the Business Plan would be adjusted as necessary and is anticipated to be equally effective whether the train travels over the Pacheco Pass or the Altamont Pass. Similarly, the blended system approachconcept has the potential to be effective for both Altamont Pass and Pacheco Pass network alternatives.

B. PHASED IMPLEMENTATION AND PRIOR PROGRAM EIR ANALYSIS

Phased implementation does not change the HST project described and analyzed in the 2008 Final Program EIR, the 2010 Revised Final Program EIR, or in this Partially Revised Draft Final Program EIR. The Authority's proposed first-tier project continues to be the statewide HST system connecting the Bay Area and Central Valley, consistent with its statutory mission, and as described in Chapters 1 and 2 of the 2008 Final Program EIR. The RevisedDraft 2012 Business Plan does explain, however, that the necessity of phased implementation will result in a longer construction period for the HST project and a later date for full operation than previously anticipated. In addition, in accordance with statutory requirements, the Business Plan presents an array of ridership forecasts that are lower than those previously used for the 2008 Final Program EIR, because they represent more conservative assumptions for investment and business planning purposes. The longer duration of construction and also lower ridership forecasts may result in differences in the environmental impacts and benefits as described in the 2008 Final Program EIR, the 2010 Revised Final Program EIR, and in this document. This discussion provides a qualitative, general assessment of these differences. The environmental consequences of phased implementation would be explored in more detail as part of second-tier, project level EIRs.

Statewide and Regional Environmental Benefits from the HST Will Accrue More Slowly

In general, phased implementation and consequently lower ridership means that the statewide environmental benefits of the HST system, including traffic improvement on major highways and freeways (reduced vehicle miles travelled or VMT), reduced energy consumption, and improved air quality, will accrue more slowly than described in the 2008 Final Program EIR. This is the case because the benefits of the HST system as a whole are based on its operation, and its ability to shift automobile and aircraft trips to HST trips, thereby reducing VMT, reducing air pollution, and saving energy. These benefits will begin to accrue once an initial HST system is operating, and will build over time as the entire HST infrastructure is placed in operation. Accordingly, the benefits described in the 2008 Final Program EIR as of 2030 will be lower. Nevertheless, these benefits will continue to accrue over many decades beyond the 2030 time horizon evaluated in the 2008 Final Program EIR and these benefits will be achieved, just more slowly.

Localized Adverse Impacts from Construction of Phased Sections Will Be Delayed

In addition, the adverse environmental impacts and project benefits on a more local scale may not occur for the end point sections of the selected network alternative for a longer period of time (e.g. San Jose to San Francisco, San Jose to Oakland, Union City to San Jose and Union City to Oakland). For stations that would become an interim northern terminus, unique consequences would be in the areas of traffic congestion around the station, parking demand, and the potential increased demand for local feeder services from HST passengers arriving at the northern terminus station seeking to transfer to the local service.

Phasing May Change the Level and Duration of Adverse Traffic Congestion at Temporary Northern Terminus Stations and May Create a New Adverse Impact on Connecting Commuter Rail Services

The Revised 2012 ~~Draft~~ Business Plan proposes a "Bay to Basin" phase that relies on the concept of reaching the major population centers in both northern and southern California with the HST service and then providing seamless intermodal connections with the existing regional commuter rail and transit services to complete the trip to the major HST destination cities such as San Jose, San Francisco, Oakland, Los Angeles and Anaheim. For purposes of this analysis, the Bay to Basin phase has been examined to identify how it would differ from the full system implementation described and analyzed in the 2008 Final Program EIR. The Bay to Basin level of ridership would be approximately a third of the full system ridership. For example, in the case of the two "base" Network Alternatives for the Program EIR (A1 - Altamont to San Jose and San Francisco and P1 - Pacheco to San Jose and San Francisco), their annual ridership would be reduced from roughly 88 million to 28 million and from roughly 93 million to 30 million riders respectively. In general, the lower level of ridership has the potential to reduce adverse impacts for station area traffic congestion and station area air quality impacts, which were conservatively described in the 2008 Final Program EIR. This is the case because lower ridership in general means lower levels of access and egress to the HST stations. As discussed in the following examples, however, there are unique differences in impacts that would occur at a temporary northern terminus station for a Bay to Basin phased system that would be different than as described in the 2008 Final Program EIR.

Pacheco Pass Network Alternative Example With San Jose Temporary Northern Terminus

Traffic impacts around the San Jose station with the HST at full system ridership were not expected to be significant. (2008 Program Final EIR, Chapter 3.1.) However, if San Jose were a temporary northern terminus station as part of a Pacheco Pass network alternative, even with the reduction in total system-wide ridership from a Bay to Basin phase rather than the full system, the total number of passengers getting on trains in San Jose would be considerably higher than under the full build scenario (around 9.0 million per year for a Bay to Basin system versus 4.0 – 5.8 million per year for the full system, depending on Network Alternative). The reason for this is straightforward: if the HST is not able to provide a "one seat ride" from south of San Jose to San Francisco, then the north bound passengers need to travel by some other means to get to their final destination on the Peninsula or in San Francisco. For purposes of this analysis, the majority of these travelers (half to two-thirds) are assumed to be transferring at San Jose from high-speed trains to Caltrain trains and vice versa with most of these passengers never leaving the station. Consequently the number of riders per day accessing the HST system at San Jose by road (auto, taxi, rental car, buses and shuttles) would be less in the Bay to Basin phase then it would in the full system (6,000 – 7,000 for Bay to Basin phase versus 8,000-9,000 for full system). This change in access mode from automobile to Caltrain could reduce the station area traffic impacts and parking demand described in the 2008 Final Program EIR for the full system scenario at a San Jose station.

There remains a possibility, however, that station area traffic impacts in San Jose in a Bay to Basin phase could be higher if the percentage of riders disembarking at San Jose and traveling by road to San Francisco or other Bay Area destinations is higher. For purposes of this analysis, traffic impacts at the San Jose station from an interim Bay to Basin phase are identified as potentially significant.

Mitigation strategies to address station area traffic congestion include both regional and local strategies as outlined in Chapter 3.1, Section 3.1.5 of the 2008 Final Program Level EIR:

Regional Strategies:

- Coordinate with regional transportation (highway and transit) planning (e.g., regional transportation plans, congestion management plans, freeway deficiency plans, etc.).
- Implement Intelligent Transportation Systems Strategies (ITS).

Local Strategies:

- Work with public transportation providers to coordinate services and to increase service and/or add routes, as necessary, to serve the HST station areas.
- Provide additional parking for the interim period.
- Consider offsite parking with shuttles.
- Share parking strategies.
- Implement parking permit plans for neighborhoods.
- Employ parking and curbside use restrictions.
- Develop and implement a construction phasing and traffic management plan.
- Widen roadways.
- Install new traffic signals.
- Improve capacity of local streets with upgrades in geometrics, such as providing standard roadway lane widths, traffic controls, bicycle lanes, shoulders, and sidewalks
- Install modifications at intersections, such as signalization and/or capacity improvements (widening for additional left-turn and/or through lanes)
- Coordinate and optimize signals (including retiming and rephrasing)
- Designate one-way street patterns near some station locations
- Implement turn prohibitions
- Use one-way streets and traffic diversion to alternate routes
- Minimize closure of any proximate freight or passenger rail line or highway facility during construction.

The above mitigation strategies would be refined and applied at the project level and are expected to substantially avoid or lessen impacts around station areas to a less-than-significant level in most circumstances. Planning multi-modal stations, coordinating with transit services, providing accessible locations and street improvements, and encouraging transit-oriented development in station areas would help to ease traffic constraints in station areas. At the project level, it is expected that for various HST station projects, impacts would be mitigated to a less-than-significant level, but it is possible that some stations impacts would not be mitigated to the less-than-significant level. Sufficient information is not available at this programmatic level to conclude with certainty that the above mitigation strategies would reduce impacts around stations to a less-than-significant level in all circumstances, including in a situation where San Jose would be a temporary northern terminus under a Bay to Basin phased approach to HST construction. Traffic impacts around station areas may be significant, even with the application of mitigation strategies. Additional environmental assessment will allow a more precise evaluation in the second-tier, project-level environmental analyses.

There is the potential that the number of passengers transferring between Caltrain and the HST system at San Jose could result in significant impacts to the Caltrain system including overcrowding of trains with HST passengers and consequently displacing regular Caltrain passengers. This would result in a new significant impact under CEQA that was not described previously in the Program EIR. This adverse impact on Caltrain commuter rail service would be resolved once the San Jose station becomes a "through" station and HST passengers are no longer required to transfer to and from the Caltrain service to complete their journey. However, in the interim, there could be the need for mitigation of the additional passengers on the Caltrain system as a result of the San Jose station operating as a terminal. Mitigation strategies to increase the capacity of the Caltrain system include:

- Adding more train cars (i.e., seats) to the existing train consists.
- Providing additional and more frequent Caltrain train service to and from San Jose.
- Providing a dedicated train service that would specifically serve the HST customers between San Francisco and San Jose.
- Working with public transportation providers to add or enhance connectivity to commuter rail stations.
- Providing commuter station improvements (i.e., interim additional on-site or off-site parking, expanded or enhanced waiting areas for passengers).

These mitigation strategies are expected to be effective in substantially lessening the potential impact on Caltrain commuter service, however with the available information it is not clear that these strategies would reduce the impact to a less than significant level. For purposes of this programmatic assessment, the impact on Caltrain commuter service is therefore considered significant even with application of mitigation strategies. As second-tier, project-level environmental documents are prepared, the potential consequences of phased implementation on connecting commuter rail service will be evaluated in more detail.

Altamont Pass Network Alternative Example With East Bay (Union City) Temporary Northern Terminus

Traffic impacts around the Union City station with the HST at full system ridership were not expected be significant. (2008 Program Final EIR, Chapter 3.1.) Although there are not comparable 2012 Draft Business Plan forecasts for a Bay to Basin phase that terminates in an East Bay location such as Union City, it can be inferred that under a Bay to Basin phase that the same order-of-magnitude volume of passengers in San Jose in the Bay to Basin phase would be found at an East Bay (Union City) terminal. This would imply roughly 9 million annual passengers boarding in 2030 in a Bay to Basin Phase with an interim northern terminus at Union City. Similar to the San Jose example above, half to two-thirds are assumed to connect to the HST system via BART at the Union City station. Although most of the transferring passengers from the HST to the BART system would not be leaving the station, the total number of passengers accessing the HST system by auto and other road-based modes could be roughly 3 million passengers per year. This Bay to Basin phase number is far greater than the number of passengers accessing the station by auto and other road-based modes under the full system scenario (3 million for Bay to Basin phase versus less than 500,000 for full system). Under the Bay to Basin phase, the change in total ridership at Union City and access mode from auto to BART would increase traffic impacts and the demand for parking, resulting in a new significant impact under CEQA for the Union City station that was not described previously in the 2008 Program EIR.

The mitigation strategies listed above for the San Jose station are available to address station area traffic congestion, including the impacts if Union City is a temporary northern terminus in a Bay to Basin phased scenario. Sufficient information is not available at this programmatic level to conclude with certainty that the above mitigation strategies would reduce impacts around stations to a less-than-significant level in all circumstances, including in a situation where Union City would be a temporary northern terminus under a Bay to Basin phased approach to HST construction. Traffic impacts around station areas may be significant, even with the application of mitigation strategies. Additional environmental assessment will allow a more precise evaluation in the second-tier, project-level environmental analyses.

The number of passengers transferring between the HST system and the BART system could result in potentially significant impacts to the BART system, including overcrowding of trains with HST passengers and consequently displacing regular BART passengers. This situation would be resolved once the Union City station becomes a "through" station and HST passengers are no longer required to transfer to and from the BART service to complete their journey. However, in the interim, there could be the need for mitigation of the additional passengers on the BART system as a result of the Union City station operating as a HST terminal. Mitigation strategies to address the need for increased capacity of the BART system include:

- Adding more train cars (i.e., seats) to the existing train consists
- Providing additional and more frequent BART service to and from Union City
- Working with public transportation providers to add or enhance connectivity to commuter rail stations.
- Providing commuter station improvements (i.e., interim additional on-site or off-site parking, expanded or enhanced waiting areas for passengers).

These mitigation strategies are expected to be effective in substantially lessening the potential impact on BART service, however with the available information it is not clear that these strategies would reduce the impact to a less than significant level. For purposes of this programmatic assessment, the impact on BART service is therefore considered significant even with application of mitigation strategies. As second-tier, project-level environmental documents are prepared, the potential consequences of phased implementation on connecting BART service will be evaluated in more detail.

Conclusion Regarding Impacts at Temporary Northern Terminus Stations

The examples provided above are just two possible temporary northern terminus locations for a phased approach for bringing HST service to the Bay Area by either the Pacheco Pass or the Altamont Pass Network Alternatives. Phasing of the HST system remains uncertain, and the purpose of this discussion is to disclose at a programmatic level the general types of differences that a phased approach would have in terms of environmental impacts and benefits. In conclusion, phased implementation of the HST project would alter the timing and duration of adverse environmental impacts and benefits discussed in the 2008 Final Program EIR and the 2010 Revised Final Program EIR, and would be anticipated to create new significant impacts in the temporary northern terminus station in the areas of station-area traffic congestion and impacts on connecting commuter rail service. As second-tier, project-level environmental documents are prepared, the potential consequences of phased implementation on the temporary northern terminus station area will be evaluated in more detail.

C. BLENDED SYSTEM CONCEPT AND PRIOR PROGRAM EIR ANALYSIS

The blended system discussed in the Revised~~Draft~~ 2012 Business Plan would provide for a HST to reach its end-point destination by traveling a portion of the trip on upgraded commuter rail lines. This approach is highly conceptual at this time. The blended system is an additional potential method of phasing that could have differences in environmental impact from those discussed above. In general, if a blended system approach were to be implemented along the Caltrain Corridor between San Jose and San Francisco, it would delay the environmental impacts associated with expanding the right-of-way for a four-track, shared alignment. For example, local land use and property adverse impacts would be delayed. The benefits of grade separations that would occur with the full HST project, including the traffic circulation and noise reduction benefits, would also be delayed.

To ensure adequate consideration of any first-tier, programmatic implications of a blended approach for second-tier projects, a sample blended approach was defined for the San Francisco to San Jose corridor that would be primarily two tracks, except where the right-of-way currently has four tracks. The blended approach would involve electrification of the rail corridor, advanced signaling systems, and would include some grade separations, but was assumed to not be fully grade separated. An assumption was used involving HST running two to four trains per hour during the peak period each direction, and one to two trains per hour during the off peak period, in contrast to a full, four track alignment that would involve 10 trains per hour during the peak period and six trains per hour during the off-peak period per direction.

Considering this sample, illustrative scenario, the environmental impact differences explained above can be further amplified as follows:

- Fewer traffic, air quality, noise & vibration, energy, aesthetic, water quality, property, hazardous materials/wastes, cultural, and biological resources impacts from construction due to the lesser amount of civil construction involved than for the full four-track alignment. Rather than expanding the existing right-of-way, the right-of-way would remain predominantly the same and construction would occur mainly in this already disturbed, active rail corridor.
- Fewer localized traffic impacts at stations, elimination of adverse traffic effects from potential lane loss along Peninsula streets, less noise and vibration from operating trains, elimination of potential impact of moving freight trains incrementally closer to existing residences and businesses, less operational energy used, and fewer aesthetics impacts from operations due to the comparatively fewer high-speed trains per hour and per day. The fewer high-speed trains per hour would result in a great reduction in impacts from operations.
- Lower project benefits in the areas of vehicle miles travelled reduction, air quality benefits and GHG emissions reductions, and less total energy savings relative to other transportation energy needs due to fewer high-speed trains per hour in operation. The benefits of eliminating all at-grade crossings, and therefore eliminating the noise associated with train horns and crossing gates, would also be reduced.

In the areas of safety and localized traffic, the implications of a blended system approach are very speculative until a more refined proposal is put forward. The safety impacts of introducing additional trains onto the Caltrain corridor may result in some safety improvements relative to the existing condition if the blended system approach includes key grade separations. Without full grade separation, as proposed and evaluated in the Program EIR as part of the four-track system, the safety implications will depend on currently unknown factors, such as the number and location of key grade separations, and the type of safety enhancements at remaining at-grade crossings, if any. In general, the lack of complete grade separation would appear to result in reduced safety benefits as compared to the four-track, fully grade separated alignment.

