

**CONFORMITY ANALYSIS
FOR THE 2017 FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM
AND THE 2014 REGIONAL TRANSPORTATION PLAN**

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MERCED COUNTY ASSOCIATION OF GOVERNMENTS

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EXECUTIVE SUMMARY

This report presents the Conformity Analysis for 2017 Federal Transportation Improvement Program (2017 FTIP) and 2014 Regional Transportation Plan (2014 RTP). The Merced County Association of Governments (herein referred to as “MCAG”) is the designated Metropolitan Planning Organization (MPO) in Merced County, California, and is responsible for regional transportation planning.

The Clean Air Act Section 176(c) (42 U.S.C. 7506(c)) and U.S. Environmental Protection Agency (EPA) transportation conformity regulations (40 CFR 93 Subpart A) require that each new RTP and TIP be demonstrated to conform to the State Implementation Plan (SIP) before the RTP and TIP are approved by the MPO or accepted by the U.S. Department of Transportation (DOT). This analysis demonstrates that the criteria specified in the transportation conformity regulations for a conformity determination are satisfied by the 2017 FTIP and 2014 RTP; a finding of conformity is therefore supported. The 2017 FTIP and corresponding conformity analysis was approved by the MCAG Policy Board on September 15, 2016. Federal approval is anticipated on or before December 16, 2016. FHWA/FTA last issued a finding of conformity for the 2015 FTIP and 2014 RTP on December 14, 2015.

The 2017 FTIP has been financially constrained in accordance with the requirements of 40 CFR 93.108 and consistent with the U.S. DOT metropolitan planning regulations (23 CFR Part 450). A discussion of financial constraint and funding sources is included in the appropriate documents.

The applicable Federal criteria or requirements for conformity determinations, the conformity tests applied, the results of the conformity assessment, and an overview of the organization of this report are summarized below.

CONFORMITY REQUIREMENTS

The Federal transportation conformity regulations (40 Code of Federal Regulations Parts 51 and 93) specify criteria and procedures for conformity determinations for transportation plans, programs, and projects and their respective amendments. The Federal transportation conformity regulation was first promulgated in 1993 by the U.S. EPA, following the passage of amendments to the Federal Clean Air Act in 1990. The Federal transportation conformity regulation has been revised several times since its initial release to reflect both EPA rule changes and court opinions. The transportation conformity regulation is summarized in Chapter 1.

The conformity regulation applies nationwide to “all nonattainment and maintenance areas for transportation-related criteria pollutants for which the area is designated nonattainment or has a maintenance plan” (40 CFR 93.102). Currently, the San Joaquin Valley (or portions thereof) is designated as nonattainment with respect to Federal air quality standards for ozone, and particulate matter under 2.5 microns in diameter (PM_{2.5}); and has a maintenance plan for

particulate matter under 10 microns in diameter (PM-10), as well as a maintenance plan for carbon monoxide (CO) for the urbanized/metropolitan areas of Kern, Fresno, Stanislaus and San Joaquin Counties. Therefore, transportation plans and programs for the nonattainment areas for the Merced County area must satisfy the requirements of the Federal transportation conformity regulation.

Under the transportation conformity regulation, the principal criteria for a determination of conformity for transportation plans and programs are:

- (1) the TIP and RTP must pass an emissions budget test using a budget that has been found to be adequate by EPA for transportation conformity purposes, or an interim emission test;
- (2) the latest planning assumptions and emission models specified for use in conformity determinations must be employed;
- (3) the TIP and RTP must provide for the timely implementation of transportation control measures (TCMs) specified in the applicable air quality implementation plans; and
- (4) interagency and public consultation.

On-going interagency consultation is conducted through the San Joaquin Valley Interagency Consultation Group to ensure Valley-wide coordination, communication and compliance with Federal and California Clean Air Act requirements. Each of the eight Valley MPOs and the San Joaquin Valley Unified Air Pollution Control District (Air District) are represented. The Federal Highway Administration (FHWA), Federal Transit Administration (FTA), the U.S. EPA, the California Air Resources Board (CARB) and Caltrans are also represented on the committee. The final determination of conformity for the TIP and RTP is the responsibility of FHWA, and FTA within the U.S. DOT.

FHWA has developed a Conformity Checklist (included in Appendix A) that contains the required items to complete a conformity determination. Appropriate references to these items are noted on the checklist.

CONFORMITY TESTS

The conformity tests specified in the Federal transportation conformity regulation are: (1) the emissions budget test, and (2) the interim emission test. For the emissions budget test, predicted emissions for the TIP/RTP must be less than or equal to the motor vehicle emissions budget specified in the approved air quality implementation plan or the emissions budget found to be adequate for transportation conformity purposes. If there is no approved air quality plan for a pollutant for which the region is in nonattainment or no emission budget has been found to be adequate for transportation conformity purposes, the interim emission test applies. Chapter 1 summarizes the applicable air quality implementation plans and conformity tests for ozone, PM-10, and PM2.5.

RESULTS OF THE CONFORMITY ANALYSIS

A regional emissions analysis was conducted for the years 2017, 2018, 2019, 2020, 2021, 2023, 2025, 2031, 2035 and 2040 for each applicable pollutant. All analyses were conducted using the latest planning assumptions and emissions models. The major conclusions of the MCAG Conformity Analysis are:

- For ozone, the total regional on-road vehicle-related emissions (ROG and NOx) associated with implementation of the 2017 FTIP and 2014 RTP for all years tested are projected to be less than the approved emissions budgets specified in the *2007 Ozone Plan (as revised in 2015)*. The conformity tests for ozone are therefore satisfied.
- For PM-10, the total regional vehicle-related emissions (PM-10 and NOx) associated with implementation of the 2017 FTIP and 2014 RTP for all years tested are either (1) projected to be less than the approved emissions budgets, or (2) less than the emission budgets using the approved PM-10 and NOx trading mechanism for transportation conformity purposes from the *2007 PM-10 Maintenance Plan (as revised in 2015)*. The conformity tests for PM-10 are therefore satisfied.
- For the 1997 and 2012 PM2.5 standards, the total regional on-road vehicle-related emissions associated with implementation of the 2017 FTIP and 2014 RTP for the analysis years are either (1) projected to be less than the approved emission budgets, or (2) less than the emission budgets using the approved PM2.5 and NOx trading mechanism for transportation conformity purposes from the *2008 PM2.5 Plan (as revised in 2011)*. The conformity tests for PM2.5 for the 1997 and 2012 standards are therefore satisfied.
- For the 2006 24-hour PM2.5 standard, the total regional on-road vehicle-related emissions associated with implementation of the 2017 FTIP and 2014 RTP for the analysis years are either (1) projected to be less than the approved emission budgets, or (2) less than the emission budgets using the approved PM2.5 and NOx trading mechanism for transportation conformity purposes from the *2012 PM2.5 Plan (as revised in 2015)*. The conformity tests for PM2.5 for the 2006 standard are therefore satisfied.
- The 2017 FTIP and 2014 RTP will not impede and will support timely implementation of the TCMs that have been adopted as part of applicable air quality implementation plans. The current status of TCM implementation is documented in Chapter 4 of this report. Since the local SJV procedures (e.g., Air District Rule 9120 Transportation Conformity) have not been approved by EPA, consultation has been conducted in accordance with Federal requirements.

REPORT ORGANIZATION

The report is organized into six chapters. Chapter 1 provides an overview of the applicable Federal and State conformity regulations and requirements, air quality implementation plans, and conformity test requirements. Chapter 2 contains a discussion of the latest planning assumptions and transportation modeling. Chapter 3 describes the air quality modeling used to estimate emission factors and mobile source emissions. Chapter 4 contains the documentation required under the Federal transportation conformity regulation for transportation control measures.

Chapter 5 provides an overview of the interagency requirements and the general approach to compliance used by the San Joaquin Valley MPOs. The results of the conformity analysis for the TIP/RTP are provided in Chapter 6.

Appendix E includes public hearing documentation conducted on the 2017 FTIP and corresponding conformity analysis on August 18, 2016. Comments received on the conformity analysis and responses made as part of the public involvement process are included in Appendix F.

CHAPTER 1: FEDERAL AND STATE REGULATORY REQUIREMENTS

The criteria for determining conformity of transportation programs and plans under the Federal transportation conformity regulation (40 CFR Parts 51 and 93) and the applicable conformity tests for the San Joaquin Valley nonattainment areas are summarized in this section. The Conformity Analysis for the 2017 FTIP and 2014 RTP was prepared based on these criteria and tests. Presented first is a review of the development of the applicable conformity regulation and guidance procedures, followed by summaries of conformity regulation requirements, air quality designation status, conformity test requirements, and analysis years for the Conformity Analysis.

MCAG is the designated Metropolitan Planning Organization (MPO) for Merced County in the San Joaquin Valley. As a result of this designation, MCAG prepares the TIP, RTP, and associated conformity analyses. The TIP serves as a detailed four-year (FFY 2016/17 – 2019/20) programming document for the preservation, expansion, and management of the transportation system. The 2014 RTP has a 2040 horizon that provides the long term direction for the continued implementation of the freeway/expressway plan, as well as improvements to arterial streets, transit, and travel demand management programs. The TIP and RTP include capacity enhancements to the freeway/expressway system commensurate with available funding.

A. FEDERAL AND STATE CONFORMITY REGULATIONS

CLEAN AIR ACT AMENDMENTS

Section 176(c) of the Clean Air Act (CAA, 1990) requires that Federal agencies and MPOs not approve any transportation plan, program, or project that does not conform to the approved State Implementation Plan (SIP). The 1990 amendments to the Clean Air Act expanded Section 176(c) to more explicitly define conformity to an implementation plan to mean:

“Conformity to the plan's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and that such activities will not (i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.”

Section 176(c) also provides conditions for the approval of transportation plans, programs, and projects, and requirements that the Environmental Protection Agency (EPA) promulgate conformity determination criteria and procedures no later than November 15, 1991.

FEDERAL RULE

The initial November 15, 1991 deadline for conformity criteria and procedures was partially completed through the issuance of supplemental interim conformity guidance issued on June 7, 1991 for carbon monoxide, ozone, and particulate matter ten microns or less in diameter (PM-10). EPA subsequently promulgated the Conformity Final Rule in the November 24, 1993 *Federal Register* (EPA, 1993). The 1993 Rule became effective on December 27, 1993. The Federal Transportation Conformity Final Rule has been amended several times from 1993 to present. These amendments have addressed a number of items related to conformity lapses, grace periods, and other related issues to streamline the conformity process.

EPA published the Transportation Conformity Rule PM2.5 and PM10 Amendments on March 24, 2010; the rule became effective on April 23, 2010 (EPA, 2010a). This PM amendments final rule amends the conformity regulation to address the 2006 PM2.5 national ambient air quality standard (NAAQS). The final PM amendments rule also addresses hot-spot analyses in PM2.5 and PM10 and carbon monoxide nonattainment and maintenance areas.

On March 14, 2012, EPA published the Transportation Conformity Rule Restructuring Amendments, effective April 13, 2012 (EPA, 2012a). The amendments restructure several sections of the rule so that they apply to any new or revised National Ambient Air Quality Standards. In addition, several clarifications to improve implementation of the rule were finalized. On March 6, 2015, EPA published *Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements* final rule (effective April 6, 2015), which shifted the San Joaquin Valley 2008 Ozone Standard attainment date from December 31, 2032 to July 20, 2032 (EPA, 2015). EPA's March 2015 ozone implementation rule also revoked the 1997 Ozone Standard for transportation conformity purposes.

On July 29, 2016 EPA released its Final Rule titled *Implementing National Ambient Air Quality Standards for Fine Particles: State Implementation Plan Requirements*. According to the implementation rule, areas designated as nonattainment for the 1997 PM2.5 standards, must continue to demonstrate conformity to these standards until attainment (EPA, 2016).

MULTI-JURISDICTIONAL GUIDANCE

EPA reissued Guidance for Transportation Conformity Implementation in Multi-Jurisdictional Nonattainment and Maintenance Areas in July 2012 (EPA, 2012c). This guidance updates and supersedes the July 2004 "multi-jurisdictional" guidance (EPA, 2004a), but does not change the substance of the guidance on how nonattainment areas with multiple agencies should conduct conformity determinations. This guidance applies to the San Joaquin Valley since there are multiple MPOs within a single nonattainment area. The main principle of the guidance is that one regional emissions analysis is required for the entire nonattainment area. However, separate modeling and conformity documents may be developed by each MPO.

Part 3 of the guidance applies to nonattainment areas that have adequate or approved conformity budgets addressing a particular air quality standard. This Part currently applies to the San Joaquin Valley for carbon monoxide, ozone and PM-10. The guidance allows MPOs to make independent conformity determinations for their plans and TIPs as long as all of the other subareas in the nonattainment area have conforming transportation plans and TIPs in place at the time of each MPO and the Department of Transportation (DOT) conformity determination.

With respect to PM2.5, the Transportation Conformity Rule PM2.5 and PM10 Amendments published on March 24, 2010 effectively incorporates the “multi-jurisdictional” guidance directly into the rule. The Rule allows MPOs to make independent conformity determinations for their plans and TIPs as long as all of the other subareas in the nonattainment area have conforming transportation plans and TIPs in place at the time of each MPO and DOT conformity determination.

DISTRICT RULE

The San Joaquin Valley Unified Air Pollution Control District (Air District) adopted Rule 9120 Transportation Conformity on January 19, 1995 in response to requirements in Section 176(c)(4)(c) of the 1990 Clean Air Act Amendments. In May 2015 the San Joaquin Valley Unified Air Pollution Control District requested ARB to withdraw Rule 9120 from California State Implementation Plan consideration.

In July of 2015, ARB sent a letter to EPA withdrawing Rule 9120 from the California State Implementation Plan. Therefore, EPA can no longer act on the Rule. It should also be noted that EPA has changed 40 CFR 51.390 to streamline the requirements for State conformity SIPs. Since a transportation conformity SIP cannot be approved for the San Joaquin Valley, the Federal transportation conformity rule governs.

B. CONFORMITY REGULATION REQUIREMENTS

The Federal regulations identify general criteria and procedures that apply to all transportation conformity determinations, regardless of pollutant and implementation plan status. These include:

- 1) *Conformity Tests* — Sections 93.118 and 93.119 specify emissions tests (budget and interim emissions) that the TIP/RTP must satisfy in order for a determination of conformity to be found. The final transportation conformity regulation issued on July 1, 2004 requires a submitted SIP motor vehicle emissions budget to be found adequate or approved by EPA prior to use for making conformity determinations. The budget must be used on or after the effective date of EPA’s adequacy finding or approval.

- 2) *Methods / Modeling:*

Latest Planning Assumptions — Section 93.110 specifies that conformity determinations must be based upon the most recent planning assumptions in force at the time the conformity analysis begins. This is defined as “the point at which the MPO begins to model the impact of

the proposed transportation plan or TIP on travel and/or emissions. New data that becomes available after an analysis begins is required to be used in the conformity determination only if a significant delay in the analysis has occurred, as determined through interagency consultation” (EPA, 2010b). All analyses for the Conformity Analysis were conducted using the latest planning assumptions and emissions models in force at the time the conformity analysis started in August 2013 (see Chapter 2).

Latest Emissions Models — Section 93.111 requires that the latest emission estimation models specified for use in SIPs must be used for the conformity analysis. EMFAC2014 was used in the Conformity Analysis and is documented in Chapter 3. EPA issued a federal register notice on December 14, 2015 formally approving EMFAC2014 for use in conformity determinations.

- 3) *Timely Implementation of TCMs* — Section 93.113 provides a detailed description of the steps necessary to demonstrate that the new TIP/RTP are providing for the timely implementation of TCMs, as well as demonstrate that the plan and/or program is not interfering with this implementation. TCM documentation is included in Chapter 4 of the Conformity Analysis.
- 4) *Consultation* — Section 93.105 requires that the conformity determination be made in accordance with the consultation procedures outlined in the Federal regulations. These include:
 - MPOs are required to provide reasonable opportunity for consultation with State air agencies, local air quality and transportation agencies, the USDOT and EPA (Section 93.105(a)(1)).
 - MPOs are required to establish a proactive public involvement process, which provides opportunity for public review and comment prior to taking formal action on a conformity determination (Section 93.105(e)).

The TIP, RTP, and corresponding conformity determinations are prepared by each MPO. Copies of the Draft documents are provided to member agencies and others, including FHWA, Federal Transit Administration (FTA), EPA, Caltrans, CARB, and the Air District for review. Both the TIP and RTP are required to be publicly available and an opportunity for public review and comment is provided. The MCAG adopted consultation process and policy for conformity analysis includes a 30-day comment period followed by a public meeting.

C. AIR QUALITY DESIGNATIONS APPLICABLE TO THE SAN JOAQUIN VALLEY

The conformity regulation (section 93.102) requires documentation of the applicable pollutants and precursors for which EPA has designated the area nonattainment or maintenance. In addition, the nonattainment or maintenance area and its boundaries should be described.

