Transportation 2035 Plan for the San Francisco Bay Area

TRANSPORTATION-AIR QUALITY CONFORMITY ANALYSIS FOR THE TRANSPORTATION 2035 PLAN & 2009 TRANSPORTATION IMPROVEMENT PROGRAM AMENDMENT #09-06

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METROPOLITAN TRANSPORTATION COMMISSION

Joseph P. Bort MetroCenter
101 Eighth Street
Oakland, CA 94607-4700
PHONE 510.817.5700
TTY/TDD 510.817.5769
FAX 510.817.5848
WEB www.mtc.ca.gov

MTC Project Staff

Doug Kimsey
Director, Planning

Ashley Nguyen
Project Manager

Planning & Programming and Allocations Staff
Marcella Aranda
Harold Brazil
Liz Brisson
Ben Espinoza
Shimon Israel
Ross McKeown
Chuck Purvis
Rupinder Singh
Sri Srinivasan

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I. INTRODUCTION

The Metropolitan Transportation Commission (MTC) prepares a transportation air quality conformity analysis when MTC amends or updates its long-range regional transportation plan (RTP), or adds or deletes regionally significant, non-exempt projects into the Transportation Improvement Program (TIP).

The purpose of this conformity analysis is to conform the proposed Transportation 2035 Plan and proposed amendment to the 2009 Transportation Improvement Program (herein referred to as the 2009 TIP Amendment #09-06) in accordance with the latest U.S. EPA transportation conformity regulations and the Bay Area Conformity State Implementation Plan (Conformity SIP), which is also known as the Bay Area Air Quality Conformity Protocol (MTC Resolution No. 3757).

This report explains the basis for the conformity analysis and provides the results used by MTC to make a positive conformity finding on the Transportation 2035 Plan and 2009 Transportation Improvement Program (up through TIP Amendment #09-06).

Purpose of Conformity Analysis

The 1990 Clean Air Act Amendments (CAAA) outlines requirements for ensuring that federal transportation plans, programs and projects are consistent with (“conform to”) the purpose of the State Implementation Plan (SIP). Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant national ambient air quality standards. A conformity finding demonstrates that the total emissions projected for a RTP or TIP are within the emissions limits ("budgets") established by the SIP, and that transportation control measures (TCMs) are implemented in a timely fashion.

Conformity applies to areas that are designated non-attainment, and those redesignated to attainment after 1990 (“maintenance areas” with plans developed under Clean Air Act section 175A) for ozone, particulate matter, carbon monoxide, and nitrogen oxide. The U.S. EPA published conformity regulations to implement the 1990 CAAA conformity requirements in November 1993, and revised them in August 1995, November 1995, August 1997, July 2004, and May 2005.

Metropolitan Planning Organizations such as MTC are required to adopt and follow these regulations. In the Bay Area, the procedures were first adopted in September 1994 to comply with the 1990 CAAA. Four subsequent amendments to the transportation conformity procedures in August 1995, November 1995, August 1997, and July 2006 have been adopted by the three co-lead agencies (MTC, Association of Bay Area Governments (ABAG), and Bay Area Air Quality Management District (BAAQMD)). MTC Resolution 3757 represents the latest San Francisco Bay Area Transportation Air Quality Conformity Protocol adopted by the three agencies in July 2006. Acting on behalf of the three agencies, the BAAQMD

submitted this latest Protocol to California Air Resources Board (CARB) as a revision to the Bay Area Conformity SIP. CARB approved this proposed revision to the Bay Area's Conformity SIP in December 2006, and transmitted it to U.S. EPA for final action. U.S. EPA approved the Bay Area Conformity SIP in December 2007 (40 CFR Part 42).

These regulations and resolutions state in part that, MTC cannot approve any transportation plan, program or project unless these activities conform to the purpose of the federal air quality plan (officially titled the State Implementation Plan, or SIP). "Transportation plan" refers to the RTP. "Program" refers to the TIP, which is a financially realistic set of highway and transit projects to be funded over the next four years. A "transportation project" is any highway or transit improvement, which is included in the RTP and TIP and requires funding or approval from the Federal Highway Administration or the Federal Transit Administration. Conformity regulations also affect regionally significant non-federally funded projects which must be included in a conforming transportation plan and program.

Status of Regional Transportation Plan

A Regional Transportation Plan, or RTP, is a long-range plan which includes both long-range and short-range strategies/actions that lead to the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand. By federal law, the RTP covers a minimum planning horizon of 20 years and is updated every four years in areas which do not meet federal air quality standards. The RTP is financially constrained to the projected transportation revenues that will be reasonably available to the region over the planning period. Once adopted, the RTP guides the development of the TIP for the region.

The latest conforming RTP is the Transportation 2030 Plan, which was adopted by the Commission in February 2005 (MTC Resolution 3681). The Federal Highway Administration and Federal Transit Administration approved MTC's conformity determination for the Transportation 2030 Plan on March 17, 2005. The Transportation 2030 Plan was subsequently amended on May 23, 2007 (MTC Resolution No. 3804) and on December 19, 2007 via an administrative modification.

The proposed Transportation 2035 Plan is the 2009 update to the current Transportation 2030 Plan. This conformity analysis serves to conform the Transportation 2035 Plan.

The proposed Transportation 2035 Plan was prepared by MTC in partnership with the Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District (BAAQMD), and Bay Conservation and Development Commission (BCDC) and in collaboration with federal and state agencies, Caltrans, nine county-level Congestion Management Agencies (CMAs), over two dozen Bay Area transit operators, and numerous transportation stakeholders and the public. The proposed Transportation 2035 Plan represents the transportation policy and action statement of how the Bay Area will approach the region's transportation needs through the 2035 planning horizon year. The proposed

Transportation 2035 Plan is financially constrained – meaning its funds for investments match with revenues projected to be reasonably available to the region over the next 25 years. The proposed Transportation 2035 Plan features a set of highway, transit, local roadway, bicycle and pedestrian projects identified through regional and local transportation planning process.

Refer to **Appendix B** for detailed project listing of projects/programs included in the proposed Transportation 2035 Plan. See MTC's Draft Transportation 2035 Plan (December 2009) for full details about the plan.

Status of Transportation Improvement Program

The federally required Transportation Improvement Program, or TIP, is a comprehensive listing of Bay Area surface transportation projects that receive federal funds or are subject to a federally required action, or are considered regionally significant for air quality conformity purposes. MTC prepares and adopts the TIP every two years. The TIP must cover at least a four-year period and contain a priority list of projects grouped by year. The TIP is also financially constrained – meaning that the amount of funding programmed does not exceed the amount of funding reasonably expected to be available. Adoption of the TIP must be accompanied by an air quality conformity analysis and finding, and all projects included in the TIP must be derived from and/or be consistent with the RTP. Whenever a new RTP is adopted, a new air quality conformity analysis must be prepared for the TIP, to ensure consistency between the current Plan (RTP) and Program (TIP).

The latest conforming TIP is the 2009 TIP adopted by the Commission on May 28, 2008 (MTC Resolution No. 3875), and approved by the Federal Highway Administration (FHWA) and Federal Transit Administration on November 17, 2008. The current 2009 TIP covers the four-year period from FY 2008-09 through FY 2011-12, and contains approximately 1,100 projects totaling about $13 billion dollars.

MTC has prepared Amendment #09-06 to the 2009 TIP to conform the 2009 TIP to the Transportation 2035 Plan for air quality conformity purposes. This amendment adds new sales tax projects, reconciles State Transportation Improvement Program (STIP) projects, and adds or deletes other exempt and non-exempt projects consistent with the new RTP (T-2035). This conformity analysis serves to re-conform the entire 2009 TIP.

Refer to **Appendix A** for detailed project listing of projects/programs in the 2009 TIP Amendment #09-06. Note that specific funding sources are identified in the TIP amendment itself. See MTC's Draft 2009 Transportation Improvement Program Amendment #09-06 (December 2008) for full details about the TIP.

II. BAY AREA AIR POLLUTANT DESIGNATIONS

National 1-Hour Ozone Standard

On November 6, 1991, the U.S. Environmental Protection Agency (EPA) designated the Bay Area as a moderate ozone non-attainment area. Based on "clean" air monitoring data from 1990 to 1993, the co-lead agencies—BAAQMD, MTC, and ABAG— determined that no ozone violations had occurred and requested the California Air Resources Board (ARB) to forward a redesignation request and an ozone maintenance plan to U.S. EPA.

On May 25, 1995, the Bay Area was classified as an ozone maintenance area, having attained the 1-hour national ozone standard for five years (1990-1994). However, on July 10, 1998 the U.S. EPA published a Notice of Final Rulemaking redesignating the Bay Area back to an ozone non-attainment (unclassified) area. This action was due to violations of the 1-hour standard that occurred during the summers of 1995 and 1996, and became final on August 10, 1998.

On October 31, 2003, U.S. EPA proposed a finding of attainment of the national 1-hour ozone standard for the Bay Area. The proposed finding was based on air quality monitoring data from the 2001, 2002, and 2003 ozone seasons. In April 2004, U.S. EPA made a final finding that the Bay Area had attained the national 1-hour ozone standard. Because of this finding, some of the elements of the 2001 Ozone Attainment Plan, submitted to EPA to demonstrate attainment of the 1-hour standard, were suspended. The finding of attainment did not mean the Bay Area had been reclassified as an attainment area for the 1-hour standard. To be reclassified, the region would have had to submit a formal redesignation request to EPA, along with a maintenance plan showing how the region would continue to attain the standard for ten years. However, this redesignation request was no longer necessary upon the establishment of the new national 8-hour ozone standard.

On April 15, 2004, EPA issued the first phase of the final implementation rule designating and classifying areas not meeting the federal 8-hour ozone standard. This phase of the implementation rule explained how EPA was classifying areas not meeting the national air quality standard for 8-hour ozone. It also established a process for transitioning from implementing the 1-hour standard for ozone to implementing the more protective 8-hour ozone standard. The rule also established attainment dates for the 8-hour standard and the timing of emissions reductions needed for attainment. The 8-hour designations and classifications took effect on June 15, 2004; and one year following this effective date, EPA revoked the 1-hour standard.

National 8-Hour Ozone Standard

In July 1997, U.S. EPA revised the ozone standard, setting it to 0.08 parts per million in concentration-based form, specifically the 3-year average of the annual 4th highest daily maximum 8-hour ozone concentrations. In April 2004, EPA issued final designations for attainment and non-attainment areas. The Bay Area monitoring stations recorded concentrations that exceeded the national 8-hour ozone standard for 2001, 2002 and 2003. In June 2004, EPA formally designated the Bay Area as a non-attainment area for national 8-hour ozone, and classified the region as "marginal" based on five classes of non-attainment areas for ozone, ranging from marginal to extreme. Marginal, non-attainment areas must attain the national 8-hour ozone standard by June 15, 2007.

On July 1, 2004, EPA published a final rule amending the transportation conformity rule to address the new national 8-hour ozone standard. The amended rule stated that Plans and TIPs in nonattainment areas must be found to conform against the new standard by one year after the effective date of designation – by June 15, 2005 for 8-hour ozone areas. Conformity for the 1-hour ozone standard will no longer apply in existing 1-hour ozone nonattainment and maintenance areas once the 1-hour ozone standard is revoked; this occurred on June 15, 2005. Furthermore, prior to 8-hour budgets being established, all areas with adequate or approved 1-hour motor vehicle emission budgets must use them to demonstrate conformity with the 8-hour ozone standard, unless it is determined through interagency consultation that using the interim emissions tests is more appropriate. The conformity finding in this report is based on the approved 1-hour motor vehicle emissions budget.

In March 2008, EPA lowered the national 8-hour ozone standard from 0.80 parts per million to 0.75 parts per million. State recommendations for area designations are due March 2009, and EPA will make final area designations by March 2010.

National 8-Hour Carbon Monoxide Standard

In April 1998, the Bay Area was redesignated to a "maintenance area" for the national 8-hour carbon monoxide (CO) standard, having demonstrated attainment of the standards. As a maintenance area, the region must assure continued attainment of the CO standard.

Approved Motor Vehicle Emissions Budgets

The Bay Area has conformity requirements for both the federal ozone and CO standards. Under these requirements, the Bay Area has to meet a motor vehicle emission "budget" test for Volatile Organic Compounds (VOC), Nitrogen Oxides (NO_X) and CO. To make a positive conformity finding, MTC must demonstrate that the calculated motor vehicle emissions in the region are lower than the approved budgets. As mentioned above, under EPA's conformity rule for the national 8-hour ozone standard, the existing 1-hour motor vehicle emission budget is to be used for conformity analyses until it is replaced by another budget.

For the ozone precursor emissions VOC and NO_X, the applicable motor vehicle emissions budget was developed for the 2006 attainment year as part of the 2001 Ozone Attainment Plan and was subsequently approved by EPA.

For CO, the applicable motor vehicle emissions budget was developed for the 2004 Revisions to the California State Implementation Plan for Carbon Monoxide (herein referred to as the 2004 Carbon Monoxide Maintenance Plan).

The motor vehicle emission budgets are listed below:

VOC:	164 tons per day (2006 and beyond)
NOx:	270.3 tons per day (2006 and beyond)
CO:	1,850 tons per day (2003 and beyond)

On road motor vehicle emissions are analyzed for various analysis years that must not be more than 10 years apart, or more than 10 years from the base year used to validate the model (2000). For this conformity analysis, the analysis years are 2015, 2025, and 2035 for VOC and NOx. MTC has prepared separate travel forecasts for the Bay Area for each of these years. For CO, the analysis years are 2015, 2018, 2025, and 2035. Travel forecast data for year 2018 were interpolated between 2015 and 2025. These travel forecasts are then used to calculate motor vehicle emissions.

III. CONFORMITY ANALYSIS & RESULTS

Approach to Conformity Analysis

MTC has used the latest planning assumptions for the purpose of preparing this conformity analysis. Regional on-road motor vehicle emissions for future years are estimated using MTC's travel demand forecast model (BAYCAST 2000), which estimates vehicle activity in the Bay Area, in conjunction with the ARB's latest model for determining motor vehicle emissions (EMFAC2007, Version 2.3).

The MTC travel demand model requires various inputs – demographic assumptions, pricing assumptions, travel behavior assumptions and highway and transit network assumptions. This conformity analysis uses the latest socio-economic/land use forecast series *Projections 2007* developed and adopted by ABAG and the latest validated version of the MTC travel demand model (BAYCAST 2000).

In addition, pricing assumptions include projected parking prices, gasoline and non-gasoline auto operating costs, fuel economy, bridge tolls, and transit fares. Travel behavior assumptions include trip peaking factors, vehicle occupancy factors, and estimates of interregional commuters. Highway and transit networks were updated for each analysis year to reflect investments in the proposed Transportation 2035 Plan (see Appendix B) and 2009 TIP Amendment #09-06 (see Appendix A).

Regional VMT and engine starts (which are needed for emission calculations) are forecasted using a combination of output from MTC's travel demand forecasting model and base year (2000) VMT information provided by the ARB. For conformity purposes, MTC agreed to follow ARB's protocol for estimating VMT.

Refer to **Appendix C** for detailed travel and air quality modeling assumptions used in this conformity analysis.

Consultation Process

MTC has consulted on the preparation of this conformity analysis and other conformity related issues with the Bay Area's Air Quality Conformity Task Force. The Conformity Task Force is composed of representatives of U.S. EPA, ARB, FHWA, FTA, Caltrans, MTC, BAAQMD, ABAG, the nine county Congestion Management Agencies, and Bay Area transit operators. The Conformity Task Force reviews the assumptions going into the analysis, consults on TCM implementation issues, and reviews the results of the conformity analysis. The task force meetings are open to the public and are regularly attended by interested members of the public. Topics covered in past meetings of the Air Quality Conformity Task Force include the following:

June 2008

- Transportation 2035 Update
- Approach, Assumptions, and Schedule for the Conformity Analysis for the Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06
- Air Quality Updates

December 2008

- Administrative Draft Conformity Analysis for the Transportation 2035 and 2009 Transportation Improvement Program Amendment #09-06
- Interagency Consultation Requirements for $PM_{2.5}$ HOT Spot Analysis
- Overview of ABAG's Projections 2009
- Air Quality Updates

February 2009 (Upcoming)

- Response to Comments & Proposed Final Conformity Analysis for the Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06
- Air Quality Updates

Comparison of Motor Vehicle Emissions To Budgets

As explained earlier, motor vehicle emissions budgets are established in the SIP for VOCs, NO_x and carbon monoxide (CO). To make a positive conformity finding, the regional motor

vehicle emissions must be equal to or less than these budgets. The results of the vehicle activity forecasts and motor vehicle emission calculations are shown below for each separate analysis year. For VOC and NO_x, the motor vehicle emission budget also reflects anticipated emission reductions from five Transportation Control Measures (TCMs) incorporated in the 2001 Ozone Attainment Plan (Table 1).

TABLE 1
VOC AND NO_X EMISSIONS BUDGETS FROM 2001 OZONE ATTAINMENT PLAN (TONS/DAY)

VOC	
2006 On Road Motor Vehicle Emissions	168.5
2006 Mobile Source Control Measure Benefits	(4.0)
2006 TCM Benefits	(0.5)
2006 Emissions Budget	164.0
NO_X	
2006 On Road Motor Vehicle Emissions	271.0
2006 TCM Benefits	(0.7)
2006 Emissions Budget	270.3

TABLE 2
VEHICLE ACTIVITY FORECASTS

	2015	2025	2035
VEHICLES IN USE	5,457,800	6,102,453	6,693,633
Daily VMT (1000s)	173,560	191,718	209,785
Engine Starts	36,181,142	40,134,461	43,911,799

Carbon Monoxide Maintenance Plan Budget

The budget for carbon monoxide is derived from the 2004 Carbon Monoxide Maintenance Plan. The emission budget for the Bay Area is 1,850 tons per day. This budget applies to all subsequent analysis years as required by federal conformity regulation, including: any interim year conformity analyses, the 2018 horizon year, and years beyond 2018.

Comparison of Estimated Regional Motor Vehicle Emissions to the Budget

The motor vehicle activity forecasts for the Transportation 2035 Plan and 2009 TIP Amendment #09-06 for the various horizon years are converted to motor vehicle emission estimates by MTC using EMFAC2007.

Table 3A and 3B compares the results of the various analyses with the applicable budgets. The analyses indicate that the motor vehicle emissions are substantially below the budget, due in large part to recent improvements in ARB's latest EMFAC model which reflect the effects of cleaner vehicles in the California fleet and the enhanced Smog Check program now in effect in the Bay Area. With respect to the new Maintenance Plan motor vehicle emission budget for CO, Table 3B shows that calculated motor vehicle emissions will be well below the new budget of 1,850 tons per day in 2018 as well.

The estimated effectiveness of the various Transportation Control Measures, given their current implementation status is shown in Table 4. TCMs A through E are fully implemented. They have achieved the required cumulative total emission reductions of 0.5 tons per day of VOC and 0.7 tons per day of NO_x by 2006.

TABLE 3A
EMISSIONS BUDGET COMPARISONS FOR OZONE PRECUSORS (TONS/DAY)

Year	VOC Budget*	On-Road Motor Vehicles VOC	TCMs**	Net Emissions
2015	164.0	72.54	(0.3)	72.24
2025	164.0	49.06	(0.3)	48.76
2035	164.0	37.21	(0.3)	36.91

Year	NO_X Budget*	On-Road Motor Vehicles NO_X	TCMs**	Net Emissions
2015	270.3	108.39	(0.5)	107.89
2025	270.3	59.58	(0.5)	59.08
2035	270.3	42.83	(0.5)	42.33

**2001 Ozone Attainment Plan*
**The transit services for TCM A Regional Express Bus Program were modeled. The emission benefits from TCM A are therefore included in the On-Road Motor Vehicles VOC and NOx emission inventories for 2006 and beyond.

TABLE 3B
EMISSIONS BUDGET COMPARISONS FOR CARBON MONOXIDE (TONS/DAY)

Year	2004 CO Budget*	Estimated CO
2015	1,850	611.82
2018	1,850	532.94**
2025	1,850	348.89
2035	1,850	268.72

**2004 Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for 10 Federal Planning Areas*
***Estimated CO emissions for 2018 is extrapolated from the 2015 and 2025 analysis years.*

TABLE 4
EMISSIONS REDUCTIONS FOR TRANSPORTATION CONTROL MEASURES (TCMS) A – E IN STATE IMPLEMENTATION PLAN THROUGH DECEMBER 2006 (TONS PER DAY)

TCM	VOC Emission Reductions through December 2006	NOx Emission Reductions through December 2006
TCM A Regional Express Bus Program	0.20	0.20
TCM B Bicycle/Pedestrian Program	0.04	0.03
TCM C Transportation for Livable Communities	0.08	0.12
TCM D Expansion of Freeway Service Patrol	0.10	0.25
TCM E Transit Access to Airports	0.09	0.13
Total Reductions	0.5	0.7

IV. TRANSPORTATION CONTROL MEASURES

History of Transportation Control Measures

Transportation control measures (TCMs) are strategies to reduce vehicle emissions. They include such strategies as improved transit service and transit coordination, ridesharing services and new carpool lanes, signal timing, freeway incident management, increased gas taxes and bridge tolls to encourage use of alternative modes, etc. The original set of TCMs plus the five new TCMs (A-E) have been fully implemented. The TCMs were added over successive revisions to the SIP (see Table 5). For more information on TCMs 1-28, which are completed, see the *Transportation Air Quality Conformity Analysis for the 2001 Regional Transportation Plan and FY 2001 Transportation Improvement Program Amendment 01-32 (February 2002)*. This report can be found in the MTC/ABAG Library.

- Twelve (12) ozone measures were originally listed in the 1982 Bay Area Air Quality Plan.

- In response to a 1990 lawsuit in the federal District Court, sixteen (16) additional TCMs were subsequently adopted by MTC in February 1990 as contingency measures to bring the region back on the "Reasonable Further Progress" (RFP) line. The Federal District order issued on May 11, 1992, found that these contingency TCMs were sufficient to bring the region back on the RFP track anticipated in the SIP. These measures became part of the SIP when U.S. EPA approved the 1994 Ozone Maintenance Plan.

- Two (2) transportation control measures from the 1982 Bay Area Air Quality Plan apply to Carbon Monoxide control strategies, for which the region is in attainment with the federal standard, and primarily targeted downtown San Jose (which had the

most significant CO problem at that time.) MTC also adopted a set of TCM enhancements in November 1991 to eliminate a shortfall in regional carbon monoxide emissions identified in the District Court's April 19, 1991 order. Carbon monoxide standards have been achieved primarily through the use of oxygenated/reformulated fuels in cars and with improvements in the Smog Check program.

- As part of EPA's partial approval/partial disapproval of the 1999 Ozone Attainment Plan, four (4) TCMs were deleted from the ozone plan (but two of these remain in the Carbon Monoxide Maintenance Plan).

- Five (5) new Transportation Control Measures were adopted as part of the new 2001 1-Hour Ozone Attainment Plan and are fully funded in the TIP and 2001 Regional Transportation Plan.

With respect to TCM 2 from the 1982 SIP, there has been a protracted debate, leading to a citizens lawsuit in federal court, about the obligations associated with this TCM. On April 6, 2004 MTC prevailed in the U.S. Court of Appeals for the Ninth Circuit which concluded that TCM 2 does not impose any additional enforceable obligation on MTC to increase ridership on public transit ridership by 15% over 1982-83 levels by November 2006 (Bayview Hunters Point Community Advocates v. Metropolitan Transportation Com'n, (2004 WL 728247, 4 Cal. Daily Op. Serv. 2919, 2004 Daily Journal D.A.R. 4209, 9th Cir.(Cal.), Apr 06, 2004)). Thus TCM 2 has been resolved, and there are no further implementation issues to address in this TCM.

TABLE 5
Transportation Control Measures (TCMs) in the State Implementation Plan

TCM	*Description*
Original TCMs from 1982 Bay Area Air Quality Plan	
TCM 1	Reaffirm Commitment to 28 percent Transit Ridership Increase Between 1978 and 1983
TCM 2	Support Post-1983 Improvements in the Operators' Five-Year Plans and, After Consultation with the Operators, Adopt Ridership Increase Target for the Period 1983 through 1987
TCM 3	Seek to Expand and Improve Public Transit Beyond Committed Levels
TCM 4	High Occupancy Vehicle (HOV) Lanes and Ramp Metering
TCM 5	Support RIDES Efforts
TCM 6*	Continue Efforts to Obtain Funding to Support Long Range Transit Improvements
TCM 7	Preferential Parking
TCM 8	Shared Use Park and Ride Lots
TCM 9	Expand Commute Alternatives Program
TCM 10	Information Program for Local Governments
TCM 11**	Gasoline Conservation Awareness Program (GasCAP)
TCM 12**	Santa Clara County Commuter Transportation Program
Contingency Plan TCMs Adopted by MTC in February 1990 (MTC Resolution 2131)	
TCM 13	Increase Bridge Tolls to $1.00 on All Bridges
TCM 14	Bay Bridge Surcharge of $1.00
TCM 15	Increase State Gas Tax by 9 Cents
TCM 16*	Implement MTC Resolution 1876, Revised — New Rail Starts
TCM 17	Continue Post-Earthquake Transit Services
TCM 18	Sacramento-Bay Area Amtrak Service
TCM 19	Upgrade Caltrain Service
TCM 20	Regional HOV System Plan
TCM 21	Regional Transit Coordination
TCM 22	Expand Regional Transit Connection Ticket Distribution
TCM 23	Employer Audits
TCM 24	Expand Signal Timing Program to New Cities
TCM 25	Maintain Existing Signal Timing Programs
TCM 26	Incident Management on Bay Area Freeways
TCM 27	Update MTC Guidance on Development of Local TSM Programs
TCM 28	Local Transportation Systems Management (TSM) Initiatives
New TCMs in 2001 Ozone Attainment Plan	
TCM A	Regional Express Bus Program
TCM B	Bicycle/Pedestrian Program
TCM C	Transportation for Livable Communities
TCM D	Expansion of Freeway Service Patrol
TCM E	Transit Access to Airports

*Deleted by EPA action from ozone plan
**Deleted by EPA action from ozone plan, but retained in Carbon Monoxide Maintenance Plan.

Source: Bay Area Air Quality Management District, Metropolitan Transportation Commission, 2001.

Status of Transportation Control Measures

TCMs A-E were approved into the SIP as part of EPA's Finding of Attainment for the San Francisco Bay Area (April 2004). The conformity analysis must demonstrate that TCMs are being implemented on schedule (40 CFR 93.113). TCMs A-E have specific implementation steps which are used to determine progress in advancing these TCMs (see Table 6). TCMs A-E are now fully implemented.

TABLE 6
IMPLEMENTATION STATUS OF FEDERAL TRANSPORTATION CONTROL MEASURES FOR OZONE (TCMS A – E)

#	TCM	Description	Ozone Attainment Plan Implementation Schedule	Implementation Status
A	Regional Express Bus Program	Program includes purchase of approximately 90 low emission buses to operate new or enhanced express bus services. Buses will meet all applicable ARB standards, and will include particulate traps or filters. MTC will approve $40 million in funding to various transit operators for bus acquisition. Program assumes transit operators can sustain service for a five year period. Actual emission reductions will be determined based on routes selected by MTC.	FY 2003. Complete once $40 million in funding pursuant to Government Code Section 14556.40 is approved by the California Transportation Commission and obligated by bus operators	$40 million for this program was allocated by the CTC in august, 2001. The participating transit operators have ordered and received a total of 94 buses. Four of the initial proposed projects no longer appear viable; the buses ordered for these will be redeployed in alternate services. All buses were operational by 2006. TCM A is fully implemented.
B	Bicycle / Pedestrian Program	Fund high priority projects in countywide plans consistent with TDA funding availability. MTC would fund only projects that are exempt from CEQA, have no significant environmental impacts, or adequately mitigate any adverse environmental impacts. Actual emission reductions will be determined based on the projects funded.	FY 2004 – 2006. Complete once $15 million in TDA Article 3 is allocated by MTC.	MTC allocated over $20 million in TDA Article 3 funds during FY2004, FY2005, and FY2006. TCM B is fully implemented.

#	TCM	Description	Ozone Attainment Plan Implementation Schedule	Implementation Status
C	Transportation for Livable Communities (TLC)	Program provides planning grants, technical assistance, and capital grants to help cities and nonprofit agencies link transportation projects with community plans. MTC would fund only projects that are exempt from CEQA, have no significant environmental impacts, or adequately mitigate any adverse environmental impacts. Actual emission reductions will be based on the projects funded.	FY 2004 – 2006. Complete once $27 million in TLC grant funding is approved by MTC	In December 2003, the Commission reaffirmed its commitment of $27 million annually over 25 years for the TLC program as part of Phase 1 of the Transportation 2030 Plan. MTC and the county Congestion Management Agencies (CMAs) have approved over $27 million in TLC grant funding by FY 2006. In November 2004, MTC approved $500,000 for regional TLC Community Design Planning Program, and in December 2004, MTC approved $18.4 million in TLC funding for the regional TLC Capital program. As of December 2006, CMAs in Alameda, Marin and Sonoma counties approved an additional $12.4 million in their county-level TLC Capital programs for a regional total of $31.2 million. TCM C is fully implemented.
D	Additional Freeway Service Patrol	Operation of 55 lane miles of new roving tow truck patrols beyond routes which existed in 2000. TCM commitment would be satisfied by any combination for routes adding 55 miles. Tow trucks used in service are new vehicles meeting all applicable ARB standards.	FY 2001. Complete by maintaining increase in FSP mileage through December 2006	FSP continues to maintain the operation of the 55 lane miles of new roving tow truck coverage. This level of service was maintained through 2006. FSP continues to expand its service areas. TCM D is fully implemented. .
E	Transit Access to Airports	Take credit for emission reductions from air passengers who use BART to SFO, as these reductions are not included in the Baseline.	BART – SFO service to start in FY 2003. Complete by maintaining service through December 2006	Service began June, 2003. Service adjustments were made in September, 2004 to improve productivity and to increase the number of peak period trains stopping at the Airport station. Service was maintained through 2006 and is continued. TCM E is fully implemented.

V. RESPONSE TO PUBLIC COMMENTS

MTC's Planning Committee released the Draft Conformity Analysis for a 30-day public review period from January 9, 2009 to February 9, 2009. Response to public comments will be included in the final report.

VI. CONFORMITY FINDINGS

Based on the analysis, the following conformity findings are made:

- This conformity assessment was conducted consistent with U.S. EPA's transportation conformity regulations and with the Bay Area Air Quality Conformity Protocol adopted by MTC as Resolution No. 3757.