Local traffic effects of introducing additional trains onto the Caltrain corridor with a blended system approach are also highly speculative. In general, the grade separation proposed as part of the four-track alignment analyzed in the Program EIR provides traffic circulation benefits by eliminating the congestion of traffic having to stop for passing commuter trains. This local traffic benefit would be eliminated in those areas that do not have grade separation. The local traffic effects of potential lane reductions adjacent to a four-track alignment would also be eliminated, or largely eliminated with a blended system, because the blended system would operate predominantly within the existing right-of-way. The one area of potential, adverse local traffic impact is in the area of localized congestion from additional trains, resulting in additional periods of traffic being stopped at the at-grade crossings.

5.2 Changed Conditions and Effect on Program Environmental Setting and Analysis

An evaluation of the environmental setting was conducted to assess whether conditions have changed across the study area in a manner that would necessitate a change in the Program EIR. Based on the evaluation, it was determined that the description of the environmental setting of the study corridors and station area cities described in the 2008 Final Program EIR, and as augmented by the 2010 Revised Final Program EIR, remains accurate. While specific conditions have changed in different cities and counties since the 2008 Final Program EIR and the 2010 Revised Final Program EIR, with new development projects under consideration, approved, and/or under construction, these changes are consistent with the general descriptions in each chapter of the environmental analysis and do not raise new environmental impact issues. Likewise, the economic recession has resulted in changes to the economic characteristics across the study area, as well as resulted in some planned and approved development projects no longer proceeding forward. These localized changes do not raise new environmental impact issues.

5.3 Additional Consideration of Grade Separations

As part of this Partially Revised ~~Draft~~ Final Program EIR, additional consideration has been given to the impacts of grade separations that would be a component of the HST project to clarify that these impacts are significant at the program level. The high-speed train design criteria require it to be fully grade separated from all crossing transportation facilities. To accomplish grade separations, the HST could be placed over or under the perpendicular facility, or the perpendicular facility could be placed over or under the HST alignment. It is also possible for a grade separation to be accomplished by blending the configuration, and having a perpendicular road partially lowered and the HST partially raised. Finally, it is also possible for certain roads to be closed. No decision will be made at the program level regarding how to accomplish grade separations or whether to close certain roads.

The precise impacts of a particular grade separation or groups of grade separations cannot be evaluated at the program level, because the impacts are dependent on design details that are not available. Nevertheless, certain broad statements about the impacts of implementing grade separations can be made. In general, grade separations would result in the same types of adverse impacts described for the HST alignments as described in the 2008 Final Program EIR. These impacts include the need for real property, displacement of existing land uses, impacts on biological, hydrological, and parks resources, visual effects, the potential for impacts to cultural resources or public utilities, potential hazardous materials effects, as well as traffic, air quality, and noise and vibration effects. Grade separations also have the potential for beneficial impacts, including improved traffic circulation, reduced noise from eliminating existing railroad crossing noise, improved vehicular and pedestrian safety, and improved community cohesion. The level of impact or benefit is dependent on the particular design. At a programmatic level, the impacts associated with grade separations are considered significant, particularly in light of the uncertainty associated with how they would be accomplished. The mitigation strategies to address these impacts from grade separations are the same as the strategies identified in the impacts analysis in 2008 Final Program EIR for each resource area. At the program level, out of an abundance of caution, the impacts of grade separations are considered significant even with the application of mitigation strategies since more detailed design information is needed to conclude otherwise.

6 PARTIALLY REVISED FINAL PROGRAM EIR AND RECOMMENDATION OF A PREFERRED NETWORK ALTERNATIVE FOR CONNECTING THE BAY AREA TO THE CENTRAL VALLEY

This chapter summarizes the designation of the Bay Area to Central Valley HST preferred alternative in the prior 2008 Final Program EIR and 2010 Revised Final Program EIR; synthesizes the information contained in Chapters 2—5 of the Partially Revised Final Program EIR; and discusses the effect of this information on the staff recommendation of the preferred alternative. The staff recommendation of the preferred alternative in 2012 is consistent with its prior recommendations: Pacheco Pass Network Alternative Serving San Francisco via San Jose.

This chapter replaces Chapter 8 of the 2008 Final Program EIR and Chapter 7 of the 2010 Revised Final Program EIR. This chapter builds on the prior discussions of the preferred alternative, and maintains much of the prior discussion to provide context and to reflect the extensive record of public input on the selection of a preferred alternative to connect the Bay Area and Central Valley. Cost figures presented here are expressed in 2006 dollars, consistent with how they have been presented since the 2007 Draft Program EIR. Although cost information has not been updated to reflect current year dollars, this cost information has been reviewed, and has been determined to continue to provide an appropriate order of magnitude discussion of cost relationships of certain alignments, particularly the high cost of a Transbay Tube, or the relatively higher cost of network alternatives that service three cities rather than one or two.

Changes to text from the Partially Revised Draft Program EIR are shown with a bar in the margin; added text is noted with underlining and deleted text is noted with strikeout.

6.1 Recommendation of Pacheco Pass Network Alternative Serving San Francisco via San Jose as Preferred Alternative in 2008 and 2010

Chapter 8 of the 2008 Final Program EIR and Chapter 7 of the 2010 Revised Final Program EIR concluded that the Pacheco Pass Network Alternative serving San Francisco via San Jose was the preferred alternative for connecting the Bay Area with the Central Valley as part of the statewide high-speed train system. Preferred alignments and station locations included:

Corridor	Alignment	Stations
San Francisco to San Jose Corridor:	Caltrain Corridor (shared use)	San Francisco/Transbay Transit Center Millbrae Potential Palo Alto or Redwood City
San Jose to Central Valley Corridor:	Pacheco Pass via Henry Miller Rd	San Jose/Diridon Station Gilroy Station (Caltrain)
Central Valley Corridor:	UPRR N/S, but continue to study BNSF	Downtown Modesto Downtown Merced

The 2008 Final Program EIR identified a preferred location for a maintenance facility in Merced (Castle Air Force Base) and explained that the preferred alternative would involve no San Francisco Bay crossing.

The 2008 Final Program EIR described the evaluation criteria for determining a preferred network alternative; the public and agency support for the different Pacheco and Altamont network alternatives, as well as the Pacheco with Altamont (local service) network alternatives; a summary of the Pacheco, Altamont, and Pacheco with Altamont (local service) alternatives; a comparison of the network alternatives for public support, ridership and revenue, capital and operating costs, travel times and conditions, constructability and logical constraints, and environmental impacts. The reasons identified in May 2008 for selecting the Pacheco Pass alternative serving San Francisco via San Jose as preferred included the following:

- The Pacheco Pass minimizes impacts on wetlands, waterbodies, and the environment.
- The Pacheco Pass best serves the connection between Northern and Southern California.
- The Pacheco Pass best utilizes the Caltrain Corridor.
- The Pacheco Pass is strongly supported by the Bay Area region, cities, agencies, and organizations.

The 2010 Revised Final Program EIR (Chapter 7) provided additional information to be considered in selecting the preferred alternative including a clarification of the location of the HST alignment alternative between San Jose and Gilroy, effect of UPRR denying use of its right-of-way, and effect of avoiding impacts to UPRR freight operations. Although the additional information resulted in some changes to the rationale for selecting the Pacheco Pass Network Alternative serving San Francisco via San Jose, it remained the recommended preferred alternative.

The analysis in this Partially Revised ~~Draft~~ Final Program EIR provides additional information applicable to all network alternatives, and provides additional information about environmental impacts associated with the Pacheco Pass network alternative. As described below, however, the rationale for recommending the Pacheco Pass Network Alternative serving San Francisco via San Jose as the preferred alternative remains largely the same, although some revisions to the rationale have been made as a result of comments on the Partially Revised Draft Program EIR.

6.2 New and Clarified Information in the Partially Revised Final Program EIR Does Not Alter the Recommendation of the Pacheco Pass Network Alternative Serving San Francisco via San Jose as the Preferred Alternative

6.2.1 Revised Impacts Analysis: Noise & Vibration, Traffic, and Construction

The new information in Chapters 2 -4 results in clarification and revision of noise and vibration, traffic, and construction impacts, as follows:

- The shift of Monterey Highway to the east with implementation of the high-speed train project creates noise and vibration impacts by moving the highway closer to sensitive receptors. The noise and vibration impact from the project overall has been previously described as significant under CEQA for the alignment that includes Monterey Highway. The conclusion remains the same. For clarity, the shift of Monterey Highway has been identified as a separate significant noise impact and mitigation strategies specific to the highway noise impact described.
- The four-track, shared use alignment on the San Francisco Peninsula creates noise and vibration impacts from both operation of the high-speed train and also from the potential movement of UPRR freight trains to the outside tracks of the expanded right of way, closer to adjacent land uses. The potential movement of freight also affects an area South of San Jose between Tamien and Lick. The noise and vibration impact from the project overall has been previously described as significant under CEQA for the alignment between San Francisco and San Jose, and between San Jose and the Central Valley. The conclusions remain the same.

- The narrowing of lanes on Monterey Highway from six lanes to four lanes for approximately 3.3 miles with implementation of the high-speed train project results in significant traffic impacts on Monterey Highway itself, as well as on surrounding roadways.
- The loss of traffic lanes parallel to the Caltrain right-of-way in certain areas along the San Francisco Peninsula results in significant traffic impacts on affected roadway segments and nearby intersections. Loss of traffic lanes parallel to the UPRR right-of-way in the City of Hayward would result in a significant traffic impact for the Oakland to San Jose Corridor.
- The adjustments to Monterey Highway as part of the high-speed train project will result in noise and vibration impacts and other construction-period impacts that are considered significant under CEQA, consistent with the prior discussion of construction-period impacts as significant in the 2008 Final Program EIR.
- Construction impacts associated with constructing the high-speed train project within an active passenger and freight rail corridor are clarified and identified as part of the significant construction impacts.

These clarified and additional impacts along the Monterey Highway and in certain portions of the San Francisco Peninsula are important considerations in the recommendation of the preferred alternative and have been carefully considered in reevaluating the preferred alternative recommendation. The Monterey Highway impacts would occur only for the Pacheco Pass network alternatives. The San Francisco to San Jose impacts would occur most prominently for the Pacheco Pass network alternatives that utilize the full length of the Caltrain corridor to reach San Francisco from San Jose and for the one Altamont Pass network alternative that would also utilize the full length of the Caltrain corridor to reach San Francisco from San Jose. These impacts would occur in a more limited way for the Altamont Pass network alternatives that would utilize the Caltrain corridor north of Dumbarton. Traffic impacts in Hayward occur only for the Altamont Pass network alternatives. In the judgment of staff, however, the clarified and new impacts discussed in this document do not detract from the recommendation of the Pacheco Pass Network Alternative serving San Francisco via San Jose as preferred.

The potential for noise and vibration, traffic, and construction impacts associated with Monterey Highway movement are unique to the Pacheco Pass network alternatives. The Monterey Highway impacts result from the opportunity in this area to not just follow an existing transportation corridor, but to actually utilize existing transportation right of way to implement the high-speed train project. As the former US 101, Monterey Highway has been designed to carry more traffic than it currently supports. In areas closer to the City of San Jose, Monterey Highway has large shoulders and medians that provide physical space for redesigning the highway to reduce it from six lanes to four lanes within the existing transportation right of way and to use that remaining transportation right of way for the high-speed train alignment. For areas to the south where the highway would shift up to 60 feet, the new right of way would result in the displacement of adjacent land uses, however, to a lesser degree than if an entirely new transportation right of way had to be established. This plan is consistent with the City of San Jose's plans for the Monterey Highway, and it provides an opportunity to upgrade the condition of the roadway corridor throughout.

The potential for noise and vibration and traffic impacts on the Caltrain Corridor between San Francisco and San Jose associated with expanding the existing rail right of way in certain areas, as well as the construction impacts associated with building the high-speed train within an active passenger and freight rail corridor, are not unique to the Pacheco Pass network alternatives, but are most prominent for the Pacheco Pass network alternative that would utilize the entirety of the Caltrain Corridor to reach San Francisco and the one Altamont Pass Alternative that would utilize the entire Caltrain Corridor. The Altamont Pass network alternatives that utilize the Caltrain Corridor north of Dumbarton would have these impacts, but to a lesser degree. The Caltrain Corridor provides an opportunity to implement the high-speed train project with relatively less displacement of private homes and businesses. While the existing rail right of way would need to be expanded in some areas, the expansion could be accomplished in part by utilizing parallel streets to reduce residential and business displacement.

A multitude of factors influenced the prior designation of the Pacheco Pass Network Alternative serving San Francisco via San Jose as preferred alternative in the 2008 Final Program EIR and the 2010 Revised Final Program EIR. From an environmental perspective, a critical issue was that the Pacheco Pass Network Alternative serving San Francisco via San Jose minimized impacts on wetlands, waterbodies, and the environment. This conclusion has not changed based on the new information in this document. The environmental trade-off for reducing the relative amount of residential and business displacement to implement the high-speed train by using existing transportation corridors (Monterey Highway and Caltrain Corridor) results in noise and vibration, traffic and construction effects. On balance, these environmental impacts, while carefully considered and important, do not change the prior conclusion that the Pacheco Pass Network Alternative Serving San Francisco via San Jose results in the fewest environmental impacts overall of the network alternatives while providing direct HST service to downtown San Francisco, San Francisco Airport (SFO), and San Jose.

6.2.2 New Information and Changed Conditions

The information in Chapter 5, particularly regarding the Draft 2012 Business Plan and Final 2012 Business Plan, identifies changes in the environmental analysis from the 2008 Final Program and 2010 Revised Final Program EIR based on the recognition that the high-speed train project will be implemented in phases, and that this phasing will result in the project taking longer to complete than previously understood. This information identifies that the benefits from an operational, fully constructed statewide high-speed train system will accrue more slowly. Phasing also means that impacts from constructing the end-point sections will not occur for a longer period of time. In addition, unique impacts would occur at interim northern terminus stations with a phased approach. These impacts, including the potential for higher traffic congestion and impacts on connecting commuter rail systems, are newly identified significant impacts. These differences, however, do not distinguish between the Altamont and Pacheco network alternatives. Phasing can be accomplished for both network alternatives.

The blended system concept in the Draft 2012 Business Plan and Revised 2012 Business Plan is an approach to implementing of a second-tier project for the San Francisco to San Jose Corridor that is highly conceptual at this time. Based on the conceptual level of definition, the blended system approach ~~concept~~ does not appear to distinguish among network alternatives. A blended concept could be accomplished for both Pacheco and Altamont network alternatives that utilize some or all of the San Francisco to San Jose Corridor.

6.3 Rationale for the Recommendation of the Preferred Alternative

6.3.1 Introduction

This section describes the basis for the Pacheco Pass Network Alternative Serving San Francisco via San Jose being identified as the preferred alternative.

HST Network Alternatives represent different ways to combine HST Alignment Alternatives and station location options to implement the HST system in the study region. The 2008 Final Program EIR/EIS, 2010 Revised Program EIR, and current 2012 Partially Revised ~~Draft~~ Final Program EIR focused on analysis of HST Alignment Alternatives, which are track alignment alternatives between particular points. Because there are many possible combinations of alignments and stations, 21 representative HST network alternatives were considered and described to better understand the implications of selection of certain alignment alternatives and station location options. The network alternatives were developed to enable an evaluation and comparison of how various combinations of alignment alternatives would meet the project's purpose and need, how each would perform as a HST network (e.g., travel times between various station locations, anticipated ridership, operating and maintenance costs, energy consumption, and auto trip diversions), and how each would impact the environment.

Chapter 7 of the 2008 Final Program EIR and Chapter 6 of the 2010 Revised Final Program EIR summarize and compare the relative differences among physical and operational characteristics and potential environmental consequences associated with the HST alignment alternatives and station location options, including:

- Physical/operational characteristics
  - Alignment
  - Length
  - Capital Cost
  - Travel Time
  - Ridership
  - Constructability
  - Operational Issues
- Potential environmental impacts
  - Transportation related topics (air quality, noise and vibration, and energy)
  - Human environment (land use and community impacts, farmlands and agriculture, aesthetics and visual resources, socioeconomics, utilities and public services, hazardous materials and wastes)
  - Cultural resources (archaeological resources, historical properties) and paleontological resources
  - Natural environment (geology and seismic hazards, hydrology and water resources, and biological resources and wetlands).
  - Section 4(f) and 6(f) resources (certain types of publicly owned parklands, recreation areas, wildlife/waterfowl refuges, and historical sites).