MCAG is located in the federally designated San Joaquin Valley Air Basin. The borders of the basin are defined by mountain and foothill ranges to the east and west. The northern border is consistent with the county line between San Joaquin and Sacramento Counties. The southern border is less defined, but is roughly bounded by the Tehachapi Mountains and, to some extent,

the Sierra Nevada range. The Conformity Analysis for 2017 FTIP includes analysis of existing and future air quality impacts for each applicable pollutant.

The San Joaquin Valley is currently designated as nonattainment for the National Ambient Air Quality Standard (NAAQS) for 8-hour ozone (revoked 1997 and 2008 standards), and particulate matter under 2.5 microns in diameter (PM_{2.5}) (1997, 2006 and 2012 standards); and has a maintenance plan for particulate matter under 10 microns in diameter (PM-10), as well as a maintenance plan for carbon monoxide (CO) for the urbanized/metropolitan areas of Kern, Fresno, Stanislaus and San Joaquin Counties. State Implementation Plans have been prepared to address carbon monoxide, ozone, PM-10 and PM_{2.5}:

- The 2004 Revision to the California State Implementation Plan for Carbon Monoxide was approved by EPA on November 30, 2005 (effective January 30, 2006).
- The 2007 Ozone Plan (1997 Standard), as revised in 2015, was approved by EPA on July 8, 2016 (effective September 30, 2016).
- The 2016 Ozone Plan (2008 standard) was adopted by the Air District on June 16, 2016 and subsequently adopted by ARB on July 21, 2016. Since the new ozone budgets have not yet been approved by EPA, the 2007 Ozone Plan budgets will continue to be used for this conformity analysis.
- The 2007 PM-10 Maintenance Plan, as revised in 2015, was approved by EPA on July 8, 2016 (effective September 30, 2016).
- The 2008 PM_{2.5} Plan (1997 Standards), as revised in 2011, was approved by EPA on November 9, 2011 (effective January 9, 2012).
- The 2015 PM_{2.5} Plan (1997 Standards) was approved by ARB on May 21, 2015. On February 9, 2016 EPA published proposed conditional approval of the 2015 Plan; no final EPA action has been taken on the plan. As a result, the proposed SIP budgets are assumed to be unavailable for use and the 2008 PM_{2.5} Plan conformity budgets are the only budgets applicable to the 1997 and 2012 PM_{2.5} standards at this time.
- The 2012 PM_{2.5} Plan (2006 Standard), as revised in 2015, was approved by EPA on August 16, 2016 (effective September 30, 2016).

EPA designated the San Joaquin Valley nonattainment area for the 2008 Ozone Standard, effective July 20, 2012. Transportation conformity applies one year after the effective date (July 20, 2013). Federal approval for the eight SJV MPO's 2008 Ozone standard conformity demonstrations was received on July 8, 2013.

EPA's March 2015 final rule implementing the 2008 Ozone Standard also revoked the 1997 Ozone Standard for transportation conformity purposes. This revocation became effective April 6, 2015.

On November 13, 2009, EPA published Air Quality Designations for the 2006 24-hour PM_{2.5} standard, effective December 14, 2009. Nonattainment areas are required to meet the standard by 2014; transportation conformity began to apply on December 14, 2010. On January 20, 2016 EPA published *Designation of Areas for Air Quality Planning Purposes; California; San Joaquin Valley; Reclassification as Serious Nonattainment for the 2006 PM_{2.5} NAAQS* finalizing SJV reclassification to Serious nonattainment effective February 19, 2016. Nonattainment areas are required to meet the standard as expeditiously as practicable, but no later than December 31, 2019. It is important to note that the 2006 24-hour PM_{2.5} nonattainment area boundary for the San Joaquin Valley is exactly the same as the nonattainment area boundary for the 1997 annual standard.

EPA's nonattainment area designations for the new 2012 PM_{2.5} standards became effective on April 15, 2015. Conformity for a given pollutant and standard applies one year after the effective date (April 15, 2016). It is important to note that the 2012 PM_{2.5} standards nonattainment area boundary for the San Joaquin Valley are exactly the same as the nonattainment area boundary for the 1997 annual standard.

On July 29, 2016 EPA released its *Final Rule for Implementing National Ambient Air Quality Standards for Fine Particles*. According to the implementation rule, areas designated as nonattainment for the 1997 PM_{2.5} standards, must continue to demonstrate conformity to these standards until attainment. In the San Joaquin Valley, the 1997 standards (both 24-hour and annual) continue to apply.

D. CONFORMITY TEST REQUIREMENTS

The conformity (Section 93.109(c)–(k)) rule requires that either a table or text description be provided that details, for each pollutant and precursor, whether the interim emissions tests and/or the budget test apply for conformity. In addition, documentation regarding which emissions budgets have been found adequate by EPA, and which budgets are currently applicable for what analysis years is required.

Specific conformity test requirements established for the San Joaquin Valley nonattainment areas for carbon monoxide, ozone, and particulate matter are summarized below.

Section 93.124(d) of the 1997 Final Transportation Conformity regulation allows for conformity determinations for sub-regional emission budgets by MPOs if the applicable implementation plans (or implementation plan submission) explicitly indicates an intent to create such sub-regional budgets for the purpose of conformity. In addition, Section 93.124(e) of the 1997 rules states: "...if a nonattainment area includes more than one MPO, the implementation plan may establish motor vehicle emission budgets for each MPO, or else the MPOs must collectively make a conformity determination for the entire nonattainment area." Each applicable implementation plan and estimate of baseline emissions in the San Joaquin Valley provides motor vehicle emission budgets by county, to facilitate county-level conformity findings.

OZONE (2008 STANDARD)

EPA's final rule implementing the 2008 ozone standard also revoked the 1997 ozone standard for transportation conformity purposes. This revocation became effective April 6, 2015. Areas designated nonattainment for the 2008 ozone standard are required to use any existing adequate or approved SIP motor vehicle emissions budgets for a prior ozone standard until budgets for the 2008 ozone standard are either found adequate or approved. Therefore, when a 2008 ozone nonattainment area has adequate or approved budgets for any ozone standard, the budget test requirements (40 CFR 93.118) must be met.

Under the existing conformity regulation, regional emissions analyses for ozone areas must address nitrogen oxides (NO_x) and volatile organic compounds (VOC) precursors. It is important to note that in California, reactive organic gases (ROG) are considered equivalent to and are used in place of volatile organic compounds (VOC).

EPA approved the 2007 Ozone (1997 standard) Plan (as revised in 2015) including conformity budgets on July 8, 2016 effective September 30, 2016. The revised SIP identified both reactive organic gases (ROG) and nitrogen oxides (NO_x) subarea budgets in tons per average summer day for each MPO in the nonattainment area. It is important to note that the boundaries for both the 2008 ozone standard and previous ozone standard are identical. Consequently, for this conformity analysis, the SJV MPOs will continue to conduct demonstrations for subarea emissions budgets as established in the 2007 Ozone Plan (as revised in 2015).

The approved conformity budgets from Table 1 of the August 12, 2016 Federal Register are provided in a table below. These budgets will be used to compare to emissions resulting from the 2017 FTIP.

Table 1-2:
Approved Budgets from the 2007 Ozone Plan (as revised in 2015)
 (summer tons/day)

County	2011		2014		2017		2020		2023	
	ROG	NOx								
Fresno	14.3	36.2	10.7	30.0	8.7	29.9	6.8	24.3	5.6	14.6
Kern (SJV)	12.7	50.3	9.7	42.7	6.9	26.8	5.7	22.4	4.8	12.9
Kings	2.8	10.7	2.1	8.9	1.4	5.5	1.1	4.7	0.9	2.7
Madera	3.4	9.3	2.5	7.7	2.0	5.5	1.6	4.5	1.3	2.7
Merced	5.1	19.9	3.7	16.7	2.7	10.3	2.1	8.5	1.7	5.1
San Joaquin	11.1	24.6	8.4	20.5	6.4	14.1	5.1	11.3	4.3	7.3
Stanislaus	8.5	16.9	6.4	13.9	4.1	11.3	3.2	9.2	2.7	5.8
Tulare	8.8	16.0	6.7	13.2	4.0	10.3	3.1	8.1	2.5	4.9

^(a) Note that EPA did not take action on the 2011 and 2014 budgets of the 2007 Ozone Plan (as revised in 2015). These budgets are not in the timeframe of this conformity analysis.

PM-10

The 2007 PM-10 Maintenance Plan (as revised in 2015) was approved by EPA on July 8, 2016 (effective September 30, 2016), which contains motor vehicle emission budgets for PM-10 and NOx, as well as a trading mechanism. Motor vehicle emission budgets are established based on average annual daily emissions. The motor vehicle emissions budget for PM-10 includes regional re-entrained dust from travel on paved roads, vehicular exhaust, travel on unpaved roads, and road construction. The conformity budgets from Table 2 of the August 12, 2016 Federal Register are provided below and will be used to compare emissions for each analysis year.

The PM-10 SIP allows trading from the motor vehicle emissions budget for the PM-10 precursor NOx to the motor vehicle emissions budget for primary PM-10 using a 1.5 to 1 ratio. The trading mechanism allows the agencies responsible for demonstrating transportation conformity in the San Joaquin Valley to supplement the 2005 budget for PM-10 with a portion of the 2005 budget for NOx, and use these adjusted motor vehicle emissions budgets for PM-10 and NOx to demonstrate transportation conformity with the PM-10 SIP for analysis years after 2005. As noted above, EPA approved the 2007 PM-10 Maintenance Plan (with minor technical corrections to the conformity budgets) on November 12, 2008, which includes continued approval of the trading mechanism.

The trading mechanism will be used only for conformity analyses for analysis years after 2005. To ensure that the trading mechanism does not impact the ability to meet the NOx budget, the NOx emission reductions available to supplement the PM-10 budget shall only be those remaining after the NOx budget has been met.

**Table 1-3:
On-Road Motor Vehicle PM-10 Emissions Budgets**
(tons per average annual day)

County	2005		2020	
	PM-10	NOx	PM-10	NOx
Fresno	13.5	59.2	7.0	25.4
Kern ^(a)	12.1	88.3	7.4	23.3
Kings	3.1	16.7	1.8	4.8
Madera	3.6	13.9	2.5	4.7
Merced	6.2	39.4	3.8	8.9
San Joaquin	9.1	42.6	4.6	11.9
Stanislaus	5.6	29.7	3.7	9.6
Tulare	7.3	25.1	3.4	8.4

^(a) Kern County subarea includes only the portion of Kern County within the San Joaquin Valley Air Basin

^(b) Note that EPA did not take action on the 2005 budgets of the 2007 PM10 Maintenance Plan (as revised in 2015). These budgets are not in the timeframe of this conformity analysis.

PM2.5

EPA and FHWA have indicated that areas violating both the annual and 24-hour standards for PM2.5 must address all standards in the conformity determination. The San Joaquin Valley currently violates both the 1997 annual and 24-hour and 2012 annual PM2.5 standards and the 2006 24-hour PM2.5 standards; thus the conformity determination includes all corresponding analyses (see discussion under Air Quality Designations Applicable to the San Joaquin Valley above).

1997 (24-hour and annual) and 2012 (annual) PM2.5 Standards

The 2008 PM2.5 Plan for the 1997 PM2.5 standard (as revised in 2011) was approved by EPA on November 9, 2011, which contains motor vehicle emission budgets for PM2.5 and NOx established based on average annual daily emissions, as well as a trading mechanism. The motor vehicle emissions budget for PM2.5 includes directly emitted PM2.5 motor vehicle emissions from tailpipe, brake wear and tire wear. VOC, SOx, ammonia, and dust (from paved roads, unpaved roads, and road construction) were found to be insignificant and not included in the motor vehicle emission budgets for conformity purposes. The conformity budgets from Table 5 of the November 9, 2011 Federal Register are provided in Table 1-4 below and will be used to compare emissions resulting from the 2017 FTIP and 2014 RTP.

In accordance with Section 93.109(i)(3) of the conformity rule, if a 2012 PM2.5 nonattainment area has adequate or approved SIP budgets that address the annual 1997 PM2.5 standards, it must use the budget test until new 2012 PM2.5 standard budgets are found adequate or

approved. The attainment year of 2021 will be modeled. For this Conformity Analysis, the SJV will conduct determinations for subarea emission budgets as established in the 2015 PM2.5 (1997 Standard) Plan.

In addition, the final PM2.5 Implementation Rule requires areas designated as nonattainment for the 1997 PM2.5 standards to continue demonstrating conformity to these standards until attainment. In the San Joaquin Valley, the 1997 standards (both 24-hour and annual) continue to apply.

**Table 1-4:
On-Road Motor Vehicle 1997 (24-hour and annual) and 2012 (annual) PM2.5 Standard
Emissions Budgets
(tons per average annual day)**

County	2012		2014	
	PM2.5	NOx	PM2.5	NOx
Fresno	1.5	35.7	1.1	31.4
Kern (SJV)	1.9	48.9	1.2	43.8
Kings	0.4	10.5	0.3	9.3
Madera	0.4	9.2	0.3	8.1
Merced	0.8	19.7	0.6	17.4
San Joaquin	1.1	24.5	0.9	21.6
Stanislaus	0.7	16.7	0.6	14.6
Tulare	0.7	15.7	0.5	13.8

The 2008 PM2.5 SIP includes a trading mechanism that allows trading from the motor vehicle emissions budget for the PM-2.5 precursor NOx to the motor vehicle emissions budget for primary PM-2.5 using a 9 to 1 ratio. The trading mechanism allows the agencies responsible for demonstrating transportation conformity in the San Joaquin Valley to supplement the applicable budget for PM-2.5 with a portion of the applicable corresponding budget for NOx, and use these adjusted motor vehicle emissions budgets for PM-2.5 and NOx to demonstrate transportation conformity with the PM-2.5 SIP for analysis years after 2014. As noted above, EPA approved the 2008 PM2.5 Plan (as revised in 2011) on November 9, 2011, which includes approval of the trading mechanism.

The trading mechanism will be used only for conformity analyses for analysis years after 2014. To ensure that the trading mechanism does not impact the ability to meet the NOx budget, the NOx emission reductions available to supplement the PM-2.5 budget shall only be those remaining after the NOx budget has been met.

As noted above, in accordance with the EPA Transportation Conformity Rule Restructuring Amendments Nonattainment areas allows 2012 PM2.5 areas with adequate or approved 1997 PM2.5 budgets to determine conformity for both NAAQS at the same time, using the budget test.

2006 24-Hour PM2.5 Standard

The 2012 (2006 Standard) PM2.5 Plan was first approved by ARB on January 24, 2013 and the Plan Supplement requesting reclassification to Serious and including revised budgets was approved by ARB on October 24, 2014. EPA proposed approval of the plan on January 13, 2015.

On January 20, 2016, EPA finalized reclassification of the San Joaquin Valley to Serious nonattainment for the 2006 24-hour PM2.5 Standard. On May 18, 2016 EPA published proposed approval of the revised 2012 Plan PM2.5 budgets. Then on August 16, 2016, the 2012 PM2.5 Plan was approved by EPA including the revised conformity budgets and a trading mechanism (effective September 30, 2016).

The 2012 PM2.5 Plan for the 2006 PM2.5 standard (as revised in 2015) contains motor vehicle emission budgets for PM2.5 and NOx established based on average winter daily emissions, as well as a trading mechanism. The motor vehicle emissions budget for PM2.5 includes directly emitted PM2.5 motor vehicle emissions from tailpipe, brake wear and tire wear. VOC, SOx, ammonia, and dust (from paved roads, unpaved roads, and road construction) were found to be insignificant and not included in the motor vehicle emission budgets for conformity purposes. The conformity budgets from the 2012 PM2.5 Plan (as revised in 2015) are provided in Table 1-5 below and will be used to compare emissions resulting from the 2017 FTIP and 2014 RTP.

**Table 1-5:
On-Road Motor Vehicle 2006 24-Hour PM2.5 Standard Emissions Budgets
(tons per average winter day)**

County	2014		2017	
	PM2.5	NOx	PM2.5	NOx
Fresno	1.0	31.6	1.0	32.1
Kern (SJV)	1.2	43.2	0.8	28.8
Kings	0.2	8.8	0.2	5.9
Madera	0.3	8.7	0.2	6.0
Merced	0.5	17.2	0.3	11.0
San Joaquin	0.7	20.0	0.6	15.5
Stanislaus	0.5	15.1	0.4	12.3
Tulare	0.5	14.3	0.4	11.2

^(a) Note that EPA did not take action on the 2014 budgets of the 2012 PM2.5 Plan (as revised in 2015). These budgets are not in the timeframe of this conformity analysis.

The 2012 PM_{2.5} SIP includes a trading mechanism that allows trading from the motor vehicle emissions budget for the PM_{2.5} precursor NO_x to the motor vehicle emissions budget for primary PM-2.5 using an 8 to 1 ratio. The trading mechanism allows the agencies responsible for demonstrating transportation conformity in the San Joaquin Valley to supplement the applicable budget for PM-2.5 with a portion of the applicable corresponding budget for NO_x, and use these adjusted motor vehicle emissions budgets for PM_{2.5} and NO_x to demonstrate transportation conformity with the PM_{2.5} SIP for analysis years after 2014. As noted above, EPA approved the 2012 PM_{2.5} Plan budgets (as revised in 2015) on August 16, 2016 (effective September 30, 2016) and the trading mechanism.