- The proposed Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06 provide for implementation of TCMs pursuant to the following federal regulation:

  (1) An examination of the specific steps and funding source(s) needed to fully implement each TCM indicates that TCMs which are eligible for funding under title 23 U.S.C. or the Federal Transit Laws are on or ahead of the schedule established in the applicable implementation plan, or, if such TCMs are behind the schedule established in the applicable implementation plan, the MPO and DOT have determined that past obstacles to implementation of the TCMs have been identified and have been or are being overcome, and that all State and local agencies with influence over approvals or funding for TCMs are given maximum priority to approval or funding to TCMs over other projects within their control, including projects in locations outside the non-attainment or maintenance area.

  (2) If TCMs in the applicable implementation plan have previously been programmed for Federal funding but the funds have not been obligated and the TCMs are behind the schedule in the implementation plan, then the TIP cannot be found to conform if the funds intended for those TCMs are reallocated to projects in the TIP other than TCMs, or if there are no other TCMs in the TIP, if the funds are reallocated to projects in the TIP other than projects which are eligible for Federal funding intended for air quality improvements projects, e.g., the Congestion Mitigation and Air Quality Improvement Program.

  (3) Nothing in the TIP may interfere with the implementation of any TCM in the applicable implementation plan. (40 CFR Part 93.113(c)).

- For carbon monoxide, motor vehicle emissions in the proposed Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06 are lower than the transportation conformity budget in the SIP.

- For Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx), motor vehicle emissions in the proposed Transportation 2035 Plan and 2009 Transportation Improvement Program Amendment #09-06 are also lower than the applicable motor vehicle emission budgets for the national 8-hour ozone standard.

Appendix A
List of Projects in the 2009 TIP Amendment #09-06

County	Sponsor	TIP ID/ FMS ID*	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
				Alameda County			
Alameda	ACCMA	4138	230099	I-580/I-680 Improvements	Amend in new project	2015	$ 392,500,000
Alameda	ACCMA	4139	230665	I-580 Corridor Project	Amend in new project	2010	$ 30,000,000
Alameda	ACCMA	4140	22765	Project Development for I-580/I-680 Interchange HOV direct connectors	Amend in new project	2015	$ 15,000,000
Alameda	ACCMA	4150	230703	I-680 Express Bus Service	Amend in new project	2015	$ 10,400,000
Alameda	ACCMA	4151	230120	Truck Parking Facilities in North County (Planning Area 1)	Amend in new project	2015	$ 5,000,000
Alameda	ACCMA	4152	230091	Central Alameda County Integrated Corridor Mobility Program and Adaptive Ramp Metering	Amend in new project	2015	$ 5,000,000
Alameda	ACCMA	4249	22780	Webster Street SMART Corridor Management Project	Amend in new project	2015	$ 1,234,000
Alameda	ACCMA	4256	230608	I-580 WB Auxiliary Lane, First to Isabel	Amend in new project	2015	$ 1,000,000
Alameda	Alameda County	4155	22768	Estuary Bridges Seismic Retrofit and Repairs	Amend in new project	2010	$ 4,000,000
Alameda	Alameda County	4156	22783	Fruitvale Avenue Roadway Bridge Seismic Retrofit	Amend in new project	2013	$ 8,000,000
Alameda	Alameda County	ALA030002	21139	Vasco Road Safety Improvements	Increase projects limits from 1.9M to 4.4 miles. No net change in funding	2015	$ 34,500,000
Alameda	City of Alameda	4157	22766	Fruitvale Avenue Rail Bridge seismic retrofit	Amend in new project	2013	$ 2,600,000
Alameda	City of Hayward	4149	21093	Rt 92/Clawiter/Whitesell Interchange Improvements	Amend in new project	2015	$ 51,900,000
Alameda	City of Hayward	4153	230054	I-880 Auxiliary Lanes between Whipple and Industrial Parkway West	Amend in new project	2015	$ 19,500,000
Alameda	City of Hayward	4154	230052	I-880 NB and SB auxiliary lanes	Amend in new project	2015	$ 32,500,000
Alameda	City of Livermore	4141	230156	W. Jack London Blvd. Extension, west of Isabel/Route 84 to El Charro Rd.	Amend in new project	2010	$ 18,000,000
Alameda	City of Livermore	4142	21475	I-580/First Street Interchange Improvements	Amend in new project	2015	$ 37,000,000
Alameda	City of Livermore	4143	21477	I-580/Greenville Road Interchange Improvements	Amend in new project	2015	$ 43,000,000
Alameda	City of Union City	4148	21123	Union City Intermodal Station infrastructure improvements (Phase 2)	Amend in new project	2015	$ 21,000,000
Alameda	Emeryville	4158	230108	I-80 Eastbound Off-ramp Widening at Powell Street	Amend in new project	2015	$ 1,800,000

County	Sponsor	TIP ID/ FMS ID*	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Alameda	Pleasanton	4144	230244	SR 84 Widening from Pigeon Pass to I-680	Amend in new project	2011	$ 2,100,000
Alameda	Pleasanton	4145	21472	VI-680/Bernal Avenue interchange improvements	Amend in new project	2014	$ 16,000,000
Alameda	Pleasanton	4146	21489	I-580 / Foothill Road interchange improvements	Amend in new project	2011	$ 2,100,000
Alameda	San Leandro	4147	230066	I-880/Marina Blvd Interchange and Overcrossing Replacement	Amend in new project	2013	$ 33,000,000
Contra Costa County							
Contra Costa	AC Transit	4270	94045	Procure New Express Buses for I-80 HOV	Amend in new project	2010	$ 10,000,000
Contra Costa	AC Transit	4273	98157	Enhanced Bus - San Pablo Corridor	Amend in new project	2012	$ 17,500,000
Contra Costa	AC Transit	4275	230090	Expand Western Contra Costa County Transit Facilities	Amend in new project	2011	$ 20,000,000
Contra Costa	AC Transit	4276	230193	Zero Emission Buses and Infrastructure Improvements	Amend in new project	2015	$ 30,000,000
Contra Costa	AC Transit	4277	230194	Environmental Sustainability Program	Amend in new project	2015	$ 6,000,000
Contra Costa	AC Transit	4278	230195	Safety and Security Enhancements	Amend in new project	2011	$ 4,200,000
Contra Costa	AC Transit	4279	230196	San Pablo Dam Road Transit Priority Measures	Amend in new project	2011	$ 12,000,000
Contra Costa	Caltrans	4221	230631	Double the existing rail track between Oakley and Port Chicago	Amend in new project	2012	$ 28,071,000
Contra Costa	City of Antioch	4224	230253	Fitzuren Rd Widening and Realignment	Amend in new project	2012	$ 10,000,000
Contra Costa	City of Antioch	4281	230232	Construct new interchange at Route 4/Phillips Lane	Amend in new project	2014	$ 50,100,000
Contra Costa	City of Brentwood	4217	230250	Widen Brentwood Boulevard from 2 lanes to 4 lanes between Sunset Court and Lone Tree Way	Amend in new project	2014	$ 23,536,000
Contra Costa	City of Concord	4220	230212	Clayton Road/Treat Boulevard Intersection Improvements	Amend in new project	2012	$ 2,091,000
Contra Costa	City of Concord	4272	98115	Ygnacio Valley/Kirker Pass Roads Widening from Michigan Blvd to Cowell Rd	Amend in new project	2014	$ 8,200,000
Contra Costa	City of Hercules	4219	230225	Improve and expand arterial streets in Central Hercules for express bus and rail transit facilities to support transit-oriented development at I-80/Route 4 intersection	Amend in new project	2012	$ 7,736,000
Contra Costa	City of Hercules	4283	230321	Construct Phase 2 of Hercules Intermodal Station (includes station facility and approx. 350 parking spaces).	Amend in new project	2015	$ 13,400,000
Contra Costa	City of Martinez	4269	22614	Construct Martinez Intermodal Station (Phase 3) including an additional 425 parking spaces and vehicle and pedestrian bridges	Amend in new project	2012	$ 14,200,000

County	Sponsor	TIP ID/ FMS ID*	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Contra Costa	City of Oakley	4282	230274	Widen Main Street to 6 lanes from State Route 160 to Big Break Road	Amend in new project	2015	$ 12,630,000
Contra Costa	City of Pinole	4280	230229	Widen Pinole Valley Road ramps at I-80 to provide dedicated right turn lane on eastbound onramp and bus turnout/shelter on westbound onramp	Amend in new project	2013	$ 787,000
Contra Costa	City of Richmond	4214	230084	Construct a railroad grade separation at the Richmond Waterfront on the Marina Bay Parkway.	Amend in new project	2014	$ 37,500,000
Contra Costa	City of Richmond	4223	230505	Provide transportation improvements on the east side of the Richmond BART station to accommodate redevelopment for a transit village.	Amend in new project	2012	$ 16,087,000
Contra Costa	City of Richmond	CC-030001	21208	Richmond Parkway Transit Center	Amend scope to state "provide upto 800 parking spaces"	2014	$ 30,500,000
Contra Costa	City of San Pablo	CC-070035	22360	I-80 / San Pablo Dam Road Interchange Modifications	Amend scope to include modifying adjacent interchanges	2015	$ 118,000,000
Contra Costa	City of San Ramon	4216	98132	Bollinger Canyon Rd Widening from Alcosta Blvd to Dougherty Rd	Amend in new project	2015	$ 4,670,000
Contra Costa	City of San Ramon	4218	230307	Widen Camino Tassajara Road from Windemere Parkway to the Alameda/Contra Costa Countyline.	Amend in new project	2013	$ 13,020,000
Contra Costa	City of San Ramon	CC-070036	22352	I-680/Norris Canyon Bus Ramps	Amend scope to include reconstruction of overcrossing and widening of median	2015	$ 101,600,000
Contra Costa	City of San Ramon	4215	22613	Bollinger Canyon Road Widening (Alcosta to SRVB)	Amend in new project	2012	$ 21,900,000
Contra Costa	Contra Costa County	4222	98134	Dougherty Rd Widening from Red Willow to Contra Costa County Line	Amend in new project	2012	$ 47,755,000
Marin County							
Marin	MCTD	4209	230252	Expand Marin County local bus service	Amend in new project	2010	$ 10,000,000
Marin	TAM	4203	21030	Improve U.S. 101/I-580 interchange (project approval and environmental design phases only)	Amend in new project	2015	$ 11,000,000

County	Sponsor	TIP ID/ FMS ID*	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Marin	TAM	4202	21315	Signalize ramp intersections at U.S. 101/Miller Creek Road interchange	Amend in new project	2012	$ 1,200,000
Marin	TAM	4205	22437	Construct auxilliary lanes at various locations along U.S. 101	Amend in new project	2012	$ 5,000,000
Marin	TAM	4206	22753	Construct park-and-ride lots to support regional express bus service	Amend in new project	2011	$ 5,000,000
Marin	TAM	4207	98179	Improve U.S. 101/Tiburon Boulevard interchange	Amend in new project	2012	$ 20,000,000
Marin	TAM	4208	230060	Implement Transit Priority Measures (TPM) on major transit corridors	Amend in new project	2012	$ 27,300,000
Marin	TAM	4210	230418	Rehabilitate major roads of countywide significance	Amend in new project	2015	$ 30,000,000
Marin	TAM	4211	230431	Intermodal Transit Hubs	Amend in new project	2011	$ 11,000,000
Marin	TAM	4212	230549	Implement local arterial improvements parallel to U.S. 101	Amend in new project	2012	$ 10,000,000
Regional							
MTC	Caltrans	4271	230419	Freeway Performance Initiative - Phase 1	Amend in new project	2015	$ 220,983,000
San Francisco County							
San Francisco	SFCTA	4182	230517	Oakdale Caltrain Station	Amend in new project	2012	$ 50,000,000
San Francisco	SFDPW	4176	21549	Widen Cesar Chavez/Evans structure	Amend in new project	2015	$ 17,000,000
San Francisco	SFDPW	4177	21549	Arterial Harney/Jamestown to Crisp	Amend in new project	2012	$ 113,000,000
San Francisco	SFDPW	4178	21549	Widen Illinois Street Bridge over Islais Creek	Amend in new project	2015	$ 95,000,000
San Francisco	SFDPW	4170	230490	Widen Harney Way	Amend in new project	2012	$ 22,000,000
San Francisco	SFDPW	4175	230517	BRT-Ped-Bike Bridge over Yosemite Slough	Amend in new project	2012	$ 58,000,000
San Francisco	SFDPW	4180	230517	US 101 Aux Lanes Southbound from Silver to San Mateo County Line & Northbound from County Line to I-280 North interchange	Amend in new project	2015	$ 48,000,000
San Francisco	SFDPW	4179	230581	Hunters Point Shipyard Ferry Terminal	Amend in new project	2012	$ 20,000,000
San Francisco	SFMTA	4227	22412	Additional Light Rail Vehicles to Expand Muni Rail Service	Amend in new project	2015	$ 33,800,000

County	Sponsor	TIP ID/ FMS ID*	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
San Francisco	SFMTA	4229	22982	Geneva/Harney Limited/Express Bus Service	Amend in new project	2012	$ 28,000,000
San Francisco	SFMTA	4172	98593	Traffic Signals and Management Center	Amend in new project	2012	$ 54,000,000
San Francisco	SFMTA	4174	98593	Palou Transit Preferential Streets Corridor	Amend in new project	2012	$ 22,000,000
San Francisco	SFMTA	4230	230207	Geneva-Harney BRT to Hunters Point - Harney Way Portion	Amend in new project	2015	$ 178,000,000
San Francisco	SFMTA	4231	230207	Geneva-Harney BRT to Hunters Point - Geneva Portion	Amend in new project	2012	$ 53,000,000
San Francisco	SFMTA	4232	230207	Geneva-Harney BRT to Hunters Point - Geneva Extension Portion	Amend in new project	2015	$ 34,000,000
San Francisco	SFMTA	4233	230215	Trolley Coach Extension Program	Amend in new project	2015	$ 5,560,000
San Francisco	SFMTA	4234	230517	Extended Trolleybus Service into Hunters Point	Amend in new project	2014	$ 51,000,000
San Francisco	SFMTA	4235	230517	Oakdale-Palou Interim High-Capacity Bus Corridor	Amend in new project	2012	$ 23,000,000
San Francisco	SFMTA	4236	230517	Express/Limited Bus Service into Hunters Point (north alignment)	Amend in new project	2020	$ 22,000,000
San Francisco	SFMTA	4238	230517	Transit Center in Hunters Point	Amend in new project	2012	$ 22,000,000
San Francisco	SFMTA	4239	230517	Transit Center in Candlestick Point	Amend in new project	2012	$ 6,000,000
San Francisco	WETA	4240	22512	Ferry Infrastructure for Service between Treasure Island and San Francisco	Amend in new project	2012	$ 57,130,000
San Mateo County							
San Mateo	Brisbane	4241	22756	US 101/Candlestick Interchange	Amend in new project	2015	$ 15,000,000
San Mateo	Foster City	4242	230434	Triton Drive Widening	Amend in new project	2011	$ 850,000
San Mateo	Foster City	4243	230704	State Route 92/Chess Drive - Ramp Widening Project	Amend in new project	2015	$ 2,500,000
San Mateo	Redwood City	4245	230428	Blomquist Street Extension	Amend in new project	2013	$ 5,000,000
San Mateo	San Carlos	4246	230417	US101/Holly Interchange modification	Amend in new project	2012	$ 3,000,000
San Mateo	SMCTA	4247	21604	US 101 Aux lanes from Sierra Point to SF County Line	Amend in new project	2014	$ 6,000,000
San Mateo	SMCTA	4248	21610	US 101 Aux lanes from San Bruno Ave to Grand Ave	Amend in new project	2015	$ 46,000,000

County	Sponsor	TIP ID/ FMS ID*	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
San Mateo	SMCTA	4284	21613	Improve Rte 92 from SM Bridge to I-280	Amend in new project	2015	$ 80,000,000
San Mateo	SMCTA	4250	21615	Reconstruct I-280/Route 1 interchange	Amend in new project	2015	$ 83,900,000
San Mateo	SMCTA	4251	21892	Widen Woodside Rd from 4 to 6 lanes between ECR and Broadway	Amend in new project	2014	$ 6,650,000
San Mateo	SMCTA	4252	22261	Replace San Pedro Creek Bridge over Hwy 1	Amend in new project	2014	$ 2,700,000
San Mateo	SMCTA	4253	22282	Improve US 101 operations near Rte 92	Amend in new project	2015	$ 20,000,000
San Mateo	SMCTA	4254	22751	Operations and safety improvement of Rte 1 in Half Moon Bay	Amend in new project	2015	$ 10,000,000
San Mateo	SMCTA	4255	94644	Construct westbound slow vehicle lane on Route 92 from Route 35 to I-280	Amend in new project	2015	$ 57,500,000
Santa Clara County							
Santa Clara	San Jose	4189	230449	Charcot Avenue Extension over I-880	Amend in new project	2011	$ 34,000,000
Santa Clara	San Jose	4194	230452	Downtown Couplet Conversion Projects	Amend in new project	2010	$ 22,000,000
Santa Clara	San Jose	4201	230201	Coleman Avenue Widening from 4 to 6 lanes from I-880 to Taylor Street	Amend in new project	2010	$ 13,000,000
Santa Clara	San Jose	4225	230457	Oakland Road Improvements	Amend in new project	2012	$ 10,000,000
Santa Clara	San Jose	4228	230645	Improvements to the North First Street Core area grid	Amend in new project	2012	$ 61,000,000
Santa Clara	San Jose	4237	230644	Miscellaneous Intersection Improvements	Amend in new project	2012	$ 29,000,000
Santa Clara	Santa Clara County	4161	230294	Conduct Environmental and Design to Widen and Create a New Alignment for Route 152	Amend in new project	2012	$ 8,500,000
Santa Clara	Santa Clara County	4193	230273	Montague Expressway widening between Trade Zone and Park Victoria	Amend in new project	2015	$ 13,000,000
Santa Clara	Santa Clara County	4226	21749	Butterfield Boulevard Extension from Tennant Avenue to Watsonville Road	Amend in new project	2014	$ 18,800,000
Santa Clara	Santa Clara County	4244	22175	Almaden Expressway Widening from Coleman to Blossom Hill	Amend in new project	2015	$ 10,500,000
Santa Clara	Santa Clara County	4258	22179	Central Expressway between Lawrence and San Tomas	Amend in new project	2014	$ 13,600,000
Santa Clara	Santa Clara County	4266	22843	Lawrence Expressway Widening from Moorpark/Bollinger to South of Calvert	Amend in new project	2011	$ 5,200,000
Santa Clara	Santa Clara County	4267	22925	Realign existing curve on DeWitt Avenue between Edmunson and Spring	Amend in new project	2015	$ 2,500,000
Santa Clara	Santa Clara County	4268	230267	Montague Expressway widening between Lick Mill and Trade Zone	Amend in new project	2014	$ 13,500,000
Santa Clara	Santa Clara County	4286	230269	Montague Expressway & Trimble Interchange Improvements	Amend in new project	2015	$ 32,000,000

County	Sponsor	TIP ID/ FMS ID*	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Santa Clara	Santa Clara County	SCL070049	22180	Construct auxilliary lanes on Central Expressway between Lawrence Expressway and Mary Avenue	Amend in CON phase and CON phase costs	2014	$ 17,000,000
Santa Clara	VTA	4159	21922	San Jose International Airport People Mover	Amend in new project	2015	$ 512,000,000
Santa Clara	VTA	4164	230705	SR 87/Capitol/Narvaez Interchange Improvements	Amend in new project	2015	$ 10,000,000
Santa Clara	VTA	4165	22156	SR 85 NB to SR 237 EB Connector Ramp Improvements	Amend in new project	2013	$ 26,000,000
Santa Clara	VTA	4167	230363	I-880/Montague Expressway I/C Improvements	Amend in new project	2015	$ 58,000,000
Santa Clara	VTA	4168	230574	SR 85/Cottle Road Interchange Improvements	Amend in new project	2012	$ 5,000,000
Santa Clara	VTA	4169	230532	SR 237/North First Street Interchange Improvements	Amend in new project	2015	$ 2,000,000
Santa Clara	VTA	4171	22145	Widen WB SR 237 on ramp from SR 237 to NB US 101 to 2 lanes and add Aux lane on NB US 101 from SR 237 on ramp to Ellis Street I/C	Amend in new project	2015	$ 9,000,000
Santa Clara	VTA	4173	21722	US 101 SB Trimble Road/De La Cruz Boulevard/Central Expressway Interchange	Amend in new project	2014	$ 34,000,000
Santa Clara	VTA	4186	21714	SR 25/Santa Teresa Boulevard/US 101 I/C	Amend in new project	2015	$ 233,000,000
Santa Clara	VTA	4191	230262	US 101/Montague Expressway Interchange	Amend in new project	2015	$ 12,000,000
Santa Clara	VTA	4195	230407	SR 17 SB/Hamilton Avenue off ramp Widening	Amend in new project	2010	$ 1,000,000
Santa Clara	VTA	4196	230257	SR 237/I-880 Express Connectors	Amend in new project	2010	$ 5,400,000
Santa Clara	VTA	4197	230674	SR 85 Express Lane	Amend in new project	2014	$ 60,800,000
Santa Clara	VTA	4290	22247	Santa Clara Caltrain Station Pedestrian Grade Separated Crossing	Amend in new project	2010	$ 7,500,000
Santa Clara	VTA	BRT030001	21921	BART - Warm Spring to San Jose Extension	Amend in CON phase and CON phase costs	2018	$ 6,133,000,000
Santa Clara	VTA	SCL070004	22965	US 101/ Mabury Road Interchange Improvements	Amend in CON phase and CON phase costs	2013	$ 20,000,000
Santa Clara	VTA	SCL070024	230531	US 101 HOV/Aux Lanes - SR 85 to SM County Line	Amend scope of project to include "HOV/Aux"	2015	$ 102,300,000
Solano County							
Solano	Vacaville	4200	230708	I-505/Vaca Valley Off-Ramp and Intersection Improvements	Amend in new project	2016	$ 1,800,000
Solano	Vacaville	4202	230708	Davis Street Widening Project	Amend in new project	2016	$ 1,530,000

County	Sponsor	TIP ID/ FMS ID*	RTP ID	Project name	Description of Change	Project Completion Date	Total Project Cost in the TIP
Sonoma County							
Sonoma	Petaluma	4259	22195	Improve U.S. 101/Old Redwood Highway interchange	Amend in new project	2015	$ 27,000,000
Sonoma	Santa Rosa	4260	22207	Farmers Lane Extension	Amend in new project	2012	$ 36,400,000
Sonoma	SCTA	4263	21902	US 101/Widen roadway from 4 to 6 lanes for HOV	Amend in new project	2012	$ 118,250,000
Sonoma	SCTA	4262	22191	US 101/Improve US 101 North/Airport Blvd interchange	Amend in new project	2013	$ 49,800,000
Sonoma	SCTA	4261	98183	US 101/Widen roadway from 4 to 6 lanes for HOV	Amend in new project	2011	$ 119,804,000
Sonoma	Sonoma County	4257	22490	Widening four Sonoma County Bridges from One-lane to Two-lane	Amend in new project	2015	$ 2,000,000
Sonoma	Sonoma County	4264	22001	Sonoma Marin Area Rail Transit District (SMART) commuter rail project (Larkspur to Cloverdale)	Amend in new project	2012	$ 646,000,000
					Grand Total		**$ 11,688,874,000**

Appendix B
List of Projects in the Transportation 2035 Plan

Appendix B: Transportation 2035 Projects By County and By Analysis Year

Reference Number	Investment*	Project/Program	Complete and Operational By 2015	2025	2035	2009 TIP/ #09-06**	Reg'l Signif.
Bay Area Region/Multi-County							
21320	Committed	Construct Golden Gate Bridge moveable median barrier	☑	☐	☐	☐	☐
230550	New Commitment	Transportation Climate Action Campaign: implement a five-year campaign to reduce greenhouse gas emissions; includes funding for a comprehensive outreach and education campaign, Safe Routes to School, Safe Routes to Transit, and Transit Priority Measures	☑	☐	☐	☐	☐
230657	New Commitment	I-80 in Contra Costa County from Carquinez Bridge to Alameda-Contra Costa County line – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☐
22636	Committed	Implement BART transbay tube earthquake safety improvements (Phase 1)	☑	☐	☐	☐	☐
230656	New Commitment	I-80 in Alameda County from Alameda-Contra Costa County line to Bay Bridge –- convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
230654	New Commitment	Route 4 in Contra Costa County from Route 160 to Port Chicago Highway – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
230703	New Commitment	With net HOT revenue, fund corridor improvements including transit operating and capital needs, freeway operations, interchanges, roadway maintenance and local access	☑	☐	☐	☑	☑
230702	New Commitment	U.S. 101 in Marin and Sonoma counties from Route 37 to Old Redwood Highway – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
230701	New Commitment	Widen U.S. 101 (adding an HOV lane in each direction) from Route 37 to Marin/Sonoma County line (Marin County portion) and from Marin/Sonoma County line to Old Redwood Highway in Petaluma	☑	☐	☐	☐	☑
22423	New Commitment	Lifeline Transportation Program: fund programs and services that address transportation gaps specific to low-income communities	☑	☐	☐	☐	☐
94089	New Commitment	Reconstruct south access to the Golden Gate Bridge, from Doyle Drive to Broderick Street (design and construction phases)	☑	☐	☐	☐	☑
21006	Committed	Fund and implement Regional Transportation Marketing program	☑	☐	☐	☐	☐
94558	New Commitment	Central Contra Costa Transit Authority (CCCTA) – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☑	☐	☐	☐	☐
21008	Committed	Fund and implement 511 Traveler Information	☑	☐	☐	☐	☐
22425	New Commitment	Planning funds for the Metropolitan Transportation Commission, Association of Bay Area Governments, Bay Conservation and Development Commission, and nine county congestion management agencies	☑	☐	☐	☐	☐

* "Committed" projects are those projects that are fully funded via funds reserved by law for specific uses, or allocated by MTC action prior to the development of the Draft Transportation 2035 Plan

"New Commitment" projects are those projects funded in part or in full with "discretionary funds" which are flexible funds available to MTC (and not already programmed to "Committed" projects) for assignment via the Transportation 2035 Plan planning process.

** Projects amended into the 2009 TIP Amendment #09-06

Reference Number	Investment*	Project/Program	Complete and Operational By 2015	2025	2035	2009 TIP/ #09-06**	Reg'l Signif.
Bay Area Region/Multi-County							
21011	New Commitment	Transportation for Livable Communities (TLC): provide planning and capital funds to improve pedestrian, bicycle and transit access; and support station development areas and FOCUS Priority Development Areas (PDAs)	☑	☐	☐	☐	☐
21012	Committed	Golden Gate Bridge seismic retrofit (completes Phase 3)	☑	☐	☐	☐	☐
21013	Committed	Rehabilitate state-owned toll bridges in the Bay Area	☑	☐	☐	☐	☐
230287	New Commitment	Implement the Bay Area Air Quality Management District's Goods Movement Emission Reductions Project (includes replacement or retrofitting of up to 800 port and general goods movement trucks in the region)	☑	☐	☐	☐	☐
230336	Committed	Implement recommendations from MTC's Transit Connectivity Study	☑	☐	☐	☐	☐
94610	New Commitment	Valley Transportation Authority (VTA) – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☑	☐	☐	☐	☐
22481	New Commitment	Caltrain – transit operating and capital improvement program (including replacement, rehabilitation and system enhancements for rolling stock, equipment, fixed facilities and other capital assets); station improvements (e.g., platforms) are included	☑	☐	☐	☐	☐
94152	Committed	Widen Route 12 (Jamieson Canyon) from 2 lanes to 4 lanes from I-80 in Solano County to Route 29 in Napa County (Phase 1)	☑	☐	☐	☐	☑
230659	New Commitment	I-80 in Solano County from Yolo County line to Route 37 – widen to add an HOT lane in each direction from Yolo County line to Air Base Parkway and from Red Top Road to Route 37	☑	☐	☐	☐	☐
230419	New Commitment	Freeway Performance Initiative (FPI): maximize freeway performance and reliability using primarily technology and limited expansions at essential locations; includes Traffic Operations System (TOS) infrastructure, TOS maintenance and replacement, arterial coordination and management, and performance monitoring	☑	☐	☐	☑	☑
21015	Committed	Fund Toll Bridge Seismic Retrofit Program	☑	☐	☐	☐	☐
21619	Committed	Expand Caltrain Express service: design and implement safety elements related to signal communication and positive train control (Phase 2a)	☑	☐	☐	☐	☐
94541	Committed	Reconstruct existing Benicia-Martinez Bridge for southbound traffic	☑	☐	☐	☐	☑
94683	New Commitment	Vallejo Transit – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☑	☐	☐	☐	☐
22240	Committed	Fund Regional Measure 2 Express Bus South improvements (includes park-and-ride lots, HOV access improvements and rolling stock)	☑	☐	☐	☐	☑

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** Projects amended into the 2009 TIP Amendment #09-06

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Bay Area Region/Multi-County							
22520	Committed	Implement BART earthquake safety program	☑	☐	☐	☐	☐
230222	Committed	Implement San Pablo Avenue SMART Corridors operations and management	☑	☐	☐	☐	☑
94636	New Commitment	San Francisco Municipal Transportation Agency (Muni) – transit operating and capital improvement program (including replacement, rehabilitation and other minor enhancements for rolling stock, equipment, fixed facilities and other capital assets, does not include system expansion)	☑	☐	☐	☐	☐
94572	New Commitment	Golden Gate Transit – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☑	☐	☐	☐	☐
230660	New Commitment	I-80 in Solano County from Red Top Road to Air Base Parkway – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☐
22245	Committed	Fund Safe Routes to Transit	☑	☐	☐	☐	☐
230658	New Commitment	I-80 in Solano County from Route 37 to Carquinez Bridge – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
230678	New Commitment	I-280 in Santa Clara County from Magdalena Avenue to Leland Avenue – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
22008	Committed	Extend Caltrain to Transbay Terminal and replace Transbay Terminal, including preliminary engineering; environmental; planning, specifications, and estimate (PS&E); and right-of-way phases of downtown extension (Phase 2a)	☑	☐	☐	☐	☑
230221	Committed	Implement I-80 Integrated Corridor Mobility (ICM) project operations and management	☑	☐	☐	☐	☑
94526	New Commitment	AC Transit – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☑	☐	☐	☐	☐
98102	Committed	Reconstruct the South Access to the Golden Gate Bridge: Doyle Drive (environmental study)	☑	☐	☐	☐	☐
94527	New Commitment	Livermore Amador Valley Transit Authority (LAVTA) – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☑	☐	☐	☐	☐
22765	New Commitment	Improve the connection between I-580 and I-680 via HOV direct connectors	☑	☐	☐	☑	☑
22676	New Commitment	Improve passenger capacity at 43 BART stations, including platform modifications and faregate, stair, elevator and escalator additions	☑	☐	☐	☐	☐