In identifying preferred alignment alternatives and the overall preferred network alternative, the Authority is guided by adopted objectives and criteria for selecting preferred alignment alternatives and station location options that were also applied in the alignment screening evaluation (Table 6-1 below).

Table 6-1
High-Speed Rail Alignment and Station Evaluation Objectives and Criteria

Objective	Criteria
Maximize ridership/revenue potential	Travel time Length Population/employment catchment area Ridership and revenue forecasts
Maximize connectivity and accessibility	Intermodal connections
Minimize operating and capital costs	Length Operational issues Construction issues Capital cost Right-of-way issues/cost

Objective	Criteria
Maximize compatibility with existing and planned development	Land use compatibility and conflicts Visual quality impacts
Minimize impacts on natural resources	Water resources impacts Floodplain impacts Wetland impacts Threatened and endangered species impacts
Minimize impacts on social and economic resources	Environmental justice impacts (demographics) Farmland impacts
Minimize impacts on cultural and parks/wildlife refuge resources	Cultural resources impacts Parks and recreation impacts Wildlife refuge impacts
Maximize avoidance of areas with geologic and soils constraints	Soils/slope constraints Seismic constraints
Maximize avoidance of areas with potential hazardous materials	Hazardous materials/waste constraints

In the 2008 Final Program EIR, the Federal Railroad Administration (FRA) concurred with the Authority's identification of the Pacheco Pass Network Alternative serving San Francisco via San Jose as the preferred alternative. The FRA identified the Pacheco Pass Network Alternative serving San Francisco via San Jose as environmentally preferable under NEPA, and the Authority identified it as environmentally superior under CEQA. The FRA has consulted with USEPA and USACE regarding their concurrence for compliance with the requirements of Section 404 of the Clean Water Act (Federal Railroad Administration 2008a). Although no permit is being requested at this time under the Clean Water Act, the U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACE) have concurred that the identified preferred network alternative is most likely to yield the "least environmentally damaging practicable alternative" (LEDPA) consistent with the USACE's permit program (33 CFR Part 320–331) and USEPA's Section 404(b)(1) Guidelines (40 CFR 230–233) (U.S. Environmental Protection Agency 2008; U.S. Army Corps of Engineers 2008). In addition, the FRA issued a record of decision in December 2008 selecting the Pacheco Pass Network Alternative serving San Francisco via San Jose for further study (Federal Railroad Administration 2008b).

After the conclusion of this revised program EIR process, the Authority and FRA will focus future project-level EIR and EIS analysis in the study region on alignment alternatives and station location options selected through this program environmental process. Site-specific location and design alternatives for the preferred alternative and station location options, including avoidance and minimization alternatives, will be fully investigated and considered during next tier project-level environmental review.

6.3.2 Summary of Comments on the Identification of the Preferred Alternative

Public input on the selection of a preferred alternative to connect the San Francisco Bay Area to the Central Valley has now occurred in threetwo distinct stages to date. The initial public comment period on the Draft Program EIR/EIS took place in 2007, and the Authority's prior decision based on that document occurred in 2008. Public comment on the original Program EIR/EIS thus preceded the passage of Proposition 1A in November 2008. The Authority circulated its 2010 Revised Draft Program EIR between March and April 2010, providing a new opportunity for public comment on the new document. The Authority made a prior decision based on the Revised Final Program EIR in September 2010. The Authority circulated the 2012 Partially Revised Draft Program EIR in January and February 2010. The following summarizes these three both sets of public input.

Comments on the Preferred Alternative in the 2007/2008 Program EIR Process and Following Passage of Proposition 1A

The identification of a preferred HST alignment between the Bay Area and Central Valley has been and continues to be controversial. The 2008 Program EIR/EIS process received a considerable amount of comment from agencies (federal, state, regional, and local), organizations, and the general public. In 2008, there was a wide divergence of opinion with many favoring the Pacheco Pass, many favoring the Altamont Pass, and many favoring a combination of both passes (with the Pacheco serving as the north/south HST connection and Altamont primarily serving interregional commuter service between Sacramento/Northern San Joaquin Valley and the Bay Area).

A. PACHECO

In 2008, the Pacheco Pass supporters included the Metropolitan Transportation Commission (MTC), the cities of San Francisco, San Jose, Redwood City, Fremont, Morgan Hill, Cupertino, Sunnyvale, Gilroy, and Salinas; the counties of San Francisco, Santa Clara, San Mateo, and Monterey; Congress members Lofgren, Honda, Eshoo, and Lantos; Assembly member Beale; State Senators Alquist and Maldanado; the San Francisco County Transportation Agency; the Santa Clara Valley Transportation Authority (VTA); Peninsula Corridor (Caltrain) Joint Powers Board (JPB); San Mateo County Transit District (SamTrans); San Mateo County Transportation Authority (TA); Monterey County Transportation Agency; Alameda County Congestion Management Agency; Alameda County Supervisor Scott Haggerty; the San Jose, the San Francisco, Redwood City, and the San Mateo County Chamber of Commerce; the Silicon Valley Leadership Group; and a number of members of the public representing themselves.

There are a number of reasons supporters gave in 2008 for preferring the Pacheco Pass, including: 1) quicker travel times between San Jose/Silicon Valley and Southern California; 2) more frequent/better service between Bay Area and southern California; 3) higher ridership potential; 4) less potential environmental impacts; 5) avoiding impacts on wildlife and sensitive habitat through Don Edwards San Francisco Bay National Wildlife Refuge; 6) best serves the Caltrain Corridor (San Francisco to Gilroy); 7) provides good HST access for the three county Monterey Bay area with a south Santa Clara HST station; 8) can serve San Francisco, Oakland, and San Jose without a new crossing of the Bay; 9) all service through San Jose/best serves south Bay; and 10) less cost for first phase of system between the Bay Area and Anaheim.

There are a considerable number of organizations, agencies, and individuals who, in 2008, expressed concern regarding potential impacts on the GEA and/or the uninhabited portions of the Pacheco Pass by HST alternatives via the Pacheco Pass. These include the USFWS, CDFG, California Department of Parks and Recreation, Grassland Water District, Grassland Resources Conservation District, Grassland Conservation, Education & Legal Defense Fund, Ducks Unlimited, California Outdoor Heritage Alliance, California Waterfowl Association, Sacramento Area Council of Governments, Citizens' Committee to Complete the Refuge, Bay Rail Alliance, California Rail Foundation (CRF), California State Parks Foundation (CSPF), Defenders of Wildlife, Planning and Conservation League (PCL), Regional Alliance for Transit (RAFT), Sierra Club, Train Riders Association of California (TRAC), and Transportation Solutions Defense and Education Fund (TRANSDEF). California Department of Parks and Recreation raised concerns regarding potential impacts on State Parks and reserve resources through the Pacheco Pass. Between 2008 and March 2010, a considerable number of organizations, agencies, and individuals have expressed concern regarding potential impacts on the Caltrain Corridor. The town of Atherton opposes use of the Caltrain Corridor between San Jose and San Francisco and the Cities of Menlo Park and Millbrae ~~has~~ have raised concerns regarding potential impacts through their cities. The "Peninsula Cities Consortium" (which includes Palo Alto, Menlo Park, Atherton, Belmont, and Burlingame) was created after the November 2008 election as a result of concerns regarding potential impacts along the Caltrain Corridor including: alignment, environmental consequences, local growth, station planning and land use as well as noise and vibration, biological and cultural resources.

B. ALTAMONT

In 2008, the Altamont Pass supporters included the cities of Oakland, Union City, and Atwater; the town of Atherton; the counties of San Joaquin, Stanislaus, Mariposa, and Kern; the California Partnership for the San Joaquin Valley; the San Joaquin Regional Policy Council; Sacramento Area Council of Governments; San Joaquin County Council of Governments; Tulare County Association of Governments; Altamont Commuter Express (ACE); California Department of Parks and Recreation; California Environmental Coalition; California State Parks Foundation (CSPF); Planning and Conservation League (PCL); Sierra Club; Grassland Water District; Grassland Resources Conservation District; Grassland Conservation, Education & Legal Defense Fund; California Outdoor Heritage Alliance; Bay Rail Alliance; Transportation Involves Everyone (TIE); San Joaquin COG Citizens Advisory Committee; Tracy Region Alliance for a Quality Community; Ducks Unlimited; Transportation Solutions Defense and Education Fund (TRANSDEF); California Rail Foundation (CRF); Defenders of Wildlife; Regional Alliance for Transit (RAFT); Citizens' Committee to Complete the Refuge; Train Riders Association of California (TRAC); and a number of members of the public representing themselves.

There are a number of reasons supporters gave in 2008 for preferring the Altamont Pass including: 1) quicker travel times between Sacramento/Northern San Joaquin Valley and the Bay Area; 2) best serves the Central Valley; 3) more Northern San Joaquin markets served on the Authority's adopted first phase of construction between the Bay Area and Anaheim; 4) higher ridership potential; 5) less potential for environmental impacts; 6) avoids impacts on wildlife and sensitive habitat through Pacheco Pass and the GEA; 7) serves a greater population/more population along the alignment; 8) best serves ACE corridor and reduces traffic along I-580; 9) better service between Bay Area and Southern California (either reduced frequency is needed on shared Caltrain alignment or HST trains can be split); 10) best serves San Jose since it would be a terminus station and with much faster travel times to commuter markets in the Northern San Joaquin Valley; and 11) is less sprawl inducing.

There are a considerable number of organizations, agencies, and individuals who, in 2008, expressed concern regarding potential impacts on the San Francisco Bay and Don Edwards San Francisco Bay National Wildlife Refuge by HST alternatives via the Altamont Pass using a Dumbarton Crossing. These include the MTC; BCDC; USEPA; USFWS; Don Edwards San Francisco Bay National Wildlife Refuge; Congress members Zoe Lofgren, Michael Honda, Anna Eshoo, and Tom Lantos; State Senators Elaine Alquist and Abel Maldanado; Assembly member Jim Beale; Santa Clara County; San Mateo County Transit District (SamTrans); San Mateo County Transportation Authority (TA); Peninsula Corridor (Caltrain) Joint Powers Board (JPB); San Francisco Bay Trail Project; San Jose Chamber of Commerce; San Francisco Bay Trail Project; the City of San Jose; the City of Oakland; and Don Edwards (Member of Congress, 1963-1995). The East Bay Regional Park District has raised concerns in regards to potential impacts on nine regional parks, in particular the Pleasanton Ridge and Vargas Plateau regional parks, and the Alameda Creek Regional Train between Pleasanton and Niles Junction for Altamont Pass alternatives. In addition, the City of Fremont opposes the Altamont Pass, and the City of Pleasanton does not support the Altamont Pass but remains "open" to terminating Altamont alternatives in Livermore. The MTC and Alameda County Supervisor Scott Haggerty also support the investigation of Altamont Pass alternatives terminating in Livermore.

C. COMBINED PACHECO AND ALTAMONT

After completing a two-year "Regional Rail" planning process, the MTC ~~has~~ re-confirmed support for the Pacheco alignment via the San Francisco Peninsula as "the main HSR express line between Northern and Southern California due to several of the reasons stated in Resolution N. 3198:

- has the highest statewide ridership demand, and best serves HSR's key market—Northern California to Southern California, connecting the two most congested regions in the state
- provides direct service to all three major cities—San Francisco, San Jose and Oakland
- avoids construction of a new bay crossing or tube required by the Altamont Pass entry for San Francisco service."

MTC's resolution also "endorse(s) the Altamont route as better suited to serve interregional and local travel between the Bay Area and the Northern San Joaquin Valley." It states:

> At the same time the Pacheco pass alignment is being built, the CHSRA should upgrade interregional services between Peninsula—Tri Valley—Sacramento & San Joaquin Valley. As a first step, ACE service can be improved by adding tracks and improving signaling to provide higher speed and more reliable service that would connect with a future BART station in Livermore (Greenville Road or Isabel/Stanley based on further BART analyses); these improvements would need to be compatible with future HSR. An electrified regional train capable of higher speeds, with additional grade separations that would improve road circulation, would replace longer-term, ACE service; the trains would also be compatible with lightweight equipment operating in the Dumbarton Corridor…. [MTC] request[s] that the CHSRA also evaluate an alternative in the Altamont Corridor that terminates HSR at a proposed BART Livermore station where HSR passengers could be dispersed to Bay Area locations throughout the BART system, together with improved ACE service to Santa Clara County… [and] … request[s] that CHSRA consider seeking additional HSR bond funds dedicated to upgrading the Altamont corridor for regional service.

The Tri-Valley Policy Working Group and Technical Advisory Committee (Tri-Valley PAC) took a similar position. Tri-Valley PAC is a partnership that includes the cities of Dublin, Livermore, Pleasanton, Danville, San Ramon, and Tracy along with transportation providers LAVTA, ACE, and BART. The Tri-Valley supports "continued study of high speed rail through the Altamont Corridor on the Union Pacific corridor **PROVIDED**:

- There are no significant Right-of-Way takes.
- There is no major aerial structure through Pleasanton."

In addition, the Tri-Valley PAC provided the following comments for consideration by the Authority:

> The Draft Bay Area EIR/EIS includes a Bay Area HSR alignment that would include High Speed Train service through the Pacheco Pass and regional overlay service provided through the Altamont pass. The Policy Advisory Committee believes that this option may present the best way of addressing our concerns and delivering optimal HST service to the region as a whole.
>
> The combined Altamont/Pacheco(Hybrid) alignment option allows HSR to provide frequent service along the most direct route between northern and southern California, while still serving the important regional transportation corridors in Northern California, including those in the Central Valley, the Tri-Valley, and between Sacramento and the Bay Area. The Draft EIR/EIS demonstrates that the corridors served by the Altamont alignment include some of the greatest travel demand in the entire system.
>
> While providing these important transportation advantages, a system that provides service in both major corridors also mitigates some of the possible negative impacts identified in the Draft EIR/EIS. Specifically related to the Tri-Valley's key concerns, it would improve the likelihood that HST service could be delivered within the existing Union Pacific Right-of-Way without the need for major aerial infrastructure, or significant right-of-way acquisition through the developed portions of the Tri-Valley.

U.S. Congressman Jim Costa stated that he'd rather not view this as one route over another. He would rather the Valley see a vision for both, and the Capitol Corridor JPB supports "in principle the concept of the two high-speed alignments into and out of the Bay Area. Each alignment would provide a means to meet the high-speed travel markets for (1) long distance travelers from Los Angeles/Southern California using the Pacheco Pass route and (2) the interregional travelers from the Central Valley using the Altamont Pass route." The MTC recommendations were also supported by the Alameda County Congestion Management Agency and Alameda County Supervisor Scott Haggerty.

While the Silicon Valley Leadership Group and the City of San Jose strongly support the Pacheco Pass and the HST link between northern and southern California, they also support high-speed commuter service/improvements to ACE service via the Altamont Pass, and while the California Partnership for the San Joaquin Valley strongly prefers the Altamont Pass, they also commented that the Authority "evaluate the economic feasibility of developing both the Altamont and Pacheco Pass routes to see if each one of those routes, on its own merits, will generate an economic surplus. If it does, then we would like to see both routes implemented." They also stated, "if it turns out that one of the two routes must be implemented first, they cannot be implemented concurrently, then our strong preference is for the Altamont route." However, some members of the public have expressed opposition to the "hybrid" idea (Pacheco and Altamont) raising issue with the additional costs and concern that only one pass would be implemented.

The USEPA recommended "eliminating from further consideration a high speed rail alternative connecting Bay Area to Central Valley that includes both an Altamont and a Pacheco Pass alignment, termed, "*Pacheco Pass with Local Service*" in the Draft PEIS. This scenario would effectively result in twice the habitat fragmentation, noise, and indirect impacts to aquatic resources. This alternative would likely result in CWA Section 404 permitting challenges because it is difficult to demonstrate that mountain crossings at both Pacheco and Altamont Passes represent the LEDPA given the increased indirect impacts to aquatic resources and habitat fragmentation associated with this alternative."