E. ANALYSIS YEARS

The conformity regulation (Section 93.118[b] and [d]) requires documentation of the years for which consistency with motor vehicle emission budgets must be shown. In addition, any interpolation performed to meet tests for years in which specific analysis is not required need to be documented.

For the selection of the horizon years, the conformity regulation requires: (1) that if the attainment year is in the time span of the transportation plan, it must be modeled; (2) the last year forecast in the transportation plan must be a horizon year; and (3) horizon years may not be more than ten years apart. In addition, the conformity regulation requires that conformity must be demonstrated for each year for which the applicable implementation plan specifically establishes motor vehicle emission budgets.

Section 93.118(b)(2) clarifies that when a maintenance plan has been submitted, conformity must be demonstrated for the last year of the maintenance plan and any other years for which the maintenance plan establishes budgets in the time frame of the transportation plan. Section 93.118(d)(2) indicates that a regional emissions analysis may be performed for any years, the attainment year, and the last year of the plan's forecast. Other years may be determined by interpolating between the years for which the regional emissions analysis is performed.

**Table 1-6:
San Joaquin Valley Conformity Analysis Years**

Pollutant	Budget Years¹	Attainment/ Maintenance Year	Intermediate Years	RTP Horizon Year
CO	NA	2018	2017/2025/2035	2040
Ozone	2014/2017/2020/2023	2031	NA	2040
PM-10	NA	2020	2025/2035	2040
1997 and 2012 PM2.5	NA	2014/2021 ²	2017/2018/2025/2035	2040
2006 24-hour PM2.5	2014/2017	2019 ³	2025/2035	2040

Budget years that are not in the time frame of the transportation plan/conformity analysis are not included as analysis years (e.g., 2014), although they may be used to demonstrate conformity.

². Note: 2014 is the attainment year for the 1997 PM2.5 standards. 2021 is the attainment year for the 2012 PM2.5 standards.

³Note: The 2006 standard must be met as expeditiously as practicable, but no later than December 31, 2019.

Section 93.118(d)(2) indicates that the regional emissions analysis may be performed for any years in the time frame of the transportation plan provided they are not more than ten years apart and provided the analysis is performed for the attainment year (if it is in the time frame of the transportation plan) and the last year of the plan’s forecast period. Emissions in years for which consistency with motor vehicle emissions budgets must be demonstrated, as required in paragraph (b) of this section (i.e., each budget year), may be determined by interpolating between the years for which the regional emissions analysis is performed.

For the 2008 Ozone Standard, the San Joaquin Valley has been classified as an Extreme nonattainment area with an attainment date of July 20, 2032. In accordance with the March 2015 *Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements* final rule, the attainment year of 2031 must be modeled. When using the budget test, the attainment year of the 2008 Ozone standard must be analyzed (e.g. 2031). In addition, in areas that have approved or adequate budgets for the 1997 ozone standard, consistency with those budgets must also be determined.

The Clean Air Act requires all states to attain the 1997 PM2.5 standards as expeditiously as practicable beginning in 2010, but by no later than April 5, 2010 unless EPA approves an attainment date extension. States must identify their attainment dates based on the rate of reductions from their control strategies and the severity of the PM2.5 problem. On February 9, 2016 EPA released its proposed *Approval and Disapproval of California Air Plan; San Joaquin*

Valley Serious Area Plan and Attainment Date Extension for the 1997 PM2.5 NAAQS. No final EPA action has been taken on the plan. As a result, the proposed SIP budgets are assumed to be unavailable for use and the 2008 PM2.5 Plan conformity budgets are the only budgets applicable at this time for the 1997 PM2.5 standard.

On January 20, 2016, EPA finalized reclassification of the San Joaquin Valley to Serious nonattainment for the 2006 24-hour PM2.5 Standard. On May 18, 2016 EPA published proposed approval of the revised 2012 Plan PM2.5 budgets. Then on August 16, 2016, EPA issued final approval of the 2012 PM2.5 Plan (inclusive of the revised conformity budgets and trading mechanism) for the 2006 24-hour PM2.5 standard, effective September 30, 2016. The attainment year of 2019 must be modeled.

On April 15, 2015, EPA classified the San Joaquin Valley as Moderate nonattainment for the 2012 PM2.5 Standards. In accordance with Section 93.109(i)(3) of the conformity rule, if a 2012 PM2.5 nonattainment area has adequate or approved SIP budgets that address the annual 1997 PM2.5 standards, it must use the budget test until new 2012 PM2.5 standard budgets are found adequate or approved. When using the budget test, the attainment year must be analyzed (e.g. 2021). In addition, in areas that have approved or adequate budgets for the 1997 annual PM2.5 standards, consistency with those budgets must also be determined. The attainment year of 2021 must be modeled.

CHAPTER 2: LATEST PLANNING ASSUMPTIONS AND TRANSPORTATION MODELING

The Clean Air Act states that “the determination of conformity shall be based on the most recent estimates of emissions, and such estimates shall be determined from the most recent population, employment, travel, and congestion estimates as determined by the MPO or other agency authorized to make such estimates.” On January 18, 2001, the USDOT issued guidance developed jointly with EPA to provide additional clarification concerning the use of latest planning assumptions in conformity determinations (USDOT, 2001).

According to the conformity regulation, the time the conformity analysis begins is “the point at which the MPO or other designated agency begins to model the impact of the proposed transportation plan or TIP on travel and/or emissions.” The conformity analysis and initial modeling began in August 2013. A summary of transportation model updates and latest planning assumptions was transmitted to the San Joaquin Valley Interagency Consultation (IAC) for review and comments or concurrence on August 18, 2013. The summary was discussed on the September 17, 2013 IAC conference call. Both EPA and FHWA indicated that there were no comments or concerns regarding the summary.

Key elements of the latest planning assumption guidance include:

- Areas are strongly encouraged to review and strive towards regular five-year updates of planning assumptions, especially population, employment and vehicle registration assumptions.
- The latest planning assumptions must be derived from the population, employment, travel and congestion estimates that have been most recently developed by the MPO (or other agency authorized to make such estimates) and approved by the MPO.
- Conformity determinations that are based on information that is older than five years should include written justification for not using more recent information. For areas where updates are appropriate, the conformity determination should include an anticipated schedule for updating assumptions.
- The conformity determination must use the latest existing information regarding the effectiveness of the transportation control measures (TCMs) and other implementation plan measures that have already been implemented.

The Merced County Association of Governments uses the CUBE transportation model. The model was validated in 2013 for the 2008 base year. The latest planning assumptions used in the transportation model validation and Conformity Analysis is summarized in Table 2-1.

**Table 2-1:
Summary of Latest Planning Assumptions for the MCAG Conformity Analysis**

Assumption	Year and Source of Data (MPO action)	Modeling	Next Scheduled Update
Population	Base Year: 2008 Projections: In September 2014, the MCAG Board accepted population projections from the Planning Center released in March 2012.	This data is disaggregated to the TAZ level for input into the CUBE model for the base year validation.	Population projections will be reviewed and updated periodically with possible update in 2018.
Employment	Base Year: 2008 Projections: In September 2014, the MCAG Board accepted population projections from the Planning Center released in March 2012.	This data is disaggregated to the TAZ level for input into the CUBE model for the base year validation.	Employment projections will be reviewed and updated periodically with possible update in 2018.
Traffic Counts	The transportation model was validated in 2013 to the 2008 base year using daily and peak hour counts.	CUBE was validated using these traffic counts.	All readily available counts are included in each model update.
Vehicle Miles of Travel	The MCAG Board accepted the 2013 transportation model validation for the 2008 base year in September 2014.	CUBE is the transportation model used to estimate VMT in Merced County.	VMT is an output of the transportation model. VMT is affected by the TIP/RTP project updates and is included in each new conformity analysis.

Assumption	Year and Source of Data (MPO action)	Modeling	Next Scheduled Update
Speeds	The 2013 transportation model validation was based on survey data on peak and off-peak highway speeds collected in 2006. Speed distributions were updated in EMFAC2014, using methodology approved by ARB and with information from the transportation model.	CUBE. The transportation model includes a feedback loop that assures congested speeds are consistent with travel speeds. EMFAC2014	Speed studies will be included in each model when available.

A. SOCIOECONOMIC DATA

POPULATION, EMPLOYMENT AND LAND USE

The conformity regulation requires documentation of base case and projected population, employment, and land use used in the transportation modeling. USDOT/EPA guidance indicates that if the data is more than five years old, written justification for the use of older data must be provided. In addition, documentation is required for how land use development scenarios are consistent with future transportation system alternatives, and the reasonable distribution of employment and residences for each alternative.

Supporting Documentation:

The forecasts used by MCAG were from the San Joaquin Valley Demographic Forecasts: 2010 to 2050 prepared by The Planning Center, March 2012. The forecast was part of a San Joaquin Valley demographic study commissioned by the eight metropolitan planning organizations (MPOs) of the valley.

This study includes three primary forecasts of population, households and housing units. Other projections developed by The Planning Center, e.g., age distribution, average household size, household income, household type, race/ethnicity, are derived from the three primary forecasts. The Planning Center forecasts are based on several different projections including household trend, total housing unit trend, housing construction trend, employment trend, cohort-component model, population trend, average household size trend, and household income trend. The least squares linear curve forms the basis for all projections because the forecasts are long-term and curve-fitting techniques (e.g., parabolic curve, logistic curve) do not provide reasonable long-term results. Three measures evaluate the adequacy of each projection: mean absolute percentage error (MAPE), F-test, and t-test. The population forecast is included in Table 2-2.

Employment was forecast by The Planning Center using the at-place employment data by sector from the State of California Employment Development Department. The model constructs a least-squares line for each economic sector and sums the results to generate a projection for total employment in the County. The resulting employment forecast is included in Table 2-2.

Land use and socioeconomic data at the Traffic Analysis Zone level are used for determining trip generation in the traffic model. Population and employment projections at the countywide, jurisdictional, and TAZ level were developed based on historical growth rates, recent development activity, current entitlements and a consensus process utilizing input from the local jurisdictions.

B. TRANSPORTATION MODELING

The San Joaquin Valley Metropolitan Planning Organizations (MPOs) utilize the TP+/Viper traffic modeling software. The Valley TPA regional traffic models consist of traditional four-step traffic forecasting models. They use land use, socioeconomic, and road network data to estimate facility-specific roadway traffic volumes. Each TPA model covers the appropriate county area, which is then divided into hundreds or thousands of individual traffic analysis zones (TAZs). In addition the model roadway networks include thousands of nodes and links. Link types include freeway, freeway ramp, other State route, expressway, arterial, collector, and local collector. Current and future-year road networks were developed considering local agency circulation elements of their general plans, traffic impact studies, capital improvement programs, and the State Transportation Improvement Program. The models use equilibrium, a capacity sensitive assignment methodology, and the data from the model for the emission estimates differentiates between peak and off-peak volumes and speeds. In addition, the model is reasonably sensitive to changes in time and other factors affecting travel choices. The results from model validation/calibration were analyzed for reasonableness and compared to historical trends.

Specific transportation modeling requirements in the conformity regulation are summarized below, followed by a description of how the Merced County Association of Governments transportation modeling methodology meets those requirements.

MCAG completed the update of its traffic model to Citilabs Cube modeling software and revalidation to a new base year of 2008 in 2013. The MCAG regional traffic model is a four-step mode choice traffic model. It uses land use, socioeconomic, and road network data to estimate facility-specific roadway traffic volumes. The study area for the MCAG model covers all of San Joaquin, Stanislaus, and Merced Counties. The model region is divided up into approximately 6540 traffic analysis zones. Link types include freeway, freeway ramp, other state route, expressway, arterial, collector, and local collector. Current and future-year road networks were developed considering local agency circulation elements of their general plans, traffic impact studies, capital improvement programs, and the State Transportation Improvement Program.

The travel demand model estimates travel demand and traffic volumes for the A.M. three-hour peak period, P.M. three-hour peak period, and mid-day, and evening. Daily forecasts are calculated by summing the A.M. and P.M. three-hour peak periods with the mid-day and evening period. The model also generates traffic forecasts for the A.M. peak hour and the P.M. peak hour.

Land use and socioeconomic data at the Traffic Analysis Zone level are used for determining trip generation in the traffic model. Population and employment projections at the countywide, jurisdictional, and TAZ level were developed based on historical growth rates, and a consensus process utilizing input from each of the MCAG local jurisdictions.

The Estimated Vehicle Miles Traveled in the 2008 validated base year calibrated to 1.0 percent of the estimate in the 2008 Highway Performance Monitoring System report for Merced County.

TRAFFIC COUNTS

The conformity regulation requires documentation that a network-based travel model is in use that is validated against observed counts for a base year no more than 10 years before the date of the conformity determination. Document that the model results have been analyzed for reasonableness and compared to historical trends and explain any significant differences between past trends and forecasts (for per capita vehicle-trips, VMT, trip lengths mode shares, time of day, etc.).

Supporting Documentation:

The Merced County portion of Three County Model was validated to 2008 using available 2008 counts. Over 200 counts were used.

Data from the 2001 California Household Travel Study (CHTS) were also used to validate the Three County Model.

The Estimated Vehicle Miles Traveled in the 2008 validated base year calibrated to 1.0 percent of the estimate in the 2008 Highway Performance Monitoring System report for Merced County.

SPEEDS

The conformity regulation requires documentation of the use of capacity sensitive assignment methodology and emissions estimates based on a methodology that differentiates between peak and off-peak volumes and speeds, and bases speeds on final assigned volumes. In addition, documentation of the use of zone-to-zone travel impedances to distribute trips in reasonable agreement with the travel times estimated from final assigned traffic volumes. Where transit is a significant factor, document that zone-to-zone travel impedances used to distribute trips are used to model mode split. Finally, document that reasonable methods were used to estimate traffic speeds and delays in a manner sensitive to the estimated volume of travel on each roadway segment represented in the travel model.

Supporting Documentation:

The MCAG traffic model includes a feedback loop that uses congested travel times as an input to the trip distribution step. The feedback loop ensures that the congested travel speeds used as

input to the air pollution emission models are consistent with the peak hour and off peak travel speeds used throughout the traffic model process.

TRANSIT

The conformity regulation requires documentation of any changes in transit operating policies and assumed ridership levels since the previous conformity determination. Document the use of the latest transit fares and road and bridge tolls.

Supporting Documentation:

The MCAG model is based on the latest available assumptions on transit fares for all transit operators in the model region and auto ownership costs. The mode choice model uses a multinomial logit formulation, which assigns the probability of using a particular travel mode based on attractiveness measure for that mode in relation to the sum of the attractiveness of the other mode. The model predicts the following seven modes:

1. Drive Alone
2. 2-Person vehicle
3. 3+-Person vehicle
4. Walk to Transit
5. Drive to Transit
6. Walk
7. Bike

Daily transit trips are assigned to the transit network. Transit trips are assigned to the single best path based on in-vehicle time plus weighted out-of- vehicle times. The transit trips are assigned in four groups:

1. Peak period (A.M. plus P.M.), walk access
2. Peak period (A.M. plus P.M.), drive access
3. Off-peak, walk access
4. Off-peak, drive access

The peak period transit trips represent trips occurring during the A.M. three- hour peak period plus the P.M. three hour peak period. Peak period transit trips are assigned to the peak transit service (peak period headways) with travel times based on the congested speeds from the A.M. peak period traffic assignment. Off-peak transit trips represent trips during the remaining 18 hours and are assigned to the off-peak transit service (off peak headways) with travel times based on the congested road speeds from the off-peak traffic assignment.

VALIDATION/CALIBRATION

The conformity regulation requires documentation that the model results have been analyzed for reasonableness and compared to historical trends and explain any significant differences between past trends and forecasts (for per capita vehicle-trips, VMT, trip lengths mode shares, time of day, etc.). In addition, documentation of how travel models are reasonably sensitive to changes in

time, cost, and other factors affecting travel choices is required. The use of HPMS, or a locally developed count-based program or procedures that have been chosen to reconcile and calibrate the network-based travel model estimates of VMT must be documented.

Supporting Documentation:

For Serious and above nonattainment areas, transportation conformity guidance, Section 93.122(b)(3) of the conformity regulation states:

Highway Performance Monitoring System (HPMS) estimates of vehicle miles traveled (VMT) shall be considered the primary measure of VMT within the portion of the nonattainment or maintenance area and for the functional classes of roadways included in HPMS, for urban areas which are sampled on a separate urban area basis. For areas with network-based travel models, a factor (or factors) may be developed to reconcile and calibrate the network-based travel model estimates of VMT in the base year of its validation to the HPMS estimates for the same period. These factors may then be applied to model estimates of future VMT. In this factoring process, consideration will be given to differences between HPMS and network-based travel models, such as differences in the facility coverage of the HPMS and the modeling network description. Locally developed count-based programs and other departures from these procedures are permitted subject to the interagency consultation procedures.