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Bay Area Region/Multi-County							
22009	Committed	Implement Capitol Corridor intercity rail service (includes increased track capacity, rolling stock and frequency improvements)	☑	☐	☐	☐	☑
230667	New Commitment	I-580 eastbound in Alameda County from Greenville Road to Tassajara Road – convert HOV lane to HOT lane	☑	☐	☐	☐	☑
230683	New Commitment	I-680 in Contra Costa County from Route 84 to Alcosta Road – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
230677	New Commitment	Route 237 in Santa Clara County from Mathilda Avenue to Route 85 – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
230682	New Commitment	I-680 northbound in Alameda County from Santa Clara County line to Route 84 – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
230681	New Commitment	I-680 northbound in Santa Clara County from Alameda County line to Calaveras Road – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
230680	New Commitment	I-680 in Santa Clara County from Calaveras Road to U.S. 101 – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
230661	New Commitment	U.S. 101 in Santa Clara County from Cochrane Road to Route 25 – widen to add an HOT lane in each direction	☑	☐	☐	☐	☐
230662	New Commitment	U.S. 101 in Santa Clara County from San Mateo/Santa Clara County line to Cochrane Road – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
230663	New Commitment	U.S. 101 in San Mateo County from San Mateo/Santa Clara County line to Whipple Avenue – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
230664	New Commitment	U.S. 101 in San Mateo County from Whipple Avenue to Millbrae – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
21342	Committed	Extend Caltrain to Transbay Terminal and replace Transbay Terminal, including the construction of the new Transbay Transit Center Building and rail foundation (Phase 1)	☑	☐	☐	☐	☑
230666	New Commitment	I-580 eastbound in Alameda County from San Joaquin County line to Greenville Road – widen to add an HOT lane	☑	☐	☐	☐	☑
230685	New Commitment	I-680 in Contra Costa County from Alcosta Road to Benicia-Martinez Bridge – widen to add an HOT lane in each direction through Walnut Creek and convert HOV lanes to HOT lanes on the remaining segment	☑	☐	☐	☐	☑
230668	New Commitment	I-880 in Santa Clara County from Alameda-Santa Clara County line to U.S. 101 – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
230669	New Commitment	I-880 in Alameda County from Alameda-Santa Clara County line to Marina Boulevard/Lewelling Boulevard – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
230670	New Commitment	I-880 in Alameda County from Marina Boulevard/Lewelling Boulevard to Hegenberger Road – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑

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Bay Area Region/Multi-County							
230671	New Commitment	I-880 northbound in Alameda County from 16th Avenue to Bay Bridge Toll Plaza – convert HOV lane to HOT lane	☑	☐	☐	☐	☑
230672	New Commitment	Route 92 westbound in Alameda County from Clawiter Road through San Mateo-Hayward Bridge toll plaza – convert HOV lane to HOT lane	☑	☐	☐	☐	☑
230673	New Commitment	Route 84 westbound in Alameda County from I-880 through Dumbarton Bridge toll plaza – convert HOV lane to HOT lane	☑	☐	☐	☐	☑
230674	New Commitment	Route 85 in Santa Clara County from U.S. 101 in Mountain View to U.S. 101 in South San Jose – convert HOV lanes to HOT lanes	☑	☐	☐	☑	☑
230675	New Commitment	Route 87 in Santa Clara County from Route 85 to U.S. 101 – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
230676	New Commitment	Route 237 in Santa Clara County from I-880 to Mathilda Avenue – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
230665	New Commitment	I-580 westbound in Alameda County from San Joaquin County line to I-680 – widen to add HOT lane and convert HOV lane to HOT lane	☑	☐	☐	☑	☑
21005	Committed	Fund and implement TransLink®	☑	☐	☐	☐	☐
22991	Committed	Widen I-680 southbound in Santa Clara and Alameda counties from Route 237 to Route 84 including a HOT lane, ramp metering, auxiliary lanes and pavement rehabilitations	☑	☐	☐	☐	☑
94525	New Commitment	BART– transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements, equipment, fixed facilities and other capital assets)	☑	☐	☐	☐	☐
22244	Committed	Fund City CarShare	☑	☐	☐	☐	☐
21627	Committed	Electrify Caltrain from Tamien to San Francisco (includes installation of power substations and other infrastructure)	☑	☐	☐	☐	☑
21017	New Commitment	Small transit operators in Alameda, Contra Costa, Napa, Solano and Sonoma counties – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☑	☐	☐	☐	☐
22243	Committed	Fund Regional Measure 2 Express Bus North improvements (includes park-and-ride lots and rolling stock)	☑	☐	☐	☐	☑
230690	New Commitment	I-680/Route 4 direct HOT connector in Contra Costa County – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
21002	Committed	Implement Freeway Service Patrol, Call Box, and Incident Management Programs (includes incident detection equipment and incident management systems)	☑	☐	☐	☐	☐
230649	Committed	High-Speed Rail: fund supporting infrastructure for ACE, BART, Caltrain, MUNI and VTA	☑	☐	☐	☐	☐

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Bay Area Region/Multi-County							
230257	New Commitment	Convert HOV direct freeway connectors between I-880 and Route 237 to HOT direct freeway connectors	☑	☐	☐	☑	☑
230684	New Commitment	I-680/I-580 direct HOT connector in Alameda County – widen to add HOT lane at connector and eastbound to Tassajara Road	☑	☐	☐	☐	☑
230688	New Commitment	U.S. 101 in Marin County from Corte Madera to Route 37 – convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
94666	New Commitment	SamTrans – transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	☑	☐	☐	☐	☐
22247	New Commitment	Regional Bicycle Program: provide capital funds to fully build out the Regional Bicycle Network as defined in MTC's Regional Bicycle Master Plan	☑	☐	☐	☑	☐
22003	Committed	Capitol Corridor: Phase 2 enhancements (includes grade separations at High Street, Davis Street and Hesperian Street)	☑	☐	☐	☐	☑
230679	New Commitment	I-280 in Santa Clara County from Leland Avenue to U.S. 101 – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
22006	Committed	Improve ferry facilities/equipment including the Downtown Ferry Terminal and procuring additional spare ferry vessels	☑	☐	☐	☐	☐
22241	Committed	Fund Regional Measure 2 studies (Water Emergency Transportation Authority environmental studies, I-680/Pleasant Hill BART Connector Study)	☑	☐	☐	☐	☐
230687	New Commitment	I-680/I-80 direct HOT connector in Solano County – widen to add an HOT lane	☑	☐	☐	☐	☑
230686	New Commitment	I-680 in Solano County from Benicia-Martinez Bridge to I-80 – widen to add an HOT lane in each direction	☑	☐	☐	☐	☑
22001	Committed	Implement Sonoma Marin Area Rail Transit District (SMART) commuter rail project (includes environmental, engineering, right-of-way, construction, vehicle procurement and operations)	☑	☐	☐	☑	☑
230689	New Commitment	U.S. 101 in Sonoma County from Windsor River Road to Old Redwood Highway – widen to add an HOT lane in each direction and convert HOV lanes to HOT lanes	☑	☐	☐	☐	☑
21154	New Commitment	Procure buses for AC Transit transbay, express and local services	☐	☑	☐	☐	☐
Alameda							
21464	Committed	Provide paratransit service for AC Transit, BART and non-mandated city programs to coordinate and close paratransit service gaps	☑	☐	☐	☐	☐
21126	Committed	Construct westbound Route 84 HOV on-ramp at Newark Boulevard	☑	☐	☐	☐	☑

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Alameda							
21465	Committed	Enhance transit throughout the county using transit center development funds	☑	☐	☐	☐	☐
230116	New Commitment	Improve rail crossings in Berkeley, including grade separation at Gilman Street, road closures and at-grade crossing improvements (Phase 1)	☑	☐	☐	☐	☑
22770	Committed	Install traffic signal on Grand Avenue at Rose Avenue/Arroyo Avenue in Piedmont	☑	☐	☐	☐	☑
22002	Committed	Extend I-880 northbound HOV lane from Maritime Street to the Bay Bridge toll plaza	☑	☐	☐	☐	☑
230094	Committed	Construct soundwalls in central Alameda County	☑	☐	☐	☐	☐
230110	New Commitment	Construct a grade separation at Route 262/Warm Springs Drive/Mission Boulevard	☑	☐	☐	☐	☑
230170	New Commitment	Improve access to I-880 from 42nd Avenue and High Street	☑	☐	☐	☐	☐
230114	New Commitment	Widen Auto Mall Parkway from 4 to 6 lanes between I-680 and I-880, including intersection improvements	☑	☐	☐	☐	☑
230108	New Commitment	Widen I-80 eastbound Powell Street off-ramp in Emeryville	☑	☐	☐	☑	☑
22509	Committed	Provide ferry service between Alameda/Oakland and San Francisco and between Harbor Bay and San Francisco	☑	☐	☐	☐	☑
22670	Committed	Construct HOV lane for southbound I-880 from Hegenberger Road to Marina Boulevard (includes reconstructing bridges at Davis Street and Marina Boulevard)	☑	☐	☐	☐	☑
22455	Committed	Implement Bus Rapid Transit service on the Telegraph Avenue/International Boulevard/E. 14th Street corridor	☑	☐	☐	☐	☑
230244	New Commitment	Prepare supplemental project study report for Route 84 widening from Pigeon Pass to I-680	☑	☐	☐	☑	☐
230160	Committed	Tri-Valley Transit Access: implement enhanced rapid bus service in Livermore and Dublin (includes higher frequencies, new stops and improved stop amenities)	☑	☐	☐	☐	☑
230157	Committed	Construct a two-lane gap closure on Las Positas Road from Arroyo Vista to west of Vasco Road	☑	☐	☐	☐	☐
21131	Committed	Build a BART Oakland Airport Connector between Coliseum BART station and Oakland International Airport	☑	☐	☐	☐	☑
21144	New Commitment	Reconstruct I-80/Gilman Avenue interchange into a roundabout	☑	☐	☐	☐	☑
21451	New Commitment	Construct additional turn- and bus-loading lanes on Hesperian Boulevard and East 14th Street	☑	☐	☐	☐	☑
21132	Committed	Extend BART from Fremont to Warm Springs	☑	☐	☐	☐	☑

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Alameda							
94030	Committed	Reconstruct I-880/Route 262 interchange and widen I-880 from 8 lanes to 10 lanes (8 mixed-flow and 2 HOV lanes) from Route 262 (Mission Boulevard) to the Santa Clara County line (Phase 1)	☑	☐	☐	☐	☑
21114	Committed	Construct grade separations on Washington Boulevard/Paseo Padre Parkway at the Union Pacific railroad tracks and proposed BART extension	☑	☐	☐	☐	☑
21116	Committed	Widen I-580 from Tassajara Road to Greenville Road for HOV and auxiliary lanes	☑	☐	☐	☐	☑
21101	Committed	Reconstruct Stargell Avenue from Webster Street to 5th Avenue	☑	☐	☐	☐	☐
21103	New Commitment	Construct grade separation structure on Central Avenue at Union Pacific Railroad crossing	☑	☐	☐	☐	☑
94012	Committed	Implement the Union City BART station transit-oriented development project, including construction of pedestrian grade separations under the BART and Union Pacific Railroad tracks and reconfiguring existing station to provide multimodal loop road (Phase 1)	☑	☐	☐	☐	☐
21105	Committed	Construct interchange at the extension of Isabel Avenue (Route 84) to I-580	☑	☐	☐	☐	☑
21123	New Commitment	Expand Union City BART station to create intermodal rail station	☑	☐	☐	☑	☐
21100	New Commitment	Construct auxiliary lanes on I-580 between Vasco Road and First Street and modify I-580/Vasco Road interchange	☑	☐	☐	☐	☑
230083	Committed	Tri-Valley Transit Access: acquire right-of-way along I-580 from Hacienda Drive to the Vasco Road interchange to accommodate rail transit	☑	☐	☐	☐	☐
21455	Committed	Widen I-238 to 6 lanes between I-580 and I-880, including auxiliary lanes on I-880 between I-238 and A Street	☑	☐	☐	☐	☑
230120	New Commitment	Construct truck parking facilities in northern Alameda County (Phase 1)	☑	☐	☐	☑	☑
230122	New Commitment	Implement a Value-Pricing Parking and Transportation Demand Management program in Berkeley	☑	☐	☐	☐	☐
230125	New Commitment	Improve Ashby/I-80 interchange/Aquatic Park access, including streetscaping, bicycle/pedestrian improvements and minor interchange improvements	☑	☐	☐	☐	☑
230169	New Commitment	Provide Intelligent Transportation System (ITS) elements for arterial management in Oakland (includes new controllers, signal coordination, transit priority, automatic vehicle locators, speed and level of service monitoring through radar detection, and real time arrival information)	☑	☐	☐	☐	☐
230156	Committed	Extend West Jack London Boulevard from west of Isabel/Route 84 to El Charro Road	☑	☐	☐	☑	☐

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Alameda							
21133	Committed	Construct new West Dublin/Pleasanton BART station along the I-580 median	☑	☐	☐	☐	☑
22100	Committed	Replace overcrossing structure at I-880/Davis Street interchange and add additional travel lanes on Davis Street (includes ramp, intersection and signal improvements)	☑	☐	☐	☐	☐
230091	Committed	Install traffic monitoring systems, signal priority and coordination, ramp metering, and HOV bypass lanes in the I-880, I-238 and I-580 corridors	☑	☐	☐	☑	☑
21139	New Commitment	Improve Vasco Road with safety features including realignment, widening and installation of median barriers	☑	☐	☐	☑	☐
230053	New Commitment	Reconstruct I-880 Industrial Parkway interchange (Phase 1)	☑	☐	☐	☐	☑
230088	Committed	Extend existing northbound I-880 HOV lane from north of Hacienda Avenue to Hegenberger Road	☑	☐	☐	☐	☑
230396	New Commitment	Implement recommendations from the Community-Based Transportation Plan to improve the mobility of low-income residents	☑	☐	☐	☐	☐
230171	New Commitment	Improve Route 24/Caldecott Tunnel including bicycle and transit access and soundwall improvements	☑	☐	☐	☐	☐
22089	New Commitment	Improve Martinez Subdivision to include two additional mainline tracks, including crossovers and signaling	☑	☐	☐	☐	☑
21484	Committed	Widen Kato Road from Warren Avenue to Milmont Drive and include bicycle lanes	☑	☐	☐	☐	☐
94514	Committed	Reconstruct I-880/Route 92 interchange with direct connectors	☑	☐	☐	☐	☑
22769	Committed	Improve northbound I-880 ramp geometries at 23rd and 29th avenues (includes modifications to local streets, landscaping and soundwall construction)	☑	☐	☐	☐	☑
22777	Committed	Reconstruct on/off-ramps on I-580 in Castro Valley	☑	☐	☐	☐	☑
230692	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐
230052	Committed	Construct auxiliary lanes on I-880 near Winton in Hayward	☑	☐	☐	☑	☑
22776	New Commitment	Widen Route 84 from 2 to 4 lanes from north of Pigeon Pass to Stanley Boulevard and from 2 to 6 lanes from Stanley Boulevard to Jack London Boulevard	☑	☐	☐	☐	☑
21093	Committed	Upgrade Route 92/Clawiter Road interchange, add ramps and overcrossing for Whitesell Street extension, and signalize ramp intersections	☑	☐	☐	☑	☑
22768	New Commitment	Retrofit and repair three Oakland-Alameda Estuary bridges for seismic safety	☑	☐	☐	☑	☐

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Alameda							
22063	Committed	Improve Route 238 corridor near Foothill Boulevard/I-580 by removing parking during peak periods and spot widening	☑	☐	☐	☐	☑
230054	Committed	Construct auxiliary lanes on I-880 at Industrial Parkway	☑	☐	☐	☑	☑
22007	Committed	Implement bicycle and pedestrian projects/programs in Alameda County	☑	☐	☐	☐	☐
21618	Committed	Implement commuter rail service on the Dumbarton Bridge (environmental, design and right-of-way phases)	☑	☐	☐	☐	☑
21482	Committed	Extend Fremont Boulevard to connect with Dixon Landing Road in Milpitas	☑	☐	☐	☐	☐
22779	Committed	Reconstruct Route 262/I-880 interchange and widen I-880, including grade separation at Warren Avenue and the Union Pacific Railroad (Phase 2)	☑	☐	☐	☐	☑
22062	Committed	Construct infrastructure to support future Irvington BART station	☑	☐	☐	☐	☐
22013	Committed	Construct I-580 eastbound truck climbing lane at the Altamont Summit	☑	☐	☐	☐	☑
21125	Committed	Extend HOV lane westbound on Route 84 between Newark Avenue undercrossing and west of the I-880 interchange	☑	☐	☐	☐	☑
22780	Committed	Implement Bus Rapid Transit on the Grand-MacArthur corridor	☑	☐	☐	☑	☑
22511	Committed	Provide ferry service between Berkeley/Albany and San Francisco	☑	☐	☐	☐	☑
230057	Committed	Reconstruct I-880/Industrial Parkway interchange, including construction of new northbound I-880 on-ramp and modifications to southbound on-ramp to include an HOV lane (Phase 2)	☑	☐	☐	☐	☑
22106	Committed	Construct street extensions in Hayward near Clawiter and Whitesell streets	☑	☐	☐	☐	☐
22783	New Commitment	Assess Fruitvale Avenue roadway bridge for seismic retrofit	☑	☐	☐	☑	☐
230412	New Commitment	Additional AC Transit and BART transit capital replacement	☑	☐	☐	☐	☐
22056	Committed	Improve Ashby BART station to support Ed Roberts Campus and future transit-oriented development	☑	☐	☐	☐	☐
230066	Committed	Improve I-880/Marina Boulevard interchange (includes on- and off-ramp improvements, overcrossing modification, and street improvements)	☑	☐	☐	☑	☑
21460	Committed	Construct bicycle/pedestrian roadway in existing Alameda County and Southern Pacific right-of-way between the Dublin/Pleasanton BART station and Dougherty Road; construct bus lane on Dougherty Road	☑	☐	☐	☐	☐

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** Projects amended into the 2009 TIP Amendment #09-06

Reference Number	Investment*	Project/Program	Complete and Operational By 2015	2025	2035	2009 TIP/ #09-06**	Reg'l Signif.
Alameda							
21456	Committed	Construct auxiliary lanes on I-580 between Santa Rita Road/Tassajara Road and Airway Boulevard	☑	☐	☐	☐	☑
98139	Committed	Acquire right-of-way for ACE rail service between Stockton and Niles Junction, complete track improvements between San Joaquin County and Alameda County, and expand Alameda County station platforms	☑	☐	☐	☐	☐
22760	Committed	Relocate the Outer Harbor Intermodal Terminal (OHIT) to the former Oakland Army Base (includes rail yard, storage tracks, lead tracks, truck gates and administrative/operations and maintenance buildings)	☑	☐	☐	☐	☑
230608	New Commitment	Construct a westbound auxiliary lane on I-580 between First Avenue and Isabel Avenue in the Tri-Valley area	☑	☐	☐	☑	☑
22766	New Commitment	Assess Fruitvale Avenue rail bridge for seismic retrofit	☑	☐	☐	☑	☐
230630	Committed	Tri-Valley Transit Access: construct westbound off-ramp to connect I-580 to Dublin/Pleasanton BART station (or equivalent)	☑	☐	☐	☐	☑
94506	New Commitment	Construct an improved east-west connection between I-880 and Route 238 (Mission Boulevard) from North Fremont to Union City	☑	☐	☐	☐	☑
22082	Committed	Improve 7th Street/Union Pacific Railroad entry at Port of Oakland intermodal yards to include grade separation	☑	☐	☐	☐	☑
21472	Committed	Improve I-680/Bernal Avenue interchange	☑	☐	☐	☑	☑
21473	Committed	Construct a 4-lane arterial connecting Dublin Boulevard and North Canyons Parkway in Livermore	☑	☐	☐	☐	☑
21466	Committed	Improve Washington Avenue/Beatrice Street interchange at I-880 through reconstruction and widening of on/off ramps	☑	☐	☐	☐	☑
98208	New Commitment	Construct soundwalls in various locations in Alameda County	☑	☐	☐	☐	☐
21489	Committed	Improve I-580/San Ramon Road/Foothill Road interchange	☑	☐	☐	☑	☑
22087	Committed	Reconstruct I-880/Oak Street on-ramp	☑	☐	☐	☐	☐
22084	New Commitment	Improve access to Oakland International Airport's North Field, connecting Route 61 (Doolittle Drive) with Earhart Road and extending infield area at North Field	☑	☐	☐	☐	☑
230132	New Commitment	Improve I-580/Isabel Avenue interchange, including streetscaping and bicycle/pedestrian improvements	☐	☑	☐	☐	☐
22021	New Commitment	Expand AC Transit transfer centers and park-and-ride facilities in central Alameda County	☐	☑	☐	☐	☐
230086	New Commitment	Reconstruct I-580/Fallon Road interchange and I-580/Hacienda Drive interchange in Dublin	☐	☑	☐	☐	☑
21477	New Commitment	Reconstruct I-580/Greenville Road interchange in Livermore	☐	☑	☐	☑	☑

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Alameda							
21159	New Commitment	Expand/enhance AC Transit facilities in northern Alameda County, including new operating facility	☐	☑	☐	☐	☐
21992	New Commitment	Implement AC Transit transit priority measures (TPM) and corridor improvements (Element 1)	☐	☑	☐	☐	☑
230047	New Commitment	Reconstruct I-880/West A Street interchange in Hayward (includes new sidewalks)	☐	☑	☐	☐	☑
230099	New Commitment	Construct northbound I-680 to westbound I-580 connector	☐	☑	☐	☑	☑
21112	New Commitment	Improve Crow Canyon Road by widening shoulders, realigning curves and constructing retaining walls	☐	☑	☐	☐	☐
21475	New Commitment	Improve I-580/First Street interchange in Livermore	☐	☑	☐	☑	☑
230198	New Commitment	Upgrade traffic signal systems with Intelligent Transportation System (ITS) elements (includes new controllers, improved system communication, facilities upgrades and relocations, emergency vehicle pre-emption, and improved speed and level of service monitoring)	☐	☑	☐	☐	☐
98207	New Commitment	Improve I-880/Broadway-Jackson interchange in Oakland (includes new on- and off-ramps and new signals)	☐	☑	☐	☐	☑
Contra Costa							
230250	Committed	Widen Brentwood Boulevard from 2 lanes to 4 lanes between Marsh Creek and Delta Road	☑	☐	☐	☑	☐
230225	Committed	Improve and expand arterial streets in central Hercules for express bus and rail transit facilities to support transit-oriented development at I-80/Route 4 intersection	☑	☐	☐	☑	☐
22614	New Commitment	Construct Martinez Intermodal Station, including an additional 425 parking spaces and vehicle and pedestrian bridges (Phase 3)	☑	☐	☐	☑	☑
230401	Committed	Construct bicycle- and pedestrian-friendly improvements along San Pablo Avenue from El Cerrito to Crockett to support transit-oriented development	☑	☐	☐	☐	☐
21225	Committed	Improve regional and local pedestrian and bicycle system, including construction overcrossings, and expanding sidewalks and facilities	☑	☐	☐	☐	☐
21214	Committed	Widen Wilbur Avenue over Burlington Northern Santa Fe Railroad from 2 lanes to 4 lanes	☑	☐	☐	☐	☐
230693	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐
98126	Committed	Improve interchanges and arterials parallel to I-680 and Route 24	☑	☐	☐	☐	☐
230597	Committed	Install new or upgraded corridor management and real-time traveler information improvements in I-80 corridor between the Carquinez Bridge and the San Francisco-Oakland Bay Bridge Toll Plaza (Phase 2)	☑	☐	☐	☐	☑

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Contra Costa							
230232	New Commitment	Construct new interchange at Route 4/Phillips Lane	☑	☐	☐	☑	☑
21210	Committed	Construct Capitol Corridor train station in Hercules	☑	☐	☐	☐	☑
230631	Committed	Double the existing rail track between Oakley and Port Chicago	☑	☐	☐	☑	☑
230249	Committed	Construct a 6-lane grade separation undercrossing along the Union Pacific Railroad line at Lone Tree Way	☑	☐	☐	☐	☑
98999	Committed	Widen Route 4 from Somersville Road to Route 160 and improve interchanges	☑	☐	☐	☐	☑
230596	Committed	Construct Pacheco Boulevard Transit Hub on Blum Road at the I-680/Route 4 interchange (includes 6 bus bays and a 110-space park-and-ride lot)	☑	☐	☐	☐	☑
230318	New Commitment	Extend North Richmond truck route along Soto Street from Market Avenue to Parr Boulevard	☑	☐	☐	☐	☑
230538	Committed	Widen Bailey Road lanes and shoulders	☑	☐	☐	☐	☐
230542	Committed	Close a bicycle/pedestrian gap at San Pablo Avenue bridge by upgrading the existing bridge or constructing a new dedicated bicycle/pedestrian bridge	☑	☐	☐	☐	☐
22402	Committed	Implement the San Ramon School Bus Program, and continue the Lamorinda School Bus Program	☑	☐	☐	☐	☐
22353	Committed	Construct HOV lane on I-680 southbound between North Main Street and Livorna Road	☑	☐	☐	☐	☑
22355	New Commitment	Modify I-80/Central Avenue interchange	☑	☐	☐	☐	☑
94048	Committed	Improve interchanges and parallel arterials to I-80	☑	☐	☐	☐	☐
22365	Committed	Improve Martinez Ferry landside facilities	☑	☐	☐	☐	☐
98134	Committed	Widen Dougherty Road to 6 lanes from Red Willow to Contra Costa County line	☑	☐	☐	☑	☐
22613	Committed	Widen and extend major streets, and improve interchanges in southwest Contra Costa County (includes widening Camino Tassajara to 4 lanes between Danville and Windemere Parkway, and to 6 lanes from Windemere Parkway to Alameda County line)	☑	☐	☐	☑	☐
230320	Committed	Extend the I-680 southbound HOV lane northward from Livorna Road to north of Rudgear Road	☑	☐	☐	☐	☑
98222	New Commitment	Construct freeway-to-freeway direct connectors between Route 4 Bypass and Route 160	☑	☐	☐	☐	☑
230202	Committed	Widen Route 4 Bypass to 4 lanes from Laurel Road to Sand Creek Road	☑	☐	☐	☐	☑

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Contra Costa							
21211	Committed	Extend BART/East Contra Costa Rail (eBART) eastward from the Pittsburg/Bay Point BART station into eastern Contra Costa County	☑	☐	☐	☐	☑
94046	Committed	Improve interchanges and parallel arterials to Route 4	☑	☐	☐	☐	☐
22611	Committed	Implement a low-income student bus pass program in West Contra Costa County	☑	☐	☐	☐	☐
94045	Committed	Purchase new express buses for I-80 express service to be provided by AC Transit, Vallejo Transit and WestCAT (capital costs)	☑	☐	☐	☑	☑
230505	Committed	Provide transportation improvements on the east side of the Richmond BART station to accommodate redevelopment for a transit village	☑	☐	☐	☑	☐
22610	Committed	Widen and extend major streets, and improve interchanges in west Contra Costa County	☑	☐	☐	☐	☐
22609	Committed	Widen and extend major streets, and improve interchanges in central Contra Costa County	☑	☐	☐	☐	☐
22360	New Commitment	Reconstruct I-80/San Pablo Dam Road interchange and modify adjacent interchanges	☑	☐	☐	☑	☑
230535	Committed	Realign curves along Marsh Creek Road to improve safety and operations	☑	☐	☐	☐	☐
98142	Committed	Widen Route 4 from 4 lanes to 8 lanes, with HOV lanes, from Loveridge Road to Somersville Road	☑	☐	☐	☐	☑
98196	Committed	Construct auxiliary lanes on Route 24 from Gateway Boulevard to Brookwood Road/Moraga Way	☑	☐	☐	☐	☑
98193	Committed	Extend Panoramic Drive from North Concord BART station to Willow Pass Road	☑	☐	☐	☐	☐
230291	New Commitment	Add northbound truck climbing lane and a bicycle lane on Kirker Pass Road from Clearbrook Drive in Concord to just beyond the crest of Kirker Pass	☑	☐	☐	☐	☑
98194	Committed	Extend Commerce Avenue to Waterworld Parkway, including construction of vehicular bridge over Pine Creek, installation of trails and a pedestrian bridge and connecting Willow Pass Road to Concord Avenue/Route 242 interchange	☑	☐	☐	☐	☐
230247	New Commitment	Widen Lone Tree Way to 6 lanes from O'Hara Avenue to Brentwood Boulevard	☑	☐	☐	☐	☑
230274	Committed	Widen Main Street to 6 lanes from Route 160 to Big Break Road	☑	☐	☐	☑	☑
230288	Committed	Widen Empire Avenue from 2 to 4 lanes between Lone Tree Way and Union Pacific Railroad right-of-way/Antioch city limits	☑	☐	☐	☐	☐
22600	Committed	Widen Somersville Road Bridge in Antioch from 2 lanes to 4 lanes	☑	☐	☐	☐	☐

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Contra Costa							
230307	New Commitment	Widen Camino Tassajara Road from 2 lanes to 4 lanes from Windemere Parkway to the Alameda/Contra Costa County line	☑	☐	☐	☑	☑
230227	Committed	Conduct engineering, environmental and financial feasibility assessment of rail mass transit to western Contra Costa County (includes future station site acquisition)	☑	☐	☐	☐	☐
22602	New Commitment	Construct I-680 auxiliary lanes in both directions from Sycamore Valley Road to Crow Canyon Road	☑	☐	☐	☐	☑
230229	New Commitment	Widen Pinole Valley Road ramps at I-80 to provide a dedicated right-turn lane on eastbound on-ramp and bus turnout/shelter on westbound on-ramp	☑	☐	☐	☑	☑
230196	Committed	Implement AC Transit San Pablo Dam Road Transit Priority Measures (TPM), including passenger safety improvements and road improvements	☑	☐	☐	☑	☑
230195	Committed	Improve safety and security on AC Transit vehicles and in facilities, including installing surveillance systems and emergency operations improvements	☑	☐	☐	☑	☐
22607	Committed	Widen and extend major streets, and improve interchanges in east Contra Costa County	☑	☐	☐	☐	☑
230194	Committed	Implement AC Transit Environmental Sustainability Program	☑	☐	☐	☑	☐
98211	Committed	Extend I-80 eastbound HOV lanes from Route 4 to the Crockett interchange	☑	☐	☐	☐	☑
98115	Committed	Widen Ygnacio Valley/Kirker Pass roads from 4 lanes to 6 lanes from Michigan Boulevard to Cowell Road	☑	☐	☐	☑	☐
230233	Committed	Extend James Donlon Boulevard to Kirker Pass Road by constructing a new 2-lane expressway	☑	☐	☐	☐	☑
230397	Committed	Construct and develop infrastructure enhancements to improve operations of transit service within the WestCAT service area, including park-and-ride lots, signal prioritization, bus-only lanes and freeway drop ramps	☑	☐	☐	☐	☑
94532	Committed	Implement the Gateway Lamorinda Traffic Program (includes carpool lot in Lafayette, structural and safety improvements on Moraga Road, intersection realignments, turn lanes, pedestrian accommodation and signal coordination)	☑	☐	☐	☐	☐
230309	New Commitment	Provide rolling stock, infrastructure and information technology for Bus Rapid Transit service in the Pacheco/Contra Costa Boulevard/North Main corridor	☑	☐	☐	☐	☑
22603	Committed	Construct 6-level, roughly 785-space parking garage at Richmond Intermodal Transfer Station	☑	☐	☐	☐	☑