Comments on the Preferred Alternative in the 2010 Revised Program EIR Process

The Authority received extensive comments on the 2010 Revised Draft Program EIR from agencies (state, regional, and local), organizations, and the general public during the public comment period. The comments were contained in more than 540 comment letters containing more than 3750 individual comments. In contrast to 2008, when the comments received showed a clear preference for the Pacheco Pass, the Altamont Pass, or both passes, the public comments in 2010 were substantially more complex. Support remained for the Pacheco Pass Network Alternative serving San Francisco via San Jose, however, the Authority received many comments expressing great concern about this network alternative. The expressions of concern were most often accompanied by the commenter advocating for any option other than the Pacheco Pass Network Alternative serving San Francisco via San Jose. Support also remains for Altamont Pass network alternatives. The following provides a general summary of the comments that can be reviewed in full in Volume 2 of the Revised Final Program EIR:

A. **Pacheco**: In 2010, the following entities identified in writing their support for the Pacheco Pass Network Alternative serving San Francisco via San Jose: Santa Clara Valley Transportation Authority; City of San Jose; Transportation Agency for Monterey County; City of Gilroy; Santa Cruz County Regional Transportation Commission; Metropolitan Transportation Commission; San Francisco Chamber of Commerce; and San Mateo County Economic Development Assn. Many individuals expressed support for the Pacheco Pass Network Alternative serving San Francisco via San Jose either in writing or at the public comment meeting in April in San Jose.

B. **Altamont:** In 2010, the following entities identified in writing their support for one of the Altamont Pass network alternatives: Town of Atherton; Palo Alto Central East Residential

Association; Transportation Solutions Defense and Education Fund (TRANSDEF); California Rail Foundation; Planning and Conservation League; and Natural Resources Defense Council. Many individuals expressed support for Altamont Pass alternatives either in writing or at the public comment meeting in April in San Jose.

C. **No Project Alternative, No Caltrain Corridor Alternatives, Caltrain Below Grade Alternatives:** In 2010, the following entities advocated for other options, such as stopping either a Pacheco or Altamont alternative in San Jose or Union City, utilizing a non-Caltrain alignment such as 101 or 280 to reach San Francisco, or placing a Caltrain alignment below grade in a tunnel or covered trench: City of Burlingame; City of Menlo Park; Planning and Conservation League. Many comments from individuals who identified themselves as residents along or near the Caltrain Corridor between San Francisco and San Jose advocated for all three options.

Comments on the Preferred Alternative in the 2012 Partially Revised Program EIR Process

The Authority received a number of comments on the 2012 Partially Revised Draft Program EIR from agencies (state, regional, and local), tribes, businesses/organizations, and the general public during the public comment period. The comments were contained in more than 50 comment letters containing more than 400 individual comments. Since 2010, the Draft 2012 Business Plan was released and many comments received related to the blended system concept (see below) and phased implementation rather than specific network alternatives. The comments as a whole included far fewer preferences for a particular alternative than in the past. A number of comments strongly expressed preference for no HST project rather than for a specific network alternative.

The following provides a general summary of the comments that can be reviewed in full as part of this Partially Revised Final Program EIR:

A. **Pacheco**: In 2012, the following entities identified in writing their support for the Pacheco Pass Network Alternative serving San Francisco via San Jose: Santa Clara Valley Transportation Authority; City of San Jose; and City of Morgan Hill. A few individuals expressed support for the Pacheco Pass Network Alternative serving San Francisco via San Jose either in writing or at the public comment meeting in February in San Jose.

B. **Altamont:** In 2012, the following entities identified in writing their support for one of the Altamont Pass network alternatives: Town of Atherton; Transportation Solutions Defense and Education Fund (TRANSDEF); California Rail Foundation; and Planning and Conservation League.

C. **Blended System**: Prior to the circulation of the Partially Revised Draft Program EIR, in April of 2011, a proposal for implementing the HST on the Caltrain corridor was circulated by Senator Simitian, Congresswoman Eshoo, and Assemblyman Gordon, calling for a blended system on the Peninsula that integrates HST with an improved Caltrain system. The blended system proposal identified the following points:

- "We explicitly reject the notion of high-speed rail running from San Jose to San Francisco on an elevated structure or "viaduct"; and we call on the High-Speed Rail Authority to eliminate further consideration of an aerial option;
- We fully expect that high-speed rail running from San Jose to San Francisco can and should remain within the existing Caltrain right of way; and,

- Third and finally, consistent with a project of this more limited scope, the Authority should abandon its preparation of an EIR (Environmental Impact Report) for a phased project of larger dimensions over a 25 year timeframe. Continuing to plan for a project of this scope in the face of limited funding and growing community resistance is a fool's errand; and is particularly ill-advised when predicated on ridership projections that are less than credible." (Eshoo, Simitian, and Gordon Joint Statement on High-Speed Rail (April 2011).)

The following entities expressed a preference for a blended system approach on the Peninsula, or discussed the blended system without a preference: City of Palo Alto; Peninsula Corridor Joint Powers Board; City of San Mateo; City of Menlo Park; Town of Atherton; Transportation Solutions Defense and Education Fund. In addition, a number of individuals expressed support for a blended system approach. Many of these submissions also indicated a specific opposition to a four-track alignment on the Peninsula.

6.3.3 Network Alternatives Evaluation

The purpose of the HST system is defined in Chapter 1 of the 2008 Final Program EIR/EIS as follows: The purpose of the Bay Area HST is to provide a reliable high-speed electrified train system that links the major Bay Area cities to the Central Valley, Sacramento, and Southern California, and that delivers predictable and consistent travel times. Further objectives are to provide interfaces between the HST system and major commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system in a manner sensitive to and protective of the Bay Area to Central Valley region's and California's unique natural resources.

Chapter 1 of the 2008 Final Program EIR/EIS also outlines the objectives that the Authority has adopted, including, "maximize intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways" and states that the Authority's statutory mandate is to plan, build, and operate a HST system that is "coordinated with the state's existing transportation network, particularly intercity rail and bus lines, commuter rail lines, urban rail transit lines, highways, and airports."

The 21 network alternatives described and illustrated in Chapter 7 of the 2008 Final Program EIR/EIS present information about overall effects of combinations of HST Alignment Alternatives and station location options to implement the HST system in the study region. The 21 network alternatives fall among the three basic approaches for linking the Bay Area and Central Valley: Altamont Pass (11 network alternatives); Pacheco Pass (six network alternatives); and Pacheco Pass with Altamont Pass (local service) (four network alternatives). The network alternatives vary in the degree they serve urban areas/centers and international airports. All but one would provide direct HST services to (i.e., include a HST station within) one and up to three of the major urban centers in the Bay Area—San Francisco, San Jose, and Oakland. Some of the network alternatives would provide service to one or more of the three Bay Area international airports at San Francisco, Oakland, and San Jose. Connectivity and enhancement of other transit systems (e.g. ACE, Caltrain, Capitol Corridor, BART, and Valley Transportation Authority) also vary greatly among the network alternatives.

Overall, implementing the HST system would greatly increase the capacity for intercity and commuter travel and reduce existing automobile traffic in specific travel corridors. Full grade-separation along Bay Area rail corridors used by the HST would improve local traffic flow and reduce air pollution at existing rail crossings. The more extensive the HST system implemented in the Bay Area, the greater the travel condition benefits, including increased connectivity to other transit systems, increased convenience, increased reliability, and improved travel times. In particular, more direct connections to the region's airports provide increased connectivity for air transportation system riders.

Recognizing the benefits described above, as well as other attributes, the cities of San Francisco, Oakland, and San Jose all strongly support direct HST service to their respective downtowns. This support was expressed as comments on the 2008 Final Program EIR/EIS, and is consistent with comments/input provided by these cities over the ten years since the Authority was created. MTC, the regional transportation planning and programming agency for the Bay Area, supports direct HST service to the downtowns of each of these three major Bay Area urban centers.

A number of network alternatives clearly do not meet the purpose and need for the HST system as fully as others. The Altamont Pass network alternative that terminates in Union City does not fully meet the purpose and need since it does not provide direct HST service to San Francisco, Oakland, or San Jose (the major Bay Area cities) nor does it provide interface with the major commercial airports. Also less able to meet the purpose and need are a Pacheco Pass network alternative that terminates in San Jose and three Altamont Pass network alternatives that only serve one of the three major urban areas/centers. These four alternatives directly provide HST service to at most only one major Bay Area city and one of the region's major commercial airports.

A. PACHECO PASS NETWORK ALTERNATIVES EVALUATION

Six representative Pacheco Pass network alternatives were investigated. These six alternatives encompass the range of different ways to combine HST Alignment Alternatives and station location options to implement the HST system via the Pacheco Pass. All six Pacheco Pass network alternatives provide direct service to downtown San Jose. The Pacheco Pass network alternatives consist of: 1) HST to San Francisco via the San Francisco Peninsula; 2) HST to Oakland via the East Bay; 3) HST to San Francisco via the San Francisco Peninsula and to Oakland via the East Bay (no bay crossing); 4) HST terminating in San Jose; 5) HST to San Francisco via the peninsula and then to Oakland via a new transbay tube; and 6) HST to Oakland via the East Bay and then to San Francisco via a new transbay tube. As previously explained, the alternative that would terminate in San Jose and not serve either San Francisco or Oakland directly does not fully meet the purpose and need for the proposed HST system.

The Pacheco Pass alternatives with the greatest environmental impacts and greatest construction issues are the two alternatives that include a new transbay tube. These alternatives would have over 36 acres of potential direct impacts on the San Francisco Bay. To put this into perspective, these alternatives would have 40.3–41 ac of potential impacts on waterbodies (lakes + San Francisco Bay), whereas the preferred Pacheco Pass alternative (HST to San Francisco via the San Francisco Peninsula) would have only 3.8 ac of potential direct impacts. The cost of the additional 8.8-mile HST segment needed to implement a new transbay tube is estimated at about $4.6 billion (2006 dollars)—over $500 million per mile. Moreover, there is only slightly higher ridership and revenue potential (about 2% higher ridership or 1.9 million passengers per year by 2030) when comparing the transbay tube alternative via the San Francisco Peninsula versus the preferred alternative. To implement alternatives that included a new transbay tube, extensive coordination would be required with the USACE under Section 10 of the Rivers and Harbors Act, USFWS, and the California Coastal Commission. Crossing the Bay would also be subject to the USACE, CDFG, and BCDC permit process.

The preferred Pacheco Pass alternative (serving San Francisco via the San Francisco Peninsula) has similar potential environmental impacts as the Oakland to San Jose via the East Bay alternative. Both alternatives maximize the use of existing transportation corridors and avoid impacts on the San Francisco Bay. The preferred alternative to San Francisco would have slightly less potential impacts on wetlands (15.6 ac vs. 17.4 ac), waterbodies (3.8 ac vs. 4.5 ac), and streams (20,276 linear ft. vs. 21,788 linear ft.) but would have slightly more potential impacts on floodplains (520.8 ac vs. 477.5 ac) and species (plant and wildlife), and would potentially impact a greater number of cultural resources (168 vs. 106) than the Pacheco Pass alternative to Oakland via the East Bay. Both alternatives would have high ridership potential and similar costs. The alternative to downtown San Francisco (Transbay Transit Center) is forecast to have about 2.3% (2.17 million riders per year by 2030) higher ridership potential than the alternative to Oakland (West Oakland), but is estimated to cost about 7.1% more ($840 million in 2006 dollars).

The Oakland and San Jose via the East Bay alternative has considerable logistical constraints. In its adopted Regional Rail Plan for the San Francisco Bay Area, the MTC raised certain issues associated with an East Bay HST alignment to Oakland and San Jose and are not recommending an East Bay alignment. The Authority and FRA examined these and other issues as discussed below and concurred with MTC's evaluation of not recommending an East Bay alignment:

- Right-of-Way Constraints and Duplicate Investment – Commitments have already been made to improve Capitol Corridor service and to extend BART to San Jose but these improvements would not be compatible with HST service, which would need to use separate tracks. Non-electric, conventional Capitol Corridor trains will continue to share track with standard freight services in the constrained UPRR owned right-of-way. When fully developed, BART and Capitol Corridor will provide complementary rail options with BART serving more local stops and Capitol Corridor primarily serving regional stops. The capital cost of the East Bay line segment is approximately $4.9 billion (2006 dollars).
- Risk of UPRR Right-of-Way Agreement – The risk of reaching an agreement from UPRR to obtain the right to construct additional tracks for the HST along the Niles Subdivision where the high-speed alignment is proposed between Mission Boulevard and Oakland is high.
- Potential Environmental Justice Concerns – The environmental screening in the MTC Regional Rail Plan indicated potential concerns with construction of a new elevated alignment though existing urbanized areas especially in the East Bay between Fremont and Oakland.
- Right-of-Way Constraints within I-880 – The East Bay alignment segment south of Fremont would need to be constructed along I-880 freeway south of Mission Boulevard towards San Jose with the potential for a long process with Caltrans to define and construct the elevated HST trackway within the freeway right-of-way. Caltrans has serious concerns about construction within the constrained median.

The Pacheco Pass alternative that serves San Francisco, Oakland, and San Jose without a new bay crossing provides the highest level of connectivity and accessibility to the Bay Area of the Pacheco Pass Alternatives by directly serving the three major Bay Area urban centers, serving both the San Francisco Peninsula and the East Bay, and providing good connectivity to the region's three international airports (SFO, Oakland, and San Jose). However, this alternative has greater environmental impacts and greater costs ($3.6 billion more in 2006 dollars) than the preferred alternative since it requires over 42 additional miles of HST alignment to be constructed along the East Bay and would have the same logistical constraints as described above for the Oakland and San Jose via the East Bay alternative. In addition, because this alternative would split the frequency of the HST services (express, suburban express, skip-stop, local, and regional) between the San Francisco Peninsula and the East Bay, this resulted in somewhat less ridership and revenue projected for this alternative as compared to the preferred Pacheco Pass alternative (7.8 million passengers a year by 2030 representing 8.4% of the preferred alternative's ridership).

The Pacheco Pass alternative to downtown San Francisco via the San Francisco Peninsula is preferred because it provides HST direct service to downtown San Francisco, SFO, and the San Francisco Peninsula while minimizing potential environmental impacts and logistical constraints by maximizing use of existing rail right-of-way through shared-use with improved Caltrain commuter services. The HST is complementary to Caltrain (which intends to use lightweight electrified trains) and would share tracks with express Caltrain commuter rail services. In addition, this alternative provides direct service to northern California's major hub airport at SFO and major transit, business, and tourism center at downtown San Francisco, and would enable the early implementation of the HST/Caltrain section between San Francisco, San Jose, and Gilroy. This alternative also involves comparatively less interface with UPRR than the most promising Altamont Pass alternatives.

The MTC recommends use of the Pacheco Pass via the San Francisco Peninsula "as the main HSR express line between Northern and Southern California" but their recommendation also includes a new transbay tube to bring direct service to Oakland. MTC recommends that the first step in implementing HST in Northern California and the Bay Area is "investment in the Peninsula trackage with regional and high-speed rail funding can make this corridor high-speed rail ready," noting that Caltrain intends to use lightweight electrified trains that would be compatible with HST equipment.

B. ALTAMONT PASS NETWORK ALTERNATIVES EVALUATION

Eleven representative Altamont Pass network alternatives were investigated. These 11 alternatives encompass the range of different ways to combine HST Alignment Alternatives and station location options to implement the HST system via the Altamont Pass. The Altamont Pass network alternatives consist of: 1) HST to San Francisco (via Dumbarton) and San Jose (via I-880); 2) HST to Oakland and San Jose via the East Bay; 3) HST to San Francisco (via Dumbarton) and Oakland and San Jose via the East Bay; 4) HST terminating in San Jose; 5) HST terminating in to San Francisco; 6) HST terminating in Oakland; 7) HST terminating in Union City; 8) HST to San Francisco and San Jose via San Francisco Peninsula (and Dumbarton crossing); 9) San Francisco and San Jose, Oakland—no Bay Crossing; 10) Oakland and San Francisco—via transbay tube; and 11) San Jose, Oakland and San Francisco—via transbay tube. The four Altamont Pass network alternatives that would terminate in Union City or provide direct service to only one of the three major urban centers of the Bay Area (San Francisco, San Jose, and Oakland) do not fully meet the purpose and need for the proposed HST system.

The two Altamont Pass network alternatives that require a new transbay tube would have high potential environmental impacts and considerable construction issues. These alternatives would have over 36 acres of potential direct impacts on the San Francisco Bay. They would have 38.8 ac of potential impacts on waterbodies (lakes + San Francisco Bay) whereas the Oakland and San Jose Termini Altamont Pass network alternative would have only 2.3 ac of potential direct impacts. The cost of the additional 8.8-mile HST segment needed to implement a new transbay tube is estimated at about $4.6 billion (2006 dollars) —over $500 million per mile. Moreover, there is only slightly higher ridership and revenue potential (less than 2% higher ridership or 1.0–1.6 million passengers per year by 2030) when comparing the transbay tube alternative via the East Bay versus the related Altamont Pass network alternative that terminates in Oakland. To implement alternatives that included a new transbay tube, coordination would be required with the USACE under Section 10 of the Rivers and Harbors Act, USFWS, and the California Coastal Commission. Crossing the Bay would also be subject to the USACE, CDFG, and BCDC permit process.

