

**TRANSPORTATION-AIR QUALITY CONFORMITY ANALYSIS
FOR THE
TRANSPORTATION 2035 PLAN &
2011 TRANSPORTATION IMPROVEMENT PROGRAM**

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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 Transportation 2035 Plan and 2011 Transportation Improvement Program in accordance with the latest U.S. Environmental Protection Agency (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 conformity analysis addresses the national 8-hour ozone standard, national carbon monoxide standard, and for the first-time, the national 24-hour fine particulate matter (PM_{2.5}) standard.

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 2011 TIP.

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 requirements apply in all nonattainment and maintenance areas for transportation-related criteria pollutants and precursor pollutants for which the area is designated nonattainment or maintenance area. For the Bay Area, the criteria pollutant to be addressed is ground-level ozone, carbon monoxide, and PM_{2.5} and the precursor pollutants to be addressed include volatile organic compounds (VOC) and oxides of nitrogen (NO_x) for ozone and NO_x for PM_{2.5}. The latest EPA published transportation conformity regulations to implement the 1990 California Clean Air Act section 175A is dated March 2010¹.

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

¹ See EPA Transportation Conformity Regulations (Updated March 2010) at <http://www.epa.gov/otaq/stateresources/transconf/regs/420b10006.pdf>

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 EPA for final action. EPA approved the Bay Area Conformity SIP in December 2007 (40 CFR Part 52).

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 (FHWA) or the Federal Transit Administration (FTA). 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 2035 Plan: Change in Motion*. The Transportation 2035 Plan represents a strategic investment plan to improve asset condition and system performance for Bay Area travelers over the next 25 years and includes a set of highway, transit, local roadway, bicycle, and pedestrian projects identified through regional and local transportation planning processes. As required by federal and state planning regulations, the long-range plan is financially constrained, identifying investments that are funded within the \$218 billion 25-year revenue estimate.

The Commission adopted the Transportation 2035 Plan in April 2009 (MTC Resolution 3893). The FHWA and FTA approved MTC's conformity determination for the Transportation 2035 Plan and 2009 Transportation Improvement Program/Amendment #09-06 on May 29, 2009. The Transportation 2035 Plan was subsequently amended on May 25, 2010 via an administrative modification. This administrative modification did not trigger a

new conformity determination because there are no changes to project scopes for projects previously identified in the plan and no additions of regionally significant, non-exempt projects to the plan.

This conformity analysis serves to re-conform the Transportation 2035 Plan, particularly with regards to its conformance with the national PM_{2.5} standard.

Refer to **Appendix A** for detailed project listing of projects/programs included in the proposed Transportation 2035 Plan. See MTC's Transportation 2035 Plan (April 2009) for full details about the plan².

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 FHWA and FTA 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. The 2009 TIP has undergone a number of administrative modifications and amendments. The last amendment that triggered a conformity analysis was TIP Amendment #09-06. This amendment added new sales tax projects, reconciled State Transportation Improvement Program (STIP) projects, and added or deleted other exempt and non-exempt projects consistent with the new Transportation 2035 Plan. The FHWA and FTA approved MTC's conformity determination for the Transportation 2035 Plan and 2009 Transportation Improvement Program/ Amendment #09-06 on May 29, 2009.

MTC has prepared the 2011 TIP, which covers FY 2010-11 through FY 2013-14. The 2011 TIP does not include any new regionally significant projects beyond those included in the Transportation 2035 Plan. This conformity analysis serves to conform the 2011 TIP.

² See MTC's *Transportation 2035 Plan: Change in Motion* (April 2009) at: http://www.mtc.ca.gov/planning/2035_plan/index.htm

Refer to **Appendix B** for detailed project listing of projects/programs in the 2011 TIP. Note that specific funding sources are identified in the TIP itself. See MTC's 2011 TIP 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. On March 12, 2009, ARB submitted its recommendations for area designations for the revised national 8-hour ozone standard. These recommendations were based on ozone air quality data collected during 2006 through 2008. The ARB recommended that the Bay Area be designated as nonattainment for the national 8-hour ozone standard. EPA had one year to review the recommendations and were to notify states by November 12, 2009 if they planned to modify the state-recommended areas. EPA were to issue final designations by March 12, 2010 based on more recent monitoring data.