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Contra Costa							
21209	Committed	Relocate and expand Hercules Transit Center, including relocation of park-and-ride facility and construction of express bus facilities	☑	☐	☐	☐	☑
230236	Committed	Widen Pittsburg-Antioch Highway from 2 lanes to 4 lanes	☑	☐	☐	☐	☑
21206	Committed	Construct a fourth bore at the Caldecott Tunnel complex north of the three existing bores	☑	☐	☐	☐	☑
21207	Committed	Construct Martinez Intermodal Station, including site acquisition, demolition and construction of 200 interim parking spaces (Phase 3 initial segment)	☑	☐	☐	☐	☑
230193	Committed	Enhance AC Transit Zero Emission Bus (ZEB) program, including fueling stations and new maintenance bays	☑	☐	☐	☑	☐
230402	Committed	Install new or upgraded corridor management and traveler information elements along the I-80 corridor from the Carquinez Bridge to the San Francisco-Oakland Bay Bridge Toll Plaza (Phase 1)	☑	☐	☐	☐	☑
230123	New Commitment	Expand existing WestCAT maintenance facility (includes land purchase)	☑	☐	☐	☐	☐
230127	Committed	Construct new satellite WestCAT maintenance facility (includes land purchase)	☑	☐	☐	☐	☐
230129	Committed	Expand WestCAT service, including purchase of vehicles	☑	☐	☐	☐	☑
22122	Committed	Implement Richmond Ferry service from Richmond to San Francisco	☑	☐	☐	☐	☑
230613	Committed	Implement ferry service between Hercules and San Francisco	☑	☐	☐	☐	☑
98157	Committed	Enhance AC Transit bus service in San Pablo corridor	☑	☐	☐	☑	☑
98132	Committed	Widen and extend Bollinger Canyon Road to 6 lanes from Alcosta Boulevard to Dougherty Road	☑	☐	☐	☑	☐
230253	Committed	Replace the old 2-lane Fitzuren Road with a new, 4-lane divided arterial (includes shoulders, bicycle lanes, a park-and-ride lot and sidewalks)	☑	☐	☐	☑	☐
230203	Committed	Construct Route 4 Bypass interchange at Sand Creek Road	☑	☐	☐	☐	☑
230206	Committed	Construct Route 4 Bypass interchange at Balfour Road (Phase 1)	☑	☐	☐	☐	☑
230238	Committed	Widen California Avenue from 2 lanes to 4 lanes with 2 left-turn lanes	☑	☐	☐	☐	☐
230293	Committed	Add transit stops, sidewalks, and bicycle and pedestrian amenities on San Pablo Dam Road in El Sobrante	☑	☐	☐	☐	☐
230212	Committed	Improve Clayton Road/Treat Boulevard intersection and increase capacity (includes upgrading traffic signal and geometric improvements)	☑	☐	☐	☑	☐
94538	Committed	Implement the Route 4 transportation management system	☑	☐	☐	☐	☐

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Contra Costa							
21208	Committed	Construct Richmond Parkway Transit Center, including signal timing and reconfiguration, parking facility and security improvements	☑	☐	☐	☑	☑
230306	New Commitment	Add a second southbound lane on Alhambra Avenue from Walnut Avenue to the south side of Highway 4 (includes signal modifications)	☑	☐	☐	☐	☑
230205	Committed	Widen Route 4 Bypass to 4 lanes from Sand Creek Road to Balfour Road	☑	☐	☐	☐	☑
230239	Committed	Widen and improve Buskirk Avenue between Monument Boulevard and Hookston Road to provide 2 through lanes in each direction (includes road realignment, new traffic signals and bicycle/pedestrian streetscape improvements)	☑	☐	☐	☐	☐
230188	Committed	Purchase land in Oakley for use as a park-and-ride lot	☑	☐	☐	☐	☐
230185	New Commitment	Establish express bus service and eBART support network (includes park-and-ride lots and rolling stock)	☑	☐	☐	☐	☑
22637	Committed	Construct BART crossover at Pleasant Hill BART station	☑	☐	☐	☐	☑
230289	New Commitment	Construct Main Street Downtown Bypass road between Vintage Parkway and 2nd Street	☐	☑	☐	☐	☑
230279	New Commitment	Extend John Muir Parkway in Hercules with 4 traffic lanes, a bridge, bicycle path and landscaping	☐	☑	☐	☐	☑
22390	New Commitment	Reconstruct Route 4/Willow Pass Road ramps in Concord to support new infill development at the Concord Naval Weapons Station	☐	☑	☐	☐	☑
21205	New Commitment	Improve the I-680/Route 4 interchange with direct connectors and widen Route 4 from 2 lanes to 3 lanes in each direction between Route 242 and Morello Avenue	☐	☑	☐	☐	☑
98198	New Commitment	Improve safety and operations on Vasco Road in Contra Costa County	☐	☑	☐	☐	☐
230084	New Commitment	Construct a railroad grade separation at the Richmond Waterfront on the Marina Bay Parkway	☐	☑	☐	☑	☑
230321	New Commitment	Construct Phase 2 of Hercules Intermodal Station (includes station building and approximately 350 parking spaces)	☐	☑	☐	☑	☑
230240	New Commitment	Add additional left- or right-turn lanes at various intersections along Contra Costa Boulevard (between Monument Boulevard and 2nd Avenue)	☐	☑	☐	☐	☑
230237	New Commitment	Extend West Leland Road from San Marco Boulevard to Willow Pass Road (includes a raised median, bicycle lanes and sidewalks)	☐	☑	☐	☐	☑
230308	New Commitment	Straighten curves to improve safety and operation of Alhambra Valley Road	☐	☑	☐	☐	☐

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Contra Costa							
230090	New Commitment	Expand and enhance AC Transit facilities in western Contra Costa County, including environmental sustainability projects, zero emission improvements and a new operating facility	☐	☑	☐	☑	☐
22352	New Commitment	Improve I-680/Norris Canyon Road, including reconstruction of overcrossing, widening of median, construction of new HOV ramps and modifications to the local street network in San Ramon	☐	☑	☐	☑	☐
230216	New Commitment	Construct 2-lane bridge connecting Waterworld Parkway with Meridian Park Boulevard	☐	☑	☐	☐	☑
22354	New Commitment	Relocate the western half of the Marina Vista interchange off southbound I-680	☐	☑	☐	☐	☑
22388	New Commitment	Construct Route 242 on-ramp and off-ramp at Clayton Road	☐	☑	☐	☐	☑
98133	New Commitment	Widen Pacheco Boulevard from 2 to 4 lanes from Blum Road to Arthur Road	☐	☐	☑	☐	☑
Marin							
22437	New Commitment	Construct auxiliary lanes at various locations along U.S. 101 and provide bus-on-shoulder options where feasible	☑	☐	☐	☑	☑
94563	Committed	Widen U.S. 101 for HOV lanes (one in each direction) from Lucky Drive in Corte Madera to North San Pedro Road in San Rafael	☑	☐	☐	☐	☑
21315	New Commitment	Signalize ramp intersections at U.S. 101/Miller Creek Road interchange	☑	☐	☐	☑	☑
21325	New Commitment	Improve local access to U.S. 101 from Tamalpais Drive to just north of Sir Francis Drake Boulevard	☑	☐	☐	☐	☐
230060	New Commitment	Implement Transit Priority Measures (TPM) on major transit corridors (includes signal priority, queue-jump lanes, real-time information and enhanced passenger board areas)	☑	☐	☐	☑	☑
230431	New Commitment	Construct intermodal transit hub in Southern Marin Priority Development Area and/or in the city of Novato	☑	☐	☐	☑	☑
230418	New Commitment	Rehabilitate major roads of countywide significance	☑	☐	☐	☑	☐
230694	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐
22753	New Commitment	Construct park-and-ride lots to support regional express bus service	☑	☐	☐	☑	☑
230105	New Commitment	Replace Pacific Way Bridge with new two-lane bridge with a separate bicycle and pedestrian path	☑	☐	☐	☐	☑
230095	Committed	Widen Route 1 at Pacific Way to provide a Muir Beach bus stop	☑	☐	☐	☐	☑
230502	Committed	Construct westbound I-580 to northbound U.S. 101 connector	☑	☐	☐	☐	☑
230400	Committed	Improve access to Southern Marin parklands	☑	☐	☐	☐	☐

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** Projects amended into the 2009 TIP Amendment #09-06

Reference Number	Investment*	Project/Program	Complete and Operational By 2015	2025	2035	2009 TIP/ #09-06**	Reg'l Signif.
Marin							
230252	New Commitment	Expand Marin County local bus service	☑	☐	☐	☑	☑
21030	New Commitment	Improve U.S. 101/I-580 interchange and construct a freeway-to-freeway direct connector from northbound U.S. 101 to eastbound I-580 (project approval and environmental design phases only)	☐	☑	☐	☑	☑
98179	New Commitment	Improve U.S. 101/Tiburon Boulevard interchange, including circulation and signal improvements to nearby intersections	☐	☑	☐	☑	☑
230549	New Commitment	Implement local arterial improvements parallel to U.S. 101 (includes signal controller upgrades, signal coordination and geometric improvements)	☐	☑	☐	☑	☐
Napa							
94076	New Commitment	Construct the Trancas intermodal facility adjacent to the Route 29 and Redwood Road/Trancas Street interchange	☑	☐	☐	☐	☑
230499	New Commitment	Construct bicycle/pedestrian path from Oak Circle to south Yountville town limit	☑	☐	☐	☐	☐
230498	New Commitment	Construct Class I bicycle trail from Route 29 to Silverado Trail	☑	☐	☐	☐	☐
230486	New Commitment	Extend Devlin Road from Tower Road to Airpark Road in American Canyon	☑	☐	☐	☐	☑
230483	New Commitment	Prepare Project Study Report (PSR) to improve Silverado Trail/Third/Coombsville/East intersection and improve Silverado Trail south of First Street	☑	☐	☐	☐	☐
230376	New Commitment	Construct pedestrian and bicycle crossing at Tunnel of Elms in St. Helena	☑	☐	☐	☐	☐
230484	New Commitment	Install traffic signals on Imola Avenue at Route 29 ramps in Napa	☑	☐	☐	☐	☐
230508	New Commitment	Elevate Solano Avenue from Yountville to Dry Creek Road	☑	☐	☐	☐	☐
230518	New Commitment	Construct a roundabout at Forest Road/Route 128	☑	☐	☐	☐	☑
230519	New Commitment	Improve the safety of the Route 29/Route 128 (Rutherford Crossroad) intersection by constructing a roundabout or improving signal operations	☑	☐	☐	☐	☑
230599	New Commitment	Implement Phase 2 improvements to Route 12 (Jamieson Canyon), including grade realignment and full safety barrier	☑	☐	☐	☐	☑
230695	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐
230393	New Commitment	Construct middle-turn lane on Route 29 from Galleron Lane to St. Helena	☑	☐	☐	☐	☑
230622	New Commitment	Construct new bicycle/pedestrian trail through American Canyon	☑	☐	☐	☐	☐
230394	New Commitment	Improve the traffic signals at Solano and Wine Country avenues (includes road widening, drainage and rail crossing improvements)	☑	☐	☐	☐	☐

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Napa							
230371	New Commitment	Construct ADA-compliant pedestrian and bicycle path from Presidents Circle to railroad track in Yountville	☑	☐	☐	☐	☐
230381	New Commitment	Improve signalization along Main Street in St. Helena	☑	☐	☐	☐	☑
230379	New Commitment	Improve the truck route between Adams Street and Main Street	☑	☐	☐	☐	☑
230378	New Commitment	Implement accessibility improvement projects in downtown St. Helena, including curb cuts	☑	☐	☐	☐	☐
230387	New Commitment	Construct a roundabout or improve traffic signals to improve safety at the Deer Park/Silverado Trail intersection	☑	☐	☐	☐	☑
230392	New Commitment	Extend Devlin Road from Fagan Creek to Green Island Road	☑	☐	☐	☐	☐
230373	New Commitment	Construct pedestrian and bicycle pathway from Madison Street to Solano Avenue	☑	☐	☐	☐	☐
230374	New Commitment	Construct pedestrian crosswalk at Charter Oak and Main Streets in St. Helena	☑	☐	☐	☐	☐
230377	New Commitment	Construct pedestrian and bicycle crossing over Sulphur Creek at Oak Avenue in St. Helena	☑	☐	☐	☐	☐
22746	New Commitment	Widen Route 29/First Street overcrossing to 4 lanes	☐	☑	☐	☐	☑
230388	New Commitment	Improve the safety of the Oak Knoll/Silverado Trail intersection	☐	☑	☐	☐	☐
230389	New Commitment	Improve the safety of the Yountville Cross/Silverado Trail intersection	☐	☑	☐	☐	☐
230390	New Commitment	Improve the safety of the Oakville Crossroad/Route 29 intersection	☐	☑	☐	☐	☐
San Francisco							
21504	New Commitment	Improve roadways throughout San Francisco by installing new traffic signs and signals, providing new transit lane markings, installing new parking meters and relocating a traffic maintenance shop	☑	☐	☐	☐	☐
22462	New Commitment	Implement bicycling programs, including construction and rehabilitation of bicycle lanes and paths; improve signage and crossings; and implement a public awareness campaign	☑	☐	☐	☐	☐
21535	New Commitment	Implement Travel Demand Management (TDM) program, including transit route planning, bicycle and pedestrian planning and transit-oriented development studies and planning	☑	☐	☐	☐	☐
98593	New Commitment	Fund the Integrated Transportation Management System (SFgo)	☑	☐	☐	☑	☐
21533	New Commitment	Plant trees and maintain new and existing trees in public rights-of-way throughout San Francisco	☑	☐	☐	☐	☐
22984	New Commitment	Construct new/reconstruct existing wheelchair curb ramps	☑	☐	☐	☐	☐

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San Francisco							
22982	New Commitment	Enhance transit programs in San Francisco that promote system connectivity and accessibility, close service gaps and expand transit service	☑	☐	☐	☑	☐
230585	New Commitment	Improve the functionality, safety and attractiveness of local streets and arterials in San Francisco	☑	☐	☐	☐	☐
21549	New Commitment	Implement direct access route from Hunters Point Shipyard to U.S. 101, including repaving existing roadway and adding new curbs and curb ramps, sidewalks, street lighting, trees and route signage	☑	☐	☐	☑	☑
21510	Committed	Extend the Third Street Light Rail line from north of King Street to Clay Street in Chinatown via a new Central Subway, including the purchase of light-rail vehicles	☑	☐	☐	☐	☑
21505	New Commitment	Repair and retrofit local bridge structures and pedestrian overcrossings	☑	☐	☐	☐	☐
21503	New Commitment	Implement a traffic calming program aimed at reducing auto traffic speeds and improving pedestrian and bicyclist safety throughout San Francisco	☑	☐	☐	☐	☐
230168	New Commitment	Improve the Great Highway between Lincoln Way and 48th Avenue (includes resurfacing roadway, installing drainage systems and constructing medians)	☑	☐	☐	☐	☐
21502	New Commitment	Implement pedestrian projects, including sidewalk repair, crossing signal, signage improvements and an education campaign	☑	☐	☐	☐	☐
230215	New Commitment	Extend existing trolley coach lines throughout San Francisco	☑	☐	☐	☑	☐
230211	New Commitment	Extend trolley coach infrastructure into Mission Bay along 16th Street and Third Street, and implement transit signal priority along 16th Street and Fillmore Street	☑	☐	☐	☐	☑
22512	New Commitment	Provide capital improvements to support ferry service between Treasure Island and San Francisco	☑	☐	☐	☑	☑
22412	New Commitment	Purchase light-rail vehicles to expand Muni rail service	☑	☐	☐	☑	☐
94632	Committed	Extend Third Street Light Rail from Fourth and King Streets to Bayshore Caltrain Station	☑	☐	☐	☐	☑
230290	Committed	Extend Caltrain to Transbay Terminal and replace Transbay Terminal (Phase 2b)	☑	☐	☐	☐	☑
230364	Committed	Improve water access to San Francisco parks	☑	☐	☐	☐	☐
230207	New Commitment	Implement a Bus Rapid Transit (BRT) project on the Geneva Avenue/Harney Way corridor (includes new infrastructure and rolling stock)	☑	☐	☐	☑	☑

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San Francisco							
22415	New Commitment	Provide new historic streetcar service along the Embarcadero between the Caltrain Station and Fisherman's Wharf; extend streetcar service from Fisherman's Wharf to Fort Mason	☑	☐	☐	☐	☑
230594	New Commitment	Improve San Francisco BART stations to enhance passenger safety, accessibility and capacity, improve signage and provide real time transit information	☑	☐	☐	☐	☐
230161	Committed	Implement a Bus Rapid Transit (BRT) project on Van Ness Avenue (includes dedicated transit lanes, signal priority and pedestrian and urban design upgrades)	☑	☐	☐	☐	☑
230581	New Commitment	Improve San Francisco ferry infrastructure, including terminals, intermodal connections, ferry berths, emergency response systems and landside improvements	☑	☐	☐	☑	☐
230164	New Commitment	Implement a Bus Rapid Transit (BRT) project on Geary Boulevard (includes dedicated transit lanes, signal priority and pedestrian and urban design upgrades)	☑	☐	☐	☐	☑
230555	Committed	Reconstruct ramps on the east side of the San Francisco-Oakland Bay Bridge's Yerba Buena Island tunnel	☑	☐	☐	☐	☐
230517	New Commitment	Improve transit and roadway connectivity between San Francisco and San Mateo counties	☑	☐	☐	☑	☐
22249	New Commitment	Upgrade and extend streets and other vehicular facilities throughout San Francisco	☑	☐	☐	☐	☐
230490	New Commitment	Reconstruct and widen Harney Way to 8 lanes (6 mixed flow, 2 bus-only for Bus Rapid Transit service) and improve bicycle lanes and sidewalks	☑	☐	☐	☑	☑
230696	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐
22420	New Commitment	Implement Bus Rapid Transit (BRT) and Transit Preferential Streets (TPS) programs throughout San Francisco	☑	☐	☐	☐	☑
San Mateo							
21624	New Commitment	Implement an incentive program to support transit-oriented developments within 1/2-mile of Caltrain stations that have a minimum density of 40 units per acre	☑	☐	☐	☐	☐
21607	New Commitment	Modify University Avenue overcrossing of U.S. 101 to improve operational efficiency and safety (includes widening of overcrossing, constructing new southbound off-ramp and auxiliary lane, and adding bicycle lanes)	☑	☐	☐	☐	☑
21610	New Commitment	Construct auxiliary lanes (one in each direction) on U.S. 101 from San Bruno Avenue to Grand Avenue	☑	☐	☐	☑	☑
230704	Committed	Make Route 92 operational improvements to Chess Drive on-ramps	☑	☐	☐	☑	☐

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San Mateo							
21892	New Commitment	Widen Woodside Road from 4 to 6 lanes from El Camino Real to Broadway	☑	☐	☐	☑	☑
98204	New Commitment	Add travel lane (one in each direction) on Route 1 (Calera Parkway) between Fassler Avenue and Westport Drive in Pacifica (includes traffic signal coordination on Fassler Avenue and Reina Del Mar Avenue)	☑	☐	☐	☐	☑
22120	Committed	Construct ferry terminal at Redwood City	☑	☐	☐	☐	☑
21623	New Commitment	Improve Caltrain stations (includes upgrades/relocation of platforms, new platforms, pedestrian tunnels, pedestrian crossings and parking improvements)	☑	☐	☐	☐	☐
21626	New Commitment	Implement Caltrain grade separation program	☑	☐	☐	☐	☐
22615	Committed	Improve station facilities and other rail improvements in Redwood City, Menlo Park and East Palo Alto in conjunction with the Dumbarton Rail Corridor	☑	☐	☐	☐	☐
230697	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐
230592	Committed	Improve streetscape and traffic calming along Bay Road, and construct new northern access connection between Demeter Street and University Avenue	☑	☐	☐	☐	☐
22274	New Commitment	Install an Intelligent Transportation System (ITS) and a Traffic Operation System (TOS) countywide	☑	☐	☐	☐	☐
21608	Committed	Construct auxiliary lanes (one in each direction) on U.S. 101 from Marsh Road to Embarcadero Road	☑	☐	☐	☐	☑
94667	Committed	Provide SamTrans Americans with Disabilities Act (ADA) paratransit services (includes operating support and purchase of new paratransit vehicles)	☑	☐	☐	☐	☐
230424	Committed	Modify Route 92/El Camino Real interchange	☑	☐	☐	☐	☐
22756	New Commitment	Reconstruct U.S. 101/Candlestick Point interchange	☑	☐	☐	☑	☑
22726	Committed	Implement ferry service between South San Francisco and Alameda/Oakland	☑	☐	☐	☐	☑
230428	Committed	Extend Blomquist Street over Redwood Creek to East Bayshore and Bair Island Road	☑	☐	☐	☑	☐
22282	New Commitment	Improve U.S. 101 operations near Route 92	☑	☐	☐	☑	☐
21604	New Commitment	Construct auxiliary lanes (one in each direction) on U.S. 101 from Sierra Point to San Francisco County line	☑	☐	☐	☑	☑
21606	Committed	Reconstruct U.S. 101/Willow Road interchange	☑	☐	☐	☐	☑

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San Mateo							
22268	New Commitment	Provide countywide shuttle service between Caltrain stations and major activity centers (includes purchase of vehicles)	☑	☐	☐	☐	☐
22261	New Commitment	Replace San Pedro Creek Bridge over Route 1	☑	☐	☐	☑	☐
230349	Committed	Improve local access to National Park Service (NPS) lands in San Mateo	☑	☐	☐	☐	☐
230430	Committed	Implement San Mateo's bicycle and pedestrian program	☑	☐	☐	☐	☐
94656	Committed	Construct Devil's Slide Bypass between Montara and Pacifica	☑	☐	☐	☐	☑
230192	Committed	Improve SamTrans bus services (includes enhanced service levels, transit priority measures, signal timing and dedicated bus lanes)	☑	☐	☐	☐	☑
94643	Committed	Widen Route 92 from Half Moon Bay city limits to Route 1 (includes adding left-turn lanes, signal modifications, shoulders and bicycle lanes)	☑	☐	☐	☐	☑
230434	Committed	Implement local circulation improvements and the local streets traffic management program	☑	☐	☐	☑	☐
230417	Committed	Modify U.S. 101/Holly Street interchange (includes widening eastbound to northbound loop to 2 lanes and eliminating northbound to westbound loop)	☑	☐	☐	☑	☑
98176	Committed	Construct auxiliary lanes on U.S. 101 from 3rd Avenue to Millbrae and reconstruct U.S. 101/Peninsula interchange	☑	☐	☐	☐	☑
21603	New Commitment	Modify U.S. 101/Woodside Road interchange	☑	☐	☐	☐	☑
21602	New Commitment	Reconstruct U.S. 101/Broadway interchange	☑	☐	☐	☐	☐
22227	New Commitment	Extend Geneva Avenue to the U.S. 101/Candlestick Point interchange (includes Caltrain grade separation at Tunnel Avenue and other local street improvements)	☑	☐	☐	☐	☑
22232	Committed	Construct streetscape improvements on Mission Street (Route 82) from John Daly Boulevard to San Pedro Road	☑	☐	☐	☐	☐
22230	New Commitment	Construct auxiliary lanes (one in each direction) on I-280 from I-380 to Hickey Boulevard	☐	☑	☐	☐	☑
22279	New Commitment	Construct new U.S. 101/Produce Avenue interchange (includes replacement of Produce Avenue on- and off-ramps and South Airport Boulevard ramps to U.S. 101 at Wondercolor Lane)	☐	☑	☐	☐	☑
22751	New Commitment	Improve operations and safety of Route 1 in Half Moon Bay (includes extending Route 1 to Half Moon Bay city limits and channelization at local intersections)	☐	☑	☐	☑	☑

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San Mateo							
22226	New Commitment	Construct Bayshore Intermodal Facility for Caltrain, Muni light rail, and Muni and SamTrans buses (includes cross-platform transit transfers between Muni Third Street light-rail station and Caltrain Bayshore station)	☐	☑	☐	☐	☑
22271	New Commitment	Widen Skyline Boulevard (Route 35) from 2 to 4 lanes between I-280 and Sneath Lane	☐	☑	☐	☐	☑
22239	New Commitment	Widen Manor Drive overcrossing at Route 1 (includes new traffic signals at intersection)	☐	☑	☐	☐	☑
21615	New Commitment	Reconstruct I-280/Route 1 interchange, including ramps	☐	☑	☐	☑	☑
21613	New Commitment	Improve Route 92 from San Mateo-Hayward Bridge to I-280 (includes widening and uphill passing lane from U.S. 101 to I-280)	☐	☑	☐	☑	☑
22229	New Commitment	Reconstruct U.S. 101/Sierra Point Parkway interchange (includes extension of Lagoon Way to U.S. 101)	☐	☑	☐	☐	☑
21612	New Commitment	Improve access to/from west side of Dumbarton Bridge on Route 84 connecting to U.S. 101 (includes flyovers, interchange improvements and conversion of Willow Road between Route 84 and U.S. 101 to expressway)	☐	☑	☐	☐	☑
94644	New Commitment	Construct westbound slow-vehicle lane on Route 92 from Route 35 to I-280	☐	☑	☐	☑	☑
21893	New Commitment	Widen Route 92 from Half Moon Bay city limits and Pilarcitos Creek (includes widening shoulders and travel lanes to standard widths and straightening curves)	☐	☑	☐	☐	☑
21609	Committed	Improve local access from Sneath Lane and San Bruno Avenue to I-280/I-380 interchange (study phase only)	☐	☑	☐	☐	☑
Santa Clara							
230200	New Commitment	Improve local circulation on St. John Street and Autumn Street	☑	☐	☐	☐	☑
230242	New Commitment	Add Capitol Expressway Traffic Operations System (TOS) between U.S. 101 and Almaden Expressway	☑	☐	☐	☐	☐
230174	New Commitment	Construct a 4-lane bridge across Uvas Creek connecting the east and west sides of Tenth Street, including 4 travel lanes, bicycle lanes, sidewalks and a new traffic signal at the intersection of Tenth Street and Uvas Park Drive	☑	☐	☐	☐	☑
230251	New Commitment	Improve expressway traffic operations system (TOS) in Santa Clara county (includes automated traffic count collection system, wireless controller communication system, wireless vehicular detection system, and signal and video infrastructure upgrades)	☑	☐	☐	☐	☐
230347	New Commitment	Improve U.S. 101 southbound ramps at 10th Street	☑	☐	☐	☐	☑

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Santa Clara							
230449	New Commitment	Extend Charcot Avenue over I-880 as a new 2-lane roadway with bicycle and pedestrian improvements to connect to North San Jose employment center	☑	☐	☐	☑	☑
230246	New Commitment	Improve intersection at Lawrence Expressway and Prospect Road by adding a second left-turn lane and modifying the existing traffic signals	☑	☐	☐	☐	☑
230265	New Commitment	Improve the operations of the intersection of Montague Expressway and Mission College Boulevard	☑	☐	☐	☐	☐
230210	New Commitment	Rebuild box culvert under San Tomas Expressway	☑	☐	☐	☐	☐
230298	New Commitment	Replace Calaveras Boulevard 4-lane bridge over the Union Pacific Railroad tracks with new 6-lane structure with bicycle and pedestrian facilities and circulation improvements	☑	☐	☐	☐	☑
230457	New Commitment	Improve Oakland Road from U.S. 101 to Montague Expressway by providing landscaping and operational improvements	☑	☐	☐	☑	☐
22156	New Commitment	Improve Route 85 northbound to Route 237 eastbound connector ramp	☑	☐	☐	☑	☑
22883	New Commitment	Modify medians on Lawrence Expressway (including those at Lochinvar Avenue, De Sota Avenue, Golden State Drive, Granada Avenue, Buckley Street and St. Lawrence Drive/Lawrence Station Road) for limited access	☑	☐	☐	☐	☑
230273	New Commitment	Widen Montague Expressway to 8 lanes between Trade Zone Boulevard and I-680 and to 6 lanes between I-680 and Park Victoria Drive for HOV lanes	☑	☐	☐	☑	☑
22839	Committed	Convert the HOV lane on Central Expressway between San Tomas and De La Cruz to a general purpose lane	☑	☐	☐	☐	☑
22180	New Commitment	Widen Central Expressway between Lawrence Expressway and Mary Avenue to provide auxiliary lanes	☑	☐	☐	☑	☑
230461	New Commitment	Widen Branham Lane from Vista Park Drive to Snell Avenue (includes bicycle and pedestrian facilities)	☑	☐	☐	☐	☑
230471	Committed	Widen intersections and improve sidewalks throughout the city of Sunnyvale	☑	☐	☐	☐	☐
230531	Committed	Construct HOV and auxiliary lanes on U.S. 101 in Mountain View and Palo Alto, from Route 85 to Embarcadero Road	☑	☐	☐	☑	☑
230551	Committed	Implement the Zero Emissions Bus (ZEB) program	☑	☐	☐	☐	☐
21760	Committed	Double-track segments of the Caltrain line between San Jose and Gilroy	☑	☐	☐	☐	☑
230698	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐

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Santa Clara							
21785	New Commitment	Reconfigure local roadway and interchange at U.S. 101/Blossom Hill Road in San Jose (includes widening Blossom Hill Road over U.S. 101)	☑	☐	☐	☐	☐
230407	New Commitment	Widen Route 17 off-ramp southbound at Hamilton Avenue	☑	☐	☐	☑	☑
22153	New Commitment	Extend Mary Avenue north across Route 237 (includes reconfiguring the Mathilda Avenue/U.S. 101 interchange)	☑	☐	☐	☐	☑
22142	New Commitment	Improve U.S. 101/Capitol Expressway interchange (includes new northbound on-ramp from Yerba Buena Road)	☑	☐	☐	☐	☑
22134	Committed	Construct a lane on southbound U.S. 101 using the existing median from south of Story Road to Yerba Buena Road; modify the U.S. 101/Tully road interchange to a partial cloverleaf	☑	☐	☐	☐	☑
230579	New Commitment	Improve ramp/intersection on Route 152 eastbound at Frazier Lake Road	☑	☐	☐	☐	☐
230451	New Commitment	Rehabilitate Fatjo Place, Thompson Place, Arguello Place, Bray Avenue and Graham Lane	☑	☐	☐	☐	☐
230294	Committed	Conduct environmental and design studies to widen and create new alignment for Route 152 (from Route 156 to U.S. 101)	☑	☐	☐	☑	☐
22019	Committed	Convert Bus Rapid Transit (BRT) to light-rail transit in the Santa Clara-Alum Rock corridor (Downtown East Valley Phase 2)	☑	☐	☐	☐	☑
230452	New Commitment	Convert downtown one-way couplets to two-way streets along 10th/11th Streets, Almaden Boulevard/Vine Street and 2nd/3rd Streets	☑	☐	☐	☑	☑
230454	Committed	Construct bicycle overcrossing at Blossom Hill/Monterey Highway area over Union Pacific Railroad tracks	☑	☐	☐	☐	☐
21797	Committed	Implement Route 17 bus service improvements between downtown San Jose and downtown Santa Cruz	☑	☐	☐	☐	☑
230456	Committed	Widen Zanker Road from 4 to 6 lanes	☑	☐	☐	☐	☐
21787	Committed	Expand the Palo Alto Caltrain Station and Bus Transit Center	☑	☐	☐	☐	☑
230339	Committed	Convert HOV queue-jump lanes along Central Expressway at Bowers Avenue to general purpose lanes	☑	☐	☐	☐	☑
21749	New Commitment	Extend Butterfield Boulevard from Tennant Avenue to Watsonville Road (includes railroad overpass bridge, drainage channel, traffic signal upgrade, median, landscaping, bicycle lanes and sidewalks)	☑	☐	☐	☑	☑
21720	New Commitment	Improve U.S. 101/Tennant Avenue interchange, including constructing a new bridge parallel to existing bridge over U.S. 101, widening Tennant Avenue from 2 lanes to 4 lanes with bicycle lanes and sidewalks, and adding a new northbound loop on-ramp	☑	☐	☐	☐	☑

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Santa Clara							
21714	New Commitment	Widen U.S. 101 between Monterey Highway and Route 25 and construct an interchange at U.S. 101/Route 25/Santa Teresa Boulevard (includes extending Route 25 to Santa Teresa Boulevard)	☑	☐	☐	☑	☑
230554	Committed	Implement Bus Rapid Transit (BRT) between Sunnyvale and Cupertino	☑	☐	☐	☐	☑
230269	Committed	Construct a new interchange at Trimble Road and Montague Expressway	☑	☐	☐	☑	☑
230532	Committed	Improve interchange at Route 237/North 1st Street	☑	☐	☐	☑	☑
21923	Committed	Implement Bus Rapid Transit (BRT) on El Camino Real from Diridon Station to Palo Alto	☑	☐	☐	☐	☑
230385	New Commitment	Purchase and install emergency vehicle pre-emption detectors and video detection cameras at signalized intersections in downtown Palo Alto	☑	☐	☐	☐	☐
230292	New Commitment	Implement signal coordination between expressway and major cross-street signals in Santa Clara county	☑	☐	☐	☐	☐
230363	Committed	Construct interchange at I-880 and Montague Expressway (includes improvements to Montague Expressway)	☑	☐	☐	☑	☑
230584	New Commitment	Improve ramp/intersection at Route 152 westbound at Watsonville Road	☑	☐	☐	☐	☑
21790	Committed	Provide VTA´s share of funds for additional train sets, passenger facilities, and service upgrades for the ACE service from San Joaquin and Alameda counties	☑	☐	☐	☐	☐
230552	Committed	Install and modify VTA facilities to support the Zero Emissions Bus (ZEB) program	☑	☐	☐	☐	☐
22925	New Commitment	Realign existing curve on DeWitt Avenue between Edmundson Avenue and Spring Avenue	☑	☐	☐	☑	☐
94117	Committed	Improve bus stop accessibility systemwide (includes new transit centers and park-and-ride lots at De Anza College, Vasona Junction and downtown Los Gatos)	☑	☐	☐	☐	☐
230445	New Commitment	Improve Great America Parkway and Mission College Boulevard intersection (includes adding triple left-turn lanes in two directions and traffic signal upgrades)	☑	☐	☐	☐	☑
22822	New Commitment	Provide real-time expressway traffic information in Santa Clara county	☑	☐	☐	☐	☐
230262	New Commitment	Construct a new interchange at U.S. 101 and Montague Expressway	☑	☐	☐	☑	☑
22878	New Commitment	Realign Wildwood Avenue to connect with Lawrence Expressway (includes new traffic signal)	☑	☐	☐	☐	☐
22910	New Commitment	Add Traffic Operations System (TOS) infrastructure on Santa Teresa Boulevard between Day Road and Mesa Road	☑	☐	☐	☐	☑

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Santa Clara							
22965	New Commitment	Construct U.S. 101/Mabury Road/Taylor Street interchange	☑	☐	☐	☑	☑
22956	Committed	Extend the Capitol Avenue light-rail line from the Alum Rock Transit Center to a rebuilt Eastridge Transit Center	☑	☐	☐	☐	☑
22944	Committed	Widen I-880 for HOV lanes in both directions from Route 237 in Milpitas to U.S. 101 in San Jose	☑	☐	☐	☐	☑
230645	Committed	Implement improvements to the North First Street Core Area grid	☑	☐	☐	☑	☐
230705	Committed	Improve local interchanges and auxiliary lanes	☑	☐	☐	☑	☐
22873	New Commitment	Widen Loyola Bridge over Foothill Expressway to add a third lane for left turns and improve bicycle/pedestrian access	☑	☐	☐	☐	☑
230547	Committed	Implement Bus Rapid Transit (BRT) on Monterey Highway	☑	☐	☐	☐	☑
230706	Committed	Make local streets and roads improvements (includes street channelization, overcrossings, bicycle and pedestrian access, and safety improvements)	☑	☐	☐	☐	☐
22014	Committed	Implement Downtown East Valley Bus Rapid Transit (BRT) and Light Rail Phases 1 and 3	☑	☐	☐	☐	☑
230267	Committed	Widen Montague Expressway to 8 lanes for HOV lanes between Lick Mill and Trade Zone boulevards and on Guadalupe River Bridge and Penitencia Creek Bridge	☑	☐	☐	☑	☑
22814	New Commitment	Extend Foothill Expressway westbound deceleration lane at San Antonio Road	☑	☐	☐	☐	☐
22815	New Commitment	Upgrade Miramonte Avenue bikeway to Class II between Mountain View and Foothill Expressway	☑	☐	☐	☐	☐
98119	Committed	Extend light-rail transit from Winchester Station to Route 85 (Vasona Junction)	☑	☐	☐	☐	☑
22842	New Commitment	Improve Route 152/Ferguson Road intersection, includes lighting and widening	☑	☐	☐	☐	☐
22895	New Commitment	Improve the operations of San Tomas Expressway/Route 17 interchange (includes restriping the eastbound through lane on White Oaks Road and adding a second right-turn lane on the southbound off-ramp)	☑	☐	☐	☐	☑
22809	New Commitment	Realign DeWitt Avenue/Sunnyside Avenue intersection	☑	☐	☐	☐	☐
230350	New Commitment	Widen southbound U.S. 101 off-ramp at Cochrane Road from 2 to 3 lanes	☑	☐	☐	☐	☑
230595	Committed	Implement Bus Rapid Transit (BRT) on Stevens Creek Boulevard from Diridon Station to DeAnza College	☑	☐	☐	☐	☑

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Santa Clara							
230644	Committed	Implement miscellaneous intersection improvements in North San Jose	☑	☐	☐	☑	☐
230574	Committed	Improve the Route 85/Cottle Road interchange	☑	☐	☐	☑	☑
230302	New Commitment	Improve the intersection of Dixon Landing Road and North Milpitas Boulevard	☑	☐	☐	☐	☑
230356	Committed	Construct interchange at Lawrence Expressway and Arques Avenue	☑	☐	☐	☐	☑
230641	Committed	Implement bicycle and pedestrian improvements in North San Jose	☑	☐	☐	☐	☐
230201	New Commitment	Widen Coleman Avenue from 4 to 6 lanes from I-880 to Taylor Street	☑	☐	☐	☑	☑
21722	New Commitment	Improve U.S. 101 southbound Trimble Road/De La Cruz Boulevard/Central Expressway interchange	☑	☐	☐	☑	☑
230577	New Commitment	Improve ramp and intersection on Route 152 eastbound at Bloomfield Avenue	☑	☐	☐	☐	☐
22175	New Commitment	Widen Almaden Expressway to 8 lanes between Coleman Road and Blossom Hill Road	☑	☐	☐	☑	☑
230573	New Commitment	Improve ramps and intersections on Fremont and Bernardo Avenues at Route 85	☑	☐	☐	☐	☐
230175	New Commitment	Construct a new 2-lane overcrossing on Las Animas Avenue at U.S. 101 (includes shoulders, bicycle lanes and sidewalks)	☑	☐	☐	☐	☑
22179	New Commitment	Widen Central Expressway from 4 to 6 lanes between Lawrence Expressway and San Tomas Expressway	☐	☑	☐	☑	☑
22118	New Commitment	Extend Hill Road from East Main Avenue to Peet Avenue	☐	☑	☐	☐	☑
22854	New Commitment	Improve bicycle/pedestrian safety at I-280/Oregon-Page Mill interchange	☐	☑	☐	☐	☑
230459	New Commitment	Extend Chynoweth Avenue from Almaden Expressway to Winfield Road	☐	☑	☐	☐	☑
230534	Committed	Electrify Caltrain line from Tamien Station to Gilroy	☐	☑	☐	☐	☑
21702	New Commitment	Construct interchange at U.S. 101 and Buena Vista Avenue	☐	☑	☐	☑	☑
21719	New Commitment	Improve I-880/I-280/Stevens Creek Boulevard interchange (includes eliminating eastbound off-ramp loop and reconfiguring the off-ramp to eastbound Stevens Creek Boulevard)	☐	☑	☐	☐	☑
230458	New Commitment	Widen Berryessa Road from U.S. 101 to I-680 to provide access to planned Berryessa BART station	☐	☑	☐	☐	☑
22978	Committed	Extend the Capitol Expressway light-rail transit (LRT) from Eastridge Transit Center to the Capitol Station on the Guadalupe LRT line in Nieman (Phase 2)	☐	☑	☐	☐	☑

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Santa Clara							
21922	Committed	Implement the Mineta San Jose International Airport automated people-mover service	☐	☑	☐	☑	☑
230460	New Commitment	Widen Snell Avenue from Branham Lane to Chynoweth Avenue	☐	☑	☐	☐	☑
22909	Committed	Fund the operating and capital needs of Measure A transit services	☐	☑	☐	☐	☐
22186	New Commitment	Widen San Tomas Expressway to 8 lanes between El Camino Real (Route 82) and Williams Road	☐	☑	☐	☑	☑
21921	Committed	Extend BART from Fremont to San Jose (includes environmental, preliminary engineering, property acquisition and construction phases)	☐	☑	☐	☑	☑
22162	New Commitment	Improve Route 237 westbound to Route 85 southbound connector ramp (includes widening off-ramp to Route 85 to 2 lanes and adding a southbound auxiliary lane between Route 237 and El Camino Real interchange on Route 85)	☐	☐	☑	☑	☑
22843	New Commitment	Widen Lawrence Expressway from 6 to 8 lanes between Moorpark Avenue/Bollinger Road and south of Calvert Court	☐	☐	☑	☑	☑
22145	New Commitment	Widen westbound Route 237 on-ramp from Route 237 to northbound U.S. 101 to 2 lanes and add auxiliary lane on northbound U.S. 101 from Route 237 on-ramp to Ellis Street interchange (includes Traffic Operation System/TOS elements)	☐	☐	☑	☑	☑
Solano							
22631	Committed	Construct Route 12 westbound truck climbing lane at Red Top Road	☑	☐	☐	☐	☑
22630	Committed	Improve Parkway Boulevard overcrossing over Union Pacific Railroad tracks	☑	☐	☐	☐	☐
230708	Committed	Improve local interchanges and auxiliary lanes and make local streets and roads improvements (includes street channelization, overcrossings, bicycle and pedestrian access, and safety improvements)	☑	☐	☐	☑	☐
230311	Committed	Widen and improve Peterson Road with the addition of a truck-stacking lane (includes drainage improvements)	☑	☐	☐	☐	☐
22700	New Commitment	Construct parallel corridor north of I-80 from Red Top Road to Abernathy Road	☑	☐	☐	☐	☑
230322	Committed	Rebuild and relocate eastbound Cordelia Truck Scales Facility (includes a new 4-lane bridge across Suisun Creek and new ramps at eastbound Route 12 and eastbound I-80)	☑	☐	☐	☐	☑
22629	New Commitment	Construct new Vallejo Baylink Ferry Terminal (includes additional parking, upgrade of bus transfer facilities and pedestrian access improvements)	☑	☐	☐	☐	☑
22632	Committed	Widen American Canyon Road overpass at I-80	☑	☐	☐	☐	☑

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Solano							
22633	Committed	Widen Azuar Drive/Cedar Avenue from 2 to 4 lanes between P Street and Residential Parkway (includes bicycle lanes, railroad signals and rehabilitation improvements)	☑	☐	☐	☐	☐
230326	New Commitment	Improve I-80/I-680/Route 12 interchange, including connecting I-680 northbound to Route 12 westbound (Jamieson Canyon), adding connectors and reconstructing local interchanges (Phase 1)	☑	☐	☐	☐	☑
22634	Committed	Construct an adjacent 200-space, at-grade parking lot at the Vacaville Intermodal Station (Phase 1)	☑	☐	☐	☐	☑
230699	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐
230635	New Commitment	Construct new 400-space parking garage at the Vacaville Intermodal Station (Phase 2)	☑	☐	☐	☐	☑
230650	Committed	Widen I-80 from Red Top Road to Air Base Parkway to add HOV lanes in both directions (includes pavement rehabilitation and ramp metering)	☑	☐	☐	☐	☑
94151	New Commitment	Construct 4-lane Jepson Parkway from Route 12 to Leisure Town Road	☑	☐	☐	☐	☑
21341	New Commitment	Construct new Fairfield/Vacaville multimodal train station for Capitol Corridor intercity rail service (Phases 1, 2 and 3)	☑	☐	☐	☐	☑
230468	New Commitment	Provide auxiliary lanes on I-80 in eastbound and westbound directions from I-680 to Air Base Parkway (includes a new eastbound mixed flow lane from Route 12 east to Air Base Parkway)	☐	☑	☐	☐	☑
Sonoma							
230700	New Commitment	Local streets and roads maintenance	☑	☐	☐	☐	☐
22190	New Commitment	Improve channelization and traffic signalization at Route 116/Route 121 intersection (includes Arnold Drive improvements)	☑	☐	☐	☐	☐
22195	New Commitment	Improve U.S. 101/Old Redwood Highway interchange (includes modifying/replacing existing 2-lane interchange to at least a 5-lane interchange and improving ramps)	☑	☐	☐	☑	☑
98183	Committed	Widen U.S. 101 for HOV lanes between Steele Lane and Windsor River Road (Phase A)	☑	☐	☐	☑	☑
94689	New Commitment	Improve U.S. 101/Arata Lane interchange in Windsor, including new on- and off-ramps and realignment of Los Amigos Road north of Arata Lane (Phase 4)	☑	☐	☐	☐	☑
21070	Committed	Realign and widen Route 116 (Stage Gulch Road) along Champlin Creek to improve safety, adding shoulders to accommodate pedestrians and bicyclists	☑	☐	☐	☐	☑
22652	Committed	Rehabilitate pavement on U.S. 101 from Steele Lane to Grant Avenue overhead in Healdsburg	☑	☐	☐	☐	☐

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Sonoma							
22655	Committed	Widen U.S. 101 for HOV lanes (one in each direction) from Rohnert Park Expressway to Santa Rosa Avenue (includes interchange improvements and ramp metering)	☑	☐	☐	☐	☑
22656	Committed	Improve U.S. 101/East Washington Street interchange (includes new northbound on-ramp and improvements to southbound on-ramp)	☑	☐	☐	☐	☑
230442	New Commitment	Implement service enhancements for Santa Rosa CityBus (includes technology enhancements such as video, automatic vehicle location and farebox upgrades, operations and maintenance facilities improvements and vehicle purchases)	☑	☐	☐	☐	☐
230341	New Commitment	Improve channelization and traffic signalization on Mirabel Road and Route 116	☑	☐	☐	☐	☐
21884	Committed	Construct Petaluma crosstown connector/interchange	☑	☐	☐	☑	☑
230437	New Commitment	Provide infrastructure for two high-frequency Bus Rapid Transit corridors in Santa Rosa (includes vehicle purchases, infrastructure such as bus stops/intermodal nodes, and technology support)	☑	☐	☐	☐	☐
22191	New Commitment	Improve U.S. 101 North/Airport Boulevard interchange (includes widening Airport Boulevard to 2 lanes in each direction and adding turn lanes)	☑	☐	☐	☑	☑
230345	New Commitment	Rehabilitate or replace existing Healdsburg Avenue Bridge	☑	☐	☐	☐	☐
21902	Committed	Widen U.S. 101 for HOV lanes from Pepper Road to Rohnert Park Expressway (Central Phase A)	☑	☐	☐	☑	☑
21908	Committed	Study the environmental impacts of a future Port Sonoma ferry service and facility	☑	☐	☐	☐	☐
22194	New Commitment	Improve safety on Mark West Springs Road/Porter Creek Road (includes adding standard shoulders and turn pockets)	☐	☑	☐	☐	☐
22197	New Commitment	Improve local circulation at various locations in Town of Penngrove (includes improvements to Main Street, Petaluma Hill Road, Adobe Road, Old Redwood Highway and U.S. 101/Railroad Avenue)	☐	☑	☐	☐	☐
22205	New Commitment	Improve U.S. 101/Hearn Avenue interchange (includes widening overcrossing and ramps)	☐	☑	☐	☐	☑
22203	New Commitment	Improve channelization and traffic signalization on River Road from Fulton Road to the town of Guerneville	☐	☑	☐	☐	☐
22207	New Commitment	Extend Farmers Lane from Bellevue Avenue to Bennett Valley Road as a 3-lane or 4-lane arterial (includes a bicycle lane and sidewalk)	☐	☑	☐	☑	☑
22438	New Commitment	Improve Bodega Highway west of Sebastopol (includes straightening curves near Occidental and adding turn pockets)	☐	☑	☐	☐	☑
22193	New Commitment	Construct new bypass on Route 116 in Forestville	☐	☑	☐	☐	☑

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			2015	2025	2035		
Sonoma							
94691	New Commitment	Install traffic signal system on Route 121 and improve channelization at 8th Street	☐	☑	☐	☐	☑
22490	New Commitment	Convert bridges in Sonoma County from 1-lane to 2-lane	☐	☑	☐	☑	☐
22204	New Commitment	Widen Fulton Road from 2 to 4 lanes from Guerneville Road to U.S. 101 and construct Route 12/Fulton Road interchange	☐	☐	☑	☐	☑

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Appendix C
Travel Forecast Assumptions for the Transportation 2035 Plan and 2009 TIP Amendment #09-06

Travel Forecasting Assumptions for Conformity Analysis of Transportation 2035 Plan and 2009 Transportation Improvement Program/Amendment # 09-06

This report documents the travel forecasting assumptions for the 2009 Regional Transportation Plan (RTP), and includes the following analysis years: 2006, 2015, 2025, and 2035. The analysis is based on the "latest planning assumptions" as documented below. In addition, the current conformity analysis also uses the latest upgrades to the MTC travel demand forecast model, which was updated and re-validated to a 2006 base year in Spring 2008.

The vehicle travel forecasts from the MTC travel demand model are then used in conjunction with the California Air Resource Board's (ARB) motor vehicle emission model (EMFAC2007) to estimate total regional on road motor vehicle emissions.

In preparing these travel forecasts, MTC uses four basic sets of assumptions:

- Pricing Assumptions;
- Travel Behavior Assumptions;
- Demographic Assumptions; and
- Highway and Transit Network Assumptions.

Demographic and detailed highway and transit network definition assumptions are not included in this appendix. The RTP travel forecasts are based on the socio-economic/land use forecast series *Projections 2007*, developed by the Association of Bay Area Governments (ABAG). These projections reflect the new regional "Smart Growth" land use assumptions and have been approved for use in the conformity analysis by the US DOT and EPA, subject to periodic preparation of a monitoring report by ABAG to examine results and review assumptions used in the projections. The projections also reflect the near term effects of the current economic slowdown on job creation in the Bay Area.

Pricing assumptions include projected parking prices; gasoline and non-gasoline auto operating costs; fuel economy; bridge tolls; and transit fares.

Travel behavior assumptions include trip peaking factors, vehicle occupancy factors, and estimates of interregional commuters.

Additional travel forecasting methodology issues are addressed in this report. These are special methodological issues related to air quality and mobile source emissions inventories. The methodology issues include:

- Commercial Vehicle Methodology;
- Speed Post-Processing Methodology;
- Distribution of VMT by Speed Methodology; and
- Adjustment of Regional VMT and Trips.

I. Pricing Assumptions

A. Parking Costs (Table 1)

The MTC demand models were estimated using nominal, or posted parking prices as opposed to actual parking prices. Actual parking prices would be the average parking price paid by a consumer, weighted by those who are subsidized by their employer and those who are not subsidized by their employer. For peak period parking cost, the monthly posted parking price is divided by 22 days per month to derive an average workday parking cost. The average workday parking cost is then divided by 8 hours to derive an average peak hour parking cost per hour in 1990 cents. In the home-based work mode choice model application, the per hour charge is multiplied by 8 hours, then divided by 2, to derive a per vehicle trip charge. Next, the per vehicle trip charge is divided by the vehicle occupancy so that parking costs are equally distributed between vehicle drivers and passengers.

Estimates for the years 2000 and 2035 peak hour and off-peak per hour parking costs are shown in Table 1. Data is shown for only the travel analysis zones with non-zero parking costs. This table also shows the change in net employment density, and the estimate of average monthly commuter parking costs, in 2008 current dollars.

The off-peak parking costs (per hour) are generally higher than the peak parking costs (per hour) since the peak parking costs are based on the discounted monthly parking rates, divided by 22 work days per month, divided by 8 hours per workday. The off-peak parking costs are reflective of mid-day, regular, not discounted parking costs.

The MTC assumption for parking costs is that they will change, in real terms, by the ratio of the net total employment density in the target year to the net employment density in the base year (2000).

MTC staff periodically inventory parking garages throughout the Bay Area to monitor trends in parking prices. The most recent update to this inventory was conducted fall 2000.

Auto Operating Costs (Table 2, 3, Figures 1, 2)

The MTC travel demand models are based on non-linear auto operating costs which vary according to trip speed and distance. As speed increases, the fuel consumption rate (gallons per mile) decreases linearly. As distance increases, the share of "cold start" fuel consumption decreases. This internal model is used to derive trip-specific fuel economy (miles per gallon) which is multiplied by the per gallon gas price to derive per trip gasoline operating cost. A constant non-gasoline operating cost per mile is multiplied by trip distance to get per trip non-gas cost. Total auto operating cost per trip is the sum of the gasoline cost per trip plus the non-gasoline cost per trip plus any bridge tolls or parking charges. Details on the auto operating cost model are included in the BAYCAST Users Guide (August 2004).

The MTC auto operating cost model is based on work conducted by Cambridge Systematics, Inc., as part of the *Urban Transportation Energy Conservation* study, published in 1978 (known as "UTEC"). The UTEC models were also used to derive auto operating costs for the Southern California Association of Governments' current set of travel demand models.

The basic inputs to the BAYCAST model system, in terms of auto operating cost, are gasoline price (in 1990 constant dollars); the fuel correction factor (to represent fleet turnover and more fuel efficient vehicles); and the non-gasoline operating cost (in 1990 cents per mile.) Data on historical, 1990 to 2008, and assumed future year auto operating costs are detailed in Table 3 and Figures 1 and 2.

This is the most challenging set of forecasting assumptions given the radical and recent escalation of gas prices over the 2008 calendar year. According to the AAA, late May 2008 gas prices range from $4.18 per gallon of regular unleaded in the North Bay to $4.23 in San Francisco. In the previous month (April 2008), gas prices ranged from $3.90 per gallon in the North Bay to $4.00 per gallon in San Francisco [http://www.fuelgaugereport.com/CAmetro.asp]. The United States Energy Information Administration (EIA) is showing national gas prices, for the week of 5/26/08, ranging from a low of $3.83 per gallon in Texas to $4.17 per gallon in Chicago, with a national average of $3.94 per gallon. From May 2007 to May 2008, the average national gas price increased from $3.21 per gallon to $3.94 per gallon, a 23 percent increase in 12 months.
[http://www.eia.doe.gov/oil_gas/petroleum/data_publications/wrgp/mogas_home_page.html]

To take into account recent gas price increases, MTC tested several linear regression models based on historical gas prices reported by the US Bureau of Labor Statistics (BLS). Data from April 1988 through April 2008 was used to produce various regression results, as shown in Table 2. Regressions based on 20 years of gas price data (1988-2008) would predict a $4.14/gallon gas price by the year 2035 (in today's dollars). The regression based on the past five years of gas price data (2003-2008) would extrapolate to $11.02/gallon by the year 2035 (again, in today's 2008 dollars).

MTC is using the 10-year regression model, based on published gas prices from April 1998 through April 2008, for the future year 2035 gas price (see Table 2 and Figure 1). This is $7.47 per gallon in today's dollars. This is comparable to current European petrol prices, which range from $4.70 per gallon in Estonia to $8.43 per gallon in Norway. (The closest to this $7.47 estimate is Germany, currently at $7.64/gallon, or 1.37 euros/liter.)

Gas price assumptions were finalized in late May 2008. Subsequent gas price data, published by the US Bureau of Labor Statistics, show that Bay Area gas prices peaked in June 2008 ($4.50/gallon), falling slightly to $4.49 per gallon in July, and settling back to $3.87 per gallon in September 2008 (see Figure 2).

The other major factor to consider in auto operating costs is the average fuel economy. MTC staff has estimated that the overall Bay Area fuel economy will increase from 19.86 miles per gallon in 2006 to 32.15 miles per gallon in 2035. This is based on MTC staff analysis of EMFAC2007 databases and models supplied by the California Air Resources Board (CARB), and takes into account the Pavley Phase I and Pavley Phase II regulations. MTC staff analysis shows that Pavley Phase I would increase Bay Area fuel economy to 27.91 mpg; and Pavley Phase II would further increase the overall fuel economy to 32.15 mpg. Note that these estimates are for light duty auto (LDA), small light duty trucks under 8,500 pounds (LDT1) and small light duty trucks over 8,500 pounds (LDT2).

The increase in overall fuel economy is a striking 59 percent increase between 2006 and 2035 (see Table 3). The increase in fuel economy is almost offset by the 76 percent real increase in gas price assumed between 2008 and 2035, such that the overall auto operating cost per mile is projected to increase by just 10 percent, from 20.9 cents/mile (2008$) to 23.2 cents/mile (2008$). This appears comparable to current European and Japanese-level gasoline prices and fuel economy.

The following table summarizes the horizon year auto operating cost assumptions used in MTC regional transportation planning activities over the past ten years. It is useful in showing the usefulness and need to re-evaluate latest planning assumptions on an ongoing basis.

Planning Study	Horizon Year	Gas Price (4/08$)	Fuel Economy (mpg)	Gas Price per Mile (4/08$)
1998 RTP	2020	$1.86	21.9	8.5 cents/mile
2001 RTP	2025	$2.26	21.9	10.3
2005 RTP	2030	$2.26	21.9	10.3
Vision 2035	2035	$3.93	27.7	14.2
Current, 2008	*2008*	*$4.20*	*20.1*	*20.9*
2009 RTP	2035	$7.47	32.2	23.2

The other key assumption is that non-gasoline operating cost (maintenance and repair, motor oil, parts, accessories) is 40 percent of total auto operating costs. This 40 percent figure is based on US Bureau of Labor Statistics data on consumer expenditures (see Table 4 of the MTC report: *Consumer Price Indices: Bay Area & U.S. Cities: 1950-2001*.) In a typical household, between five and six percent of a household's expenditures are related to auto operating costs. Gasoline cost has fluctuated from 55.6 percent to 73.5 percent of total auto operating costs over the past twenty years.

Auto ownership costs, which now comprise around 7.3 percent of the average household's budget, are not used in determining trip running, or variable costs. Auto ownership costs includes the cost of new or used vehicle purchasing and financing, insurance premiums, and vehicle registration and licensing fees. These fixed costs of auto ownership are more important in determining the number and quality of vehicles to own or lease. Given the difficulty in projecting automobile quality and costs, household income is used as a surrogate in predicting auto ownership levels.

C. Bridge Tolls (Table 4, Figure 3)

Year 2008 bridge tolls are used for all future year forecasts. This means that tolls will increase with inflation, so that their real value is not eroded.

Bay Area voters approved Regional Measure 2 on the March 2, 2004 general election. This measure increased the toll on all Bay Area state-owned bridges from $2.00 to $3.00 as of July 1, 2004. Since 1998, drivers on all Bay Area state-owned bridges have paid a $1 seismic surcharge to help finance a seismic retrofit program to strengthen and reinforce bridge structures and roadways on five of the bridges in the event of a major earthquake. On January 1, 2007 the seismic surcharge increased to $2 per vehicle, resulting in the current, $4.00 per passenger vehicle toll.

In previous conformity analyses, toll cost assumptions assumed no further increase in tolls, with the value of the toll decreasing, in real dollar terms, with an assumed inflation rate. For the 2009 Regional Transportation Plan, MTC is now assuming that tolls for Bay Area bridges will keep pace with inflation, similar to the standard assumption that transit fares will keep pace with inflation. Bay Area state-owned bridge tolls are assumed to remain at $4.00 (in 2008 current dollars) for the duration of the long-range planning period (Table 4, Figure 3).

This means that tolls will increase to about $4.89 per passenger vehicle in 2015, to $6.50 per passenger vehicle by 2025, and to $8.66 per passenger vehicle by 2035. These dollar values are in current dollar terms, and reflect a 2.9 percent per year annual inflation assumption.

For purposes of travel forecasting, the one-way toll is halved so that both directions on every bridge are allocated one-half of the total average toll. This is a technical necessity to counter the toll collection direction bias.