The MCAG Model was validated by comparing its estimates of base year traffic conditions with base year traffic counts. The base year validations meet standard criteria for replicating total traffic volumes on various road types and for percent error on links. The base year validation also meets standard criteria for percent error relative to traffic counts on groups of roads (screen-lines) throughout each county.

FUTURE NETWORKS

The conformity regulation requires that a listing of regionally significant projects and federally-funded non-regionally significant projects assumed in the regional emissions analysis be provided in the conformity documentation. In addition, all projects that are exempt must also be documented.

§93.106(a)(2)ii and §93.122(a)(1) requires that regionally significant additions or modifications to the existing transportation network that are expected to be open to traffic in each analysis year be documented for both Federally funded and non-federally funded projects (see Appendix B).

§93.122(a)(1) requires that VMT for non-regionally significant Federal projects is accounted for in the regional emissions analysis. It is assumed that all SJV MPOs include these projects in the transportation network (see Appendix B).

§93.126, §93.127, §93.128 require that all projects in the TIP/RTP that are exempt from conformity requirements or exempt from the regional emissions analysis be documented. In addition, the reason for the exemption (Table 2, Table 3, traffic signal synchronization) must also

be documented (see Appendix B). It is important to note that the CTIPs exemption code is provided in response to FHWA direction.

Supporting Documentation:

The build highway networks include qualifying projects based on the 2015 Federal Transportation Improvement Program (2015 FTIP) and the 2014 Regional Transportation Plan (2014 RTP). Not all of the street and freeway projects included in the TIP/RTP qualify for inclusion in the highway network. Projects that call for study, design, or non-capacity improvements are not included in the networks. When these projects result in actual facility construction projects, the associated capacity changes are coded into the network as appropriate. Since the networks define capacity in terms of number of through traffic lanes, only construction projects that increase the lane-miles of through traffic are included.

Generally, Valley TPA highway networks include all roadways included in the county or cities classified system. These links typically include all freeways plus expressways, arterials, collectors and local collectors. Highway networks also include regionally significant planned local improvements from Transportation Impact Fee Programs and developer funded improvements required to mitigate the impact of a new development.

Small-scale local street improvements contained in the TIP/RTP are not coded on the highway network. Although not explicitly coded, traffic on collector and local streets is simulated in the models by use of abstract links called "centroid connectors". These represent local streets and driveways which connect a neighborhood to a regionally-significant roadway. Model estimates of centroid connector travel are reconciled against HPMS estimates of collector and local street travel.

C. TRAFFIC ESTIMATES

A summary of the population, employment, and travel characteristics for the MCAG transportation modeling area for each scenario in the Conformity Analysis is presented in Table 2-2.

**Table 2-2:
Traffic Network Comparison for Horizon Years Evaluated in Conformity Analysis**

Horizon Year	Total Population (thousands)	Employment (thousands)	Average Weekday VMT (millions)	Total Lane Miles
2017	287.4	71.8	7,763	N/A
2018	288.5	72.0	7,778	N/A
2019	298.0	73.5	7,907	N/A
2020	303.0	74.4	8,189	3,099
2021	308.3	75.1	8,246	N/A
2023	319.0	76.8	8,732	N/A
2025	329.6	78.4	8,978	3,140
2031	361.8	83.4	9,566	N/A
2035	383.4	86.7	10,098	3,177
2040	410.3	90.9	10,672	3,177

D. VEHICLE REGISTRATIONS

MCAG does not estimate vehicle registrations, age distributions or fleet mix. Rather, current forecasted estimates for these data are developed by CARB and included in the EMFAC2014 model (http://www.arb.ca.gov/msei/onroad/latest_version.htm). EMFAC2014 is the most recent model for use in California conformity analyses. Vehicle registrations, age distribution and fleet mix are developed and included in the model by CARB and cannot be updated by the user. EPA issued a federal register notice on December 14, 2015 formally approving EMFAC2014 for conformity.

E. STATE IMPLEMENTATION PLAN MEASURES

The air quality modeling procedures and associated spreadsheets contained in Chapter 3 Air Quality Modeling assume emission reductions consistent with the applicable air quality plans. The emission reductions assumed for these committed measures reflect the latest implementation status of these measures. Committed control measures in the applicable air quality plans that reduce mobile source emissions and are used in conformity, are summarized below.

CARBON MONOXIDE

No committed control measures are included in the conformity demonstration.

OZONE

Committed control measures in the 2007 8-hour Ozone Plan (as revised in 2015) that reduce mobile source emissions and are included in the conformity demonstration are shown in Table 2-3.

**Table 2-3:
2007 Ozone Plan Measures Assumed in the Conformity Analysis**

Measure Description	Pollutants
Existing Local Reductions: District Rule 9310 (School Bus Fleets)	Summer NOx
Existing State Reductions: Carl Moyer Program & AB 1493 GHG Standards	Summer ROG Summer NOx
New/Proposed Local Reductions: District Rule 9410 (Employer Based Trip Reduction)	Summer ROG Summer NOx
New/Proposed State Reductions: Smog Check & Reformulated Gas (RFG)	Summer ROG Summer NOx

NOTE: This table is consistent with the 2007 Ozone Plan (as revised in 2015) which was approved by EPA on July 8, 2016 (effective September 30, 2016). State reductions from the Carl Moyer, AB1493, Smog Check and RFG have been included in EMFAC2014.

PM-10

Committed control measures in the EPA approved 2007 PM-10 Maintenance Plan that reduce mobile source emissions and are included in the conformity demonstration are shown in Table 2-4.

**Table 2-4:
2007 PM-10 Maintenance Plan Measures Assumed in the Conformity Analysis**

Measure Description	Pollutants
ARB existing Reflash, Idling, and Moyer	PM-10 annual exhaust NOx annual exhaust
District Rule 8061: Paved and Unpaved Roads	PM-10 paved road dust PM-10 unpaved road dust
District Rule 8021 Controls: Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities	PM-10 road construction dust

NOTE: State reductions from the Carl Moyer, Reflash and Idling have been included in EMFAC2014.

PM2.5

Committed control measures in the 2008 PM2.5 Plan (as revised in 2011) and 2012 PM2.5 Plan (as revised in 2015) that reduce mobile source emissions and are included in the conformity demonstration are shown in Table 2-5 and 2-6, respectively.

**Table 2-5:
2008 PM2.5 (1997 Standard) Plan Measures Assumed in the Conformity Analysis**

Measure Description	Pollutants
Existing Local Reductions: District Rule 9310 (School Bus Fleets)	Annual PM2.5 Annual NOx
Existing State Reductions: Carl Moyer Program & AB 1493 GHG Standards	Annual PM2.5 Annual NOx
New/Proposed Local Reductions: District Rule 9410 (Employer Based Trip Reduction)	Annual PM2.5 Annual NOx
New/Proposed State Reductions: Smog Check	Annual PM2.5 Annual NOx

NOTE: This table is consistent with the 2008 PM2.5 Plan (as revised in 2011) as approved by EPA on November 9, 2011 (effective January 9, 2012). State reductions from the Carl Moyer, AB1493, and Smog Check have been included in EMFAC2014.

**Table 2-6:
2012 PM2.5 (2006 Standard) Plan Measures Assumed in the Conformity Analysis**

Measure Description	Pollutants
Existing Local Reductions: District Rule 9310 (School Bus Fleets)	Annual PM2.5 Annual NOx
Existing State Reductions: Carl Moyer Program & AB 1493 GHG Standards	Annual PM2.5 Annual NOx
New/Proposed Local Reductions: District Rule 9410 (Employer Based Trip Reduction)	Annual PM2.5 Annual NOx
New/Proposed State Reductions: Smog Check	Annual PM2.5 Annual NOx

NOTE: This table is consistent with the 2012 PM2.5 Plan (as revised in 2015) approved by EPA on August 16, 2016 (effective September 30, 2016). State reductions from the Carl Moyer, AB1493 and Smog Check have been included in EMFAC2014.

CHAPTER 3: AIR QUALITY MODELING

The model used to estimate vehicle exhaust emissions for carbon monoxide, ozone precursors, and particulate matter is EMFAC2014. CARB emission factors for PM-10 have been used to calculate re-entrained paved and unpaved road dust, and fugitive dust associated with road construction. For this conformity analysis, model inputs not dependent on the TIP or RTP are consistent with the applicable SIPs, which include:

- The 2004 Revision to the California State Implementation Plan for Carbon Monoxide was approved by EPA on November 30, 2005 (effective January 30, 2006).
- The 2007 Ozone Plan (1997 Standard), as revised in 2015, was approved by EPA on July 8, 2016 (effective September 30, 2016).
- The 2016 Ozone Plan (2008 standard) was adopted by the Air District on June 16, 2016 and subsequently adopted by the ARB on July 21, 2016. Since the new ozone budget have not yet been approved by EPA, the 2007 Ozone Plan budgets will continue to be used for this conformity analysis.
- The 2007 PM-10 Maintenance Plan (as revised in 2015) was approved by EPA on July 8, 2016 (effective September 30, 2016)..
- The 2008 PM2.5 Plan (1997 Standard), as revised in 2011, was approved by EPA on November 9, 2011 (effective January 9, 2012).
- The 2015 PM2.5 Plan (1997 Standards) was approved by ARB on May 21, 2015. On February 9, 2016 EPA published proposed conditional approval of the 2015 Plan; no final EPA action has been taken on the plan. As a result, the proposed SIP budgets are assumed to be unavailable for use and the 2008 PM2.5 Plan conformity budgets are the only budgets applicable to the 1997 and 2012 PM2.5 standards at this time.
- The 2012 PM2.5 Plan was approved by EPA on August 16, 2016 (effective September 30, 2016) inclusive of the revised conformity budgets and PM2.5 trading mechanism.

The conformity regulation requirements for the selection of the horizon years are summarized in Chapter 1; regional emissions have been estimated for the horizon years summarized in Table 1-6.

A. EMFAC2014

The EMFAC model (short for EMISSION FACTOR) is a computer emissions modeling software that estimates emission rates for motor vehicles for calendar years from 2000 to 2050 operating in

California. Pollutant emissions for hydrocarbons, carbon monoxide, nitrogen oxides, particulate matter, lead, sulfur oxides, and carbon dioxide are output from the model. Emissions are calculated for passenger cars, light, heavy, and medium-duty trucks, motorcycles, buses and motor homes.

EMFAC is used to calculate current and future inventories of motor vehicle emissions at the state, county, air district, air basin, or MPO level. EMFAC contains default vehicle activity data that can be used to estimate a motor vehicle emissions inventory in tons/day for a specific year and season, and as a function of ambient temperature, relative humidity, vehicle population, mileage accrual, miles of travel, and vehicle speeds.

Section 93.111 of the conformity regulation requires the use of the latest emission estimation model in the development of conformity determinations. On December 30, 2014, ARB released EMFAC2014, which is the latest update to the EMFAC model for use by California State and local governments to meet Clean Air Act (CAA, 1990) requirements. Nearly a year later, on December 14, 2015, EPA announced the availability of this latest version of the California EMFAC model for use in SIP development in California. EMFAC2014 will be required for conformity analysis on or after December 14, 2017, or when conformity budgets modeled with EMFAC2014 are found adequate or approved by EPA.

A transportation data template has been prepared to summarize the transportation model output for use in EMFAC2014. The template includes allocating VMT by speed bin by hour of the day. EMFAC2014 was used to estimate exhaust emissions for CO, ozone, PM-10, and PM2.5 conformity demonstrations consistent with the applicable air quality plan. Note that the statewide SIP measures documented in Chapter 2 are already incorporated in the EMFAC2014 model.

B. ADDITIONAL PM-10 ESTIMATES

PM-10 emissions for re-entrained dust from travel on paved and unpaved roads will be calculated separately from roadway construction emissions. It is important to note that with the final approval of the 2007 PM-10 Maintenance Plan, EPA approved a methodology to calculate PM-10 emissions from paved and unpaved roads in future San Joaquin Valley conformity determinations. The Conformity Analysis uses these methodologies and estimates construction-related PM-10 emissions consistent with the 2007 PM-10 Maintenance Plan. The National Ambient Air Quality Standards for PM-10 consists of a 24-hour standard, which is represented by the motor vehicle emissions budgets established in the 2007 PM-10 Maintenance Plan. It is important to note that EPA revoked the annual PM-10 Standard on October 17, 2006. The PM-10 emissions calculated for the conformity analysis represent emissions on an annual average day and are used to satisfy the budget test.

CALCULATION OF REENTRAINED DUST FROM PAVED ROAD TRAVEL

On January 13, 2011 EPA released a new method for estimating re-entrained road dust emissions from cars, trucks, buses, and motorcycles on paved roads. On February 4, 2011, EPA published the *Official Release of the January 2011 AP-42 Method for Estimating Re-Entrained Road Dust*

from Paved Roads approving the January 2011 method for use in regional emissions analysis and beginning a two year conformity grace period, after which use of the January 2011 AP-42 method is required (e.g. February 4, 2013) in regional conformity analyses.

The road dust calculations have been updated to reflect this new methodology. More specifically, the emission factor equation and k value (particle size multiplier) have been updated accordingly. CARB default assumptions for roadway silt loading by roadway class, average vehicle weight, and rainfall correction factor remain unchanged. Emissions are estimated for five roadway classes including freeways, arterials, collectors, local roads, and rural roads. Countywide VMT information is used for each road class to prepare the emission estimates.

CALCULATION OF REENTRAINED DUST FROM UNPAVED ROAD TRAVEL

The base methodology for estimating unpaved road dust emissions is based on a CARB methodology in which the miles of unpaved road are multiplied by the assumed VMT and an emission factor. In the 2007 PM-10 Maintenance Plan, it is assumed that all non-agricultural unpaved roads within the San Joaquin Valley receive 10 vehicle passes per day. An emission factor of 2.0 lbs PM-10/VMT is used for the unpaved road dust emission estimates. Emissions are estimated for city/county maintained roads.

CALCULATION OF PM-10 FROM ROADWAY CONSTRUCTION

Section 93.122(e) of the Transportation Conformity regulation requires that PM-10 from construction-related fugitive dust be included in the regional PM-10 emissions analysis, if it is identified as a contributor to the nonattainment problem in the PM-10 implementation plan. The emission estimates are based on a CARB methodology in which the miles of new road built are converted to acres disturbed, which is then multiplied by a generic project duration (i.e., 18 months) and an emission rate. Emission factors are unchanged from the previous estimates at 0.11 tons PM-10/acre-month of activity. The emission factor includes the effects of typical control measures, such as watering, which is assumed to reduce emissions by about 50%. Updated activity data (i.e., new lane miles of roadway built) is estimated based on the highway and transit construction projects in the TIP/RTP.

PM-10 TRADING MECHANISM

The PM-10 SIP allows trading from the motor vehicle emissions budget for the PM-10 precursor NOx to the motor vehicle emissions budget for primary PM-10 using a 1.5 to 1 ratio. The trading mechanism will be used only for conformity analyses for analysis years after 2005.

C. PM2.5 APPROACH

EPA and FHWA have indicated that areas violating both the annual and 24-hour standards for PM2.5 must address all standards in the conformity determination. The San Joaquin Valley currently violates both the 1997 and 2012 annual PM2.5 standards, and the 1997 and 2006 24-

hour PM_{2.5} standards; thus the conformity determination includes analyses to all PM_{2.5} standards.

The following PM_{2.5} approach addresses the 1997 (annual and 24-hour), the 2012 (annual), and the 2006 24-hour standards:

EMFAC2014 incorporates data for temperature and relative humidity that vary by geographic area, calendar year and season. The annual average represents an average of all the monthly inventories. A winter average represents an average of the California winter season (October through February). EMFAC will be run to estimate direct PM_{2.5} and NO_x emissions from motor vehicles for an annual or winter average day as described below.

EPA guidance indicates that State and local agencies need to consider whether VMT varies during the year enough to affect PM_{2.5} annual emission estimates. The availability of seasonal or monthly VMT data and the corresponding variability of that data need to be evaluated.

PM_{2.5} areas that are currently using network based travel models must continue to use them when calculating annual emission inventories. The guidance indicates that the interagency consultation process should be used to determine the appropriate approach to produce accurate annual inventories for a given nonattainment area. Whichever approach is chosen, that approach should be used consistently throughout the analysis for a given pollutant or precursor. The interagency consultation process should also be used to determine whether significant seasonal variations in the output of network based travel models are expected and whether these variations would have a significant impact on PM_{2.5} emission estimates.

The SJV MPOs all use network based travel models. However, the models only estimate average weekday VMT. The SJV MPOs do not have the data or ability to estimate seasonal variation at this time. Data collection and analysis for some studies are in the preliminary phases and cannot be relied upon for other analyses. Some statewide data for the seasonal variation of VMT on freeways does exist. However, traffic patterns on freeways do not necessarily represent the typical traffic pattern for local streets and arterials.