On January 6, 2010, the EPA extended the deadline for designating areas for the March 2008 national ambient air quality standards (NAAQS) for ground-level ozone. This was in light of EPA’s decision to reconsider the ground-level ozone standards set in 2008 because the Clean Air Scientific Advisory Committee, EPA’s panel of science advisors, found the ozone standards not as protective to the health and welfare of the public as recommended. Based on the scientific studies, EPA proposed to set different primary and secondary 8-hour ozone standards to protect public health. EPA intends to complete this reconsideration of the 2008 ozone NAAQS by August 31, 2010. To date, the deadline to complete designations is set for March 12, 2011 to allow EPA to conclude its reconsideration of the 2008 national 8-hour ozone standard before determining whether designations for those standards are necessary.

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.

National PM_{2.5} Standard

In 1987, The EPA established a standard for particle pollution equal to or smaller than 10 micrometers in diameter. A decade later, the 1997 revision to the standard set the stage for change, when a separate standard was set for fine particulate matter, which are 2.5 micrometers in diameter and smaller. Citing the link between serious health problems and premature death in people with heart or lung disease, the 1997 revision ultimately distinguished and set forth regulation on particle pollutants known as particulate matter 2.5 (PM_{2.5}) and particulate matter 10 (PM₁₀).

In 2006 the EPA revised the air quality standards for particle pollution. Regulations for PM_{2.5} were tightened for the 24-hour fine particle standard, which lowered the level from 65 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 35 $\mu\text{g}/\text{m}^3$. The annual fine particle standard at 15 $\mu\text{g}/\text{m}^3$ remained the same. In that same year, the EPA published a final ruling which established transportation conformity criteria and procedures to determine transportation projects that required analysis for local air quality impacts for PM_{2.5} in non-attainment and maintenance areas. From the 2006 revision, EPA had to complete designations of nonattainment areas by December 2009 for national standard for PM_{2.5}. The newly established criteria and procedures require those area designated as nonattainment areas must undergo a regional conformity analysis for PM_{2.5}. Furthermore, the procedures also mandates areas designated as nonattainment must complete an additional project-level PM_{2.5} hot-spot analysis of localized impacts for transportation projects of air quality concern.

On December 14, 2009, EPA designated the Bay Area as nonattainment for the national 24-hour PM_{2.5} standard based upon violations of the standard over the three-year period from 2007 through 2009. Pursuant to the Clean Air Act, the Bay Area is subject to the following requirements:

- Beginning on December 14, 2010, MTC must demonstrate that the RTP and Transportation Improvement Program TIP conform to the SIP.
- Beginning on December 14, 2010, certain roadway and transit projects that involve significant levels of diesel vehicle traffic must prepare PM_{2.5} hot-spot analyses.
- By December 14, 2012, the BAAQMD, in partnership with MTC and ABAG, must prepare a SIP outlining how the region will attain and maintain the standard by reducing air pollutant emissions contributing to fine particle concentrations.

Approved Motor Vehicle Emissions Budgets

The Bay Area has conformity requirements for national ozone, CO, and PM_{2.5} standards. Under these requirements, the Bay Area has to meet a motor vehicle emission “budget” test. To make a positive conformity finding, MTC must demonstrate that the calculated motor vehicle emissions in the region are lower than the approved budgets.

For the ozone precursor emissions Volatile Organic Compounds (VOC), Nitrogen Oxides (NOX), 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. Note that 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 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)

For PM_{2.5}, the Bay Area is required to prepare a SIP by December 2012. Since an approved motor vehicle emissions budget for PM_{2.5} is not yet available for use in a budget test, MTC must complete one of the two interim emissions tests: (1) the build-no-greater-than-no-build test (“build/no build test”) or (2) the no-greater-than-baseline-year emissions test (“baseline year test”). Per the interagency consultation via the Air Quality Conformity Task Force meeting dated January 28, 2010, MTC elects to use the build/no build test. In this test, conformity would be demonstrated if in each analysis year, the transportation emissions reflected the RTP or TIP (the “build” scenario) were less than or equal to emissions from the transportation system that would result from current programs (the “baseline scenario” or “no build” scenario).