D. Transit Fares (Table 5, Figures 4.1, 4.2, 4.3)

Year 2008 transit fares are used for all future year forecasts. This means that fares will increase with inflation, so that their real value is not eroded. This assumption is borne out by past fare trends, and reflects the ongoing need for transit operators to periodically adjust their fares to keep up with increased labor costs, maintain their local contribution to capital replacement projects, and pay for increases in the cost of fuel and other supplies.

Changes in Bay Area transit operator fares, 1998 to 2008, are summarized in Table 5. Transit fares in place as of June 1, 2008 were used as the base assumption for all 2009 RTP forecasts.

Historical and projected base fares are charted in Figure 4.1 (Muni), Figure 4.2 (AC Transit), and Figure 4.3 (BART). These charts show base transit fares in current and 1990 constant dollars. The current dollar fares are based on a 2.9 percent per year increase in consumer price indices through the Plan forecast period.

II. Travel Behavior Assumptions

A. Vehicle Peaking Factors (Tables 6, 7)

A new methodology introduced in the 2009 Regional Transportation Plan is intended to produce better estimates of "congested" travel times and speeds by time period for an average weekday. Previous work focused on generating estimates of AM peak period congested travel times and speeds; and free-flow travel times and speeds. This new methodology produces consistent estimates of congestion and VMT for five time periods of the day.

The standard output of the travel demand modeling system is daily person trips by trip purpose and travel mode. The in-vehicle person trips are converted into daily vehicle driver trips using either simple factors (1.0 for drive alone trips; 2.0 for shared ride two-occupant trips; 3.5 for shared ride three-or-more-occupant trips), or using the "vehicle driver" mode that is the standard output in the non-home-based and school trip mode choice models.

Daily vehicle trips are then split into vehicle trips for five time periods:

- Early Morning (0000-0600 military time);
- AM Peak (0600-1000);
- Midday (1000-1500);
- PM Peak (1500-1900); and
- Evening (1900-2400).

Peaking factors by trip purpose by time-of-day are derived from the Year 2000 Bay Area Travel Survey (BATS2000). The base year peaking factors used in the 2000 and 2006 base year forecasts are summarized in Table 6. The column labeled "purpose/direction" provides details on the trip purpose (HBW is home-based work) and direction (e.g., H2W is the home-to-work, W2H is the work-to-home direction).

The BAYCAST system directly simulates the number of AM peak period home-to-work vehicle trips, derived from the home-to-work departure time choice model. This is basically a "peak spreading" model that will predict fewer trips in the peak period when congestion levels increase.

Previous applications of the MTC home-to-work departure time choice model show a 6.8 percent reduction in the share of home-to-work trips occurring in the AM peak period, comparing 2006 to earlier 2035 forecasts. This result was then applied to both the AM and the PM peak period factors, shown in Table 6, to derive the time-of-day factors for forecast years, summarized in Table 7. To compensate for the 6.8 percent reduction in the share of trips occurring in the AM and PM peak periods, the peaking factors for the early morning, midday, and evening periods were increased so that all trips would be accounted for on a daily basis.

B. Interregional Commuters

Assumptions about the number of interregional commuters is key in two respects: first, intraregional home-based work productions and attractions need to be adjusted to reflect in-commuting and out-commuting from and to Bay Area jobs and households; second, interregional vehicle trips are needed to augment the intraregional trips included in the standard BAYCAST travel demand models. Interregional trips were updated to reflect Census 2000 journey-to-work data and commuter sketch planning forecasts.

Interregional commuters are estimated by factoring the Census 2000 journey-to-work data file using a 46-by-46 matrix that comprises the 34 Bay Area superdistricts and the 12 Bay Area neighbor counties. These sketch planning commuter forecasts are prepared for the years 2010, 2020 and 2030 and interpolated and extrapolate for conformity analysis years. This is basically a "sketch planning" effort to complement the formal models used to predict intraregional personal and intraregional commercial travel.

III. Demographic Assumptions

MTC used ABAG's Projections 2007 forecasts (adopted December 2006) for future year population and employment assumptions and for the geographic distributions of residents and jobs throughout the region.

For use in MTC's travel demand model, MTC combines and allocates ABAG's tract-level forecasts to MTC's 1454 regional travel analysis zone system for all years.

MTC summaries of the ABAG Projections 2007 databases, at the county and MTC 34 superdistrict level, are available on MTC's FTP site, at: ftp://ftp.abag.ca.gov/pub/mtc/planning/ZoneData/Proj2007/

IV. Transportation Network Assumptions

A major part of the RTP conformity analysis is the definition of highway, transit, and pedestrian/bicycle networks for various analysis years. These networks describe the supply of transportation capacity and various service characteristics that influence travel behavior.

Projects assumed in the transportation network for the various analysis years are listed in Appendices B of this conformity report.

Transit operator service levels have significantly changed between 2000 and 2008, due to the economic decline and the need to reduce service on some routes. The most extensive service level changes were to SamTrans and AC Transit District (Newark, Union City routes), Golden Gate and SCVTA.

V. Commercial Vehicle Methodology

The MTC BAYCAST commercial vehicle models are based on the truck trip generation models developed for Caltrans and Alameda County as part of the 1992 I-880 Intermodal Corridor Study; and truck trip distribution models documented in the 1996 report "Quick Response Freight Manual" produced by the US Department of Transportation (usable truck trip distribution models were not developed for the I-880 Intermodal Corridor Study).

These truck models are specifically limited to larger trucks of six-or-more tires. There are three sub-purposes to the MTC truck models: 1. "Small Trucks" (two-axle, six-tire vehicles); 2. "Medium Trucks" (three-axle vehicles); and 3. "Combination Trucks" (four-or-more axle vehicles).

Beginning in 2004, MTC has introduced a "very small, two-axle four-tire" commercial vehicle truck trip purpose. The "very small truck" trip model is borrowed from the Phoenix, Arizona MPO, as documented in the FHWA "Quick Response Freight Manual." Before 2004, these very small truck trips were indirectly estimated by increasing non-home-based vehicle trips.

The following sidebar summarizes the MTC BAYCAST truck trip generation and distribution models, including the very small truck trip models:

```
Garage-Based Truck Trip Production Models
Two-Axle Truck Productions = 0.011 * MFGEMP + 0.014 * RETEMP + 0.0105 * SEREMP + 0.046 * OTHEMP
Three-Axle Truck Productions = 0.0014 * MFGEMP + 0.00012 * RETEMP + 0.0037 * OTHEMP
Four-+-Axle Truck Productions = 0.0044 * MFGEMP + 0.0027 * SEREMP + 0.0084 * OTHEMP

Garage-Based Truck Trip Attraction Models
Two-Axle Truck Attractions = 0.0234 * TOTEMP
Three-Axle Truck Attractions = 0.0046 * TOTEMP
Four-+-Axle Truck Attractions = 0.0136 * TOTEMP

Non-Garage-Based Truck Trip Production & Attraction Models
Two-Axle Truck Productions and Attractions = 0.0324 * TOTEMP
Three-Axle Truck Productions and Attractions = 0.0039 * TOTEMP
Four-+-Axle Truck Productions and Attractions = 0.0073 * TOTEMP

Very Small Truck Trip Production & Attraction Models
Productions = 0.251 * TOTHH + 1.110 * AGREMP + 0.938 * MFGEMP +
              0.938 * TRDEMP + 0.888 * RETEMP + 0.437 * SEREMP + 0.663 * OTHEMP2
Where:
MFGEMP = Manufacturing Employment
RETEMP = Retail Employment
SEREMP = Service Employment
OTHEMP = Other Employment (Wholesale Trade, Agriculture/Mining, Other)
AGREMP = Agricultural + mining Employment
TRDEMP = Wholesale Trade Employment
OTHEMP2 = Other Employment (Agriculture/Mining + Other)
TOTEMP = Total Employment
TOTHH  = Total Households

Truck Trip Distribution Models: Gravity Models based on AM Peak Period Travel Time
Two-Axle Truck Trip Distribution Friction Factor:  FF_ij = exp(-0.08 * TT_ij)
Three-Axle Truck Trip Distribution Friction Factor:  FF_ij = exp(-0.1 * TT_ij)
Four-+-Axle Truck Trip Distribution Friction Factor:  FF_ij = exp(-0.03 * TT_ij)
Very Small Truck Trip Distribution Friction Factor: Built off of NHB trip distribution model
```

In terms of mobile source emissions inventories, the MTC estimates of mobile source emissions are based on the "default" vehicle type and vehicle technology mix assumed by the California Air Resources Board (CARB) in their EMFAC/BURDEN model series. The CARB assumptions on vehicle type mix are based on the same Caltrans databases and truck counts as used by MTC in model validation, only adjusted by CARB staff to conform to the weight-based vehicle classes needed as input to the EMFAC emission factor models.

VI. Traffic Assignment Methodology (Table 8)

The MTC BAYCAST models were updated and re-validated to a 2006 base year in Spring 2008. A major part of this effort was the validation of traffic assignments to observed daily traffic volumes, and observed AM peak period traffic volumes and speeds on Bay Area freeways.

Previous conformity analyses required a speed post-processing methodology to correct for overly fast expressway and arterial speeds. This speed post-processing methodology has been eliminated in the forecasts from 2004 to the present, and replaced with a consistent set of speeds used in all model components. What was formerly the "post-processing" methodology is now the "main processing" methodology. This means that reduced free-flow arterial and expressway speeds that were only incorporated in a post-processing traffic assignment stage are now used throughout the MTC model system: as inputs to the trip distribution, mode choice, as well as traffic assignment stages.

The standard set of speed-flow models used in the MTC model system includes an MTC variation on the "BPR" curve, and application of the "Akçelik" speed-flow curve documented in previous MTC research. The "MTC Breakdown Curve" is used for freeways and freeway-to-freeway segments; the "Akçelik Curve" is used for expressways, collectors, freeway ramps, major arterials and metered ramps.

MTC assumptions of per lane capacity and free-flow speed are "lookup" tables based on facility type (freeway, major arterial, etc.) and area type (rural, suburban, etc.) Area types are based on "area density,"

a combined measure of population and employment density. Current and former sets of free-flow speeds are shown in Table 8.

The following box summarizes the MTC standard and post-processing set of speed-flow models.

MTC Standard & Post-Processing Set of Speed-Flow Models

MTC Breakdown Curve (Freeways & Freeway-to-Freeway Facilities)

$t = t_o * (1 + 0.20 * ((x)/0.75)^6)$

Akçelik Curve (All Other Facilities)

$t = t_o + \{0.25 * T * [(x-1) + ((x-1)^2 + (16 * Ja * L^2/T^2))^{0.5}]\}$

where:
t = average travel time per unit distance (hours/mile)
t_o = free-flow travel time per unit distance (hours/mile)
T = flow period, i.e., the time interval in hours during which an average arrival (demand) flow rate, v, persists
Q = capacity
x = the degree of saturation, i.e., v/Q
Ja = the delay parameter (Expressway = 0.2, Collector=1.2, Freeway Ramp=0.17, Major Arterial=0.4, Metered Ramp=0.2)
Ja = the delay parameter (Post-Processing = calculated for each facility type, area type combination, where: Ja = (Tc – To)^2 / L^2 and "Tc" is the critical speed at V/C ratio of 1.0)
L = Link length (miles)

Significant changes to traffic assignment methodology from previous conformity analyses include the following two improvements:

1. Traffic assignment equilibration "convergence criteria" was tightened up as a result of the project level performance analyses. Traditional MTC traffic assignment practice has been to use the "default closure convergence criteria" included in the MTC network software package (Cube/Voyager), which is "GAP=0.005." After discussions with other professionals, and extensive testing, MTC staff converted to a more stringent "relative gap" closure criteria, with a "RELGAP=0.001". This results in about a 3 percent decrease in peak period vehicle hours of delay. More information is available in an April 2008, MTC powerpoint presentation: "The Urge to Converge: Minding the Gap in Voyager Traffic Assignment" (April 2008).
2. Peak spreading assumptions were used in new procedures for time-of-day-based, daily traffic assignments. Traditional MTC daily traffic assignment practice (before 2008) was to assign AM and PM peak period trips to an "all-or-nothing" basis on congested AM travel times; and all of the off-peak period trips, on an "all-or-nothing" basis, to free flow travel times, to derive average daily traffic volumes on the regional networks. MTC replaced this approach with a set of daily traffic assignments, using an equilibrium traffic assignment methodology, for five time periods: early morning (0000-0600 military time); AM peak period (0600-1000); midday (1000-1500); PM peak period (1500-1900); and evening (1900-2400). This means that we have "congested" speeds for all five time periods of the average weekday. In addition to this improvement, we used information from the MTC home-to-work time-of-day choice model, which shows that the share of regional home-to-work trips occurring in the two-hour AM peak period is projected to decrease by 6.8 percent between 2006 and 2035. We used this 6.8 percent decrease to downwardly adjust the share of vehicle trips occurring in both the AM and the PM peak periods, and to upwardly adjust the share of vehicle trips occurring in the three "off-peak" periods. This is a significant change which tends to "flatten the peak periods" for the AM and PM peak period traffic assignments, and to show increased congestion in other time periods, mostly the midday and evening periods.

VII. Adjustment of Regional VMT and Trips Methodology

Regional VMT and engine starts (needed for emission calculations) are forecasted using a combination of output from MTC's travel demand forecasting model and base year (1999) VMT information provided by the California Air Resources Board (ARB). The ARB base year VMT comes from the State Bureau of Automotive Repair's (BAR) biennial inspection/maintenance odometer records for registered Bay Area

vehicles. MTC then "grows" this VMT consistent with the growth in VMT projected in MTC's regional travel model forecasts.

The BAR-based VMT will over-estimate Bay Area VMT by including Bay Area-registered vehicle travel occurring outside the nine-county region. The BAR-based VMT method will also not include Bay Area VMT by non-resident vehicular travel occurring inside the nine-county region. ARB considers that these anomalies offset each other, and that the resulting regional VMT level is a conservatively high value. In comparison, MTC estimates 140,116 thousand VMT per weekday in year 2000. The 1999 ARB estimates, based on BAR inspection/maintenance data, shows 157,359 thousand VMT per weekday.

For conformity purposes, MTC agreed to follow ARB's protocol for estimating VMT. Using MTC growth estimation data, the 1999 ARB VMT estimate was adjusted to establish a new 2000 ARB baseline VMT estimate for mobile source emission inventory calculations in the Bay Area. MTC calculated that the ARB estimated VMT in year 2000 is 164,073. For comparative purposes, below is a table showing the differences in MTC and ARB's VMT estimates from the 2001 RTP and 2007 TIP. These year 2000 estimates have not been updated for the 2009 RTP.

Base Year 2000, Average Weekday Daily VMT

	2001 RTP	**2007 TIP**
ARB	159,642*	164,073
MTC	134, 256	140,116
% Difference	-16%	-15%

*Source: San Francisco Bay Area-EMFAC2000

MTC used the 2000 ARB baseline VMT of 164,073 to develop VMT estimates for the remaining analysis years – 2006, 2007, 2015, 2025, and 2035. Annual compounded growth rates were then updated and applied to generate regional VMT totals for this conformity analysis.

Regional VMT Growth Rates for the 2009 RTP Conformity Analysis

Analysis Year Time Frame	MTC Model VMT	Percent Change	Annual Growth Rate
2000-2006	2006 = 144,985	3.47%	0.6%
2006-2015	2015 = 158,374	9.23%	1.0%
2015-2025	2025 = 174,843	10.40%	1.0%
2025-2035	2035 = 191,456	9.50%	0.9%

Regional engine starts (which generate event-specific emissions) are based on ARB's estimate of approximately 6.72 to 6.75 engine starts per vehicle per day. This 6.75 engine starts per day value is based on a small-scale survey of instrumented Sacramento-area vehicles conducted by ARB. This contrasts to other Bay Area, California and National surveys that show trip rates ranging from 2.5 to 3.5 vehicle trips per vehicle per day. For more discussion on this engine starts per vehicle issue, refer to the November 24, 1999 letter from the MTC to the California Air Resources Board. ARB and MTC have also agreed to continue working on this issue.

VIII. Distribution of VMT by Speed Methodology (Table 9-12)

An important input to ARB's EMFAC 2007 mobile source emissions inventory model are county-level files of the share of vehicle miles travel by speed cohort, by time of day. Data is produced for 13 speed cohorts and 5 time-of-day periods (0000-0600, 0600-1000, 0900-1500, 1500-1900 and 1900-2400). Regional average weekday daily totals of VMT by the 13 speed cohorts for 2006, 2015, and 2035 are summarized and charted in Table 9. These VMT values include intra-zonal VMT and terminal distance VMT. Regional average weekday VMT by time-of-day by the 13 speeds cohorts for 2006, 2015 and 2035 are also summarized and charted in Tables 10 through 12.

The first step in preparing the VMT-by-speed share file is the preparation of daily traffic assignments by the five time periods.The “loaded” daily highway network with congested speeds and volumes for the five time periods are then exported into text files and subsequently imported into SAS (Statistical Analysis System) for further post-processing. Daily assignment volumes are then multiplied by link distance to yield vehicle miles of travel (VMT) by link, which are in turn summarized at the county-of-occurrence by speed-cohort level by the five time periods of the day, and average weekday daily totals.

There are three components of regional VMT: interzonal VMT that is assigned to highway networks; intra-zonal VMT that is not assigned to highway networks; and terminal distance VMT that is not assigned to highway networks.

Intra-zonal vehicle trips are not assigned to highway networks. The VMT associated with intra-zonal vehicle trips is derived by exporting the intra-zonal vehicle trips and intra-zonal door-to-door distance data into a format compatible with SAS, and for merging with the daily traffic assignment SAS files. Intra-zonal VMT is approximately 7.2 to 7.5 percent of regional VMT in 2000 and in future years. SAS routines are then used to apply the “terminal distance” vehicle miles of travel to the inter-zonal and intra-zonal VMT. “Terminal distance” VMT is defined as the amount of travel from the “average household” or “average activity location” in a travel analysis zone to the nearest highway link represented in the regional highway networks.

These speed distributions were then applied to passenger cars (PC), light-duty trucks (T1, T2), medium-duty trucks (T3), and motorcycles (mcy) in EMFAC 2007. EMFAC2007 model defaults were used on all other vehicle types and times of day.

Table 1
Peak and Off-Peak Parking Cost Assumptions by Bay Area Regional Travel Analysis Zones
Parking Costs in 1990 cents per hour

zone	City	Neighborhood	Peak Parking Costs, 2000	Off-Peak Parking Costs, 2000	Net Employment Density, 2000	Net Employment Density, 2035	Ratio of 2035 to 2000 Net Employment Density	Peak Parking Costs, 2035	Off-Peak Parking Costs, 2035	Year 2035 Commuter Cost/Month (2008$)
1	San Francisco	Financial District	160	525	1,397.9	1,493.3	1.068	171	561	$505.78
2	San Francisco	Financial District	160	525	1,372.1	1,563.5	1.140	182	598	$539.50
3	San Francisco	Union Square	160	525	1,314.0	1,497.0	1.139	182	598	$539.39
4	San Francisco	Financial District	140	230	1,403.9	1,515.6	1.080	151	248	$447.23
5	San Francisco	Union Square	140	230	1,464.5	1,668.9	1.140	160	262	$472.09
6	San Francisco	Tenderloin	110	400	483.1	495.9	1.026	113	411	$334.09
7	San Francisco	Tenderloin	150	440	518.9	556.1	1.072	161	472	$475.69
8	San Francisco	Tenderloin	85	325	232.7	324.7	1.396	119	454	$351.05
9	San Francisco	Civic Center	70	115	348.8	396.2	1.136	79	131	$235.25
10	San Francisco	South of Market	65	200	313.5	564.3	1.800	117	360	$346.19
11	San Francisco	South of Market	85	190	346.5	624.6	1.802	153	342	$453.36
12	San Francisco	South of Market	130	570	825.9	1,032.3	1.250	162	712	$480.84
13	San Francisco	South of Market	130	570	897.7	1,063.2	1.184	154	675	$455.60
14	San Francisco	South of Market	145	600	865.7	1,082.1	1.250	181	750	$536.34
15	San Francisco	South of Market	145	600	868.2	1,007.8	1.161	168	697	$498.08
16	San Francisco	South of Mission	120	390	331.5	464.4	1.401	168	546	$497.49
17	San Francisco	South of Mission	80	350	351.3	499.6	1.422	114	498	$336.69
18	San Francisco	South of Mission	70	200	155.8	185.0	1.188	83	238	$246.02
19	San Francisco	South of Mission	60	165	156.4	185.7	1.187	71	196	$210.83
20	San Francisco	South of Mission	60	165	187.7	294.1	1.567	94	259	$278.17
21	San Francisco	South of Mission	90	260	176.9	284.9	1.611	145	419	$429.05
22	San Francisco	Embarcadero	140	385	545.1	535.2	1.000	140	385	$414.27
23	San Francisco	East of Telegraph Hill	120	300	575.7	549.9	1.000	120	300	$355.09
24	San Francisco	Jackson Square	170	550	776.3	776.9	1.001	170	550	$503.40
25	San Francisco	Chinatown	170	250	455.8	520.0	1.141	194	285	$573.96
26	San Francisco	Chinatown	170	250	847.8	800.0	1.000	170	250	$503.05
27	San Francisco	Chinatown	170	250	190.2	286.5	1.507	256	377	$757.87
28	San Francisco	Nob Hill	110	400	326.0	325.2	1.000	110	400	$325.50
29	San Francisco	Nob Hill	110	400	465.8	468.0	1.005	111	402	$327.07
30	San Francisco	Civic Center	70	95	181.6	309.7	1.705	119	162	$353.25
31	San Francisco	Polk Gulch	70	95	200.3	330.4	1.649	115	157	$341.67
32	San Francisco	Polk Gulch	70	95	291.4	320.5	1.100	77	104	$227.81
33	San Francisco	Polk Gulch	70	75	177.3	196.2	1.106	77	83	$229.17
34	San Francisco	Polk Gulch	60	75	240.8	348.0	1.445	87	108	$256.64
35	San Francisco	Russian Hill	80	80	359.5	327.5	1.000	80	80	$236.73
36	San Francisco	North Beach	125	175	429.1	564.0	1.314	164	230	$486.12
37	San Francisco	North Beach	125	175	418.9	467.4	1.116	139	195	$412.71
38	San Francisco	North Beach	80	330	264.2	338.2	1.280	102	422	$303.04
39	San Francisco	North Beach	80	330	186.7	373.3	2.000	160	660	$473.39
40	San Francisco	Fisherman's Wharf	80	260	120.0	137.1	1.142	91	297	$270.32
41	San Francisco	Fisherman's Wharf	80	400	104.3	102.5	1.000	80	400	$236.73
44	San Francisco	Western Addition	55	75	126.0	158.3	1.257	69	94	$204.51
45	San Francisco	Western Addition	0	75	217.3	239.7	1.103	0	83	$0.00
46	San Francisco	Western Addition	55	75	306.5	305.3	1.000	55	75	$162.75
47	San Francisco	Western Addition	0	90	434.3	547.2	1.260	0	113	$0.00
48	San Francisco	Western Addition	0	90	310.0	379.7	1.225	0	110	$0.00
49	San Francisco	Western Addition	0	90	270.8	334.6	1.236	0	111	$0.00
72	San Francisco	Western Addition	0	81	130.8	170.5	1.304	0	106	$0.00

Table 1
Peak and Off-Peak Parking Cost Assumptions by Bay Area Regional Travel Analysis Zones
Parking Costs in 1990 cents per hour

zone	City	Neighborhood	Peak Parking Costs, 2000	Off-Peak Parking Costs, 2000	Net Employment Density, 2000	Net Employment Density, 2035	Ratio of 2035 to 2000 Net Employment Density	Peak Parking Costs, 2035	Off-Peak Parking Costs, 2035	Year 2035 Commuter Cost/Month (2008$)
73	San Francisco	Western Addition	50	90	175.0	221.5	1.266	63	114	$187.27
74	San Francisco	Western Addition	25	86	180.1	208.4	1.157	29	100	$85.63
75	San Francisco	Western Addition	50	90	321.3	336.3	1.047	52	94	$154.85
76	San Francisco	Western Addition	55	90	230.8	217.5	1.000	55	90	$162.75
77	San Francisco	Western Addition	55	90	53.1	59.3	1.117	61	101	$181.79
78	San Francisco	Western Addition	55	90	74.4	64.5	1.000	55	90	$162.75
79	San Francisco	Hayes Valley	70	90	213.9	243.3	1.138	80	102	$235.65
80	San Francisco	Hayes Valley	55	85	80.5	113.6	1.411	78	120	$229.61
81	San Francisco	Buena Vista	35	50	181.1	165.4	1.000	35	50	$103.57
82	San Francisco	Buena Vista	35	50	102.2	121.1	1.185	41	59	$122.68
84	San Francisco	Buena Vista	35	50	227.0	327.8	1.444	51	72	$149.54
85	San Francisco	Buena Vista	55	85	91.0	107.5	1.182	65	100	$192.33
94	San Francisco	Castro	0	45	288.2	387.2	1.343	0	60	$0.00
99	San Francisco	Mission District	0	50	178.3	250.8	1.407	0	70	$0.00
100	San Francisco	Mission District	0	50	96.2	97.0	1.009	0	50	$0.00
101	San Francisco	Mission District	0	50	176.5	178.5	1.012	0	51	$0.00
102	San Francisco	Mission District	0	50	299.0	437.0	1.462	0	73	$0.00
103	San Francisco	Mission District	0	45	158.5	236.1	1.490	0	67	$0.00
104	San Francisco	Mission District	0	45	122.8	158.9	1.295	0	58	$0.00
105	San Francisco	Mission District	35	50	169.1	201.7	1.193	42	60	$123.54
106	San Francisco	Mission District	35	50	149.2	166.6	1.117	39	56	$115.68
107	San Francisco	Mission District	35	50	124.3	127.9	1.028	36	51	$106.51
109	San Francisco	Mission District	50	100	38.3	65.8	1.721	86	172	$254.59
257	San Mateo	Downtown	0	20	113.7	145.0	1.275	0	25	$0.00
258	San Mateo	Downtown	0	20	81.3	145.6	1.791	0	36	$0.00
259	San Mateo	Downtown	0	20	20.0	21.1	1.054	0	21	$0.00
260	San Mateo	Downtown	0	20	29.7	42.5	1.433	0	29	$0.00
314	Redwood City	Downtown	0	9	42.2	50.8	1.205	0	11	$0.00
315	Redwood City	Downtown	0	9	56.8	76.2	1.343	0	12	$0.00
316	Redwood City	Downtown	0	9	41.1	93.0	2.261	0	20	$0.00
326	Redwood City	Downtown	0	9	35.4	64.5	1.819	0	16	$0.00
347	Palo Alto	Downtown	9	31	6.3	5.4	1.000	9	31	$26.63
354	Palo Alto	Downtown	17	61	36.1	39.2	1.085	18	66	$54.60
355	Palo Alto	Downtown	17	61	42.4	44.8	1.058	18	65	$53.20
356	Palo Alto	Downtown	17	61	150.5	151.9	1.010	17	62	$50.80
546	San Jose	Downtown	18	113	57.6	82.7	1.437	26	162	$76.56
549	San Jose	Downtown	43	73	47.8	79.0	1.654	71	121	$210.45
556	San Jose	Downtown	33	92	8.3	29.4	3.541	117	326	$345.75
557	San Jose	Downtown	33	92	49.5	78.0	1.578	52	145	$154.09
558	San Jose	Downtown	45	194	93.2	137.6	1.477	66	286	$196.61
560	San Jose	Downtown	29	92	156.2	419.9	2.689	78	247	$230.73
945	Oakland	Downtown	55	120	94.4	120.1	1.272	70	153	$207.09
946	Oakland	Downtown	30	75	42.8	48.5	1.133	34	85	$100.55
967	Oakland	Downtown	30	75	60.1	69.0	1.148	34	86	$101.93
968	Oakland	Downtown	55	120	144.7	163.5	1.130	62	136	$183.93
969	Oakland	Downtown	55	120	340.8	350.7	1.029	57	123	$167.49
970	Oakland	Downtown	55	120	102.2	132.6	1.297	71	156	$211.08
971	Oakland	Downtown	55	120	224.9	273.3	1.215	67	146	$197.77

Table 1
Peak and Off-Peak Parking Cost Assumptions by Bay Area Regional Travel Analysis Zones
Parking Costs in 1990 cents per hour

zone	City	Neighborhood	Peak Parking Costs, 2000	Off-Peak Parking Costs, 2000	Net Employment Density, 2000	Net Employment Density, 2035	Ratio of 2035 to 2000 Net Employment Density	Peak Parking Costs, 2035	Off-Peak Parking Costs, 2035	Year 2035 Commuter Cost/Month (2008$)
980	Oakland	Downtown	30	120	24.2	34.7	1.435	43	172	$127.37
981	Oakland	Downtown	55	120	69.1	93.4	1.351	74	162	$219.91
1007	Berkeley	Downtown	96	32	22.2	26.4	1.187	114	38	$337.29
1008	Berkeley	Downtown	96	32	86.1	94.0	1.092	105	35	$310.15
1018	Berkeley	Downtown	96	59	116.7	127.8	1.094	105	65	$310.90
1019	Berkeley	Downtown	96	26	43.3	45.2	1.046	100	27	$297.01
1020	Berkeley	Downtown	96	26	120.3	153.3	1.274	122	33	$361.89
1021	Berkeley	Downtown	50	32	67.8	72.1	1.064	53	34	$157.36
1027	Berkeley	Downtown	50	32	57.2	61.4	1.075	54	34	$158.99

Table 2
Linear Regression on Bay Area Gas Prices, 1988-2008

Model #	Time Period	Duration	Model	Year 2035 Gas Price (4/08$)
1	4/88 - 4/08	20 years	y = 0.4431 x + 158.91	$4.14
2	4/90 - 4/08	18 years	y = 0.5047 x + 166.33	$4.39
3	4/95 - 4/08	13 years	y = 0.8906 x + 159.69	$5.87
4	**4/98 - 4/08**	**10 years**	**y = 1.3237 x + 158.91**	**$7.47**
5	4/00 - 4/08	8 years	y = 1.5456 x + 176.82	$8.26
6	4/03 - 4/08	5 years	y = 2.3314 x + 206.76	$11.02

Highlighting indicates regression model selected

where:
x = months elapsed, relative to beginning of time period
y = future year gas price, in 4/2008 cents

Source data is average retail gasoline price in Bay Area, from US BLS.