The Altamont Pass network alternative that serves San Francisco, Oakland, and San Jose (with a Dumbarton crossing) provides a high level of connectivity and accessibility to the Bay Area by directly serving the three major Bay Area urban centers, serving both the San Francisco Peninsula and the East Bay, and providing good connectivity to the region's three international airports (SFO, Oakland, and San Jose). However, this alternative has greater environmental impacts, logistical constraints, and costs ($2.4 billion more in 2006 dollars) than the San Francisco and San Jose Termini Altamont Pass alternative since it requires nearly 38 additional miles of HST alignment to be constructed along the east bay. In addition, because this alternative would further spilt the frequency of the HST services (express, suburban express, skip-stop, local, and regional) between San Francisco, San Jose, and Oakland (a three way split east of Niles Junction) this resulted in somewhat less ridership and revenue projected for this alternative as compared to the San Francisco and San Jose Termini Altamont Pass network alternative (about 6.8 million passengers a year by 2030 representing 7.7% of the other alternative's ridership).

The Altamont Pass network alternative that serves San Francisco, Oakland, and San Jose—no Bay Crossing provides a high level of connectivity and accessibility to the Bay Area by directly serving the three major Bay Area urban centers, serving both the San Francisco Peninsula and the East Bay, and provides good connectivity to the region's three international airports (SFO, Oakland, and San Jose). However, this alternative has greater environmental impacts and greater costs ($4.5 billion more in 2006 dollars) than the Oakland and San Jose Termini Altamont Pass alternative since it requires over 62 additional miles of HST alignment to be constructed along the San Francisco Peninsula. In addition, this alternative results in non-competitive travel times from San Francisco, SFO, or Palo Alto/Redwood City to the HST stations to the south including Bakersfield, Los Angeles, Anaheim, Riverside, and San Diego. The non-competitive travel times to San Francisco and the San Francisco Peninsula resulted in somewhat less ridership and revenue projected for this alternative as compared to the Oakland and San Jose Termini Altamont Pass network alternative (about 2.8 million passengers a year by 2030 representing over 3.1% of the other alternative's ridership).

There are considerable trade-offs in comparing the three most promising Altamont Pass network alternatives: San Francisco and San Jose Termini; Oakland and San Jose Termini; and San Francisco and San Jose—via San Francisco Peninsula. Of these three Altamont Pass network alternatives, the Oakland and San Jose Altamont Pass network alternative is estimated to have the least potential environmental impacts predominately because the other two alternatives require a Bay crossing at Dumbarton. The Oakland and San Jose Termini network alternative is estimated to have fewer potential impacts on waterbodies (2.3 ac vs. 39.6 ac), wetlands (12.3 ac vs. 44.4-45.9 ac), special status plant species (40 vs. 56), special status wildlife species (44 vs. 50), non-wetland waters (14,032 linear ft. vs. 15,947-16,773 linear ft.), and cultural resources (128 vs. 149-180) than the two network alternatives serving San Francisco and San Jose termini. Constructing a new bridge or tube crossing along the Dumbarton corridor would involve major construction activities in sensitive wetlands, saltwater marshes, and aquatic habitat, requiring special construction methods and mitigations. All the Dumbarton crossing alternatives would result in direct impacts on Don Edwards San Francisco Bay National Wildlife Refuge and would have potential direct impacts on 15 special-status plant and 21 special-status wildlife species. To implement this alternative across the bay, extensive coordination would be required with the USACE under Section 10 of the Rivers and Harbors Act and the California Coastal Commission and the Bay crossing would be subject to the USACE, CDFG, and BCDC permit process. BCDC scoping comments note that bridge alternatives that could have adverse impacts on Bay resources can only be approved by BCDC "if there is not an alternative upland location for the route and if the fill in the minimum necessary to achieve the purposes of the project" (BCDC scoping response, December 15, 2005).

The major issues with the Oakland and San Jose network alternative are the logistical constraints previously described (Section 7.3 A) along the East Bay, and that it does not provide direct HST service to SFO (northern California's major hub airport), the San Francisco Peninsula (Caltrain Corridor), and downtown San Francisco, the major transit, business, and tourism center of the region. Service utilizing the Caltrain corridor better satisfies the purpose and need of the HST and also best supports the Authority's adopted phasing plan. The two Altamont Pass alternatives to San Francisco and San Jose have similar environmental impacts and costs. However, the San Francisco and San Jose Termini network alternative would offer quicker travel times to San Jose than the San Francisco and San Jose—via the San Francisco Peninsula (2 hours 19 minutes vs. 2 hours 37 minutes for SJ-LA; and 49 minutes vs. 1 hour and 3 minutes SJ-Sacramento). The Peninsula route would have slightly higher ridership (2.85 million additional riders).

The Bay Area Regional Rail Plan adopted by MTC favors the San Francisco and San Jose—via the San Francisco Peninsula Altamont Pass alternative because this alternative would utilize the Caltrain alignment between San Francisco and San Jose and would "maximize the partnership opportunities with CHSRA, could be incrementally developed, provides consistency with existing plans and minimizes duplication with committed plans and investments" (MTC, Sept 2007, pg 86). However, the MTC preference for Altamont also includes an ultimate connection to Oakland from San Francisco via a new transbay tube.

C. PACHECO PASS WITH ALTAMONT PASS (LOCAL SERVICE) NETWORK ALTERNATIVES EVALUATION

Four representative Pacheco Pass with Altamont Pass (local service) network alternatives were investigated. These four alternatives encompass the range of different ways to combine HST Alignment Alternatives and station location options to implement the HST system via the Pacheco Pass while also providing local HST service via the Altamont Pass. The Pacheco with Altamont Pass (local service) network alternatives consist of: 1) HST with San Francisco and San Jose Termini; 2) HST with Oakland and San Jose Termini; 3) HST with San Francisco, San Jose, and Oakland Termini (without Dumbarton Bridge); and 4) HST terminating in San Jose. The Pacheco Pass and Altamont Pass (local service) network alternative that would terminate in San Jose does not serve either San Francisco or Oakland directly and does not fully meet the purpose and need for the proposed HST system.

The network alternative to Oakland and San Jose is estimated to be the least costly of the remaining three network alternatives serving both the Pacheco and Altamont passes ($2.3 billion in 2006 dollars less than the alternative serving San Francisco and San Jose), would have the least environmental impacts, and would have high ridership potential, but it would not provide direct HST service to downtown San Francisco, SFO, and the San Francisco Peninsula (Caltrain Corridor) between San Francisco and San Jose. The network alternative to San Francisco and San Jose is estimated to have the highest ridership potential (3.27 million passengers a year by 2030 higher than the Oakland and San Jose alternative) but is also estimated to have the highest environmental impacts since it would require a new crossing at Dumbarton. The network alternative to San Francisco, Oakland, and San Jose (without Dumbarton Bridge) would have the highest costs ($4.4 billion more in 2006 dollars than the Oakland and San Jose alternative), and the least ridership potential (8.34 million passenger a year by 2030 less than the San Francisco and San Jose alternative), but would provide direct HST service to Oakland, San Francisco, and San Jose and the region's three international airports without requiring a new bay crossing.

The Pacheco Pass with Altamont Pass (local service) network alternatives do not compare well against either the Pacheco Pass or Altamont Pass network alternatives in the Draft Program EIR/EIS for HST service to be provided by the Authority. These network alternatives resulted in similar ridership and revenue forecasts (with less revenue than comparable Pacheco Pass network alternatives) while having considerably higher capital costs ($4.4–6.0 billion more in 2006 dollars for comparable terminus station locations). Although the Pacheco Pass with Altamont Pass (local service) alternatives would increase connectivity and accessibility by potentially providing direct HST service to additional markets, these alternatives would have higher environmental impacts, construction issues, and logistical constraints than Altamont or Pacheco Pass alternatives. The USEPA concluded that the Pacheco Pass with Altamont Pass (local service) network alternatives are not likely to contain the Least Environmentally Damaging Alternative (LEDPA).

D. COMPARISON OF PACHECO PASS AND ALTAMONT PASS ALTERNATIVES

Public Input: There has been and continues to be a wide divergence of opinion for the selection of the alignment between the Bay Area and Central Valley. The public comment the Authority received in 2008 involved many favoring the Pacheco Pass, many favoring the Altamont Pass, and many favoring doing both passes (with the Pacheco serving as the north/south HST connection and Altamont primarily serving interregional commuter service between Sacramento/Northern San Joaquin Valley and the Bay Area). San Francisco, Oakland, and San Jose, the three major urban centers of the Bay Area, all wanted direct HST service. The Central Valley (including Sacramento) and many transportation and environmental organizations strongly preferred the Altamont Pass, whereas much of the Bay Area (MTC, San Francisco, San Jose, San Francisco Peninsula, and Monterey Bay Area) agencies strongly supported the Pacheco Pass. Opposition has been raised to potential impacts for both the Pacheco Pass (impacts on the GEA, Pacheco Pass, Town of Atherton, Palo Alto, Menlo Park, and Millbrae), and the Altamont Pass (impacts on the San Francisco Bay, Don Edwards San Francisco Bay National Wildlife Refuge, East Bay regional parks, the City of Fremont, City of Livermore, and the City of Pleasanton). In 2010, many cities on the San Francisco Peninsula provide public comment advocating an Altamont Pass alternative, a Pacheco or Altamont alternative stopping in San Jose or Union City, or a Pacheco Pass alternative that would use a non-Caltrain alignment to reach San Francisco from San Jose. A very large number of letters from individuals residing along the Caltrain Corridor and the San Francisco Peninsula expressed great concern over impacts to their communities, with many endorsing no project, a different location, or an underground option. In 2012, the public input focused as much on preferences for "no project" and "no HST" as on specific network alternatives. As in 2010, several Peninsula cities expressed strong opposition to a Pacheco Pass alternative that would use a Caltrain alignment.

Ridership and Revenue: The HST ridership and revenue forecasts done by MTC in partnership with Authority concluded that both the Pacheco Pass and Altamont Pass network alternatives have high ridership and revenue potential. Distinct differences were found between the Pacheco Pass and Altamont Pass for certain markets, and the sensitivity tests help in the selection of alignment alternatives and station location options within the corridors studied. Nonetheless, while additional forecasts with different assumptions may result in somewhat different results, the bottom-line conclusion is expected to remain the same: both the Pacheco Pass and Altamont Pass have high ridership potential. This overall conclusion is consistent with the previous ridership analysis done for the Authority's 2000 Business Plan. It is the conclusion of this analysis that both the Pacheco Pass and Altamont Pass alternatives have high ridership potential and that ridership and revenue do not differentiate between these alternatives.

Capital and Operating Costs: Capital and operating costs are not substantially different between the Pacheco Pass and Altamont Pass alternatives that meet the purpose and need of the proposed HST system and serve similar termini stations. It is therefore the conclusion of this analysis that capital and operating costs do not differentiate between the Pacheco Pass and Altamont Pass alternatives.

Travel Times/Travel Conditions: Either the Pacheco Pass or Altamont Pass would provide quick, competitive travel times between northern and southern California. The Pacheco Pass would provide the quickest travel times between the south Bay and southern California (10 minutes less than the Altamont alternatives serving San Jose via the East Bay [I-880], and 28 minutes less than the Altamont San Francisco and San Jose—via San Francisco Peninsula alternative for express service). The Pacheco Pass enables a potential station in southern Santa Clara County (at Gilroy or Morgan Hill), which provides superior connectivity and accessibility to south Santa Clara County and the three Monterey Bay counties and utilizes the entire Caltrain corridor between San Francisco and Gilroy. San Francisco and San Jose would be served with one HST alignment along the Caltrain corridor providing the most frequent service to these destinations, whereas the most promising Altamont Pass alternatives would require splitting HST services (express, suburban express, skip-stop, local, regional) between two branch lines to serve San Jose and either San Francisco or Oakland. The Altamont Pass would provide considerably quicker travel times between Sacramento/Northern San Joaquin Valley and San Francisco or Oakland than the Pacheco Pass (41 minutes less between San Francisco and Sacramento for express service). The Altamont alternatives using the East Bay to San Jose would have express travel times about 29 minutes less than the Pacheco pass between Sacramento and San Jose, while the Altamont San Francisco and San Jose—via the San Francisco Peninsula alternative would take 15 minutes less than the Pacheco Pass for this market. The Altamont Pass would enable a potential Tri-Valley HST station and a potential Tracy HST station, which provide superior connectivity to the Tri-Valley/Eastern Alameda County, Contra Costa County, and the Tracy area and provide for the opportunity for shared infrastructure with an improved ACE commuter service, although additional infrastructure would be necessary for commuter overlay service with associated impacts. The Altamont Pass would have more potential Central Valley stations served on the Authority's adopted first phase for construction between the Bay Area and Anaheim (Tracy and Modesto). The travel time for direct service and travel conditions would be significantly different between the Altamont Pass alternative to Oakland and San Jose in comparison to the other two promising Altamont alternatives and the preferred Pacheco Pass alternatives (which directly serve San Francisco and San Jose). The Oakland and San Jose alternative would provide superior travel times, connectivity and accessibility to Oakland, Oakland International Airport, and the East Bay, but would not directly serve downtown San Francisco, SFO, or the San Francisco Peninsula/Caltrain Corridor.

Constructability Issues and Logistical Constraints: There are constructability issues and logistical constraints with both the Pacheco and Altamont pass alternatives. However, the construction related issues and logistical constraints associated with the Altamont Pass alternatives are greater than those for the Pacheco Pass. All Altamont Pass alternatives have considerable constructability issues through the right-of-way constrained Tri-Valley area (Livermore and Pleasanton) and tunneling/seismic issues in the Pleasanton Ridge/Niles Canyon area. All Altamont Pass alternatives have tunneling/seismic issues (Calaveras Fault) in the Pleasanton Ridge as well as seismic issues in the East Bay (Hayward Fault). While solutions to these seismic issues have been identified for the separate Altamont Corridor Rail Project, these solutions involve a substantially slower commuter/intercity rail service that does not meet the design requirements for a high-speed train network alternative. For direct service to San Francisco, the most promising Altamont Pass alternatives require a new Bay Crossing at Dumbarton, which must also go through the Don Edwards San Francisco Bay National Wildlife Refuge and the City of Fremont (which opposes construction of the east-west link through Fremont). For the Altamont Pass alternative serving Oakland, the MTC concluded that "development of an East Bay option with direct service to San Jose and Oakland would include significant right-of-way risk gaining an agreement from UPRR to provide access to Oakland." For the Altamont Pass east bay link to San Jose, Caltrans District 4 has commented that use of the I-880 median would result in significant construction stage impacts between Fremont and San Jose. In addition, UPRR's position denying use of its rights-of-way for HST tracks presents a greater implementation challenge for the Altamont Pass network alternatives than for the Pacheco Pass Network Alternative serving San Francisco via San Jose. The Pacheco Pass requires coordination and shared-use on the Caltrain corridor and would have tunneling and environmental issues through the Pacheco Pass, as well as require aerial structures and other design refinements and mitigation measures to minimize or avoid potential impacts on the GEA.

Phasing Opportunities and Potential Blended System: The high-speed train project could have effective phased construction for either Pacheco Pass or Altamont Pass network alternatives. The "Bay to Basin" phase discussed in the Revised 2012 Business Plan could be accomplished for a Pacheco Pass alternative to a temporary San Jose terminus or an Altamont Pass alternative to a temporary Union City terminus. It is therefore the conclusion of this analysis that the need to phase construction of the high-speed train system does not differentiate between the Pacheco Pass and Altamont Pass network alternatives. Similarly, based on the very general level of information developed to date on the blended system concept, the blended system would appear to be effective for either Pacheco Pass or Altamont Pass network alternatives that would utilize the Caltrain Corridor in whole or in part.