The analysis years for the budget and build/no build tests are to be a year within five years of the date the analysis is being done, the last year of the RTP, and intermediate years as necessary so that analysis years are not more than 10 years apart. For this conformity analysis, the analysis years are 2015, 2025, and 2035 for ozone and PM_{2.5}. For CO, the analysis years are 2015, 2018, 2025, and 2035. Travel forecast data for year 2018 were interpolated between 2015 and 2025. MTC has prepared separate travel forecasts for the Bay Area for each of these years. 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-90), 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 2009* developed and adopted by ABAG in March 2009 and the latest validated version of the MTC travel demand model (BAYCAST-90).

In addition, pricing assumptions include projected parking prices, gasoline and non-gasoline auto operating costs, fuel economy, bridge tolls, transit fares, and express lanes. 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 A) and 2011 TIP (see Appendix B).

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:

January 2010

- Draft Bay Area Interagency Consultation Procedures for Fine Particulate Matter (PM_{2.5}) Hot-Spot Analyses
- Proposed Approach to Conformity Analysis for the 2011 Transportation Improvement Program, including PM_{2.5} Conformity
- Air Quality Updates

July 2010

- Review of Administrative Draft Conformity Analysis for the Transportation 2035 Plan and 2011 Transportation Improvement Program
- 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	<u>(0.5)</u>
2006 Emissions Budget	164.0
NO_x	
2006 On Road Motor Vehicle Emissions	271.0
2006 TCM Benefits	<u>(0.7)</u>
2006 Emissions Budget	<u>270.3</u>

**TABLE 2
VEHICLE ACTIVITY FORECASTS**

	2015	2025	2035
VEHICLES IN USE	5,188,500	5,843,400	6,323,000
Daily VMT (1000s)	165,000	183,600	198,200
Engine Starts	34,401,600	38,428,400	41,477,100

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 2011 TIP 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	69.08	(0.3)	68.78
2025	164.0	46.98	(0.3)	46.68
2035	164.0	35.19	(0.3)	34.89

Year	NO_x Budget*	On-Road Motor Vehicles NO_x	TCMs**	Net Emissions
2015	270.3	103.07	(0.5)	102.57
2025	270.3	59.96	(0.5)	59.46
2035	270.3	40.80	(0.5)	40.30

*Emissions for summertime and wintertime

**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 NO_x 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	581.84
2018	1,850	506.63***
2025	1,850	331.15
2035	1,850	252.99

*Emissions for summertime and wintertime

**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

Build/No Build Emissions Test for PM_{2.5}

In the Build/No Build test, the motor vehicle emissions from the RTP and TIP (Build scenario) must be less than or equal to emissions from the transportation system based on current programs (No Build scenario) to demonstrate conformity.

The motor vehicle activity forecasts for the Transportation 2035 Plan and 2011 TIP for the No Build and Build scenarios across the various horizon years are shown in Table 5. These forecasts are converted to motor vehicle emission estimates by MTC using EMFAC2007.

Table 6 presents the results of the Build No/Build test for the PM_{2.5} emissions and the NO_x precursor. The analyses indicate that the motor vehicle emissions are lower under the Build scenario when compared to the No Build scenario. This is due in large part to the transportation investments included in the Build scenario (such as transit services, express lanes, freeway operational improvements, roadway improvements, etc.) and its responsiveness to growth in population and associated travel demand over the next 25 years.

**TABLE 5
 VEHICLE ACTIVITY FORECASTS FOR PM_{2.5} BUILD/NO BUILD TEST**

	2015		2025		2035	
	No Build	Build	No Build	Build	No Build	Build
Vehicles In Use	5,322,900	5,188,500	5,856,400	5,843,400	6,363,800	6,323,000
Daily VMT (1000s)	169,200	165,000	184,000	183,600	199,400	198,200
Engine Starts	35,295,600	34,401,600	38,515,800	38,428,400	41,747,800	41,477,100