Figure 1
Linear Regression on Bay Area Gas Prices
April 1998 - April 2008

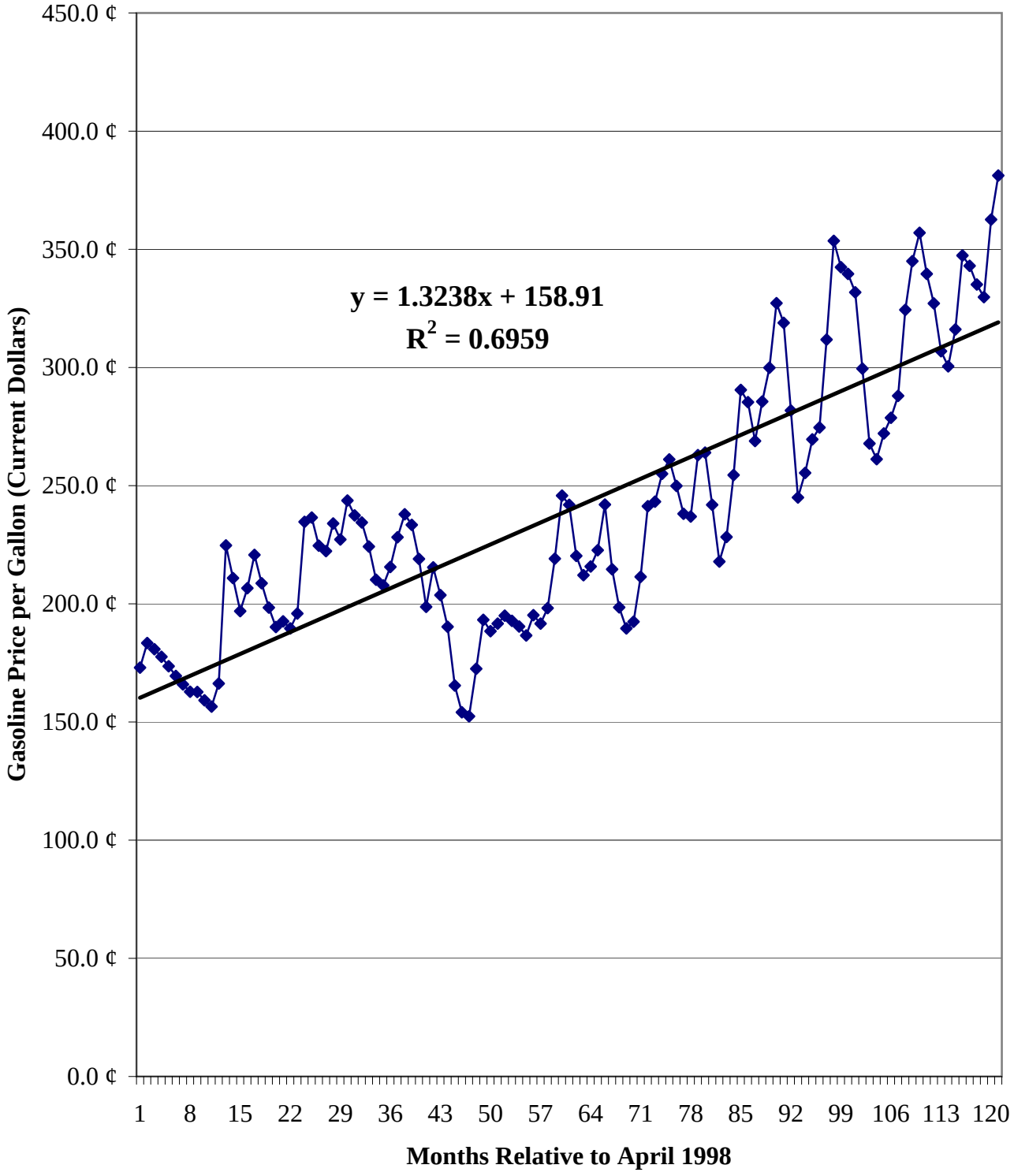


Table 3
Historical and Projected Auto Operating Costs, 1990 - 2035

Year	Retail Gas Price (Current $)	CPI	Annual Inflation	Gas Price (1990$)	Fuel Correction Factor	Fuel Economy (MPG)	Gasoline Operating Cost (¢/mi) (1990$)	Non-Gas Operating Cost (¢/mi) (1990$)	Total Auto Operating Cost (¢/mi) (1990$)
1990	$1.241	132.1		$1.241	1.000	19.11	6.49 ¢/mi	3.05 ¢/mi	9.54 ¢/mi
1991	$1.197	137.9	4.4%	$1.147	0.998	19.14	5.99 ¢/mi	3.43 ¢/mi	9.42 ¢/mi
1992	$1.302	142.5	3.3%	$1.207	0.997	19.17	6.30 ¢/mi	3.57 ¢/mi	9.87 ¢/mi
1993	$1.299	146.3	2.7%	$1.173	0.995	19.20	6.11 ¢/mi	3.70 ¢/mi	9.81 ¢/mi
1994	$1.275	148.7	1.6%	$1.133	0.994	19.23	5.89 ¢/mi	3.45 ¢/mi	9.34 ¢/mi
1995	$1.286	151.6	2.0%	$1.121	0.993	19.25	5.82 ¢/mi	3.57 ¢/mi	9.39 ¢/mi
1996	$1.434	155.1	2.3%	$1.221	0.991	19.28	6.33 ¢/mi	3.47 ¢/mi	9.80 ¢/mi
1997	$1.448	160.4	3.4%	$1.193	0.990	19.31	6.18 ¢/mi	4.12 ¢/mi	10.29 ¢/mi
1998	$1.304	165.5	3.2%	$1.041	0.988	19.34	5.38 ¢/mi	3.59 ¢/mi	8.97 ¢/mi
1999	$1.514	172.5	4.2%	$1.159	0.987	19.37	5.99 ¢/mi	3.99 ¢/mi	9.98 ¢/mi
2000	$1.832	180.2	4.5%	$1.343	0.985	19.40	6.92 ¢/mi	4.62 ¢/mi	11.54 ¢/mi
2001	$1.800	189.9	5.4%	$1.252	0.984	19.42	6.45 ¢/mi	4.30 ¢/mi	10.74 ¢/mi
2002	$1.599	193.0	1.6%	$1.094	0.983	19.45	5.63 ¢/mi	3.75 ¢/mi	9.38 ¢/mi
2003	$1.933	196.4	1.8%	$1.300	0.977	19.55	6.65 ¢/mi	4.43 ¢/mi	11.08 ¢/mi
2004	$2.165	198.8	1.2%	$1.439	0.972	19.66	7.32 ¢/mi	4.88 ¢/mi	12.20 ¢/mi
2005	$2.522	202.7	2.0%	$1.644	0.967	19.76	8.32 ¢/mi	5.55 ¢/mi	13.86 ¢/mi
2006	$2.818	209.2	3.2%	$1.779	0.962	19.86	8.96 ¢/mi	5.97 ¢/mi	14.93 ¢/mi
2007	$3.141	216.0	2.9%	$1.921	0.957	19.96	9.62 ¢/mi	6.42 ¢/mi	16.04 ¢/mi
2008	$4.250 #	222.1	2.8%	$2.528	0.952	20.07	12.60 ¢/mi	8.40 ¢/mi	21.00 ¢/mi
2009	$4.400 #	228.7	2.9%	$2.541	0.948	20.17	12.60 ¢/mi	8.40 ¢/mi	21.00 ¢/mi
2010	$4.500 #	235.3	2.9%	$2.676	0.943	20.27	13.20 ¢/mi	8.80 ¢/mi	22.01 ¢/mi
2015	$5.000 #	271.5	2.9%	$2.974	0.860	22.22	13.38 ¢/mi	8.92 ¢/mi	22.31 ¢/mi
2020	$5.500 #	313.2	2.9%	$3.271	0.762	25.08	13.04 ¢/mi	8.70 ¢/mi	21.74 ¢/mi
2025	$6.250 #	361.4	2.9%	$3.717	0.674	28.34	13.12 ¢/mi	8.74 ¢/mi	21.86 ¢/mi
2030	$6.750 #	416.9	2.9%	$4.015	0.636	30.05	13.36 ¢/mi	8.91 ¢/mi	22.27 ¢/mi
2035	$7.470 #	480.9	2.9%	$4.443	0.594	32.15	13.82 ¢/mi	9.21 ¢/mi	23.03 ¢/mi

 # - Costs are in 2008 current dolllars

Inflation Assumption (2008 - 2035) = *2.90%*

Notes:
1. Future non-gasoline operating cost based on assumption that it is 60% of auto gasoline cost.
2. Inflation assumption is based on compounded Bay Area inflation rate, 1990-2007 (216.0/132.1 ^ (1/17)) = 2.9%/year.
3. Future year estimates prepared 5/30/2008

Figure 2
Monthly Change in Bay Area Gas Prices
December 1985 - September 2008
[Bureau of Labor Statistics price data]

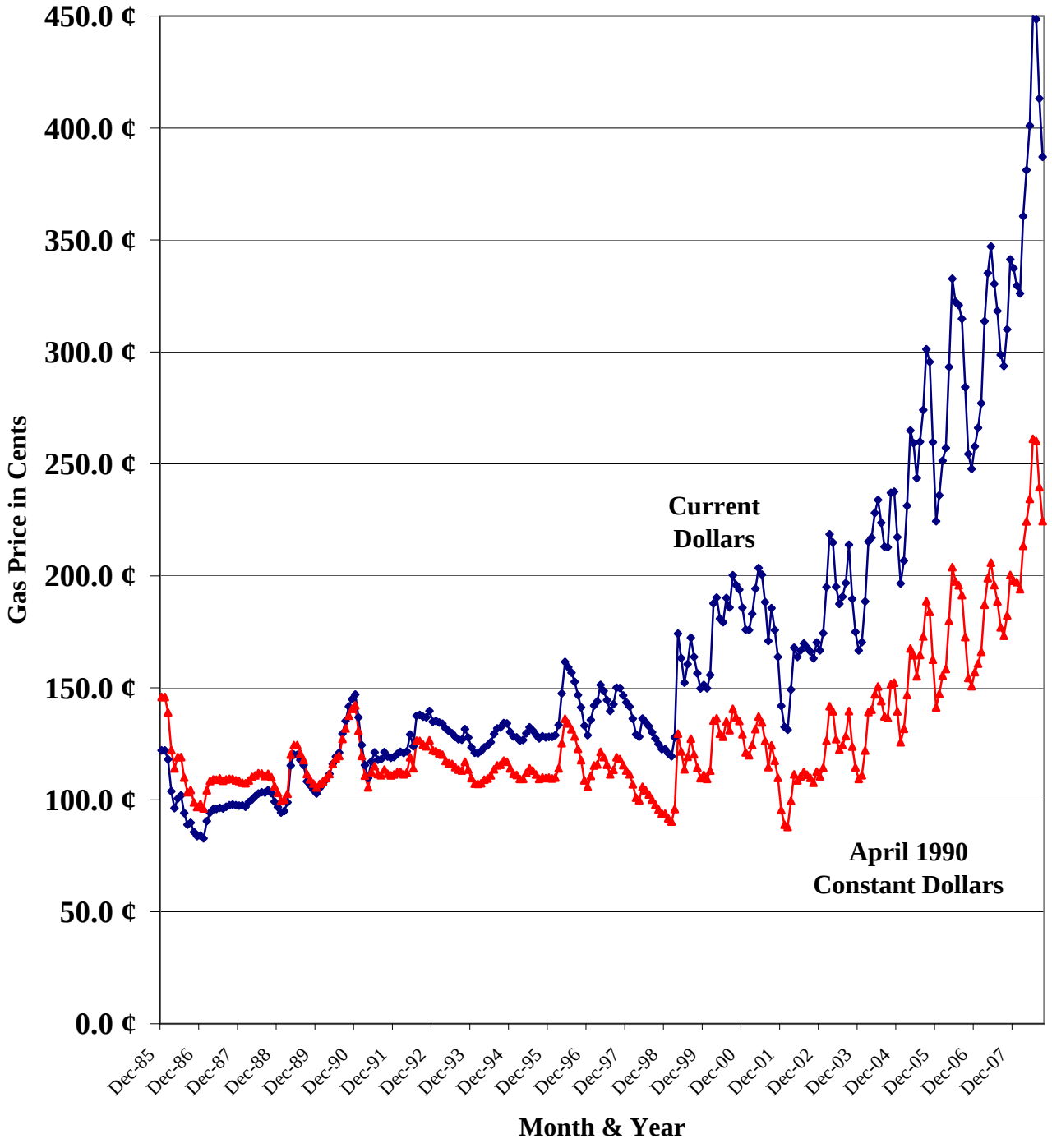


Table 4
Impact of Inflation on Bay Bridge Tolls, 1975 - 2035

Year	CPI-U All Items	San Francisco/Oakland Bay Bridge Toll (current $)	(1990 $)	(2008 $)
1975	159.1	50¢	41.5¢	109.7¢
1976	168.0	50¢	39.3¢	103.9¢
1977	180.8	75¢	54.8¢	96.5¢
1978	197.8	75¢	50.1¢	88.2¢
1979	214.6	75¢	46.2¢	81.3¢
1980	247.3	75¢	40.1¢	70.6¢
1981	279.0	75¢	35.5¢	62.5¢
1982	300.0	75¢	33.0¢	58.2¢
1983	302.5	75¢	32.8¢	57.7¢
1984	319.8	75¢	31.0¢	54.6¢
1985	333.1	75¢	29.7¢	52.4¢
1986	343.2	75¢	28.9¢	50.8¢
1987	354.7	75¢	27.9¢	49.2¢
1988	370.4	75¢	26.7¢	47.1¢
1989	388.5	100¢	34.0¢	44.9¢
1990	132.1	100¢	100.0¢	132.1¢
1991	137.9	100¢	95.8¢	126.5¢
1992	142.5	100¢	92.7¢	122.5¢
1993	146.3	100¢	90.3¢	119.3¢
1994	148.7	100¢	88.8¢	117.4¢
1995	151.6	100¢	87.1¢	115.1¢
1996	155.1	100¢	85.2¢	112.5¢
1997	160.4	100¢	82.4¢	108.8¢
1998	165.5	200¢	159.6¢	105.4¢
1999	172.5	200¢	153.2¢	101.2¢
2000	180.2	200¢	146.6¢	96.8¢
2001	189.9	200¢	139.1¢	91.9¢
2002	193.0	200¢	136.9¢	90.4¢
2003	196.4	300¢	201.8¢	88.9¢
2004	198.8	300¢	199.3¢	87.8¢
2005	202.7	300¢	195.5¢	86.1¢
2006	209.2	300¢	189.4¢	83.4¢
2007	216.0	400¢	244.6¢	80.8¢
2008	222.3*	400¢	237.7¢	78.5¢
2009	228.7*	412¢	237.7¢	76.3¢
2010	235.3*	424¢	237.7¢	74.1¢
2011	242.2*	436¢	237.7¢	72.1¢
2012	249.2*	448¢	237.7¢	70.0¢
2013	256.4*	461¢	237.7¢	68.1¢
2014	263.9*	475¢	237.7¢	66.1¢
2015	271.5*	489¢	237.7¢	64.3¢
2016	279.4*	503¢	237.7¢	62.5¢
2017	287.5*	517¢	237.7¢	60.7¢
2018	295.8*	532¢	237.7¢	59.0¢
2019	304.4*	548¢	237.7¢	57.3¢
2020	313.2*	564¢	237.7¢	55.7¢
2021	322.3*	580¢	237.7¢	54.1¢
2022	331.7*	597¢	237.7¢	52.6¢
2023	341.3*	614¢	237.7¢	51.1¢
2024	351.2*	632¢	237.7¢	49.7¢
2025	361.4*	650¢	237.7¢	48.3¢
2026	371.8*	669¢	237.7¢	46.9¢
2027	382.6*	689¢	237.7¢	45.6¢
2028	393.7*	709¢	237.7¢	44.3¢
2029	405.1*	729¢	237.7¢	43.1¢
2030	416.9*	750¢	237.7¢	41.9¢
2031	429.0*	772¢	237.7¢	40.7¢
2032	441.4*	794¢	237.7¢	39.5¢
2033	454.2*	817¢	237.7¢	38.4¢
2034	467.4*	841¢	237.7¢	37.3¢
2035	480.9*	866¢	237.7¢	36.3¢

* Assumes 2.9% per year annual inflation

Figure 3
Bay Bridge Tolls
1990 and Current Dollars

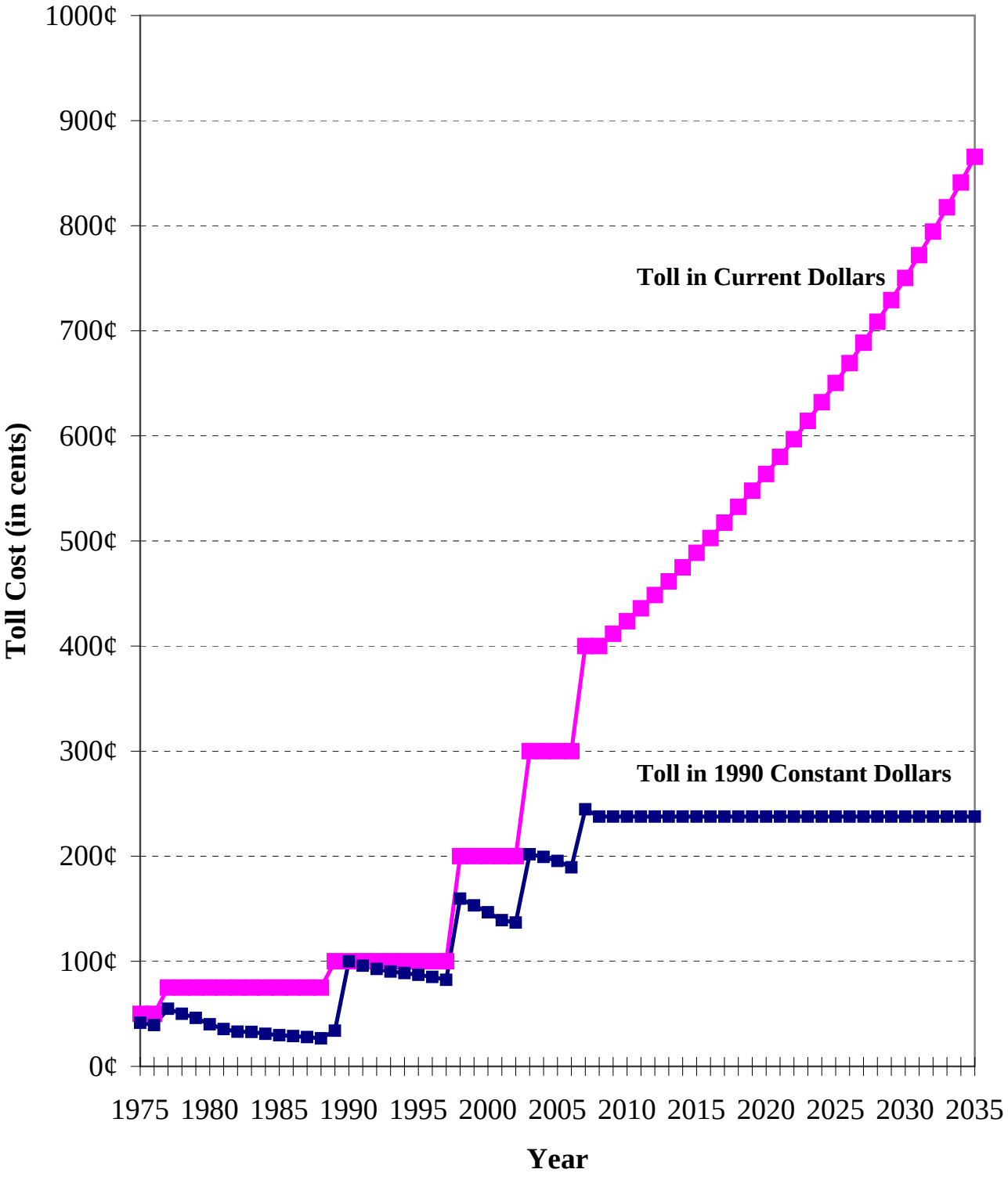


Table 5
Changes in Transit Operator Base Fares, 1998 to 2008

Operator	1998 Fare	2001 Fare	2004 Fare	2008 Fare	Percent Change, 2004-2008	Date of Previous Change	Date of Recent Change
Muni	$1.00	$1.00	$1.25	$1.50	20.0%	9/1/2003	9/1/2005
BART	$1.10	$1.10	$1.25	$1.50	20.0%	1/1/2004	1/1/2008
AC Transit	$1.25	$1.35	$1.50	$1.75	16.7%	9/1/2003	9/6/2005
SCVTA-Local	$1.10	$1.25	$1.50	$1.75	16.7%	8/1/2003	9/1/2007
SCVTA-Express	$1.75	$2.00	$3.00	$3.50	16.7%	8/1/2003	9/1/2007
SamTrans	$1.00	$1.10	$1.25	$1.50	20.0%	9/1/2003	9/1/2005
Golden Gate (Marin)	$1.25	$1.50	$1.80	$2.00	11.1%	7/1/2003	7/1/2007
Golden Gate (Sonoma)	$1.75	$2.15	$2.45	$3.15	28.6%	7/1/2003	7/1/2007
Caltrain	$1.11	$1.11	$1.50	$1.92	28.0%	7/1/2002	4/2/2007
CCCTA	$1.00	$1.25	$1.50	$1.75	16.7%	9/8/2002	2/1/2006
Vallejo	$1.00	$1.25	$1.35	$1.75	29.6%	--	9/1/2006
Tri-Delta	$0.75	$0.75	$1.00	$1.25	25.0%	--	1/1/2007
WHEELS (LAVTA)	$1.00	$1.00	$1.25	$1.75	40.0%	8/1/2003	8/25/2007

Notes:
1. For the 1998 RTP, fares as of February 1998 were used. For the 2001 RTP, fares as of May 2001 were used. For the 2005 RTP/TIP, fares as of March 2004 were used.
2. Transit fares are from MTC records, and the Web site: http://www.511.org/
3. Caltrain fares are based on a 10-ride ticket book.
4. For the 2009 RTP, transit fares as of 6/1/2008 are used.

Figure 4.1
San Francisco Municipal Railway (Muni)
Base Fare: Historical and Projected

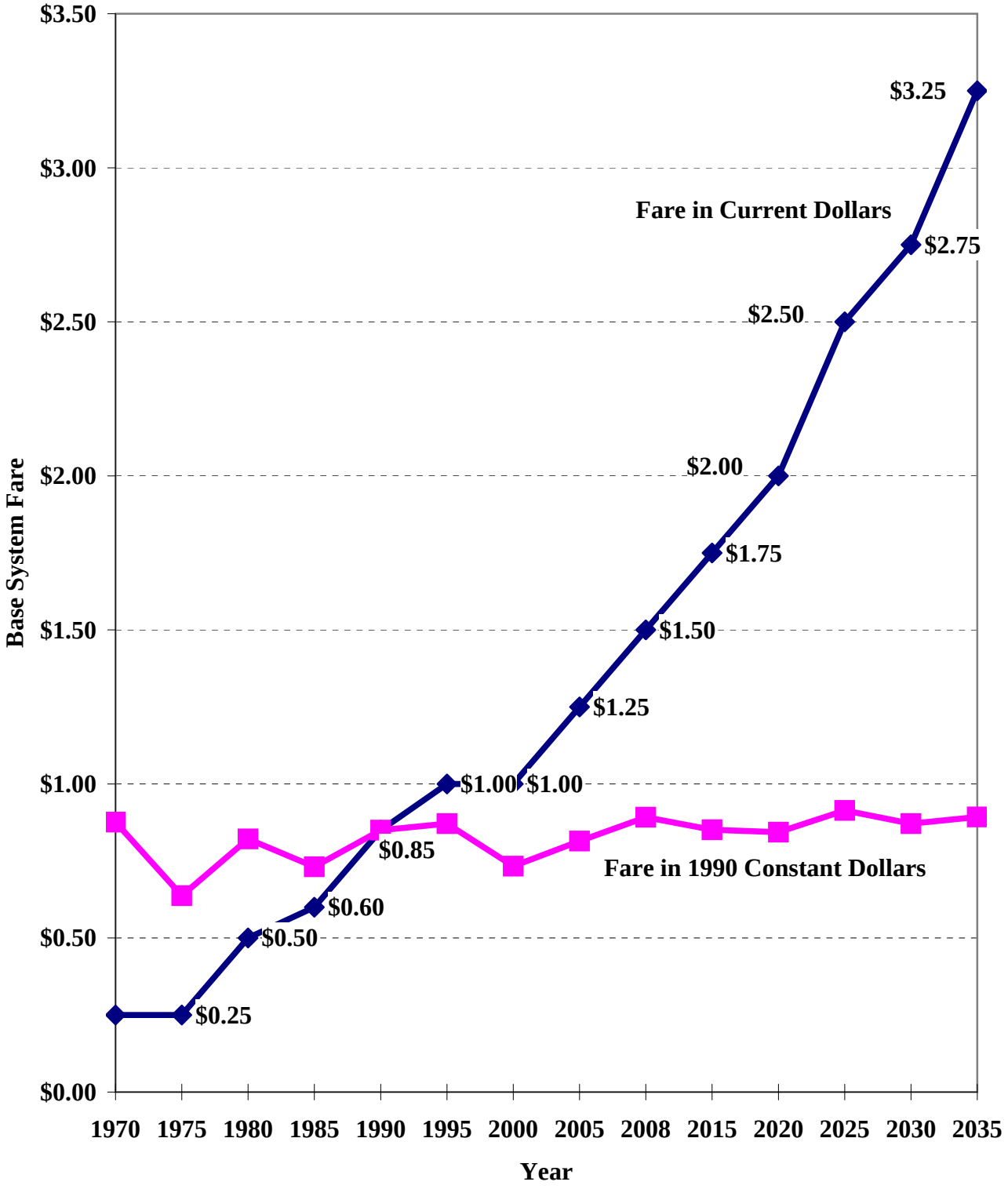


Figure 4.2
A.C. Transit District
Base Fare: Historical and Projected

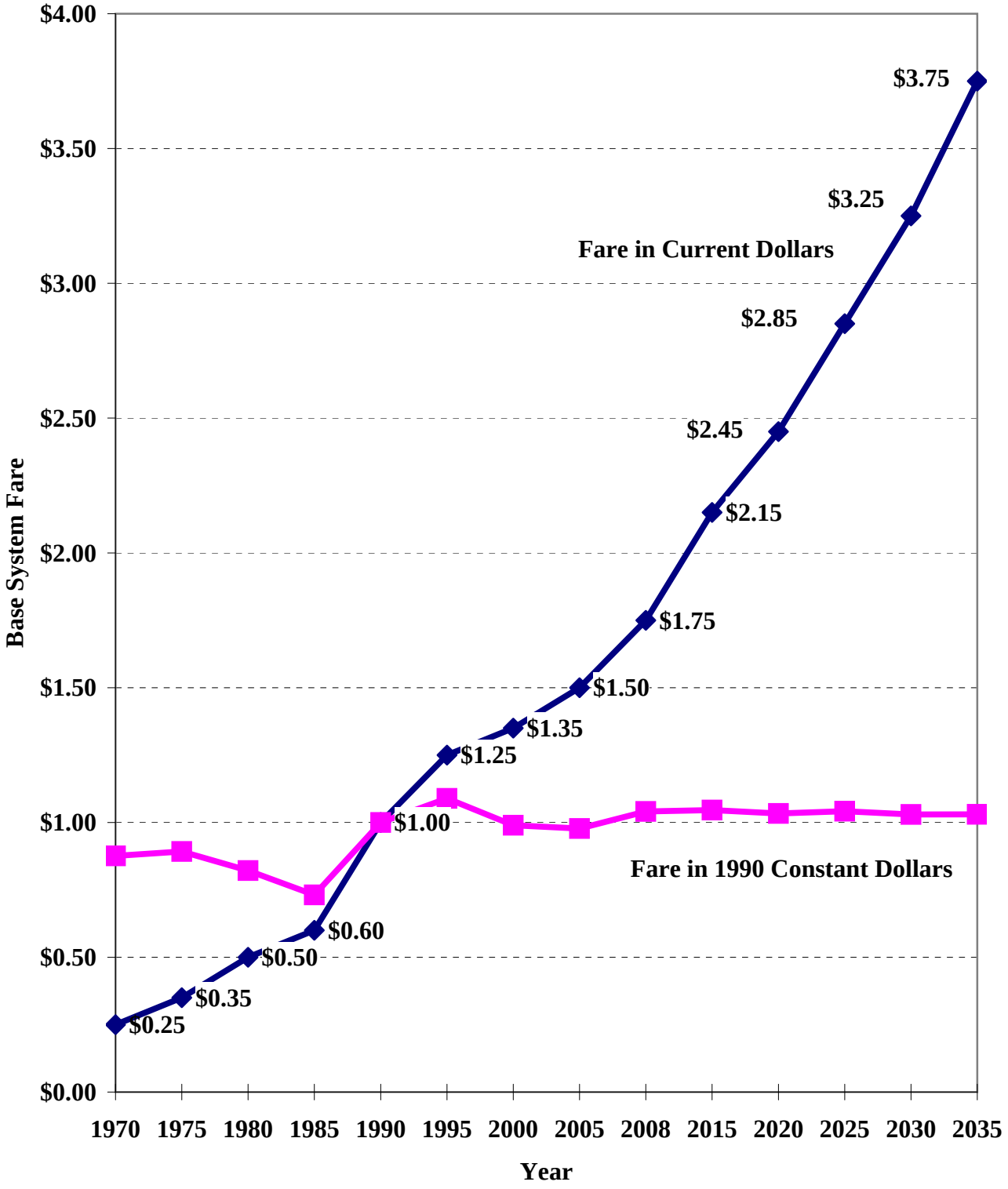


Figure 4.3
Bay Area Rapid Transit District (BART)
Base Fare: Historical and Projected