In many cases, traffic counts are sponsored by the MPOs and conducted by local jurisdictions. While some local jurisdictions may collect weekend or seasonal data, typical urban traffic counts occur on weekdays (Tuesday through Thursday). Data collection must be more consistent in order to begin estimation of daily or seasonal variation.

The SJV MPOs believe that the average annual day calculated from the current traffic models and EMFAC2014 represent the most accurate VMT data available. The MPOs will continue to discuss and research options that look at how VMT varies by month and season according to the local traffic models.

It is important to note that the guidance indicates that EPA expects the most thorough analysis for developing annual inventories will occur during the development of the SIP, taking into account the needs and capabilities of air quality modeling tools and the limitations of available

data. Prior to the development of the SIP, State and local air quality and transportation agencies may decide to use simplified methods for regional conformity analyses.

The regional emissions analyses in PM_{2.5} nonattainment areas must consider directly emitted PM_{2.5} motor vehicle emissions from tailpipe, brake wear, and tire wear. In California, areas will use EMFAC2014. As indicated under the Conformity Test Requirements, re-entrained road dust and construction-related fugitive dust from highway or transit projects is not included at this time. In addition, NO_x emissions are included; however, VOC, SO_x, and ammonia emissions are not.

1997 PM_{2.5} Standard – At this time, EPA has not finalized the approval of the 2015 PM_{2.5} Plan, thus the 2008 PM_{2.5} Plan budgets will continue to be used in this conformity analysis. The 2008 PM_{2.5} Plan (as revised in 2011) was approved by EPA on November 9, 2011 (effective January 9, 2012) and contains motor vehicle emission budgets for PM_{2.5} and NO_x established based on average annual daily emissions. The annual inventory methodology contained in the 2008 Plan (as revised in 2011) and used to establish emissions budgets is consistent with the methodology used herein. The motor vehicle emissions budget for PM_{2.5} includes directly emitted PM_{2.5} motor vehicle emissions from tailpipe, brake wear and tire wear. VOC, SO_x, ammonia, and dust (from paved roads, unpaved roads, and road construction) were found to be insignificant and not included in the motor vehicle emission budgets for conformity purposes.

2006 PM_{2.5} Standard – On January 20, 2016, EPA finalized reclassification of the San Joaquin Valley to Serious nonattainment for the 2006 24-hour PM_{2.5} Standard. On May 18, 2016 EPA published proposed approval of the revised 2012 Plan PM_{2.5} budgets. Then on August 16, 2016 the 2012 PM_{2.5} Plan was approved by EPA including the revised conformity budgets and a trading mechanism (effective September 30, 2016). The 2012 PM_{2.5} Plan (as revised in 2015) contains motor vehicle emission budgets for PM_{2.5} and NO_x established based on average winter daily emissions. The winter inventory methodology contained in the 2012 Plan and used to establish emissions budgets is consistent with the methodology used herein. The motor vehicle emissions budget for PM_{2.5} include directly emitted PM_{2.5} motor vehicle emissions from tailpipe, brake wear and tire wear. VOC, SO_x, ammonia, and dust (from paved roads, unpaved roads, and road construction) were found to be insignificant and not included in the motor vehicle emission budgets for conformity purposes. It is important to note that the 2006 24-hour PM_{2.5} nonattainment area boundary for the San Joaquin Valley is exactly the same as the nonattainment area boundary for the 1997 PM_{2.5} standards.

2012 PM_{2.5} Standard – EPA's nonattainment area designations for the 2012 PM_{2.5} standard became effective on April 15, 2015. Conformity applies one year after the effective date (April 15, 2016). In accordance with Section 93.109(i)(3) of the federal transportation conformity rule, if a 2012 PM_{2.5} area has adequate or approved SIP budgets that address the annual 1997 standards, it must use the budget test until new 2012 PM_{2.5} standard budgets are found adequate or approved. It is important to note that the 2012 annual PM_{2.5} nonattainment area boundary for the San Joaquin Valley is exactly the same as the nonattainment area boundary for the 1997 and 2006 PM_{2.5} standards.

1997 and 2012 PM_{2.5} TRADING MECHANISM

At this time, EPA has not finalized the approval of the 2015 PM_{2.5} Plan, thus consistent with the PM_{2.5} implementation rule, the 2008 PM_{2.5} Plan budgets and trading mechanism will continue to be used in this conformity analysis.

The 2008 PM_{2.5} SIP (ass revised in 2011) allows trading from the motor vehicle emissions budget for the PM_{2.5} precursor NO_x to the motor vehicle emissions budget for primary PM_{2.5} using a 9 to 1 ratio. This trading mechanism will be used for the 1997 annual and 24-hour hour and 2012 PM_{2.5} standard conformity analyses for analysis years after 2014.

2006 PM_{2.5} TRADING MECHANISM

On August 16, 2016 EPA approved the 2012 PM_{2.5} SIP including the PM_{2.5} trading mechanism that allows trading from the motor vehicle emissions budget for the PM_{2.5} precursor NO_x to the motor vehicle emissions budget for primary PM-2.5 using an 8 to 1 ratio. This trading mechanism will be used for the 2006 24-hour PM_{2.5} standard conformity analysis for analysis years after 2014.

D. SUMMARY OF PROCEDURES FOR REGIONAL EMISSIONS ESTIMATES

New step-by-step air quality modeling instructions were developed for SJV MPO use with EMFAC2014. These instructions were provided for interagency consultation in May 2016. EPA, FHWA, and ARB concurred. Documentation of the conformity analysis for the 2017 FTIP is provided in Appendix C, including:

- 2017 FTIP Conformity EMFAC Summary Spreadsheet
- 2017 FTIP Conformity Paved Road Spreadsheet
- 2017 FTIP Conformity Unpaved Road Dust Spreadsheet
- 2017 FTIP Conformity Construction Spreadsheet
- 2017 FTIP Conformity Totals Spreadsheet

CHAPTER 4: TRANSPORTATION CONTROL MEASURES

This chapter provides an update of the current status of transportation control measures identified in applicable implementation plans. Requirements of the Transportation Conformity regulation relating to transportation control measures (TCMs) are presented first, followed by a review of the applicable air quality implementation plans and TCM findings for the TIP/RTP.

A. TRANSPORTATION CONFORMITY REGULATION REQUIREMENTS FOR TCMs

The Transportation Conformity regulation requires that the TIP/RTP “must provide for the timely implementation of TCMs in the applicable implementation plan.” The Federal definition for the term “transportation control measure” is provided in 40 CFR 93.101:

“any measure that is specifically identified and committed to in the applicable implementation plan that is either one of the types listed in Section 108 of the CAA [Clean Air Act], or any other measure for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions. Notwithstanding the first sentence of this definition, vehicle technology based, fuel-based, and maintenance-based measures which control the emissions from vehicles under fixed traffic conditions are not TCMs for the purposes of this subpart.”

In the Transportation Conformity regulation, the definition provided for the term “applicable implementation plan” is:

“Applicable implementation plan is defined in section 302(q) of the CAA and means the portion (or portions) of the implementation plan, or most recent revision thereof, which has been approved under section 110, or promulgated under section 110(c), or promulgated or approved pursuant to regulations promulgated under section 301(d) and which implements the relevant requirements of the CAA.”

Section 108(f)(1) of the Clean Air Act as amended in 1990 lists the following transportation control measures and technology-based measures:

- (i) programs for improved public transit;
- (ii) restriction of certain roads or lanes to, or construction of such roads or lanes for use by, passenger buses or high occupancy vehicles;
- (iii) employer-based transportation management plans, including incentives;
- (iv) trip-reduction ordinances;
- (v) traffic flow improvement programs that achieve emission reductions;

- (vi) fringe and transportation corridor parking facilities serving multiple occupancy vehicle programs or transit service;
- (vii) programs to limit or restrict vehicle use in downtown areas or other areas of emission concentration particularly during periods of peak use;
- (viii) programs for the provision of all forms of high-occupancy, shared-ride services;
- (ix) programs to limit portions of road surfaces or certain sections of the metropolitan area to the use of non-motorized vehicles or pedestrian use, both as to time and place;
- (x) programs for secure bicycle storage facilities and other facilities, including bicycle lanes, for the convenience and protection of bicyclists, in both public and private areas;
- (xi) programs to control extended idling of vehicles;
- (xii) programs to reduce motor vehicle emissions, consistent with title II, which are caused by extreme cold start conditions;
- (xiii) employer-sponsored programs to permit flexible work schedules;
- (xiv) programs and ordinances to facilitate non-automobile travel, provision and utilization of mass transit, and to generally reduce the need for single occupant vehicle travel, as part of transportation planning and development efforts of a locality, including programs and ordinances applicable to new shopping centers, special events, and other centers of vehicle activity;
- (xv) programs for new construction and major reconstructions of paths, tracks or areas solely for the use by pedestrian or other non-motorized means of transportation when economically feasible and in the public interest. For purposes of this clause, the Administrator shall also consult with the Secretary of the Interior; and
- (xvi) program to encourage the voluntary removal from use and the marketplace of pre-1980 model year light duty vehicles and pre-1980 model light duty trucks.

TCM REQUIREMENTS FOR A TRANSPORTATION PLAN

The EPA regulations in 40 CFR 93.113(b) indicate that transportation control measure requirements for transportation plans are satisfied if two criteria are met:

“(1) The transportation plan, in describing the envisioned future transportation system, provides for the timely completion or implementation of all TCMs in the applicable implementation plan which are eligible for funding under Title 23 U.S.C. or the Federal Transit Laws, consistent with schedules included in the applicable implementation plan.

(2) Nothing in the transportation plan interferes with the implementation of any TCM in the applicable implementation plan.”

TCM REQUIREMENTS FOR A TRANSPORTATION IMPROVEMENT PROGRAM

Similarly, in 40 CFR Section 93.113(c), EPA specifies three TCM criteria applicable to a transportation improvement program:

“(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 giving maximum priority to approval or funding of TCMs over other projects within their control, including projects in locations outside the nonattainment 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 improvement 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.”

B. APPLICABLE AIR QUALITY IMPLEMENTATION PLANS

Only transportation control measures from applicable implementation plans for the San Joaquin Valley region are required to be updated for this analysis. For this conformity analysis, the applicable implementation plans, according to the definition provided at the start of this chapter, are summarized below.

APPLICABLE IMPLEMENTATION PLAN FOR OZONE

The 2007 Ozone Plan (as revised in 2015) was approved by EPA on July 8, 2016 (effective [September 30, 2016]). However, the Plan does not include TCMs for the San Joaquin Valley.

APPLICABLE IMPLEMENTATION PLAN FOR PM-10

The 2007 PM-10 Maintenance Plan (as revised in 2015) was approved by EPA on July 8, 2016 (effective September 30, 2016). No new local agency control measures were included in the Plan.

The Amended 2003 PM-10 Plan was approved by EPA on May 26, 2004 (effective June 25, 2004). A local government control measure assessment was completed for this plan. The analysis focused on transportation-related fugitive dust emissions, which are not TCMs by definition. The local government commitments are included in the *Regional Transportation Planning Agency Commitments for Implementation Document, April 2003*.

However, the *Amended 2002 and 2005 Ozone Rate of Progress Plan* contains commitments that reduce ozone related emissions; these measures are documented in the *Regional Transportation Planning Agency Commitments for Implementation Document, April 2002*. These commitments are included by reference in the Amended 2003 PM-10 Plan to provide emission reductions for precursor gases and help to address the secondary particulate problem. Since these commitments are included in the Plan by reference, the commitments were approved by EPA as TCMs.

APPLICABLE IMPLEMENTATION PLAN FOR PM2.5

The 2012 PM2.5 Plan was approved by EPA on August 16, 2016 (effective September 30, 2016). The 2008 PM2.5 Plan (as revised in 2011) was approved by EPA on November 9, 2011 (effective January 9, 2012). However, the Plans do not include TCMs for the San Joaquin Valley.

C. IDENTIFICATION OF 2002 RACM THAT REQUIRE TIMELY IMPLEMENTATION DOCUMENTATION

As part of the 2004 Conformity Determination, FHWA requested that each SIP (Reasonably Available Control Measure - RACM) commitment containing Federal transportation funding and a transportation project and schedule be addressed more specifically. FHWA verbally requested documentation that the funds were obligated and the project was implemented as committed to in the SIP.

The RTPA Commitment Documents, Volumes One and Two, dated April 2002 (Ozone RACM) were reviewed, using a "Summary of Commitments" table. Commitments that contain specific Federal funding/transportation projects/schedules were identified for further documentation. In some cases, local jurisdictions used the same Federal funding/transportation projects/schedules for various measures; these were identified as combined with ("comb w/") reference as appropriate. A not applicable ("NA") was noted where federally-funded project is vehicle technology based, fuel based, and maintenance based measures (e.g., LEV program, retrofit programs, clean fuels - CNG buses, etc.).

In addition, the RTPA Commitment Document, Volume Three, dated April 2003 (PM-10 BACM) was reviewed, using the Summary of Commitments table. Commitments that contain specific Congestion Mitigation and Air Quality (CMAQ) funding for the purchase and/or operation of street

sweeping equipment have been identified. Only one commitment (Fresno - City of Reedley) was identified.

The Project TID Table was developed to provide implementation documentation necessary for the measures identified. Detailed information is summarized in the first five columns, including the commitment number, agency, description, funding and schedule (if applicable).

For each project listed, the TIP in which the project was programmed, as well as the project ID and description have been provided. In addition, the current implementation status of the project has been included (e.g., complete, under construction, etc). MPO staff determined this information in consultation with the appropriate local jurisdiction. Any projects not implemented according to schedule or project changes are explained in the project status column. These explanations are consistent with the guidance and regulations provided in the Transportation Conformity regulation.

Supplemental documentation was provided to FHWA in August and September 2004 in response to requests for information on timely implementation of TCMs in the San Joaquin Valley. The supplemental documentation included the approach, summary of interagency consultation correspondence, and three tables completed by each of the eight MPOs. The Supplemental Documentation was subsequently approved by FHWA as part of the 2004 Conformity Determination.

The Project TID table that was prepared at the request of FHWA for the 2004 Conformity Analysis, has been updated in each subsequent conformity analysis including the 2017 FTIP. This documentation has been updated as part of this Conformity Analysis. A summary of this information is provided in Appendix D.

In March 2005, the SJV MPOs began interagency consultation with FHWA and EPA to address outstanding RACM/TCM issues. In general, criteria were developed to identify commitments that require timely implementation documentation. The criteria were applied to the 2002 RACM Commitments approved by reference as part of the Amended 2003 PM-10 Plan. In April 2006, EPA transmitted final tables that identified the approved RACM commitments that require timely implementation documentation for the Conformity Analysis. Subsequently, an approach to provide timely implementation documentation was developed in consultation with FHWA.

A new 2002 RACM TID Table was prepared in 2006 to address the more general RACM commitments that require additional timely implementation documentation per EPA. A brief summary of the commitment, including finite end dates if applicable, is included for each measure. The MPOs provided a status update regarding implementation in consultation with their member jurisdictions. If a specific project has been implemented, it is included in the Project TID Table under "Additional Projects Identified". This documentation was included in the Conformity Analysis for the 2007 TIP and 2004 RTP (as amended) that was approved by FHWA in October 2006 as well as the 2015 TIP and 2014 RTP as amended. The 2002 RACM TID Table has been updated as part of this Conformity Analysis. A summary of this information is provided in Appendix D.

D. TCM FINDINGS FOR THE TIP AND REGIONAL TRANSPORTATION PLAN

Based on a review of the transportation control measures contained in the applicable air quality plans, as documented in the two tables contained in Appendix D, the required TCM conformity findings are made below:

The TIP/RTP provide for the timely completion or implementation of the TCMs in the applicable air quality plans. In addition, nothing in the TIP or RTP interferes with the implementation of any TCM in the applicable implementation plan, and priority is given to TCMs.

E. RTP CONTROL MEASURE ANALYSIS IN SUPPORT OF 2003 PM-10 PLAN

In May 2003, the San Joaquin Valley MPO Executive Directors committed to conduct feasibility analyses as part of each new RTP in support of the 2003 PM-10 Plan. This commitment was retained in the 2007 PM-10 Maintenance Plan. In accordance with this commitment, MCAG undertook a process to identify and evaluate potential control measures that could be included in the 2014 RTP. The analysis of additional measures included verification of the feasibility of the measures in the PM-10 Plan BACM analysis, as well as an analysis of new PM-10 commitments from other PM-10 nonattainment areas.

A summary of the process to identify potential long-range control measures analysis and results to be evaluated as part of the RTP development was transmitted to the Interagency Consultation (IAC) partners for review. FHWA and EPA concurred with the summary of the long-range control measure approach in September 2009.

The Local Government Control Measures considered in the PM-10 Plan BACM analysis that were considered for inclusion in the 2014 RTP included:

- Paving or Stabilizing Unpaved Roads and Alleys
- Curbing, Paving, or Stabilizing Shoulders on Paved Roads
- Frequent Routine Sweeping or Cleaning of Paved Roads (i.e., funding allocation for the purchase of PM-10 efficient street sweepers for member jurisdictions)
- Repave or Overlay Paved Roads with Rubberized Asphalt

It is important to note that the first three measures considered in the PM-10 Plan BACM analysis (i.e., access points, street cleaning requirements, and erosion clean up) are not applicable for inclusion in the RTP.