**TABLE 6
 EMISSIONS COMPARISON FOR THE BUILD/NO BUILD TEST FOR PM_{2.5}***

	2015		2025		2035	
	No Build	Build	No Build	Build	No Build	Build
PM_{2.5}	5.92	5.66	5.87	5.78	6.36	6.14
NO_x	112.63	109.55	60.36	60.16	42.87	42.85

*Emissions for wintertime only

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 7). 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 7
 Transportation Control Measures (TCMs) in the State Implementation Plan**

<i>TCM</i>	<i>Description</i>
<i>Original TCMs from 1982 Bay Area Air Quality Plan</i>	
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
<i>Contingency Plan TCMs Adopted by MTC in February 1990 (MTC Resolution 2131)</i>	
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
<i>New TCMs in 2001 Ozone Attainment Plan</i>	
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 8). TCMs A-E are now fully implemented.

**TABLE 8
 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. All buses are currently in operations. 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.

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#	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 have been made since start of revenue service. The BART to SFO service has been maintained through 2006 and is continued. TCM E is fully implemented.

V. RESPONSE TO PUBLIC COMMENTS

MTC's Programming and Allocations Committee released the Draft Conformity Analysis for a 30-day public review period from August 6, 2010 to September 10, 2010. A public hearing on the 2011 TIP and draft conformity analysis was held on September 8, 2010. The comment period was subsequently extended to September 30, 2010 to allow for more time for public comment on the 2011 TIP; and a second public hearing was held on September 22, 2010.

MTC received the following comments on the draft conformity analysis. MTC staff responses to those comments are as follows:

Commenter: Charlie Cameron (Postcard)

Comment #1:

The fares for 1990 as cited in the fares table used in Appendix C are incorrect. Further, the sources stated in the table were not correct and that the 2007 TIP conformity analysis had different information.

Response #1:

The fare table included in Appendix C includes the Spring 2010 fares expressed in year 2010 dollars as well as year 1990 dollars (which MTC inputs into the travel model) -- prices are expressed in this manner throughout the appendix. Previous versions of Appendix C presented the transit fares in 1990 in year 1990 dollars (as well as 1985 fares in year 1985 dollars, etc); the two numbers would only match if transit fares increased exactly with inflation, which they do not.

Commenter: Hilda Lafebre, Caltrain (Letter dated September 24, 2010)

Comment #1:

The JPB agrees with the Metropolitan Transportation Commission (MTC) conformity findings.

Response #1:

MTC staff appreciates Caltrain staff's review of the conformity analysis and letter of support.

Commenter: David Schonbrunn, TransDef (Letter Dated September 30, 2010)

Comment #1:

What level of transit service was assumed in the air quality conformity analysis? Does it correspond to current levels, to the recent service cut levels, or to some other level? The assumed transit service level must be based on reasonably available funding for operations, which has declined significantly in recent years.

Response #1:

As documented in Appendix C and discussed with the Air Quality Conformity Task Force, MTC staff notes that the economic downturn that began in earnest in 2008 has had a significant impact on the Bay Area's transit providers. So for the 2015 analysis year, the transit network reflected in the MTC travel model is the transit service in place as of Spring 2010 plus added/replaced transit projects in the TIP and RTP. In contrast, for the 2025 and 2035 analysis years, the transit network in the model is that of transit service in place as of 2006 and added/replaced transit projects in the TIP and RTP. Because more service was in place in 2006 than in 2010, MTC is assuming the current reduction in transit service is temporary and that service will increase as the economy recovers. The transit fares for the 2015 analysis year are the transit fares in place as of Spring 2010 while the transit fares for the 2025 and 2035 analysis years are the transit fares in place as of Spring 2008.

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 Transportation 2035 Plan and 2011 Transportation Improvement Program 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 Transportation 2035 Plan and 2011 Transportation Improvement Program are lower than the transportation conformity budget in the SIP.
- For the two ground-level ozone precursors (VOC and NO_x), motor vehicle emissions in the Transportation 2035 Plan and 2011 Transportation Improvement Program are lower than the applicable motor vehicle emission budgets for the national 8-hour ozone standard.

- For PM_{2.5} and NO_x, the Build/No Build test shows that the motor vehicle emissions are lower under the Build scenario when compared to the No Build scenario.