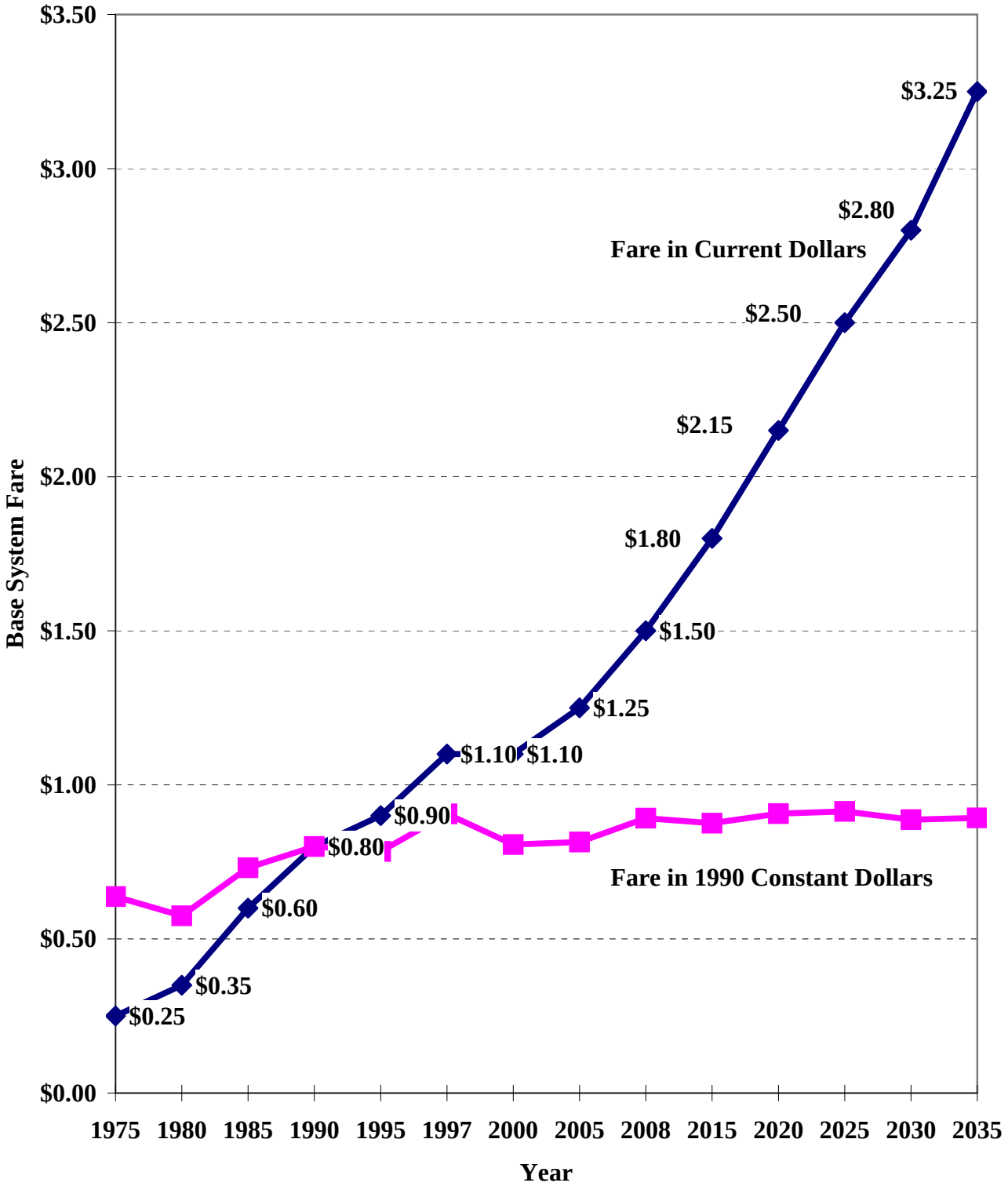


Table 6
Time-of-Day Factors for MTC Five Time Period Daily Traffic Assignment: Base Years

Purpose/Direction	Early AM	AM Peak	Midday	PM Peak	Evening	Sum	Check if 1.0
HBWDA, H2W	0.05708	0.36982	0.06153	0.01857	0.00685	0.51385	1.00001
HBWSR2, H2W	0.04165	0.56583	0.02951	0.01241	0.00589	0.65529	0.99999
HBWSR3+, H2W	0.03639	0.65194	0.03211	0.01630	0.00121	0.73795	1
HBWDA, W2H	0.00817	0.00740	0.06024	0.33163	0.07872	0.48616	
HBWSR2, W2H	0.00143	0.00351	0.03442	0.27025	0.03509	0.34470	
HBWSR3+, W2H	0.00510	0.00325	0.03444	0.20212	0.01714	0.26205	
HBSHDA, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1
HBSHSR2, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1
HBSHSR3+, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1
HBSHDA, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSHSR2, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSHSR3+, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSRDA, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1
HBSRSR2, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1
HBSRSR3+, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1
HBSRDA, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBSRSR2, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBSRSR3+, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBHS, H2School	0.00167	0.34262	0.09338	0.10455	0.01399	0.55621	1.00001
HBHS, School2H	0.00037	0.02147	0.13995	0.14218	0.13983	0.44380	
HBCol, H2College	0.00167	0.34262	0.09338	0.10455	0.01399	0.55621	1.00001
HBCol, College2H	0.00037	0.02147	0.13995	0.14218	0.13983	0.44380	
NHB, O2D	0.00967	0.09322	0.46515	0.34715	0.08480	0.99999	0.99999
VSTruck, O2D	0.0765	0.2440	0.3710	0.2180	0.0905	1	1
STruck, O2D	0.0765	0.2440	0.3710	0.2180	0.0905	1	1
MTruck, O2D	0.0665	0.2930	0.3935	0.1730	0.0740	1	1
LTruck, O2D	0.1430	0.2320	0.3315	0.1750	0.1185	1	1
I/X, DA X2I	0.1340	0.2837	0.2572	0.2149	0.1102	1	1
I/X, SR2 X2I	0.1340	0.2837	0.2572	0.2149	0.1102	1	1
I/X, SR3+ X2I	0.1340	0.2837	0.2572	0.2149	0.1102	1	1
I/X, DA I2X	0.0644	0.1754	0.2695	0.3200	0.1706	0.9999	0.9999
I/X, SR2 I2X	0.0644	0.1754	0.2695	0.3200	0.1706	0.9999	0.9999
I/X, SR3+ I2X	0.0644	0.1754	0.2695	0.3200	0.1706	0.9999	0.9999

Table 7
Time-of-Day Factors for MTC Five Time Period Daily Traffic Assignment: Forecast Years
Model #1 (6.8% reduction for AM and PM Peak Period HBW, HBSchool, I/X trips)

Purpose/Direction	Early AM	AM Peak	Midday	PM Peak	Evening	Sum	Check if 1.0
HBWDA, H2W	0.06875	0.34467	0.07500	0.01857	0.00685	0.51384	1.00000
HBWSR2, H2W	0.06500	0.52735	0.04465	0.01241	0.00589	0.65530	1.00000
HBWSR3+, H2W	0.05883	0.60761	0.05400	0.01630	0.00121	0.73795	1.00000
HBWDA, W2H	0.00817	0.00740	0.07500	0.30908	0.08651	0.48616	
HBWSR2, W2H	0.00143	0.00351	0.04500	0.25187	0.04288	0.34469	
HBWSR3+, W2H	0.00510	0.00325	0.04500	0.18838	0.02033	0.26206	
HBSHDA, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1.00000
HBSHSR2, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1.00000
HBSHSR3+, H2Sh	0.00909	0.18614	0.19976	0.12546	0.04756	0.56801	1.00000
HBSHDA, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSHSR2, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSHSR3+, Sh2H	0.00416	0.05886	0.13642	0.16011	0.07244	0.43199	
HBSRDA, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1.00000
HBSRSR2, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1.00000
HBSRSR3+, H2SR	0.02348	0.16033	0.11735	0.15250	0.07876	0.53242	1.00000
HBSRDA, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBSRSR2, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBSRSR3+, SR2H	0.01751	0.02421	0.09250	0.12293	0.21043	0.46758	
HBHS, H2School	0.01000	0.31932	0.10835	0.10455	0.01399	0.55621	1.00000
HBHS, School2H	0.00037	0.02147	0.14100	0.13251	0.14844	0.44379	
HBCol, H2College	0.01000	0.31932	0.10835	0.10455	0.01399	0.55621	1.00000
HBCol, College2H	0.00037	0.02147	0.14100	0.13251	0.14844	0.44379	
NHB, O2D	0.02000	0.08688	0.46958	0.32354	0.10000	1.00000	1.00000
VSTruck, O2D	0.0765	0.2440	0.3710	0.2180	0.0905	1	1.00000
STruck, O2D	0.0765	0.2440	0.3710	0.2180	0.0905	1	1.00000
MTruck, O2D	0.0665	0.2930	0.3935	0.1730	0.0740	1	1.00000
LTruck, O2D	0.1430	0.2320	0.3315	0.1750	0.1185	1	1.00000
I/X, DA X2I	0.15329	0.26441	0.25720	0.21490	0.11020	1	1.00000
I/X, SR2 X2I	0.15329	0.26441	0.25720	0.21490	0.11020	1	1.00000
I/X, SR3+ X2I	0.15329	0.26441	0.25720	0.21490	0.11020	1	1.00000
I/X, DA I2X	0.06440	0.17540	0.26950	0.29824	0.19246	1	1.00000
I/X, SR2 I2X	0.06440	0.17540	0.26950	0.29824	0.19246	1	1.00000
I/X, SR3+ I2X	0.06440	0.17540	0.26950	0.29824	0.19246	1	1.00000

Highlighting indicates factors that were adjusted from Table 6 to counteract the trip reduction created in applying the peak spreading model

Table 8
Speed/Capacity Table (With Revised Speeds)
San Francisco Bay Area Regional Highway Networks

Area Type	**Facility Type**								Speed Class*	
	Frwy-to-Frwy (1)	Freeway (2)	Expwy (3)	Collector (4)	Fwy Ramp (5)	Dummy (6)	Major Arterial (7)	Metered Ramp (8)	Special (9)	Special (10)
Core (0)	1,700 40	1,850 55	1,300 40 (25)	550 10 (5)	1,300 30 (25)	N.A.	800 20 (15)	700 25 (20)	1,900 (A) 55	1,350 (G) 40 (25)
CBD (1)	1,700 40	1,850 55	1,300 40 (25)	600 15 (10)	1,300 30 (25)	N.A.	850 25 (20)	700 25 (20)	1,950 (B) 60	1,500 (H) 45 (30)
UBD (2)	1,750 45	1,900 60	1,450 45 (30)	650 20 (15)	1,400 35 (30)	N.A.	900 30 (25)	800 30 (25)	2,000 (C) 65	1,530 (I) 55 (40)
Urban (3)	1,750 45	1,900 60	1,450 45 (30)	650 25 (20)	1,400 35 (30)	N.A.	900 30 (25)	800 30 (25)	1,780 (D) 50	900 (J) 25 (20)
Suburb.(4)	1,800 50	1,950 65	1,500 50 (35)	800 30 (25)	1,400 40 (35)	N.A.	950 35 (30)	900 35 (30)	1,800 (E) 45	950 (K) 30 (25)
Rural (5)	1,800 50	1,950 65	1,500 55 (40)	850 35 (30)	1,400 40 (35)	N.A.	950 40 (35)	900 35 (30)	1,840 (F) 50	980 (L) 40 (35)

Upper Entry: Capacity at Level of Service "E" in vehicles per hour per lane, i.e., ultimate capacity

Lower Entry: Free-Flow Speed (miles per hour)

* Speed Class = (Area Type * 10) + Facility Type

N.A. = Not Applicable

Notes:

(A) TOS Fwy (AT=0,1); (B) TOS Fwy (AT=2,3); (C) TOS Fwy (AT=4,5); (D) Golden Gate; (E) TOS Fwy-to-Fwy (AT=0-3); (F) TOS Fwy-to-Fwy (AT=4,5)

(G) Expwy TOS (AT=0,1); (H) Expwy TOS (AT=2,3); (I) Expwy TOS (AT=4,5); (J) Art.Sig.Coor. (AT=0,1); (K) Art.Sig.Coor. (AT=2,3); (L) Art.Sig.Coor. (AT=4,5)

Speed values in parentheses are used in MTC speed post-processing routine, now considered the "main processing" routine.

Table 9
Distribution of Average Weekday Daily Vehicle Miles of Travel (VMT) by Average Link Speed by 13 Speed Cohorts used in ARB BURDEN Models
Regional Transportation Plan 2009: Year 2006, 2015, 2035 Project Alternative

		2006 Base Year		2015 Intermediate Year		2035 Project Forecast	
	Speed Cohort	VMT	% of Total	VMT	% of Total	VMT	% of Total
1	< 7.5 mph	184,664	0.1%	192,532	0.1%	432,222	0.2%
2	7.5 - 12.5 mph	854,411	0.6%	921,902	0.6%	2,306,461	1.2%
3	12.5 - 17.5 mph	8,308,526	5.7%	8,932,304	5.6%	12,395,575	6.5%
4	17.5 - 22.5 mph	8,526,695	5.9%	9,252,164	5.8%	13,335,551	7.0%
5	22.5 - 27.5 mph	19,384,988	13.4%	19,492,850	12.3%	26,858,972	14.0%
6	27.5 - 32.5 mph	17,368,214	12.0%	15,656,376	9.9%	22,141,457	11.6%
7	32.5 - 37.5 mph	12,642,898	8.7%	15,211,882	9.6%	19,975,780	10.4%
8	37.5 - 42.5 mph	6,746,320	4.7%	6,030,747	3.8%	10,443,812	5.5%
9	42.5 - 47.5 mph	7,987,046	5.5%	7,930,087	5.0%	10,160,722	5.3%
10	47.5 - 52.5 mph	8,796,832	6.1%	9,001,994	5.7%	13,167,763	6.9%
11	52.5 - 57.5 mph	12,265,285	8.5%	14,676,154	9.3%	12,858,938	6.7%
12	57.5 - 62.5 mph	20,391,028	14.1%	24,160,096	15.3%	23,572,322	12.3%
13	> 62.5 mph	21,528,171	14.8%	26,914,446	17.0%	23,805,972	12.4%
	TOTAL	144,985,077	100.0%	158,373,533	100.0%	191,455,547	100.0%

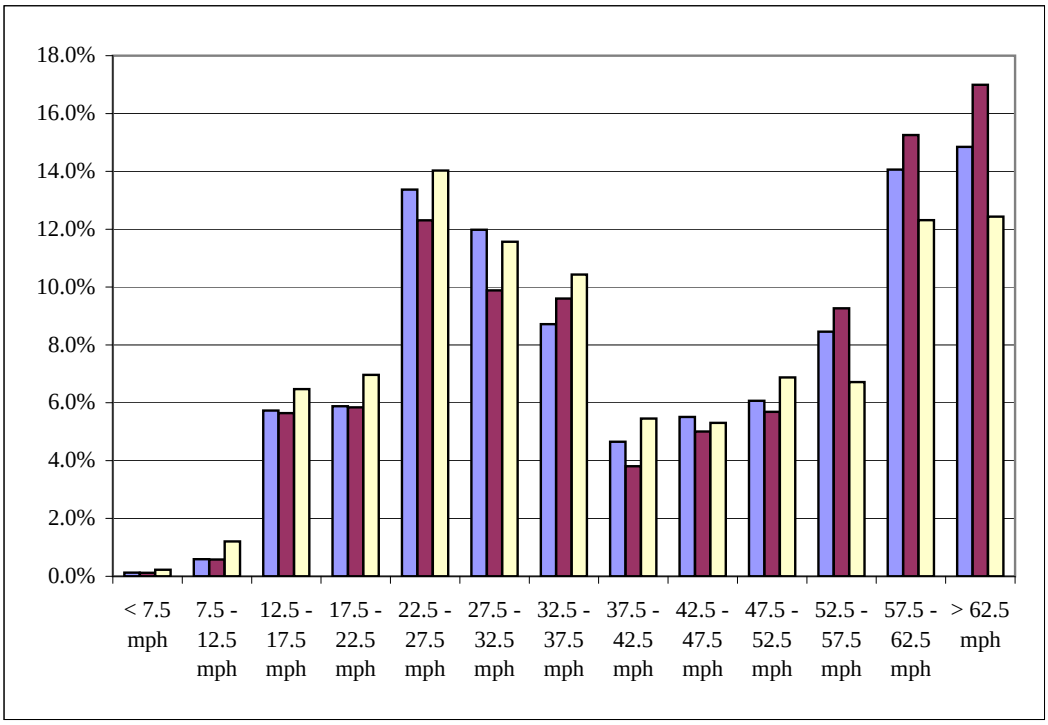


Table 10
Year 2006 Vehicle Miles of Travel by Speed Bin by Time of Day
Regional Transportation Plan 2009

		Early Morning		AM Peak		Midday		PM Peak		Evening		Daily	
	Speed Cohort	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total
1	< 7.5 mph	5,312	0.1%	48,713	0.1%	44,231	0.1%	74,551	0.2%	11,857	0.1%	184,664	0.1%
2	7.5 - 12.5 mph	25,074	0.4%	202,520	0.5%	240,146	0.6%	323,986	0.7%	62,686	0.4%	854,411	0.6%
3	12.5 - 17.5 mph	302,369	4.2%	2,149,714	5.6%	2,429,668	6.2%	2,559,220	5.9%	867,555	5.2%	8,308,526	5.7%
4	17.5 - 22.5 mph	258,211	3.6%	2,491,060	6.5%	2,126,559	5.4%	2,953,568	6.8%	697,296	4.2%	8,526,695	5.9%
5	22.5 - 27.5 mph	608,888	8.5%	5,243,080	13.7%	5,030,613	12.8%	6,700,751	15.4%	1,801,655	10.7%	19,384,988	13.4%
6	27.5 - 32.5 mph	545,490	7.7%	4,993,303	13.0%	3,852,079	9.8%	6,453,457	14.8%	1,523,884	9.1%	17,368,214	12.0%
7	32.5 - 37.5 mph	603,908	8.5%	3,513,201	9.2%	2,537,521	6.5%	4,776,508	11.0%	1,211,760	7.2%	12,642,898	8.7%
8	37.5 - 42.5 mph	56,085	0.8%	2,722,234	7.1%	783,205	2.0%	3,072,322	7.1%	112,473	0.7%	6,746,320	4.7%
9	42.5 - 47.5 mph	83,088	1.2%	2,778,707	7.3%	1,542,030	3.9%	3,377,117	7.8%	206,103	1.2%	7,987,046	5.5%
10	47.5 - 52.5 mph	27,160	0.4%	2,593,527	6.8%	2,359,916	6.0%	3,759,018	8.6%	57,212	0.3%	8,796,832	6.1%
11	52.5 - 57.5 mph	38,374	0.5%	4,077,352	10.6%	4,581,771	11.7%	3,430,352	7.9%	137,436	0.8%	12,265,285	8.5%
12	57.5 - 62.5 mph	1,925,720	27.0%	4,007,105	10.5%	6,497,099	16.5%	3,365,737	7.7%	4,595,367	27.4%	20,391,028	14.1%
13	> 62.5 mph	2,643,997	37.1%	3,493,495	9.1%	7,294,916	18.6%	2,615,736	6.0%	5,480,026	32.7%	21,528,171	14.8%
	TOTAL	7,123,675	100.0%	38,314,014	100.0%	39,319,755	100.0%	43,462,324	100.0%	16,765,309	100.0%	144,985,077	100.0%

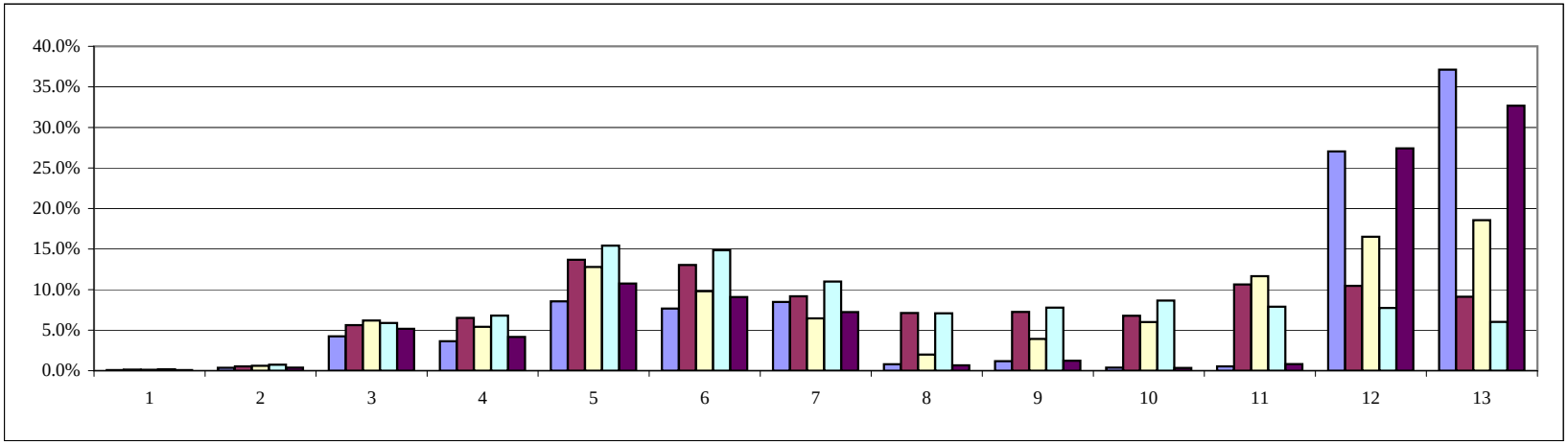


Table 11
Year 2015 Vehicle Miles of Travel by Speed Bin by Time of Day
Regional Transportation Plan 2009

		Early Morning		AM Peak		Midday		PM Peak		Evening		Daily	
	Speed Cohort	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total
1	< 7.5 mph	6,282	0.1%	44,599	0.1%	52,196	0.1%	76,469	0.2%	12,986	0.1%	192,532	0.1%
2	7.5 - 12.5 mph	30,142	0.3%	240,449	0.6%	262,835	0.6%	315,731	0.7%	72,745	0.4%	921,902	0.6%
3	12.5 - 17.5 mph	383,110	4.2%	2,236,041	5.6%	2,755,008	6.2%	2,574,125	5.7%	984,020	5.1%	8,932,304	5.6%
4	17.5 - 22.5 mph	320,622	3.5%	2,708,003	6.7%	2,500,955	5.6%	2,937,976	6.5%	784,608	4.1%	9,252,164	5.8%
5	22.5 - 27.5 mph	768,804	8.5%	4,965,143	12.3%	5,467,424	12.3%	6,278,775	13.8%	2,012,704	10.5%	19,492,850	12.3%
6	27.5 - 32.5 mph	652,462	7.2%	4,281,174	10.6%	3,788,562	8.5%	5,352,144	11.8%	1,582,035	8.2%	15,656,376	9.9%
7	32.5 - 37.5 mph	835,859	9.2%	4,006,857	9.9%	3,620,817	8.2%	5,137,779	11.3%	1,610,570	8.4%	15,211,882	9.6%
8	37.5 - 42.5 mph	54,474	0.6%	2,215,668	5.5%	864,194	1.9%	2,800,481	6.2%	95,930	0.5%	6,030,747	3.8%
9	42.5 - 47.5 mph	108,197	1.2%	2,708,226	6.7%	1,565,398	3.5%	3,311,515	7.3%	236,751	1.2%	7,930,087	5.0%
10	47.5 - 52.5 mph	34,387	0.4%	2,825,684	7.0%	2,479,577	5.6%	3,597,859	7.9%	64,487	0.3%	9,001,994	5.7%
11	52.5 - 57.5 mph	48,766	0.5%	4,482,403	11.1%	5,341,643	12.1%	4,641,298	10.2%	162,044	0.8%	14,676,154	9.3%
12	57.5 - 62.5 mph	2,461,859	27.1%	5,029,310	12.5%	6,988,972	15.8%	4,481,822	9.9%	5,198,133	27.0%	24,160,096	15.3%
13	> 62.5 mph	3,384,783	37.2%	4,539,147	11.3%	8,638,419	19.5%	3,947,171	8.7%	6,404,926	33.3%	26,914,446	17.0%
	TOTAL	9,089,746	100.0%	40,282,705	100.0%	44,326,000	100.0%	45,453,144	100.0%	19,221,938	100.0%	158,373,533	100.0%

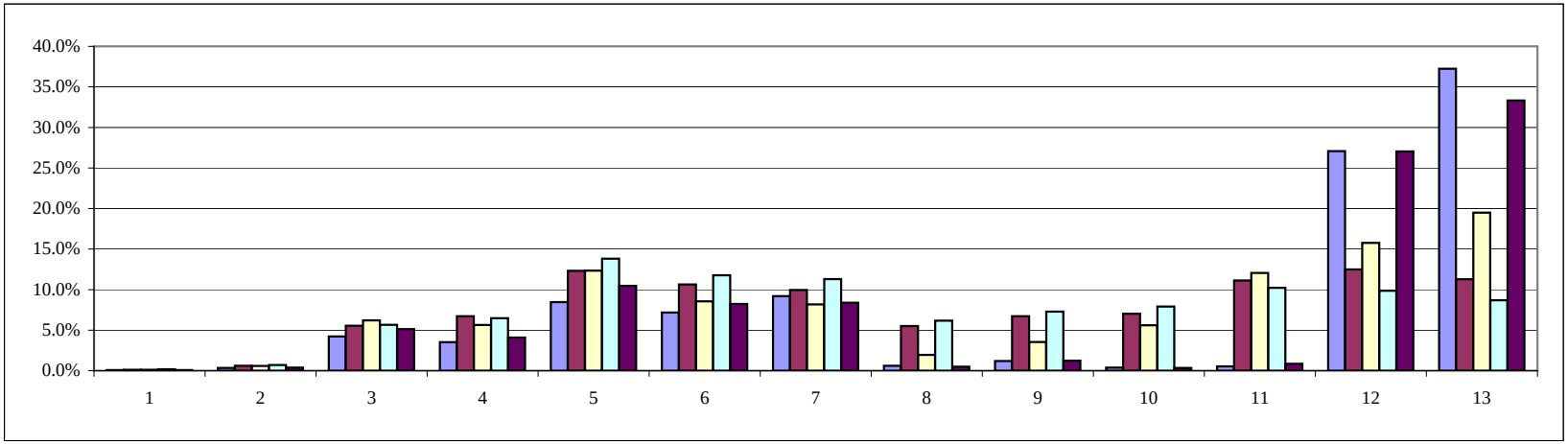
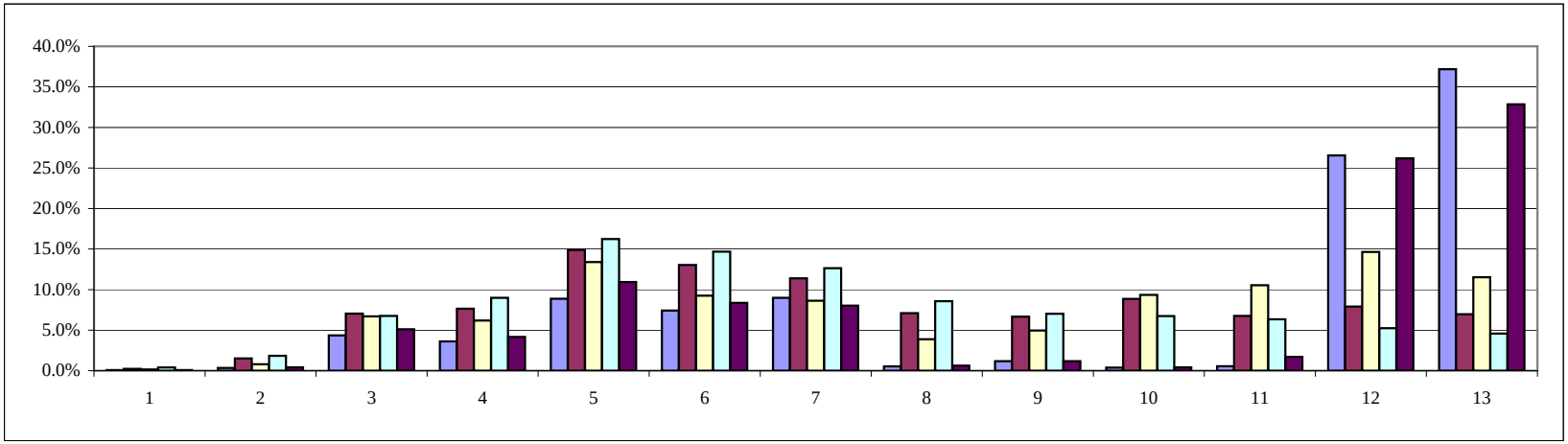


Table 12
Year 2035 Project Alternative, Vehicle Miles of Travel by Speed Bin by Time of Day
Regional Transportation Plan 2009

		Early Morning		AM Peak		Midday		PM Peak		Evening		Daily	
	Speed Cohort	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total	VMT	% of Total
1	< 7.5 mph	7,772	0.1%	110,837	0.2%	78,271	0.1%	219,580	0.4%	15,762	0.1%	432,222	0.2%
2	7.5 - 12.5 mph	38,271	0.3%	744,402	1.5%	423,599	0.8%	1,004,088	1.8%	96,101	0.4%	2,306,461	1.2%
3	12.5 - 17.5 mph	487,081	4.4%	3,450,255	7.0%	3,574,094	6.7%	3,708,119	6.8%	1,176,025	5.1%	12,395,575	6.5%
4	17.5 - 22.5 mph	404,954	3.6%	3,744,152	7.6%	3,298,725	6.2%	4,929,749	9.0%	957,971	4.2%	13,335,551	7.0%
5	22.5 - 27.5 mph	992,344	8.9%	7,291,738	14.9%	7,147,433	13.4%	8,907,960	16.2%	2,519,497	10.9%	26,858,972	14.0%
6	27.5 - 32.5 mph	829,256	7.4%	6,385,193	13.0%	4,936,666	9.3%	8,063,525	14.7%	1,926,818	8.4%	22,141,457	11.6%
7	32.5 - 37.5 mph	1,006,064	9.0%	5,582,430	11.4%	4,604,806	8.6%	6,934,350	12.6%	1,848,130	8.0%	19,975,780	10.4%
8	37.5 - 42.5 mph	58,211	0.5%	3,476,685	7.1%	2,065,304	3.9%	4,700,607	8.6%	143,005	0.6%	10,443,812	5.5%
9	42.5 - 47.5 mph	130,335	1.2%	3,257,381	6.7%	2,645,702	5.0%	3,856,103	7.0%	271,201	1.2%	10,160,722	5.3%
10	47.5 - 52.5 mph	42,081	0.4%	4,339,873	8.9%	4,991,267	9.4%	3,697,800	6.7%	96,742	0.4%	13,167,763	6.9%
11	52.5 - 57.5 mph	61,602	0.6%	3,308,256	6.8%	5,619,340	10.5%	3,477,688	6.3%	392,052	1.7%	12,858,938	6.7%
12	57.5 - 62.5 mph	2,969,468	26.5%	3,872,384	7.9%	7,814,961	14.6%	2,878,687	5.2%	6,036,822	26.2%	23,572,322	12.3%
13	> 62.5 mph	4,158,897	37.2%	3,411,326	7.0%	6,149,698	11.5%	2,511,964	4.6%	7,574,086	32.9%	23,805,972	12.4%
	TOTAL	11,186,335	100.0%	48,974,913	100.0%	53,349,865	100.0%	54,890,221	100.0%	23,054,213	100.0%	191,455,547	100.0%