With the adoption of each new RTP, the MPOs will consider the feasibility of these measures, as well as identify any other new PM-10 measures that would be relevant to the San Joaquin Valley. MCAG also considered PM-10 commitments from other PM-10 nonattainment areas that had been developed since the previous RTP was approved. Federal websites were reviewed for any

PM-10 plans that have been adopted since 2009. New PM-10 plans that have been reviewed include:

- a. Puerto Rico, Municipality of Guaynabo, PM-10 Limited Maintenance Plan, submitted March 2009 (EPA adequacy issued 8/25/09). On-road fugitive dust controls include paving, street sweeping and stabilization controls.
- b. Nogales, AZ PM-10 Attainment Demonstration, EPA approval notice signed 8/24/12. On-road fugitive dust controls include paving projects and capital improvement projects @ the Ports of Entry.
- c. Coso Junction, CA PM-10 Maintenance Plan, dated May 17, 2010 (EPA adequacy issued 9/3/10). No transportation control measures; transportation projects “exempt”.
- d. Sacramento, CA PM-10 Implementation / Maintenance Plan, dated October 28, 2010. No new control measures included; no existing on-road controls either.
- e. Truckee Meadows, NV PM-10 Maintenance Plan, adopted May 2009 (EPA adequacy issued 6/2/10). On-road fugitive dust controls include sweeping and sanding; contingency measures have already been considered in SJV analysis.
- f. Eagle River, AK PM-10 Maintenance Plan, adopted August 2010 (EPA adequacy issued 5/14/12). On-road fugitive dust controls includes paving, winter traction sand; contingency measures include sweeping.

Based on review of commitments from other PM-10 nonattainment areas that have been developed since the previous RTP, no additional on-road fugitive dust controls measures are available for consideration.

Based on consultation with CARB and the Air District, MCAG considered priority funding allocations in the 2014 RTPs for PM-10 and NO_x emission reduction projects in the post-attainment year timeframe that go beyond the emission reduction commitments made for the attainment year 2010 for the following four measures:

- (1) Paving or Stabilizing Unpaved Roads and Alleys
- (2) Curbing, Paving, or Stabilizing Shoulders on Paved Roads
- (3) Frequent Routine Sweeping or Cleaning of Paved Roads (i.e., funding allocation for the purchase of PM-10 efficient street sweepers for member jurisdictions); and
- (4) Repave or Overlay Paved Roads with Rubberized Asphalt

MCAG and its member jurisdictions consider both short- and long-term PM-10 emission reductions to be a priority. MCAG conducts a Congestion Mitigation and Air Quality (CMAQ) “Call for Projects” that includes funding for PM-10 projects. These additional projects are included in the FTIP once that process is concluded.

Measure four, the use of rubberized asphalt, is at the discretion of the project sponsor. Various funding sources, including state, federal, and local have been and will continue to be utilized for implementation. In addition, Caltrans incorporates rubberized asphalt as general policy to meet

recycled content requirements on high volume state highway facilities. In 2003, Caltrans established a goal of using at least 15 percent rubberized asphalt concrete compared to all flexible pavement by weight; Caltrans has exceeded this goal each year. In 2005, AB 338 was passed and requires Caltrans to gradually phase in the use of crumb rubber, which is used to make rubberized-asphalt concrete, on state highway construction and repair projects, to the extent feasible.

MCAG will continue to work with member jurisdictions and evaluate the ability to proceed with PM-10 projects as part of the FTIP and RTP.

CHAPTER 5: INTERAGENCY CONSULTATION

The requirements for consultation procedures are listed in the Transportation Conformity Regulations under section 93.105. Consultation is necessary to ensure communication and coordination among air and transportation agencies at the local, State and Federal levels on issues that would affect the conformity analysis such as the underlying assumptions and methodologies used to prepare the analysis. Section 93.105 of the conformity regulation notes that there is a requirement to develop a conformity SIP that includes procedures for interagency consultation, resolution of conflicts, and public consultation as described in paragraphs (a) through (e). Section 93.105(a)(2) states that prior to EPA approval of the conformity SIP, "MPOs and State departments of transportation must provide reasonable opportunity for consultation with State air agencies, local air quality and transportation agencies, DOT and EPA, including consultation on the issues described in paragraph (c)(1) of this section, before making conformity determinations." The Air District adopted Rule 9120 Transportation Conformity on January 19, 1995 in response to requirements in Section 176(c)(4)(c) of the Clean Air Act as amended in 1990. Since EPA has not approved Rule 9120 (the conformity SIP), the conformity regulation requires compliance with 40 CFR 93.105 (a)(2) and (e) and 23 CFR 450.

Section 93.112 of the conformity regulation requires documentation of the interagency and public consultation requirements according to Section 93.105. A summary of the interagency consultation and public consultation conducted to comply with these requirements is provided below. Appendix E includes the public meeting process documentation. The responses to comments received as part of the public comment process are included in Appendix F.

A. INTERAGENCY CONSULTATION

Consultation is generally conducted through the San Joaquin Valley Interagency Consultation Group (combination of previous Model Coordinating Committee and Programming Coordinating Group). The San Joaquin Valley Interagency Consultation (IAC) Group has been established by the Valley Transportation Planning Agency's Director's Association to provide a coordinated approach to valley transportation planning and programming (Transportation Improvement Program, Regional Transportation Plan, and Amendments), transportation conformity, climate change, and air quality (State Implementation Plan and Rules). The purpose of the group is to ensure Valley wide coordination, communication and compliance with Federal and California Transportation Planning and Clean Air Act requirements. Each of the eight Valley MPOs and the Air District are represented. In addition, the Federal Highway Administration, Federal Transit Administration, the Environmental Protection Agency, the California Air Resources Board and Caltrans (Headquarters, District 6, and District 10) are all represented. The IAC Group meets approximately quarterly.

The boilerplate conformity document was distributed for interagency consultation on June 2, 2016. Comments received have been addressed and incorporated into this version of the analysis.

The conformity analysis for the 2017 FTIP and 2014 RTP was developed in consultation with local partner agencies, including member jurisdictions, Caltrans, and local transit agencies. MCAG distributed the draft conformity analysis to its member jurisdictions and to the Citizen's Advisory Committee for review.

The draft 2017 FTIP and the corresponding Conformity Analysis was released on July 18, 2016, for a 30-day public comment period, followed by Board adoption on September 15, 2016. Federal approval is anticipated on or before December 16, 2016.

B. PUBLIC CONSULTATION

In general, agencies making conformity determinations shall establish a proactive public involvement process that provides opportunity for public review and comment on a conformity determination for FTIPs/RTPs. In addition, all public comments must be addressed in writing.

All MPOs in the San Joaquin Valley have standard public involvement procedures MCAG adopted consultation process and policy for conformity analysis includes a 30-day comment period followed by a public hearing. A public meeting is also conducted prior to adoption and all public comments are responded to in writing. The Appendices contain corresponding documentation supporting the public involvement procedures.

CHAPTER 6: TIP AND RTP CONFORMITY

The principal requirements of the transportation conformity regulation for TIP/RTP assessments are: (1) the TIP and RTP must pass an emissions budget test with a budget that has been found to be adequate by EPA for transportation conformity purposes, or an interim emission test; (2) the latest planning assumptions and emission models must be employed; (3) the TIP and RTP must provide for the timely implementation of transportation control measures (TCMs) specified in the applicable air quality implementation plans; and (4) consultation. The final determination of conformity for the TIP/RTP is the responsibility of the Federal Highway Administration and the Federal Transit Administration.

The previous chapters and the appendices present the documentation for all of the requirements listed above for conformity determinations except for the conformity test results. Prior chapters have also addressed the updated documentation required under the transportation conformity regulation for the latest planning assumptions and the implementation of transportation control measures specified in the applicable air quality implementation plans.

This chapter presents the results of the conformity tests, satisfying the remaining requirement of the transportation conformity regulation. Separate tests were conducted for ozone, PM-10 and PM2.5 (1997 and 2012 PM2.5 standards, and 2006 24-hour PM2.5 standards). The applicable conformity tests were reviewed in Chapter 1. For each test, the required emissions estimates were developed using the transportation and emission modeling approaches required under the transportation conformity regulation and summarized in Chapters 2 and 3. The results are summarized below, followed by a more detailed discussion of the findings for each pollutant. Table 6-1 presents results for ozone (ROG/NO_x), PM-10 (PM-10/NO_x), and PM2.5 (PM2.5/NO_x) respectively, in tons per day for each of the horizon years tested.

Ozone:

For 8-hour ozone, the applicable conformity test is the emissions budget test, using the 2007 Ozone Plan (as revised in 2015) budgets established for ROG and NO_x for an average summer (ozone) season day. EPA approved the Plan and conformity budgets (as revised in 2015) on July 8, 2016, effective September 30, 2016. The modeling results for all analysis years indicate that the on-road vehicle ROG and NO_x emissions predicted for each of the “Build” scenarios are less than the emissions budgets. The TIP/RTP therefore satisfy the conformity emissions test for volatile organic compounds and nitrogen oxides.

PM-10:

For PM-10, the applicable conformity test is the emissions budget test, using the 2007 PM-10 Maintenance Plan budgets for PM-10 and NO_x. This Plan revisions including conformity budgets

was approved by EPA on July 8, 2016 effective September 30, 2016. The modeling results for all analysis years indicate that the PM-10 emissions predicted for the “Build” scenarios are less than the emissions budget for 2020. The TIP/RTP therefore satisfy the conformity emissions tests for PM-10.

1997 PM2.5 Standards:

At this time, EPA has not finalized the approval of the 2015 PM2.5 Plan, thus 2008 PM2.5 Plan budgets will continue to be used in this conformity analysis. For 1997 PM2.5 Standards, the applicable conformity test is the emission budget test, using budgets established in the 2008 PM2.5 Plan (as revised in 2011). EPA approved the 2008 PM2.5 Plan (as revised in 2011) November 9, 2011 (effective January 9, 2012). The modeling results for all analysis years indicate that the on-road vehicle PM2.5 and NOx emissions predicted for the “Build” scenarios are less than the emissions budget. The TIP/RTP therefore satisfy the conformity emissions test for PM2.5 and nitrogen oxides.

2006 PM2.5 Standard:

On January 20, 2016 EPA published *Designation of Areas for Air Quality Planning Purposes; California; San Joaquin Valley; Reclassification as Serious Nonattainment for the 2006 PM2.5 NAAQS* finalizing SJV reclassification to Serious nonattainment effective February 19, 2016. Then on August 16, 2016 EPA approved 2012 PM2.5 Plan (effective September 30, 2016). For the 2006 PM2.5 standard, the applicable conformity test is the emission budget test, using adequate budgets established in the 2012 PM2.5 Plan (as revised in 2015). The modeling results for all analysis years indicate that the on-road vehicle PM2.5 and NOx emissions predicted for the “Build” scenarios are less than the emissions budget. The TIP/RTP therefore satisfy the conformity emissions test for PM2.5 and nitrogen oxides.

2012 PM2.5 Standard:

In accordance with Section 93.109(i)(3), areas designated nonattainment for the 2012 PM2.5 standards are required to use existing adequate or approved SIP motor vehicle emissions budgets for a prior annual PM2.5 standard until budgets for the 2012 PM2.5 standards are either found adequate or approved. For the 2012 PM2.5 standards, the applicable conformity test is the emissions budget test, using the 2015 PM2.5 Plan (1997 standard) budgets. EPA approved the 2008 PM2.5 Plan (as revised in 2011) November 9, 2011 (effective January 9, 2012). The modeling results for all analysis years indicate that the on-road vehicle PM2.5 and NOx emissions predicted for the “Build” scenarios are less than the emissions budget. The TIP/RTP therefore satisfy the conformity emissions test for PM2.5 and nitrogen oxides.

As all requirements of the Transportation Conformity regulation have been satisfied, a finding of conformity for the Conformity Analysis for the 2017 FTIP and 2014 RTP is supported.

**Table 6-1:
Conformity Results Summary**

2017 FTIP Conformity Results Summary -- MERCED											
Pollutant	Scenario	Emissions Total				DID YOU PASS?					
		ROG (tons/day)		NOx (tons/day)		ROG		NOx			
Ozone	2017 Budget	2.7		10.3							
	2017	2.6		10.1		YES		YES			
	2020 Budget	2.1		8.5							
	2020	2.0		8.4		YES		YES			
	2023 Budget	1.7		5.1							
	2023	1.6		5.0		YES		YES			
	2031	1.1		4.0		YES		YES			
	2040	0.9		3.8		YES		YES			
	PM-10	2020 Budget	3.8		8.9						
2020		3.8		8.9		YES		YES			
2020 Budget		3.8		8.9							
2025		3.5		4.9		YES		YES			
2020 Budget		3.8		8.9							
2035		3.7		4.0		YES		YES			
2020 Budget		3.8		8.9							
2040		3.8		4.0		YES		YES			
PM-10		Total On-Road Exhaust		Paved Road Dust		Unpaved Road Dust		Road Construction Dust		Total	
		PM-10	Nox	PM-10	Nox	PM-10	Nox	PM-10	Nox	PM-10	Nox
	2020	0.584	8.868	1.404		1.273		0.547		3.8	8.9
	2025	0.598	4.944	1.542		1.273		0.123		3.5	4.9
	2035	0.648	4.023	1.749		1.273		0.055		3.7	4.0
2040	0.678	3.958	1.885		1.273		0.000		3.8	4.0	

		PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
	1997 24-Hour and 1997 & 2012 Annual PM2.5 Standards	2014 Budget	0.6	17.4	
2017		0.3	10.7	YES	YES
2014 Budget		0.6	17.4		
2018		0.3	9.8	YES	YES
2014 Budget		0.6	17.4		
2021		0.3	8.0	YES	YES
2014 Budget		0.6	17.4		
2025		0.3	4.9	YES	YES
2014 Budget		0.6	17.4		
2035		0.3	4.0	YES	YES
2014 Budget	0.6	17.4			
2040	0.3	4.0	YES	YES	
2006 PM2.5 Winter 24-Hour Standard		PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
	2017 Budget	0.3	11.0		
	2017	0.3	11.0	YES	YES
	2017 Budget	0.3	11.0		
	2019	0.3	9.5	YES	YES
	2017 Budget	0.3	11.0		
	2025	0.3	5.1	YES	YES
	2017 Budget	0.3	11.0		
	2035	0.3	4.1	YES	YES
2017 Budget	0.3	11.0			
2040	0.3	4.0	YES	YES	

REFERENCES

CAA, 1990. *Clean Air Act*, as amended November 15, 1990. (42 U. S. C. Section 7401et seq.) November 15, 1990.

EPA, 1993. 40 CFR Parts 51 and 93. *Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs and Projects Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act*. U.S. Environmental Protection Agency. Federal Register, November 24, 1993, Vol. 58, No. 225, p. 62188.

EPA, 2004a. *Companion Guidance for the July 1, 2004, Final Transportation Conformity Rule: Conformity Implementation in Multi-jurisdictional Nonattainment and Maintenance Areas for Existing and New Air Quality Standards*. U.S. Environmental Protection Agency. July 21, 2004.

EPA, 2010a. 40 CFR Part 93. *Transportation Conformity Rule PM2.5 and PM10 Amendments; Final Rule*. Federal Register, March 24, 2010, Vol. 75, No. 56, p. 14260.

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EPA, 2012b. *Transportation Conformity Guidance for 2008 Ozone Nonattainment Areas*. U.S. Environmental Protection Agency. EPA-420-B-12-045. July 2012.

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EPA, 2015. *Implementation of the 2009 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements. Final Rule*. U.S. Environmental Protection Agency. Vol. 80. No. 44. March 6, 2015.

EPA, 2016. *Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements. Final Rule*. U.S. Environmental Protection Agency. PA-HQ-OAR-2013-0691. July 29, 2016.

USDOT. 2001. *Use of Latest Planning Assumptions in Conformity Determinations*. Memorandum from U.S. Department of Transportation. January 18, 2001.

USDOT. 2001. Federal Highway Administration. *Planning Assistance and Standards*. 23 CFR 450. October 16.