Environmental Impacts: The preferred Pacheco Pass alternative would have greater potential impacts on acres of farmlands than the most promising Altamont Pass alternatives (1,372 ac vs. 758 – 764 ac) and potentially impact more acres of floodplains (521 ac vs. 219-318 ac) and more linear feet of streams (20,276 linear ft vs. 16,824–17,660 linear ft). This alternative would also potentially result in impacts on resources within the generally designated GEA and would have the potential to impact wildlife movement. The preferred Pacheco Pass alternative would have somewhat less potential impacts for noise and vibration and would affect a fewer number of 4(f) and 6(f) resources (16 vs. 20–22) than the most promising Altamont Pass alternatives. The differences in the impacts on waterbodies, wetlands, nonwetland waters, species, and cultural resources would vary considerably depending upon the Altamont Pass alternative. The two Altamont Pass alternatives providing direct service to San Francisco would include a new Bay crossing at Dumbarton and would cross areas within the Don Edwards San Francisco Bay National Wildlife Refuge (wetlands and sensitive habitat) and therefore would have considerably higher impacts on waters, wetlands, and 4(f) resources than the Pacheco Pass alternative. In comparison to these Altamont Pass alternatives, the Pacheco Pass alternative would have considerably less potential impacts on waterbodies (3.8 ac vs. 39.6 ac), considerably less potential impacts on wetlands (15.6 ac vs. 44.4–45.9 ac), and fewer potential impacts on nonwetland waters (14,395 linear ft. vs. 15,947–16,773 linear ft), while having relatively similar potential impacts on the number of special status plant species (58 vs. 56), special status wildlife species (53 vs. 49-50), and cultural resources (168 vs. 149-180). In comparing the Altamont Pass alternative to Oakland and San Jose along the east bay, the Pacheco Pass alternative to San Francisco and San Jose would have slightly more potential impacts on waterbodies (3.8 ac vs. 2.3 ac), wetlands (15.6 ac vs. 12.3 ac), and nonwetland waters (14,395 linear ft vs. 14,032 linear ft), special-status plant species (58 vs. 40), special-status wildlife species (53 vs. 44), and cultural resources (168 vs. 128). The Pacheco Pass Alternative would avoid impacts on the Don Edwards San Francisco Bay National Wildlife Refuge, and it would include mitigation measures to reduce or avoid potential impacts on resources within the GEA and in particular along existing Henry Miller Road (see Section 3.15.5). The program-level analysis of impacts to 4(f)/6(f) resources generally supports the selection of the preferred Pacheco Pass (San Francisco and San Jose Termini) network alternative, although all network alternatives have potential to impact 4(f)/6(f) resources.

6.3.4 MTC's "Regional Rail Plan for the San Francisco Bay Area"

The MTC, BART, Caltrain, and the Authority, along with a coalition of rail passenger and freight operators, prepared a comprehensive "Regional Rail Plan for the San Francisco Bay Area" (Plan) adopted by MTC in September 2007. The Plan establishes a long-range vision to create a Bay Area rail network that addresses the anticipated growth in transportation demand and meets that demand. This Plan examines ways to incorporate expanded passenger train services into existing rail systems, improve connections to other trains and transit, expand the regional rapid transit network, increase rail capacity, coordinate rail investment around transit-friendly communities and businesses, and identify functional and institutional consolidation opportunities. The plan also includes an analysis of potential high-speed rail routes between the Bay Area and the Central Valley. The Plan is separate from the Authority's 2008 Final Program EIR/EIS but is accounted for in Section 3.17, "Cumulative Impacts," of the 2008 Final Program EIR/EIS. The Plan, which was issued and approved during the Draft Program EIR/EIS comment period, provides useful additional information for consideration as part of the Authority's decision-making process.

As the HST system involves major infrastructure investment, the Plan identifies and evaluates options for providing overlay services (use of the HST infrastructure for regional rail service with additional investments in facilities and compatible rolling stock). Overlay services are considered for each HST Network Alternative. Regional overlay operations on HST lines could provide service to additional local stations along the HST lines. Such local stops typically would be developed as four-track sections with a pair of outside platforms for regional trains and two express tracks (no platforms) in the center. The extent of the four-track sections would depend on the prevailing speed of the line for statewide service as well as the spacing and location of the local stops. The regional overlay services would be operated with compatible equipment, but the average speeds would be lower and the overall travel times would be greater than the HST because of the additional stops. Additional investment would be necessary to provide the infrastructure for such regional overlay services.

The Plan concludes that the Bay Area needs a Regional Rail Network. "As the BART system becomes more of a high-frequency, close stop urban subway system, it needs to be complemented with a larger regional express network serving longer-distance trips" and "High-Speed Rail complements and supports 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" (MTC, 2007 *Regional Rail Plan*, pg ES-3).

The Plan concludes that "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." In addition, "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" (MTC, 2007, *Regional Rail Plan*, pg ES-17). The Plan also concludes that, "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'" (MTC 2007, *Regional Rail Plan*, pg. ES-18).

6.3.5 Preferred HST Network Alternative

The Authority identifies as the preferred alternative:

A. PACHECO PASS TO SAN FRANCISCO (VIA SAN JOSE) FOR THE PROPOSED HST SYSTEM (FIGURE 6-1)

The Pacheco Pass Network Alternative serving San Francisco via San Jose best meets the purpose and need for the proposed HST system. Key reasons include:

1. The Pacheco Pass minimizes impacts on wetlands, waterbodies, and the environment.

The statewide HST system should provide direct service to Northern California's major hub airport at SFO and major transit, business, and tourism center at downtown San Francisco. The Pacheco Pass alternative serving San Francisco and San Jose termini has the least potential environmental impacts overall while providing direct HST service to downtown San Francisco, SFO, and the San Francisco Peninsula (Caltrain Corridor) and minimizes construction issues which can lead to delay and cost escalation.

The Pacheco Pass enables San Francisco, SFO, and the San Francisco Peninsula to be directly served without a crossing of the San Francisco Bay. Altamont Pass alternatives requiring a San Francisco Bay crossing would have the greatest potential impacts on the San Francisco Bay and have high capital costs and constructability issues. The Dumbarton Crossing would also have the greatest potential impacts on wetlands and the Don Edwards San Francisco Bay National Wildlife Refuge. To implement these alternatives, extensive coordination would be required with the USACE under Section 10 of the Rivers and Harbors Act and the California Coastal Commission, and the Bay crossing would be subject to the USACE, CDFG, and BCDC permit process. A number of agencies, organizations, and individuals have raised concerns regarding to the construction of a HST crossing of the San Francisco Bay. These include the MTC, BCDC, USEPA, USFWS, Congress members Zoe Lofgren, Michael Honda, Anna Eshoo, and Tom Lantos, State Senators Elaine Alquist and Abel Maldonado, and Assembly member Jim Beale as well as Santa Clara County, San Mateo County Transit District (SamTrans), San Mateo County Transportation Authority (TA), Peninsula Corridor (Caltrain) Joint Powers Board (JPB), San Francisco Bay Trail Project, San Jose Chamber of Commerce, the City of San Jose, the City of Oakland, and Don Edwards (Member of Congress, 1963–1995).

While a considerable number of comments have raised concerns about potential environmental impacts for Pacheco Pass alternatives (in particular relating to potential impacts on the GEA), HST via the Pacheco Pass is feasible and preferred because it would result overall in fewer impacts when compared to the Altamont Pass alternatives with a Bay crossing. Additionally, the Pacheco Pass alternative would include various measures to avoid, minimize, and/or mitigate environmental impacts to the extent feasible and would offer opportunities for environmental improvements along the HST right-of-way that could be accomplished during project design, construction, and operation, including through use of tunnels and aerial structures where appropriate. This contrasts with the more uncertain regulatory approvals that would be needed for crossings of San Francisco Bay and the Don Edwards San Francisco Bay National Wildlife Refuge. Identification of a preferred alternative in the 2008 Final Program EIR/EIS was required for NEPA compliance. Since the identified preferred alternative would have the least overall environmental impacts, it is also identified as the environmentally superior alternative for CEQA compliance and the environmentally preferable alternative under NEPA.

2. The Pacheco Pass best serves the connection between Northern and Southern California.

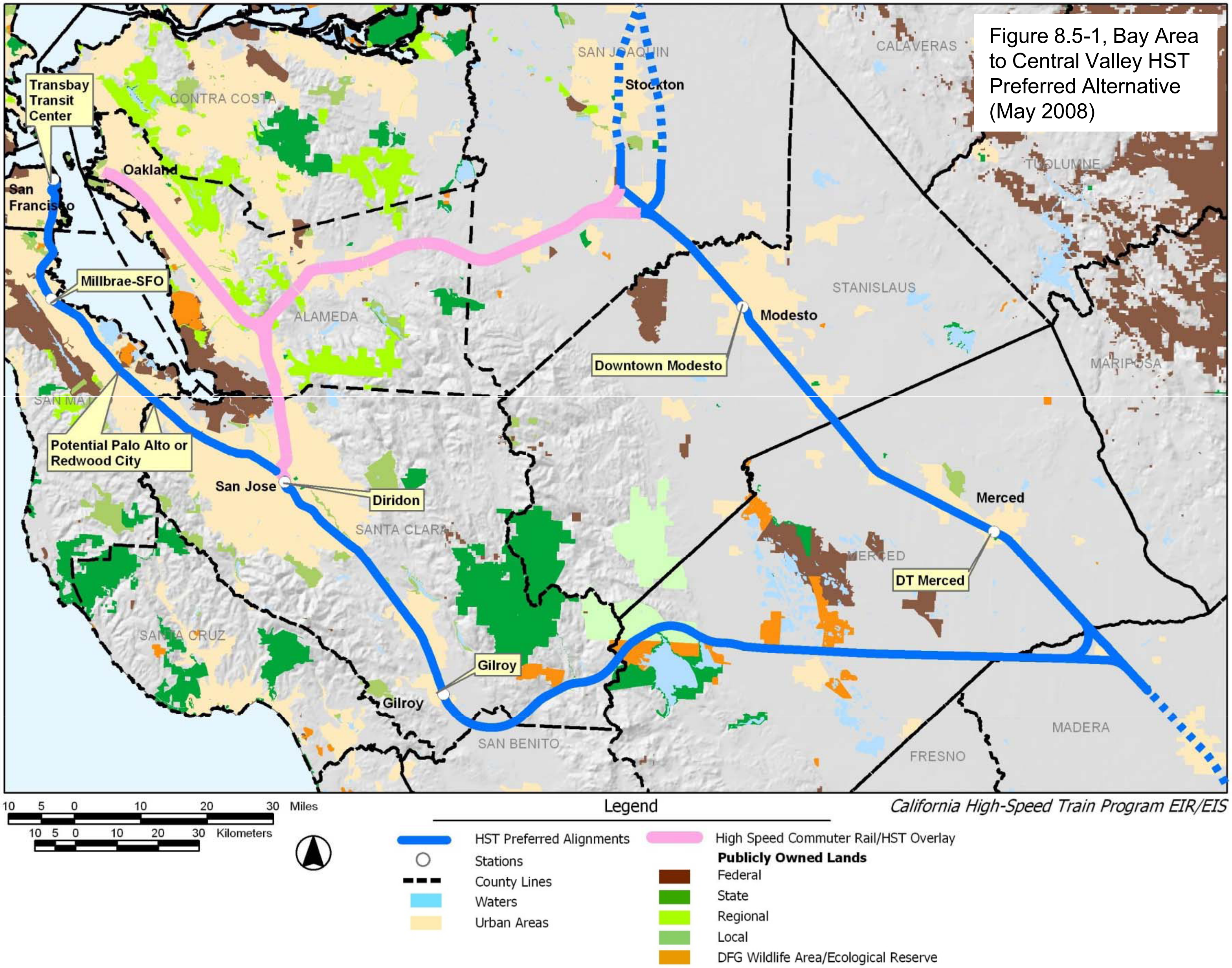
Operational benefits result in potential for greater frequency and capacity:
San Francisco and San Jose would be served with one HST alignment along the Caltrain corridor providing the most frequent service to these destinations, whereas the most promising Altamont Pass alternatives would split HST services (express, suburban express, skip-stop, local, regional) between two branch lines to serve San Jose and either San Francisco or Oakland—reducing the total capacity of the system to these markets. The proposed HST system already has two locations where there are branch splits (north of Fresno—to Sacramento and the Bay Area, and south of Los Angeles Union Station—to Orange County and the Inland Empire). Avoiding additional branch splits in the HST alignment, and avoiding splits along the high-speed trunk of the system connecting the most populated regions of the state, Southern California and San Francisco and San Jose, would benefit train operations and service.

Provides a superior connection between the South Bay and Southern California:
The Pacheco Pass enables the shortest connection to be constructed between the South Bay and Southern California with the quickest travel times between these markets. A southern Santa Clara County HST station increases connectivity and accessibility for the South Bay and the three county Monterey Bay area.

Fewer stations between the Major Metropolitan Areas:
The core purpose of the HST system is to serve passenger trips between the major metropolitan areas of California. There is a critical tradeoff between the accessibility of the system to potential passengers that is provided by multiple stations and stops, and the resulting HST travel times. Additional or more closely spaced stations (even with limited service) would lengthen travel times, reduce frequency of service, and the ability to operate both express and local services. The Pacheco Pass has the advantage of fewer stops through the high-speed trunk of the system between San Francisco or San Jose and Southern California, the most populated regions of the state.

Between Merced and Gilroy, the high-speed trains will be maintaining speeds well over 200 mph. The fact that there is no significant population concentrations between Merced and Gilroy along the Pacheco Pass is a positive attribute since there are fewer communities and hence fewer community impacts. Additionally there will be no HST station between Gilroy and Merced. As a result, the Pacheco Pass minimizes the potential for sprawl inducement as compared with the Altamont Pass.

Minimizes Logistical Constraints:
The Pacheco Pass avoids construction issues and logistical constraints through the Tri-Valley and Alameda County. ~~The Tri-Valley PAC has raised serious concerns with all the Altamont Pass~~



CALIFORNIA High-Speed Rail Authority

Figure 6-1
Bay Area to Central Valley HST Preferred Alternative
Bay Area to Central Valley HST Partially Revised Final Program EIR

~~alternatives regarding land use compatibility and right-of-way constraints and the need for aerial structures through the Tri-Valley.~~ All Altamont Pass alternatives have tunneling/seismic issues (Calaveras Fault) in the Pleasanton Ridge/Niles Canyon area as well as seismic issues in the East Bay (Hayward Fault), and while these issues may be possible to resolve for a slower, improved commuter/intercity service, they are still present for high-speed train alternatives. ~~Both the City of Fremont and the City of Pleasanton are opposed to HST alternatives through these cities because of potential environmental issues, right-of-way constraints, and other logistical issues.~~ In addition, UPRR's position denying use of its rights-of-way for HST tracks presents a greater implementation challenge for the Altamont Pass network alternatives than for the Pacheco Pass Network Alternative serving San Francisco via San Jose. While the preferred Pacheco Pass Network Alternative would also have construction issues and logistical constraints, particularly on the Caltrain Corridor, these issues are comparatively less than through the Tri-Valley and Alameda County because of the existing, publicly owned commuter rail right-of-way.

3. The Pacheco Pass best utilizes an existing, publicly owned rail corridor with potential for track sharing~~the Caltrain corridor~~.

The Pacheco Pass alternative would enable the early, incremental implementation of the entire Caltrain Corridor section of the HST system between San Francisco and San Jose, and south of San Jose to Lick. The HST system is complementary to Caltrain and would utilize the Caltrain right-of-way and share tracks with express Caltrain commuter rail services. Caltrain intends to use lightweight, electrified trains that would be compatible with HST equipment. Because it utilizes the full extent of the Caltrain corridor both north of San Jose as well as south of San Jose to Lick without a new Bay crossing, environmental impacts would be minimized. The Authority's phasing plan identifies the Caltrain Corridor (between San Francisco and San Jose) as allowing the Authority to maximize the use of local and regional funds dedicated to train service improvements, and thereby help reduce the need for state funds.

4. The Pacheco Pass is still supported by the Bay Area region.

Many of the Bay Area local and regional governments, transportation agencies, and business organizations strongly support the Pacheco Pass network alternative to San Francisco via San Jose and the Caltrain Corridor. As described above, there has been a change in public input from 2007/2008 through 2010 and in 2012. There is considerable city and community concern for implementation of HST along the San Francisco Peninsula overall. However, there is strong support for the recommended Pacheco Pass alternative from the cities of San Francisco and San Jose, and the Metropolitan Transportation Commission, the regional transportation planning agency for the San Francisco Bay Area. This support is critical towards implementing this major infrastructure project through the heavily urbanized Bay Area linking San Francisco, San Jose and Gilroy.

5. The Pacheco Pass has the fewest impacts to communities because it makes the best use of available rail and transportation rights of way.