APPENDIX A

CONFORMITY CHECKLIST

CONFORMITY ANALYSIS DOCUMENTATION

FHWA Checklist for MPO TIPs/RTPs

June 27, 2005

40 CFR	Criteria	Page	Comments
§93.102	Document the applicable pollutants and precursors for which EPA designates the area as nonattainment or maintenance. Describe the nonattainment or maintenance area and its boundaries.	Ch. 1 p. 6	
§93.104 (b, c)	Document the date that the MPO officially adopted, accepted or approved the TIP/RTP and made a conformity determination. Include a copy of the MPO resolution. Include the date of the last prior conformity finding.	E.S. p. 1	
§93.104 (e)	If the conformity determination is being made to meet the timelines included in this section, document when the new motor vehicle emissions budget was approved or found adequate.	N/A	
§93.106 (a)(2)ii	Describe the regionally significant additions or modifications to the existing transportation network that are expected to be open to traffic in each analysis year. Document that the design concept and scope of projects allows adequate model representation to determine intersections with regionally significant facilities, route options, travel times, transit ridership and land use.	Ch. 2, p. 35 App. B	
§93.108	Document that the TIP/RTP is financially constrained (23 CFR 450).	E.S. p. 1	
§93.109 (a, b)	Document that the TIP/RTP complies with any applicable conformity requirements of air quality implementation plans (SIPs) and court orders.	Ch. 1, 2, 3, 4, 5, 6	
§93.109 (c-k)	Provide either a table or text description that details, for each pollutant and precursor, whether the interim emissions tests and/or the budget test apply for conformity. Indicate which emissions budgets have been found adequate by EPA, and which budgets are currently applicable for what analysis years.	Ch. 1 7-12	
§93.110 (a, b)	Document the use of latest planning assumptions (source and year) at the "time the conformity analysis begins," including current and future population, employment, travel and congestion. Document the use of the most recent available vehicle registration data. Document the date upon which the conformity analysis was begun.	Ch. 2, p. 35- 57	
USDOT/EP A guidance	Document the use of planning assumptions less than five years old. If unable, include written justification for the use of older data. (1/18/02)	Ch. 2 40	
§93.110 (c,d,e,f)	Document any changes in transit operating policies and assumed ridership levels since the previous	Ch. 2, p. 42	

40 CFR	Criteria	Page	Comments
	conformity determination. Document the use of the latest transit fares and road and bridge tolls. Document the use of the latest information on the effectiveness of TCMs and other SIP measures that have been implemented. Document the key assumptions and show that they were agreed to through Interagency and public consultation.		
§93.111	Document the use of the latest emissions model approved by EPA.	Ch. 3 p. 56	
§93.112	Document fulfillment of the interagency and public consultation requirements outlined in a specific implementation plan according to §51.390 or, if a SIP revision has not been completed, according to §93.105 and 23 CFR 450. Include documentation of consultation on conformity tests and methodologies as well as responses to written comments.	Ch. 5 79-80	
§93.113	Document timely implementation of all TCMs in approved SIPs. Document that implementation is consistent with schedules in the applicable SIP and document whether anything interferes with timely implementation. Document any delayed TCMs in the applicable SIP and describe the measures being taken to overcome obstacles to implementation.	Ch. 4, App. D 74-75	
§93.114	Document that the conformity analyses performed for the TIP is consistent with the analysis performed for the Plan, in accordance with 23 CFR 450.324(f)(2).	Analysis addresses both documents	
§93.118 (a, c, e) ¹	<u>For areas with SIP budgets:</u> Document that emissions from the transportation network for each applicable pollutant and precursor, including projects in any associated donut area that are in the Statewide TIP and regionally significant non-Federal projects, are consistent with any adequate or approved motor vehicle emissions budget for all pollutants and precursors in applicable SIPs.	Ch. 6 81	
§93.118 (b)	Document for which years consistency with motor vehicle emissions budgets must be shown.	Ch. 1 31-32	
§93.118 (d)	Document the use of the appropriate analysis years in the regional emissions analysis for areas with SIP budgets, and the analysis results for these years. Document any interpolation performed to meet tests for years in which specific analysis is not required.	Ch. 6 81	
§93.119 ¹	<u>For areas without applicable SIP budgets:</u> Document that emissions from the transportation network for each applicable pollutant and precursor, including projects in any associated donut area that are in the Statewide TIP and regionally significant non-Federal projects, are consistent with the requirements of the “Action/Baseline”, “Action/1990” and/or “Action/2002” interim emissions tests as applicable.	N/A	

40 CFR	Criteria	Page	Comments
§93.119 (g)	Document the use of the appropriate analysis years in the regional emissions analysis for areas without applicable SIP budgets.	N/A	
§93.119 (h,i)	Document how the baseline and action scenarios are defined for each analysis year.	Ch. 3 p.56	
§93.122 (a)(1)	Document that all regionally significant federal and non-Federal projects in the nonattainment/maintenance area are explicitly modeled in the regional emissions analysis. For each project, identify by which analysis it will be open to traffic. Document that VMT for non-regionally significant Federal projects is accounted for in the regional emissions analysis	Ch. 2 p.39, App B	
§93.122 (a)(2, 3)	Document that only emission reduction credits from TCMs on schedule have been included, or that partial credit has been taken for partially implemented TCMs. Document that the regional emissions analysis only includes emissions credit for projects, programs, or activities that require regulatory action if: the regulatory action has been adopted; the project, program, activity or a written commitment is included in the SIP; EPA has approved an opt-in to the program, EPA has promulgated the program, or the Clean Air Act requires the program (indicate applicable date). Discuss the implementation status of these programs and the associated emissions credit for each analysis year.	Ch. 4 p. 68	
§93.122 (a)(4,5,6)	For nonregulatory measures that are not included in the STIP, include written commitments from appropriate agencies. Document that assumptions for measures outside the transportation system (e.g. fuels measures) are the same for baseline and action scenarios. Document that factors such as ambient temperature are consistent with those used in the SIP unless modified through interagency consultation.	N/A	
§93.122 (b)(1)(i) ⁱⁱ	Document that a network-based travel model is in use that is validated against observed counts for a base year no more than 10 years before the date of the conformity determination. Document that the model results have been analyzed for reasonableness and compared to historical trends and explain any significant differences between past trends and forecasts (for per capita vehicle-trips, VMT, trip lengths mode shares, time of day, etc.).	Ch. 2 41	
§93.122 (b)(1)(ii) ²	Document the land use, population, employment, and other network-based travel model assumptions.	Ch. 2 40-41	
§93.122 (b)(1)(iii) ²	Document how land use development scenarios are consistent with future transportation system alternatives, and the reasonable distribution of employment and residences for each alternative.	Ch. 2 37-41	
§93.122 (b)(1)(iv) ²	Document use of capacity sensitive assignment methodology and emissions estimates based on a methodology that differentiates between peak and	Ch. 2 39-49	

40 CFR	Criteria	Page	Comments
	off-peak volumes and speeds, and bases speeds on final assigned volumes.		
§93.122 (b)(1)(v) ²	Document the use of zone-to-zone travel impedances to distribute trips in reasonable agreement with the travel times estimated from final assigned traffic volumes. Where transit is a significant factor, document that zone-to-zone travel impedances used to distribute trips are used to model mode split.	Ch. 2 39	
§93.122 (b)(1)(vi) ²	Document how travel models are reasonably sensitive to changes in time, cost, and other factors affecting travel choices.	Ch. 2 39	
§93.122 (b)(2) ²	Document that reasonable methods were used to estimate traffic speeds and delays in a manner sensitive to the estimated volume of travel on each roadway segment represented in the travel model.	Ch. 2 39	
§93.122 (b)(3) ²	Document the use of HPMS, or a locally developed count-based program or procedures that have been chosen through the consultation process, to reconcile and calibrate the network-based travel model estimates of VMT.	Ch. 2 39	
§93.122 (d)	In areas not subject to §93.122(b), document the continued use of modeling techniques or the use of appropriate alternative techniques to estimate vehicle miles traveled	Ch. 2 39	
§93.122 (e, f)	Document, in areas where a SIP identifies construction-related PM10 or PM2.5 as significant pollutants, the inclusion of PM10 and/or PM2.5 construction emissions in the conformity analysis.	Ch. 3 61	
§93.122 (g)	If appropriate, document that the conformity determination relies on a previous regional emissions analysis and is consistent with that analysis.	N/A	
§93.126, §93.127, §93.128	Document all projects in the TIP/RTP that are exempt from conformity requirements or exempt from the regional emissions analysis. Indicate the reason for the exemption (Table 2, Table 3, traffic signal synchronization) and that the interagency consultation process found these projects to have no potentially adverse emissions impacts.	Ch. 2, p. 45 App B	

ⁱ Note that some areas are required to complete both interim emissions tests.

ⁱⁱ 40 CFR 93.122(b) refers only to serious, severe and extreme ozone areas and serious CO areas above 200,000 population

Disclaimers

This checklist is intended solely as an informational guideline to be used in reviewing Transportation Plans and Transportation Improvement Programs for adequacy of their conformity documentation. It is in no way intended to replace or supersede the Transportation Conformity regulations of 40 CFR Parts 51 and 93, the Statewide and Metropolitan Planning Regulations of 23 CFR Part 450 or any other EPA, FHWA or FTA guidance pertaining to transportation conformity or statewide and metropolitan planning. This checklist is not intended for use in documenting transportation conformity for individual transportation projects in nonattainment or maintenance areas. 40 CFR Parts 51 and 93 contain additional criteria for project-level conformity determinations. **Document #46711**

APPENDIX B

TRANSPORTATION PROJECT LISTING

EXEMPTION PROJECTS LISTING

AGENCY	CTIPS ID	DESCRIPTION	ESTIMATED COST*	EXEMPT CODE
MCAG	105-0000-0017	Plan, Program, & Monitor (PPM)	\$ 643,000	4.01
Caltrans	205-0000-0222	Grouped Projects for SHOPP Mandates	\$ 3,741,000	1.06
Caltrans	305-0000-0000	Grouped Projects for SHOPP Collision Reduction	\$ 27,683,000	1.06
Caltrans	205-0000-0127	Grouped Projects for SHOPP Roadway Preservation	\$ 93,665,000	1.10
Caltrans	205-0000-0126	Grouped Projects for SHOPP Bridge Rehab./Reconstruction	\$ 17,464,000	1.19
Various	205-0000-0135	Highway Safety Improvement Program (HSIP)	\$ 2,271,000	1.06
Various	205-0000-0037	Highway Bridge Program (HBP)	\$ 11,712,900	1.19
Merced County	205-0000-0241	Highway Bridge Program (HBP): Arroya Ave Bridge	\$ 100,000	1.19
MCAG	205-0000-0042	Transportation Demand Management (TDM) / Alternative Modes Program	\$ 300,000	3.01
Transit JPA	205-0000-0022	Transit Joint Powers Authority for Merced County: "The Bus": Operations and Maintenance	\$ 46,096,000	2.01
Transit JPA	205-0000-0223	Transit Joint Powers Authority for Merced County: "The Bus": Public Outreach and Marketing	\$ 400,000	4.01
YARTS	205-0000-0112	Yosemite Area Regional Transportation System (YARTS): Operations and Maintenance	\$ 10,104,000	2.01
YARTS	205-0000-0130	Yosemite Area Regional Transportation System (YARTS): Public Outreach and Marketing	\$ 340,000	4.01
Gustine	205-0000-0180	CMAQ: Construct Roundabout on SR-140/33 in Gustine	\$ 2,475,000	5.01
Merced	205-0000-0178	CMAQ: Construct Westerly Bike Path Connection In Merced City	\$ 1,125,000	3.02
Merced	205-0000-0228	CMAQ: In Merced. Right-Turn Channelization on Southbound SR-59 Approaching 16th Street.	\$ 215,000	5.01
Merced	205-0000-0229	CMAQ: In Merced. Sidewalk Infill on Oleander Ave btwn. Alexander Ave & Olive Ave	\$ 61,000	3.02
Merced	205-0000-0231	CMAQ: In Merced. Traffic Signal at SR-59 & 16th Street.	\$ 449,000	5.02
Atwater	205-0000-0234	CMAQ: In Atwater. Traffic Signals Synchronization and Raised Median.	\$ 487,000	5.07
Atwater	205-0000-0235	CMAQ: In Atwater. Sidewalk Infill on Juniper Ave btwn. Vann Ter & Bridgewater Street.	\$ 166,000	3.02
Gustine	205-0000-0237	CMAQ: In Gustine (Harry Schmidt Park). Construct Pedestrian/Bike Path Along SR-33/140 btwn. Meredith & Linden.	\$ 296,000	3.02
Gustine	205-0000-0238	CMAQ: In Gustine. Construct a Roundabout at 5th Street & 4th Ave.	\$ 35,000	5.01
Gustine	205-0000-0240	CMAQ: In Livingston. Construct a Roundabout at Main Street & B Street.	\$ 551,000	5.01
Merced County	205-0000-0254	Federal Lands Access Program (FLAP): Rehabilitate 1.7 miles of Wolfsen Road from SR-165 to Wildlife Refuge	\$ 2,000,000	1.10

NOTE (*): Estimated Cost represents amounts programmed in the 2017 FTIP. These may not be total project costs, which can be found in the FTIP project pages.

CTIPS AQ EXEMPTION CODES
TABLES 2 & 3 CATEGORIES

CATEGORY	CATEGORY: PROJECT	CODE
Safety	Railroad/highway crossing	1.01
	Safer non-Federal-Aid system roads	1.03
	Shoulder improvements	1.04
	Increasing sight distance	1.05
	Safety Improvement Program	1.06
	Non-signalization traffic control & operating	1.07
	Railroad/highway crossing warning devices	1.08
	Guardrails, median barriers, crash cushions	1.09
	Pavement resurfacing and/or rehabilitation	1.10
	Pavement marking demonstration	1.11
	Emergency Relief (23 U.S.C. 125)	1.12
	Fencing	1.13
	Skid treatments	1.14
	Safety roadside rest areas	1.15
	Adding medians	1.16
	Truck climbing lanes	1.17
	Lighting improvements	1.18
	Non-capacity widening or bridge reconstruction	1.19
	Emergency truck pullovers	1.20
	Mass Transit	Transit operating assistance
Purchase of support vehicles		2.02
Rehabilitation of transit vehicles		2.03
Purchase of office, shop, & operating equip. for existing facilities		2.04
Purchase of operating equip. for vehicles (e.g. radios, fareboxes, lifts, etc.)		2.05
Construction or renov. of power, signal, and communication systems		2.06
Construction of small passenger shelters & information kiosks		2.07
Reconstruction of transit structures		2.08
Track rehab in existing right of way		2.09
Purchase new buses & rail cars as replacements		2.10
Construct new bus or rail storage/maint. facility		2.11
Air Quality	Ride-sharing and van-pooling program	3.01
	Bicycle and pedestrian facilities	3.02
Other	Non-construction-related activities	4.01
	Engineering studies	4.05
	Noise attenuation	4.06
	Advance land acquisitions	4.07
	Acquisition of scenic easements	4.08
	Plantings, landscaping, etc.	4.09
	Sign removal	4.10
	Directional and informational signs	4.11
	Transportation enhancement activities	4.12
	Repair of damage caused by natural disasters, civil unrest, or terrorist acts.	4.13
All Projects	Intersection channelization projects	5.01
	Intersection signalization projects	5.02
	Changes to vertical & horizontal alignments	5.03
	Interchange reconfiguration projects	5.04
	Truck size and weight inspection stations	5.05
Other	Bus terminals and transfer points	5.06
	Traffic signal synchronization projects	5.07

APPENDIX C

CONFORMITY ANALYSIS DOCUMENTATION

EMFAC Emissions (tons/day)

MERCED

<u>Pollutant</u>	<u>Source</u>	<u>Description</u>	2017	2020	2023	2031	2040
Ozone	EMFAC 2014 (Summer Run)	ROG Total Exhaust (All Vehicles Total)	2.69	2.10	1.71	1.22	0.95
		Rule 9410 (ETR)	-0.06	-0.09	-0.08	-0.08	-0.08
		Conformity Total	2.63	2.01	1.62	1.14	0.87
Ozone	EMFAC 2014 (Summer Run)	NOx Total Exhaust (All Vehicles Total)	10.21	8.49	5.07	4.05	3.82
		Rule 9410 (ETR)	-0.07	-0.06	-0.05	-0.05	-0.05
		Conformity Total	10.14	8.43	5.03	4.00	3.78

Note: State control measures (RFG, Moyer, AB1493 and Smog Check) and District Rule 9310 (School Bus) have been incorporated in EMFAC2014.

			2020	2025	2035	2040
PM-10	EMFAC 2014 (Annual Run)	PM-10 Total (All Vehicles Total * includes tire & brake wear)	0.58	0.60	0.65	0.68
		Conformity Total	0.58	0.60	0.65	0.68
PM-10	EMFAC 2014 (Annual Run)	NOx Total Exhaust (All Vehicles Total)	8.87	4.94	4.02	3.96
		Conformity Total	8.87	4.94	4.02	3.96

Note: State control measures (Reflash, Idling, and Moyer) have been incorporated in EMFAC2014.

			2017	2018	2021	2025	2035	2040
PM2.5 Annual (1997 and 2012 standards)	EMFAC 2014 (Annual Run)	PM2.5 Total Exhaust (All Vehicles Total * includes tire & brake wear)	0.29	0.27	0.25	0.25	0.26	0.28
		Conformity Total	0.30	0.30	0.30	0.30	0.30	0.30
PM2.5 Annual (1997 and 2012 standards)	EMFAC 2014 (Annual Run)	NOx Total Exhaust (All Vehicles Total)	10.69	9.78	8.03	4.94	4.02	3.96
		Conformity Total	10.70	9.80	8.00	4.90	4.00	4.00

Note: State control measures (Moyer, AB1493 and Smog Check) and District Rule 9310 (School Bus) have been incorporated in EMFAC2014. District Rule 9410 (ETR) was not included in the RFP demonstration for the 2015 PM2.5 Plan.

			2017	2019	2025	2035	2040
PM2.5 24-hour (2006 standard)	EMFAC 2014 (Winter Run)	PM2.5 Total Exhaust (All Vehicles Total * includes tire & brake wear)	0.29	0.27	0.25	0.26	0.28
		Conformity Total	0.30	0.30	0.30	0.30	0.30
PM2.5 24-hour (2006 standard)	EMFAC 2014 (Winter Run)	NOx Total Exhaust (All Vehicles Total)	10.98	9.55	5.06	4.09	4.02
		Conformity Total	11.00	9.50	5.10	4.10	4.00

Note: State control measures (Moyer, AB1493 and Smog Check) and District Rule 9310 (School Bus) have been incorporated in EMFAC2014. District Rule 9410 (ETR) was not included in the RFP demonstration for the 2012 PM2.5 Plan.

Paved Road Dust Emissions (tons/day)

MERCED 2020

	VMT Daily	VMT (million/year)	Base Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tons/day)	District Rule 8061/ISR Control Rates	Control- Adjusted Emissions
Enter Freeway VMT ==>	Freeway	5,780,689	2,110	161,220	155,558	0.426	0.394
Enter Arterial VMT ==>	Arterial	1,927,105	703	89,435	86,294	0.236	0.170
Enter Collector VMT ==>	Collector	168,630	62	7,826	7,551	0.021	0.012
	Urban	101,361	37	35,242	34,004	0.093	0.063
	Rural	211,482	77	318,070	306,900	0.841	0.090
Enter Total of Urban and Rural Local VMT Here =>		312,843					
Totals		8,189,267	2,989	611,793	590,307	1.617	1.404

MERCED 2025

	VMT Daily	VMT (million/year)	Base Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tons/day)	District Rule 8061/ISR Control Rates	Control- Adjusted Emissions
Enter Freeway VMT ==>	Freeway	6,285,635	2,294	175,302	169,146	0.463	0.429
Enter Arterial VMT ==>	Arterial	2,149,078	784	99,737	96,234	0.264	0.189
Enter Collector VMT ==>	Collector	199,792	73	9,272	8,947	0.025	0.015
	Urban	111,280	41	38,691	37,332	0.102	0.069
	Rural	232,177	85	349,197	336,933	0.923	0.090
Enter Total of Urban and Rural Local VMT Here =>		343,458					
Totals		8,977,963	3,277	672,199	648,592	1.777	1.542

MERCED 2035

	VMT Daily	VMT (million/year)	Base Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tons/day)	District Rule 8061/ISR Control Rates	Control- Adjusted Emissions
Enter Freeway VMT ==>	Freeway	6,863,681	2,505	191,424	184,701	0.506	0.468
Enter Arterial VMT ==>	Arterial	2,590,105	945	120,204	115,983	0.318	0.228
Enter Collector VMT ==>	Collector	253,823	93	11,780	11,366	0.031	0.018
	Urban	126,553	46	44,001	42,455	0.116	0.079
	Rural	264,043	96	397,122	383,176	1.050	0.090
Enter Total of Urban and Rural Local VMT Here =>		390,596					
Totals		10,098,204	3,686	764,531	737,681	2.021	1.749

MERCED 2040

	VMT Daily	VMT (million/year)	Base Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tons/day)	District Rule 8061/ISR Control Rates	Control- Adjusted Emissions
Enter Freeway VMT ==>	Freeway	7,116,351	2,597	198,470	191,500	0.525	0.485
Enter Arterial VMT ==>	Arterial	2,836,890	1,035	131,657	127,034	0.348	0.250
Enter Collector VMT ==>	Collector	292,856	107	13,591	13,114	0.036	0.021
	Urban	138,177	50	48,042	46,355	0.127	0.086
	Rural	288,295	105	433,599	418,371	1.146	0.090
Enter Total of Urban and Rural Local VMT Here =>		426,472					
Totals		10,672,569	3,895	825,360	796,374	2.182	1.885

DO NOT CHANGE ANY ITEMS BELOW THIS LINE

MERCED

HPMS Local Urban/Rural Percent
From 1998 Assembly of Statistical Reports - Caltrans
32.4% Urban
67.6% Rural
100.0% Total

Road Type	Base EF (lb PM10/ VMT)
Freeway	0.000152818
Arterial	0.000254296
Collector	0.000254296
Local	0.00190513
Rural	0.008241141

MERCED

	January	February	March	April	May	June	July	August	September	October	November	December	Total/Average
Rain Days	10.3	8.0	7.5	4.3	2.0	0.8	0	0	1.0	2.5	6.0	8.8	51.0
Total Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Rain Reduction Factor	0.92	0.93	0.94	0.96	0.98	0.99	1.00	1.00	0.99	0.98	0.95	0.93	0.96

Unpaved Road Dust Emissions (tons/day)

MERCED 2020

	Miles	Vehicle Passes per Day	VMT (1000/year)	Base Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tons/day)	District Rule 8061/ISR Control Rates	Control-Adjusted Emissions
City/County	222.0	10	810.3	810.300	696.472	1.908	0.333	1.273

MERCED 2025

	Miles	Vehicle Passes per Day	VMT (1000/year)	Base Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tons/day)	District Rule 8061/ISR Control Rates	Control-Adjusted Emissions
City/County	222.0	10	810.3	810.300	696.472	1.908	0.333	1.273

MERCED 2035

	Miles	Vehicle Passes per Day	VMT (1000/year)	Base Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tons/day)	District Rule 8061/ISR Control Rates	Control-Adjusted Emissions
City/County	222.0	10	810.3	810.300	696.472	1.908	0.333	1.273

MERCED 2040

	Miles	Vehicle Passes per Day	VMT (1000/year)	Base Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tpy)	Rain Adj. Emissions (PM10 tons/day)	District Rule 8061/ISR Control Rates	Control-Adjusted Emissions
City/County	222.0	10	810.3	810.300	696.472	1.908	0.333	1.273

DO NOT CHANGE ANY ITEMS BELOW THIS LINE

MERCED													
	January	February	March	April	May	June	July	August	September	October	November	December	Total/Average
Rain Days	10.3	8.0	7.5	4.3	2.0	0.8	0	0	1.0	2.5	6.0	8.8	51.0
Total Days	31	28	31	30	31	30	31	31	30	31	30	31	365
Rain Reduction Factor	0.67	0.71	0.76	0.86	0.94	0.98	1.00	1.00	0.97	0.92	0.80	0.72	0.86

Road Construction Dust

MERCED

Description	2020		2025		2035		2040	
	Year	Lane Miles						
Baseline	2005	2550	2020	3099	2025	3140	2035	3177
Horizon	2020	3,099	2025	3,140	2035	3,177	2040	3,177
Difference	15	549	5	41	10	37	5	0
Lane Miles per Year		37		8		4		0
Acres Disturbed		142		32		14		0
Acre-Months		2555		573		258		0
Emissions (tons/year)		281.088		62.976		28.416		0.000
Annual Average Day Emissions (tons)		0.770		0.173		0.078		0.000
District Rule 8021 Control Rates		0.290		0.290		0.290		0.290
Total Emissions (tons per day)		0.547		0.123		0.055		0.000

2017 FTIP Conformity Results Summary -- MERCED

Pollutant	Scerio	Emissions Total		DID YOU PASS?	
		ROG (tons/day)	NOx (tons/day)	ROG	NOx
Ozone	2017 Budget	2.7	10.3		
	2017	2.6	10.1	YES	YES
	2020 Budget	2.1	8.5		
	2020	2.0	8.4	YES	YES
	2023 Budget	1.7	5.1		
	2023	1.6	5.0	YES	YES
	2031	1.1	4.0	YES	YES
	2040	0.9	3.8	YES	YES

Pollutant	Scerio	PM-10 (tons/day)	NOx (tons/day)	PM-10	NOx
PM-10	2020 Budget	3.8	8.9		
	2020	3.8	8.9	YES	YES
	2020 Budget	3.8	8.9		
	2025	3.5	4.9	YES	YES
	2020 Budget	3.8	8.9		
	2035	3.7	4.0	YES	YES
	2020 Budget	3.8	8.9		
	2040	3.8	4.0	YES	YES

PM-10	Total On-Road Exhaust		Paved Road Dust		Unpaved Road Dust		Road Construction Dust		Total	
	PM-10	Nox	PM-10	Nox	PM-10	Nox	PM-10	Nox	PM-10	Nox
2020	0.584	8.868	1.404		1.273		0.547		3.8	8.9
2025	0.598	4.944	1.542		1.273		0.123		3.5	4.9
2035	0.648	4.023	1.749		1.273		0.055		3.7	4.0
2040	0.678	3.958	1.885		1.273		0.000		3.8	4.0

Pollutant	Scerio	PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
1997 24-Hour and 1997 & 2012 Annual PM2.5 Standards	2014 Budget	0.6	17.4		
	2017	0.3	10.7	YES	YES
	2014 Budget	0.6	17.4		
	2018	0.3	9.8	YES	YES
	2014 Budget	0.6	17.4		
	2021	0.3	8.0	YES	YES
	2014 Budget	0.6	17.4		
	2025	0.3	4.9	YES	YES
	2014 Budget	0.6	17.4		
	2035	0.3	4.0	YES	YES
2014 Budget	0.6	17.4			
2040	0.3	4.0	YES	YES	

Pollutant	Scerio	PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
2006 PM2.5 Winter 24-Hour Standard	2017 Budget	0.3	11.0		
	2017	0.3	11.0	YES	YES
	2017 Budget	0.3	11.0		
	2019	0.3	9.5	YES	YES
	2017 Budget	0.3	11.0		
	2025	0.3	5.1	YES	YES
	2017 Budget	0.3	11.0		
	2035	0.3	4.1	YES	YES
	2017 Budget	0.3	11.0		
	2040	0.3	4.0	YES	YES

APPENDIX D

**TIMELY IMPLEMENTATION DOCUMENTATION FOR
TRANSPORTATION CONTROL MEASURES**

**Merced County Association of Governments
2002 RACM Timely Implementation Documentation**

RACM Commitment	Agency	Measure Title	Measure Description (not verbatim)	Implementation Status (as of March 2016)	Conformity Analysis for the 2017 FTIP (as of September 2016)
TCM3	MCAG	Rideshare Programs	Implement Rideshare Program through FY 2006-2007	Service provided via www.commutecconnection.com .	Service provided via www.commutecconnection.com
ME5.3	Atwater	Reduce Traffic Congestion at Major Intersections	Improve intersections projected to experience congestion.	Intersections are evaluated using standard warrants. No improvement needs identified in 14-15 and 15-16.	Intersections are evaluated using standard warrants. No improvement needs identified in 16-17.
TCM1	Atwater	Traffic Flow Improvements	Evaluate traffic conditions and implement projects to provide free flowing traffic	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 14-15 and 15-16.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 16-17.
ME5.3	Dos Palos	Reduce Traffic Congestion at Major Intersections	Improve intersections projected to experience congestion.	Intersections are evaluated using standard warrants. No improvement needs identified in 14-15 and 15-16.	Intersections are evaluated using standard warrants. No improvement needs identified in 16-17.
TCM1	Dos Palos	Traffic Flow Improvements	Evaluate traffic conditions and implement projects to provide free flowing traffic	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 14-15 and 15-16.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 16-17.
ME5.3	Gustine	Reduce Traffic Congestion at Major Intersections	Improve intersections projected to experience congestion.	Intersections are evaluated using standard warrants. No improvement needs identified in 14-15 and 15-16.	Intersections are evaluated using standard warrants. No improvement needs identified in 16-17.
TCM1	Gustine	Traffic Flow Improvements	Evaluate traffic conditions and implement projects to provide free flowing traffic	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 14-15 and 15-16.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 16-17.
ME5.3	Livingston	Reduce Traffic Congestion at Major Intersections	Improve intersections projected to experience congestion.	Intersections are evaluated using standard warrants. No improvement needs identified in 14-15 and 15-16.	Intersections are evaluated using standard warrants. No improvement needs identified in 16-17.
TCM1	Livingston	Traffic Flow Improvements	Evaluate traffic conditions and implement projects to provide free flowing traffic	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 14-15 and 15-16.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 16-17.
ME5.3	Los Banos	Reduce Traffic Congestion at Major Intersections	Improve intersections projected to experience congestion.	Intersections are evaluated using standard warrants. No improvement needs identified in 14-15 and 15-16.	Intersections are evaluated using standard warrants. No improvement needs identified in 16-17.

**Merced County Association of Governments
2002 RACM Timely Implementation Documentation**

RACM Commitment	Agency	Measure Title	Measure Description (not verbatim)	Implementation Status (as of March 2016)	Conformity Analysis for the 2017 FTIP (as of September 2016)
TCM1	Los Banos	Traffic Flow Improvements	Evaluate traffic conditions and implement projects to provide free flowing traffic	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 14-15 and 15-16.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 16-17.
ME5.3	Merced	Reduce Traffic Congestion at Major Intersections	Improve intersections projected to experience congestion.	Intersections are evaluated using standard warrants. No improvement needs identified in 14-15 and 15-16.	Intersections are evaluated using standard warrants. No improvement needs identified in 16-17.
ME5.7	Merced	One-Way Streets	Redesignate portions of some streets as one-way to improve traffic flow as appropriate	Project implemented (see Project TID Table). No additional need for one-way streets identified at this time.	Project implemented (see Project TID Table). No additional need for one-way streets identified at this time.
TCM1	Merced	Traffic Flow Improvements	Evaluate traffic conditions and implement projects to provide free flowing traffic	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 14-15 and 15-16.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 16-17.
ME5.3	County of Merced	Reduce Traffic Congestion at Major Intersections	Improve intersections projected to experience congestion.	Intersections are evaluated using standard warrants. No improvement needs identified in 14-15 and 15-16.	Intersections are evaluated using standard warrants. No improvement needs identified in 16-17.
TCM1	County of Merced	Traffic Flow Improvements	Evaluate traffic conditions and implement projects to provide free flowing traffic	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 14-15 and 15-16.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified in 16-17.
ME3.9	Transit JPA	Encourage merchants and employers to subsidize the cost of transit for employees	Outreach program focusing on large employment or retail centers	Project implemented (see Project TID Table)	Project implemented (see Project TID Table)
ME5.9	Transit JPA	Bus Pullouts in Curbs for Passenger Loading	Bus stop pullouts are planned and installed as traffic congestion points are identified through FY 2006- 2007	Commitment Complete.	Commitment Complete.

APPENDIX E

PUBLIC MEETING PROCESS DOCUMENTATION

**NOTICE OF PUBLIC REVIEW PERIOD AND PUBLIC HEARING ON THE
DRAFT 2017 FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM (FTIP), AND
THE CORRESPONDING DRAFT CONFORMITY ANALYSIS**

NOTICE IS HEREBY GIVEN that the Merced County Association of Governments (MCAG) will hold a public hearing at the MCAG Board meeting on August 18, 2016 at 3:00 p.m. at the Merced County Administration Building, Board of Supervisors Council Chambers on the 3rd floor, at 2222 M Street, Merced, California, regarding the Draft 2017 Federal Transportation Improvement Program (2017 FTIP), and the corresponding Draft Conformity Analysis. The purpose of this public hearing is to receive public comments on the following document.

- The 2017 FTIP is a near-term listing of capital improvement and operational expenditures utilizing federal and state monies for transportation projects in Merced County during the next four years.
- The Conformity Analysis contains two options that both support a finding that the 2017 FTIP and 2014 RTP meet the air quality conformity requirements for ozone and particulate matter.
- This public hearing process also serves to satisfy the public involvement requirements of the Federal Transit Administration (FTA) annual Program of Projects (POP).

Individuals with disabilities may call MCAG (with 3-working-day advance notice) to request auxiliary aids necessary to participate in the public hearing. Translation services are available (with 3-working-day advance notice) to participants speaking any language with available professional translation services.

A 30-day public review and comment period will commence on July 18, 2016 and conclude on August 19, 2016. The draft documents are available for review at the MCAG office, located at 369 West 18th St., Merced CA 95340, and on the MCAG website at “<http://www.mcagov.org/>.”

Public comments are welcomed at the public meeting, or may be submitted in writing by 5 p.m. on August 18, 2016, to MCAG staff at the address below.

After considering the comments, the 2017 FTIP and only one recommended Conformity Analysis option will be considered for adoption, by resolution, by the Merced County Association of Governments at a regularly scheduled meeting to be held on September 15, 2016. The documents will then be submitted to state and federal agencies for approval.

Contact Persons:

Draft 2017 FTIP: Ty Phimmasone, Planner, ty.phimmasone@mcagov.org
369 W. 18th Street
209-723-3153

Draft Conformity Analysis: Marjie Kim, Executive Director, marjie.kirn@mcagov.org
369 W. 18th Street
209-723-3153

APPENDIX F

RESPONSE TO PUBLIC COMMENTS

There was no comment.