The Pacheco Pass Network Alternative serving San Francisco via San Jose is least disruptive to communities because it is designed to use existing, publicly owned rail and highway right-of-way as a method of minimizing environmental and community impacts. The publicly owned rail right-of-way between San Francisco and San Jose provides a very unique opportunity to reach both San Francisco and San Francisco International Airport without having to construct an entirely new or largely new rail right-of-way for the HST. The Peninsula Corridor Joint Powers Board remains ~~is~~ a willing partner with the Authority and supports incorporation of HST service along with Caltrain and UPRR freight in this corridor. The presence of the Monterey Highway right-of-way between San Jose and Gilroy also provides a very unique opportunity to minimize impacts to communities because it allows for HST tracks to be built largely within existing publicly owned right-of-way, thereby minimizing the need for acquiring property and constructing an entirely new or largely new rail right-of-way for the HST. The

City of San Jose is a willing partner with the Authority and supports the narrowing of the underutilized Monterey Highway in order to accommodate HST service in this corridor.

6.3.6 Preferred HST Alignment Alternatives and Station Location Options for the Preferred Pacheco Pass Network Alternative

A. SAN FRANCISCO TO SAN JOSE

Preferred Alignment Alternative

Caltrain Corridor (Shared Use)
Analysis
The 2008 Final Program EIR, 2010 Revised Final Program EIR, and the current Partially Revised ~~Draft~~ Final Program EIR analyzed one alignment alternative between San Francisco and San Jose along the San Francisco Peninsula that would utilize the Caltrain rail right-of-way and share tracks with express Caltrain commuter rail services. The Caltrain Corridor (Shared Use) is the preferred alignment alternative for direct service to San Francisco and San Francisco International Airport (SFO).

The alignment between San Francisco and San Jose is assumed for Program EIR purposes to have 4 tracks, with the two middle tracks being shared by Caltrain and HST and the outer tracks used by Caltrain. The HST could operate at maximum speeds of 100–125 mph along the Peninsula providing 30-minute express travel times between San Francisco and San Jose. Environmental impacts would be minimized since this alignment utilizes the existing Caltrain right-of-way. This alignment alternative would increase connectivity and accessibility to San Francisco, the Peninsula, and SFO, the hub international airport for northern California. The HST system would provide a safer, more reliable, energy efficient intercity mode along the San Francisco Peninsula while improving the safety, reliability, and performance of the regional commuter service because of the fully grade separated tracks with fencing to prevent intrusion, additional tracks, and a state-of-the-art signaling and communications system. The HST alignment would greatly increase the capacity for intercity and commuter travel and reduce automobile traffic.

Many comments in favor of the proposed HST on the San Francisco Peninsula were received from agencies and the public, including MTC, the City of San Francisco, Caltrain JPB, SamTrans, the Transbay Transit Center JPB, the City of Santa Clara, the County of Santa Clara, the City of Morgan Hill, and the San Francisco Chamber of Commerce. There is also considerable opposition to improvements on the Caltrain corridor raised by some members of the public. The City of Menlo Park supported investigating options to avoid the San Francisco Peninsula area by substituting existing transit systems for the HST, and the Town of Atherton supports options that would avoid HST service through the Town of Atherton as well as investigating trench concepts through the Town of Atherton at the project level. The Cities of Menlo Park and Millbrae have raised concerns regarding potential impacts through their cities. The "Peninsula Cities Consortium" (which includes Palo Alto, Menlo Park, Atherton, Belmont, and Burlingame) was created after the November 2008 election as a result of concerns regarding potential impacts along the Caltrain Corridor including: alignment, environmental consequences, local growth, station planning and land use as well as noise and vibration, biological and cultural resources.

Preferred Station Location Options

Downtown San Francisco Terminus: Transbay Transit Center
Analysis
The Transbay Transit Center site is the preferred station location option for the San Francisco HST Terminal. The Transbay Transit Center would offer greater connectivity to San Francisco and the Bay Area than the 4th and King site (about a mile from the financial district) because of its location in the heart of downtown San Francisco and since it would serve as the regional transit hub for San Francisco. The Transbay Transit Center is located in the financial district where many potential HST passengers could walk to the station. The Transbay Transit Center is also expected to emerge as the

transit hub for all major services to downtown San Francisco, with the advantage of direct connections to BART (1 block from the terminus), Muni, and regional bus transit (SamTrans, AC Transit, and Golden Gate Transit). Moreover, the Transbay Transit Center is compatible with existing and planned development and is the focal point of the Transbay redevelopment plan that includes extensive high-density residential, office, and commercial/retail development. Sensitivity analysis on the Pacheco Pass "Base" forecasts (low-end forecasts) concluded that the Transbay Transit Center would attract about 1 million more annual passengers a year by 2030 than the 4th and King station location option.

The capital costs needed for the HST component of the Transbay Transit Center is estimated to be similar to the estimated costs for the 4th and King option. The 1.5 mile extension that would be required to get to the Transbay Transit Center station from the 4th and King station results in approximately $400 million in additional costs for the Transbay Transit Center station alternative[1]. Since the rail component would be shared with Caltrain services, the Transbay Joint Powers Authority funding plan assigns only a portion of the rail related Transbay Transit costs to the HST system. The rail facilities planned for the Transbay Transit Center are limited to 6 tracks and 3 platforms; however, Caltrain is planning to continue using the existing 4th and King terminal. The Authority's program-level operational analysis for the 2008 Final Program EIR indicated that to serve all of the HST trains proposed in the Authority's operational plan, four tracks and two island platforms would have to be dedicated to HST service. Further cooperative operations planning analysis of Transbay terminal rail capacity is needed to determine the most efficient mix and scheduling of both HST and Caltrain commuter services. For any HST services that are determined not to be accommodated at the Transbay Transit Center facility, the Authority would consider terminating trains at other stations.

Public and agency comments have largely favored the Transbay Transit Center site. The City of San Francisco, the Transbay Terminal JPB, San Mateo County Transit District (SamTrans), the Peninsula Corridor (Caltrain) Joint Powers Board (JPB), San Mateo County Transportation Authority (TA), the San Francisco Chamber of Commerce, and AC Transit all submitted comments in favor of the Transbay Terminal site.

San Francisco Airport Connector Station: Millbrae (SFO)
Analysis
SFO serves as the "hub" airport for international travel in Northern California and is located about 12 miles south of downtown San Francisco. The conceptual design is to link to SFO at the Millbrae Caltrain/BART station location option which is adjacent to SFO (but not directly at the airport). This multi-modal station would link to the airport by the existing BART connection and could possibly be reached in the future by the airport people mover system. The Millbrae (SFO) HST station supports the objectives of the HST project by providing an interface with the northern California hub airport for national and international flights. The Millbrae (SFO) is the preferred HST airport connector station on the San Francisco peninsula.

Mid-Peninsula Station: Continue to investigate ~~both~~ potential sites and work~~ing~~ with local agencies and the Caltrain JPB to determine whether a Mid-Peninsula station site should be recommended.
Analysis
The Palo Alto and Redwood City station location options would both be multi-modal stations, with similar costs, construction issues, right-of-way issues, and potential environmental impacts. The Redwood City station would have slightly more riders (0.06 million by 2030), but the Palo Alto station would offer greater connectivity. The City of Palo Alto sent a letter dated November 9, 2010, to the Authority opposing the consideration of a HST station anywhere in Palo Alto. The City of Redwood City and the Redwood City Chamber of Commerce have previously indicated support for the Redwood

[1] The cost of the extension is estimated at a program level in 2006 dollars, consistent with cost calculations in the Final Program EIR. The cost is estimated for a two-track tunnel for HST only.

City station location option. As part of f~~F~~uture project-level studies the Authority should continue to investigate ~~both~~ potential sites and work~~ing~~ with local agencies and the Caltrain JPB to determine whether a Mid-Peninsula station site should be recommended.

B. SAN JOSE TO CENTRAL VALLEY: PACHECO PASS

Preferred Alignment Alternative

Pacheco Pass via Henry Miller Road (UPRR Connection). At the project-level, however, the Authority will continue to seek and evaluate alignment alternatives (both to the north and south of Henry Miller Road) utilizing the Pacheco Pass that would minimize or avoid impacts to resources in the GEA. The 2008 Final Program EIR/EIS has no Los Banos Station and the Authority has reiterated and expanded its commitment that there will be no station between Gilroy and Merced.

Analysis
The Pacheco Pass via Henry Miller (UPRR Connection) alignment alternative would provide slightly higher ridership potential, provide the fastest travel times and the most direct link between the Bay Area and Southern California (3-4 minutes faster), have slightly less capital costs, and would generally parallel Henry Miller Road, an existing roadway corridor through the environmentally sensitive areas in the Central Valley (resulting in fewer potential severance impacts), while having similar potential environmental impacts as the other Pacheco Pass alignment alternatives evaluated.

The GEA North alignment alternative is estimated to have higher potential visual impacts (medium vs. low), severance impacts, and cultural impacts than either Henry Miller alignment alternative. Potential impacts on farmlands, streams, lakes/waterbodies, and 4(f) and 6(f) resources are estimated to be about the same for each alignment alternative. The GEA North alignment alternative is estimated to have higher potential impacts on wetlands (17.96 ac vs. 11.61 ac), but less potential impacts on non-wetland waters (6,771 linear ft vs. 10,588 linear ft.) when compared to the Henry Miller (UPRR Connection) alignment alternative. Both alignment alternatives would have the potential to impact special-status plant and wildlife species. While both alignment alternatives would likely result in impacts on the GEA, the GEA North alignment alternative would have greater impacts on publicly owned lands and be more disruptive to wildlife movement patterns than the Henry Miller Road alignment alternative. The GEA North alignment alternative would be on a new alignment and bisect the GEA and result in a new barrier to wildlife movement. The Henry Miller alignment alternative would be elevated through large portions of the GEA parallel to an existing roadway that, along with a nearby canal, already bisects the GEA and disrupts wildlife movement. The Henry Miller alignment alternative would provide greater opportunities for mitigation and environmental improvements for wildlife.

The Authority has received a considerable amount of input regarding each of the three alignment alternatives investigated for the "San Jose to Central Valley" corridor. Most of these comments are in regard to concerns over potential impacts on the GEA including comments from the Grassland Water District, Grassland Resources Conservation District, Grassland Conservation, Education & Legal Defense Fund, USFWS, CDFG, and Ducks Unlimited.

As noted above, the comments from these agencies and organizations concerned potential impacts on special status species and biological resources including the San Joaquin kit fox, waterfowl, amphibians, and plants; vernal pools; and wetlands that may be affected by the Pacheco Pass via Henry Miller Road (UPRR Connection) either through or near the GEA, in the San Luis National Wildlife Refuge Complex, on state or federal-owned lands, and on other conservation areas, such as private lands subject to conservation easements. The biological analysis for this EIR/EIS was conducted at a program level and identifies the need for field reconnaissance-level surveys to be conducted in the future at the project level. These future surveys will determine specific habitat conditions and impacts along alignment alternatives and surrounding areas and will identify specifically where impacts on special-status species could occur, leading eventually to focused species surveys. The Pacheco section of the HST system will be further designed at the project-level to avoid or minimize potential impacts. Broad program mitigation measures have been identified and will be further refined at the project level that will mitigate most of the impacts identified by these agencies and organizations. The Authority and FRA will continue coordination with all agencies and organizations involved to identify specific issues and develop solutions that avoid, minimize, and mitigate potential biological impacts.

Concerns have been raised by the Grasslands Water District, the Sierra Club, and others regarding potential impacts on the GEA by a potential HST station to serve Los Banos and/or a maintenance facility in the vicinity Los Banos along the Henry Miller Road alignment alternative. Between Merced and Gilroy, the high-speed trains will be maintaining speeds well over 200 mph. As previously noted, the fact that there is no population between Merced and Gilroy along the Pacheco Pass is a positive attribute for HST operations since there are fewer communities and hence fewer community impacts. The Authority's certified Statewide Program EIR/EIS states, "The Authority has determined that the Pacheco Pass alignment HST station at Los Banos (Western Merced County) should <u>not</u> be pursued in subsequent environmental reviews because of low intercity ridership projections for this site, limited connectivity and accessibility, and potential impacts to water resources and threatened and endangered species. Although the City of Los Banos supports the Pacheco Pass alignment with a potential station at Los Banos, considerable public and agency opposition has been expressed about a potential Los Banos station because of its perceived potential to result in growth related impacts" (Page 6A-9). The 2008 Final Program EIR/EIS has no Los Banos Station, and the Authority has reiterated and expanded its commitment that there will be <u>no</u> station between Gilroy and Merced. In addition, there are no maintenance and storage facilities considered in the Los Banos area (or in the vicinity of the GEA) as part of the 2008 Final Program EIR/EIS, and the Merced (Castle AFB) site has been identified as the preferred location within the study area for a maintenance facility (see Section 7.3.7).

From a biological perspective, the Pacheco Pass via Henry Miller Road (UPRR Connection) is the recommended preferred alignment alternative because the measures that would be necessary to avoid, minimize, and/or mitigate biological impacts could be accomplished during project design, construction, and operation, and this alignment alternative offers greater opportunities for environmental improvement.

<u>Preferred Station Location Options</u>

Downtown San Jose Terminus: Diridon Station

Analysis

Diridon Station is the preferred HST station location option for downtown San Jose and the Southern Bay Area, serving Caltrain, ACE Commuter Rail, the Capitol Corridor, Amtrak long distance services, VTA buses and light rail, and a possible future link to BART (from Fremont). Diridon Station is a multi-modal hub that maximizes connectivity to downtown San Jose, San Jose International Airport (Diridon Station is just over 3 miles from San Jose International Airport and the City of San Jose expects there will be a direct local rail line connecting these to two major transportation hubs), and the southern Bay Area, and would have high ridership potential. The Authority identifies the Diridon Station as the preferred HST station location option for San Jose and the southern Bay Area. Diridon Station is favored by the City of San Jose and the Valley Transportation Authority (VTA).

Southern Santa Clara County: Gilroy Station (Caltrain)

Analysis

Gilroy (Caltrain) Station is the preferred HST station location option to serve Southern Santa Clara County and the Monterey Bay Area. This station location option would provide the highest accessibility and connectivity for these regions and would have the highest ridership potential.

C. CENTRAL VALLEY

Preferred Alignment Alternative

UPRR N/S Alignment Alternative. However, at the project-level, the Authority would continue to evaluate the BNSF alignment alternative because of the uncertainty of negotiating with the UPRR for use of some of their right-of-way, and would continue investigation of alignments/linkages to a potential maintenance facility at Castle AFB.

Analysis
The alignment alternatives considered for the "Central Valley Alignment" generally followed the two existing freight corridors of the UPRR and the BNSF. With that in mind, HST impacts throughout the Central Valley that have already been reduced and avoided could be further avoided and minimized by sharing the existing freight railroad right-of-way. If a decision were made to proceed with the HST system, the Authority would seek agreements with freight operators to utilize portions of the existing rail right-of-way to the greatest feasible extent.

The UPRR alignment alternative would have high potential ridership for both the Pacheco Pass and Altamont Pass corridors and would serve potential downtown station sites at Modesto and Merced. This alignment alternative would provide the highest connectivity and accessibility for this part of the Central Valley and would best meet the Authority's adopted transit-oriented development criteria for station location options by serving the downtowns of these Central Valley cities. However, the UPRR has expressed opposition to the use of its right-of-way.

The UPRR alignment alternative would have somewhat higher potential noise and visual impacts and more potential impacts on cultural resources (67 vs. 17-28) since it goes through more urban areas, but would have somewhat fewer potential impacts on farmlands (535 ac vs. 776-838 ac), lakes/waterbodies (0.0 ac vs. 1.5-1.6 ac), wetlands (3.04 ac vs. 3.11-3.76 ac) and non-wetland waters (7,161 linear ft vs. 9,094–10,528 linear ft), and floodplains (124.4 ac vs. 158.2-191.1 ac) than the BNSF alignment alternatives.

Preferred Station Location Options

Modesto: Downtown Modesto
Analysis
The Downtown Modesto Station is the preferred HST station location option for Modesto since it maximizes connectivity and accessibility to downtown Modesto and would best meet the Authority's adopted transit-oriented development criteria for station location options by serving the downtown of this Central Valley city. This option is expected to have slightly higher ridership potential and is more compatible with surrounding land uses than the Amtrak Briggsmore site with similar costs and environmental impacts. The Downtown Modesto Station is favored by the City of Modesto and the San Joaquin County Council of Governments. The Amtrak Briggsmore site would need to continue to be investigated as a part of future project-level analysis since it would be the station site to serve the Modesto area for the BNSF alignment alternative.

Merced: Downtown Merced
Analysis
The Downtown Merced Station is the preferred HST station location option for the Merced area since it maximizes connectivity and accessibility to downtown Merced and would best meet the Authority's adopted transit-oriented development criteria for station location options by serving the downtown of this Central Valley city. This option is expected to have less potential impacts on farmlands (0 ac vs. 12 ac) and is more compatible with surrounding land uses than the Castle AFB site with similar costs, ridership, and environmental impacts. The Castle AFB site would need to continue to be investigated as a part of future project-level analysis since it could be the station site to serve the Merced area for

the BNSF alignment alternative. The Castle AFB is recommended as the preferred site for the maintenance facility within the study region.

D. MAINTENANCE FACILITIES

Preferred Location within study area

Merced Area (Castle AFB)
Analysis
The Program EIR previously identified a preferred maintenance and storage facility location to support the HST fleet in the study region in the Merced area (Castle AFB). For purposes of this Program EIR, two locations were considered for "Fleet Storage/Service and Inspection/Light Maintenance" within the study region: (1) West Oakland; and (2) Merced (near or at Castle AFB). There is strong support in the Merced region (Merced County, U.C. Merced, Congressman Cardoza, Merced County HSR Committee, and the Merced County Association of Realtors) for the maintenance facility. The West Oakland site would not serve the preferred Pacheco Pass alternative but should be considered as a part of future Regional Rail/HST project via the Altamont corridor. Program-level evaluation considered only a site in the Bay Area at West Oakland as representative of system maintenance needs in the Bay Area. Possible Bay Area locations and sites for fleet storage/service and inspection/light maintenance facility along the preferred HST alternative between Gilroy and San Francisco will be considered as part of project-level engineering and environmental review. In conclusion, for purposes of the Program EIR process, the Merced area remains preferred.

Over the past two years, additional study and consideration of the heavy maintenance facility for the high-speed train system has been explored as part of project-level EIR/EIS documents for the Merced to Fresno and Fresno to Bakersfield sections. The Authority released a Request for Expression of Interest in 2009, which resulted in multiple potential sites for a heavy maintenance facility in the Central Valley being evaluated, including sites outside the study area for the Bay Area to Central Valley. Accordingly, while the Merced area is preferred at the program level, a wide range of alternatives is being examined as part of project-level EIR/EIS documents.

E. SAN FRANCISCO BAY CROSSINGS

Preferred Alignment alternative

No Bay Crossing for the Proposed HST System
Analysis
The preferred alternative has no San Francisco Bay crossing. The Trans Bay Crossing between Oakland and San Francisco is estimated to result in potential direct impacts on 20.07–22.1 acres of Bay Waters and indirect impacts on 228–235.5 acres of waterbodies. The cost associated with this approximately 7-mile crossing is estimated at over $5 billion in 2006 dollars (over $700 million per mile) with a ridership increase of up to about 2%. To implement this alignment alternative, extensive coordination would be required with the USACE under Section 10 of the Rivers and Harbors Act and the California Coastal Commission and crossing the Bay would be subject to the USACE, CDFG, and BCDC permit process.

The Dumbarton Crossing would result in potential direct impacts on 33.9–55.4 acres of wetlands (predominately through the Don Edwards San Francisco Bay National Wildlife Refuge) and direct impacts of 2,361–3117 linear feet of Bay waters. All of the Dumbarton alignment alternatives are estimated to have high noise impacts where the alignment is predominately on aerial structure through Fremont, and the bridge alignment alternatives (high bridge and low bridge) would have high potential noise and vibration impacts throughout the alignment. The cost associated with this approximately 19–21.7-mile crossing is estimated at $1.5 billion (low bridge) to over $3 billion in 2006 dollars (tube). With the low-bridge alternative, HST service would be interrupted by water traffic, adversely impacting the reliability and service quality of the HST system. Constructing a new bridge or tube crossing along the Dumbarton corridor would involve major construction activities in sensitive wetlands, saltwater marshes, and aquatic habitat, requiring special construction methods and mitigations. All the alignment alternatives would result in direct impacts on Don Edwards San Francisco Bay National Wildlife Refuge and would have potential direct impacts on 15 special-status plant and 21 special-status wildlife species. To implement this alignment alternative across the bay, extensive coordination would be required with the USACE under Section 10 of the Rivers and Harbors Act and the California Coastal Commission and the Bay crossing would be subject to the USACE, CDFG, and BCDC permit process. BCDC scoping comments note that bridge alignment alternatives that could have adverse impacts on Bay resources can only be approved by BCDC "if there is not an alternative upland location for the route and if the fill in the minimum necessary to achieve the purposes of the project" (BCDC scoping response, December 15, 2005). The Authority has received comments signed by 5 members of Congress and 4 members of the California Legislature stating that any alignment alternative requiring construction through the Don Edwards San Francisco Bay National Wildlife Refuge with additional impacts on the San Francisco Bay and Palo Alto shore of the Bay should be rejected. The City of Fremont opposes the Dumbarton Crossing alignment alternatives because of the potential impacts on Fremont neighborhoods.

The MTC supports a new Transbay Tube between San Francisco and Oakland (via the San Francisco Peninsula) and the Town of Atherton supports a new Transbay Tube between Oakland and San Francisco (via the East Bay).

6.3.7 Altamont Corridor Rail Project

The Altamont Pass provides superior travel times between Sacramento/Northern San Joaquin Valley and the Bay Area and is strongly supported by the Central Valley. Many of the comments received in support of the Altamont Pass are related to its great potential for serving long-distance commuters between the Central Valley and the Bay Area. As indicated by the comments received by the Tri-Valley PAC, many of the negative impacts associated with construction of HST through the Tri-Valley might be considerably reduced by the elimination of the additional tracks needed for HST express services.

The Authority is working in partnership with "local and regional agencies and transit providers" to develop a joint-use (Regional Rail and HST) infrastructure project in the Altamont Pass corridor—as advocated in MTC's recently approved "Regional Rail Plan for the San Francisco Bay Area." Regionally provided commuter overlay services would require regional investment for additional infrastructure needs and potentially need operational subsidies. The Authority cannot unilaterally plan for regionally operated commuter services.

"Regional Rail" in the Altamont Pass corridor is being pursued by the partnership as an independent project to satisfy a different purpose and need[2] from the proposed HST system, but that could also accommodate HST service. The Authority is the lead state agency and the FRA is the lead federal agency for the project EIR/EIS process, which was initiated on October 22, 2009. The Authority is working in partnership with other agencies to secure local, state, federal, and private funding to develop this joint-use infrastructure project in the Altamont corridor. This corridor was added as part of the Proposition 1A HST funding package.

The Authority is pursuing potential joint-use Altamont Corridor Regional Rail/HST services and identifying alternatives for further evaluation, including direct service to San Jose or potentially terminating HST service at Livermore (connecting to an extended and enhanced BART system). The Authority's objective is that the infrastructure would be electrified, fully grade-separated, and compatible with and shared by HST services. Providing connectivity and accessibility to Oakland and Oakland International Airport via intermodal connections with BART would be a crucial objective for this project.

[2] As defined in CEQA and NEPA implementing regulations, procedures, and guidelines.

At this time, potential, no proposed alignments for study have been identified for the Altamont Corridor Rail Project, with; however, the -corridor limits are between Stockton and San Jose, which are the terminal stations for the current ACE service. The potentialSpecific alignments and station locations will be identified along this corridor and evaluated through the preparation of the project environmental document. The Altamont Corridor Rail Project is intended to include a potential branch east of Tracy to allow operation of trains between the Bay Area and points north including Stockton and Sacramento as well as points south including Modesto and beyond within the Statewide HST System. Project alternatives are intended to provide intermodal connections to the Bay Area Rapid Transit (BART) to serve the Oakland Airport, the cities of Oakland and San Francisco as well as other East Bay and South Bay locations via BART. Intermodal connections to BART would be provided in the Livermore vicinity, should the Dublin/Pleasanton BART line be extended, as well as in the Fremont/Union City vicinity, either meeting the existing Fremont line or the Warm Springs/San Jose extension. The Altamont Corridor Rail Project may also accommodate a future connection to the Dumbarton rail service in the Fremont/Union City vicinity as well as an intermodal connection to the Valley Transportation Authority (VTA) light rail network in Santa Clara County. Additionally, the project will accommodate feeder and connecting bus services providing access to proximate market areas and interfacing with regional bus links where appropriate.

To lay the groundwork for the Altamont Corridor Rail Project, the Authority is workingwill work with ACE, SJRRC, San Joaquin County Council of Governments, the Tri-Valley Pac, Alameda County, Santa Clara County, and others to get the Altamont Regional Rail/HST project identified in the update to the 2035 Regional Transportation Plan (RTP) and funds programmed in the 2035 RTP and RTIP. Since July 2008, , the Authority has been leading the "Altamont Working Group" that includes MTC and agencies and transit providers along the Altamont corridor project study that addresses the Altamont Pass, the East Bay connections, and stations in partnership, and provides the information necessary for the Authority to undertake an environmental study for this project.

7 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

The following text (Table 7-1) replaces that contained in Chapter 9 of the 2008 Final Program EIR in Table 9.3-1 (with regard to noise) and supplements Table 9.3-1 with regard to traffic. This Table 7-1 replaces Table 8-1 in Chapter 8 of the 2010 Final Revised Program EIR (with regard to traffic). Table 7-1 also supplements Table 9.3-1 with regard to connecting commuter rail services.

Table 7-1
Revised Table 9.3-1 and Table 8-1—Summary of Key Environmental Impact/Benefits of Alternatives

Key Environmental Issues	Alternative		Mitigation Strategy for HST	Potential Significance for HST	
	No Project	HST Network Alternatives		Before Mitigation	After Mitigation
Traffic and Circulation	Capacity is insufficient to accommodate projected growth. 13 of the 18 intercity highway segments considered would operate at unacceptable levels of service with increased congestion, travel delays, and accidents compared to existing conditions. Congestion would increase.	Congestion reduction on intercity highways compared to the No Project Alternative. 15 of the 18 intercity highway segments would experience diversion of trips from vehicles to the HST system yielding improved V/C ratios. Reduce automobile travel in the state 61 billion miles annually. Localized traffic conditions around some stations would be adversely affected, including at San Jose or Union City which could serve as interim terminus stations under phased implementation, Potential lane closures on adjacent parallel streets on the San Francisco Peninsula and in Hayward would have an adverse effect on intersections, circulation, access, and parking on affected streets and nearby intersections. Design solutions possible that may avoid lane closures. Portions of Monterey Highway between Southside Drive and Bailey Road to be narrowed from six to four lanes. Level of service would be adversely affected for segments of Monterey Highway between Southside Drive and Bailey Road. Surrounding roadways are projected to operate under congested traffic conditions during the 2035 peak hours.	Encourage use of transit to stations. Work with transit providers to coordinate services to increase service to stations and otherwise improve station connections. Provide additional parking for an interim period. Loss of Parallel Lanes on San Francisco Peninsula and in Hayward: Improvements to accommodate the diverted traffic, roadway realignment to replace any loss of capacity, create one-way streets to maintain access, physical separation of affected bicycles lanes, restriping of parking spaces, contribute “fair share” for improvements. Monterey Highway: Promote transit use, signal timing and synchronization, and turn lanes.	Potentially significant	Significant and unavoidable

Key Environmental Issues	Alternative		Mitigation Strategy for HST	Potential Significance for HST	
	No Project	HST Network Alternatives		Before Mitigation	After Mitigation
Noise and vibration	More traffic and more air operations from growth in the intercity demand generate more noise.	0 to 20 mi (32.4 km) or 0% to 9% of network alternative length would have high impacts on noise-sensitive land use/populations. Noise increase attributable to HST frequencies. Noise reduction from existing conditions due to elimination of horn and crossing gate noise resulting from grade separation of existing grade crossings. 0 to 52 mi (84.3 km) or 0% to 25% of network alternative length would have high impacts related to vibration. (Range based on HST Network Alternatives. See Chapter 7 of 2008 Final Program EIR). The narrowing of Monterey Highway may result in beneficial noise effects, but the shifting of the lanes and right-of-way may result in adverse noise effects. The potential for moving freight rail activity to outside tracks along the San Francisco Peninsula and between Tamien and Lick south of San Jose may result in adverse noise and vibration effects.	Consider noise barriers along noise-sensitive corridors for HST and Monterey Highway; track treatment for vibration. Replace property walls where existing property walls removed for Monterey Highway. Consider building sound insulation or related treatments for individual properties including in areas along Monterey Highway and San Francisco Peninsula. Consider acquisition of property to serve as a noise buffer. Develop traffic management measures, including vehicle speed limits and vehicle type limitations, for Monterey Highway. Upon relinquishment of Monterey Highway as a state highway, work with the City of San Jose to establish appropriate traffic management measures to reduce Monterey Highway traffic noise.	Noise: Potentially significant Vibration: Potentially significant	Noise: Potentially less than significant Vibration: Significant and unavoidable
Connecting commuter rail services	Capacity on existing commuter rail services (Caltrain, BART) may be	Connecting commuter rail service would experience an adverse effect from HST riders boarding at interim terminus stations (San Jose or Union City) under phased implementation.	Adding more train cars (i.e. seats) to existing Caltrain/BART train consists. Provide additional and more frequent service for Caltrain to and from San Jose or for BART to and from Union City. Provide a dedicated train service that would specifically serve the HST customers	Potentially significant	Significant and unavoidable

Key Environmental Issues	Alternative		Mitigation Strategy for HST	Potential Significance for HST	
	No Project	HST Network Alternatives		Before Mitigation	After Mitigation
	insufficient to accommodate projected demand.		between San Francisco and San Jose. Work with transportation providers to enhance connectivity to commuter rail stations. Provide commuter station improvements.		
Construction	Planned transportation infrastructure improvements would occur.	Construction would have an adverse effect on traffic congestion both on Monterey Highway and also other places where lane narrowing or adjustments are made, as well as on surrounding local streets during the construction period including lane closures and lane narrowing, and detours. Other potential impacts associated with construction include air quality, noise and vibration, energy, aesthetics/land use, hazardous materials and waste, cultural resources, geology and soils, water quality, biological resources, and Section 4(f) and 6(f) resources.	Off-street parking for construction vehicles, maintain pedestrian and bicycle access, restrict construction hours, establish construction truck routes, protect public roadways during construction, maintain public transit access and routing, prepare a detailed construction transportation plan, limit construction during special events, minimize closure of any proximate transportation facilities during construction, and maintain passenger and freight rail operations within active rail corridors. Applicable mitigation strategies for each impact category as set forth in the impacts analysis in the 2008 Final Program EIR.	Potentially significant	Significant and unavoidable in some resource areas
Grade separation impacts	Planned transportation infrastructure improvements would occur.	Beneficial impacts of grade separation, as required by HST design criteria, include improved traffic circulation, reduced noise from eliminating existing railroad crossing noise, <u>improved vehicular and pedestrian safety</u> and improved community cohesion. Potential adverse impacts include need for real property, displacement of existing land uses, impacts on biological, hydrological, and parks resources, visual effects, the potential for impacts to cultural	Applicable mitigation strategies for each impact category as set forth in the impacts analysis in the 2008 Final Program EIR.	Potentially significant	Significant and unavoidable

Key Environmental Issues	Alternative		Mitigation Strategy for HST	Potential Significance for HST	
	No Project	HST Network Alternatives		Before Mitigation	After Mitigation
		resources or public utilities, potential hazardous materials effects, as well as traffic, air quality, and noise and vibration effects.			

7A ADDITIONAL DESIGN FEATURES AND MITIGATION STRATEGIES

In response to comments on the Partially Revised Draft Program EIR, the Authority is adding the following design features and mitigation strategies to the document.

Hydrology and Water Resources

Project-level design for the HST will adhere to NFIP floodplain management building requirements and the Authority will consult with local agencies as part of second-tier, project-level EIR/EIS analysis.

(in response to FEMA Region IX letter)

Aesthetics and Visual Resources

Design soundwalls for the HST and for the shift of Monterey Highway with aesthetic treatments in visually sensitive environments, including artistic elements, color, landscape screening or signage to enhance the appearance of soundwalls.

(in response to letters from City of Palo Alto and Citizens for California High Speed Rail Accountability)

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