

**CONFORMITY ANALYSIS  
FOR THE 2021 FEDERAL TRANSPORTATION IMPROVEMENT  
AND THE 2018 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 the 2021 Federal Transportation Improvement Program (2021 FTIP) and 2018 Regional Transportation Plan (2018 RTP). Merced County Association of Governments is the designated Metropolitan Planning Organization (MPO) in Merced County, California, and is responsible for regional transportation planning.

On September 27, 2019, the United States Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program” (effective November 26, 2019). The Part One Rule revoked California’s authority to set its own greenhouse gas emissions standards, which were incorporated in EMFAC2014 emissions model. On November 20, 2019, California Air Resources Board (CARB) released “EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicles Rule Part One” for use in regional conformity analyses. On March 12, 2020, EPA concurred on the use of CARB’s EMFAC off-model adjustment factors in conformity demonstrations. On April 30, EPA and NHTSA published SAFE Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (Final SAFE Rule) rolling back federal fuel economy standards. On June 26, 2020 CARB issued a public notice stating that EMFAC adjustments released in November continue to be suitable for conformity purposes. The conformity analysis for the 2021 FTIP and the 2018 RTP incorporates these emissions modeling adjustments.

The 2018 PM2.5 Plan addressing 1997, 2006 and 2012 PM2.5 standards was adopted by the San Joaquin Valley Air District on November 15, 2018 and California Air Resources Board on January 24, 2019 and subsequently submitted for EPA review. On March 27, EPA published a proposed rule approving portions of the 2018 PM2.5 Plan, including the 2006 PM2.5 conformity budgets and trading mechanism. Final rule on sections that pertain to 2006 24-hour PM2.5 standard Serious area nonattainment was released on July 22, 2020 therefore this conformity analysis incorporates new 2018 PM2.5 SIP budgets for the 2006 24-hour PM2.5 standards. The remaining components of the 2018 PM2.5 Plan addressing the 1997 and 2012 PM2.5 standards are currently undergoing EPA review. Should EPA act on these additional SIP elements, this conformity analysis includes an “upcoming budget test” in case the new transportation conformity budgets become available prior to federal approval of the 2021 FTIP conformity analysis.

This analysis demonstrates that the criteria specified in the transportation conformity regulations for a conformity determination are satisfied by the 2021 FTIP and the 2018 RTP; a finding of conformity is therefore supported. The 2021 FTIP, 2018 RTP, and the corresponding Conformity Analysis was approved by the Merced County Association of Governments Policy Board on February 18, 2021. Federal approval is anticipated on or before April 30, 2021. FHWA/FTA last issued a finding of conformity for the 2019 FTIP and the 2018 RTP, as amended if applicable, on May 9, 2019.

The 2021 FTIP and the 2018 RTP have 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<sub>2.5</sub>); and has a maintenance plan for particulate matter under 10 microns in diameter (PM-10). Therefore, transportation plans and programs for the nonattainment areas for Merced County area must satisfy the requirements of the Federal transportation conformity regulation. Note that the urbanized/metropolitan areas of Kern, Fresno, Stanislaus and San Joaquin Counties have attained the CO standard and maintained attainment for 20 years. In accordance with Section 93.102(b)(4), conformity requirements for the CO standard stop applying 20 years after EPA approves an attainment redesignation request or as of June 1, 2018. Therefore, future conformity analysis for the TIP and RTP no longer include a CO conformity demonstration.

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 2020, 2021, 2023, 2024, 2026, 2029, 2031, 2037 and 2042 for each applicable pollutant. Addition analysis years 2022 and 2025 were also included in this conformity analysis to address upcoming 2018 PM2.5 Plan budgets for the 2012 PM2.5 standard. All analyses were conducted using the latest planning assumptions and emissions models. The major conclusions of the Merced County Association of Governments Conformity Analysis for the 2021 FTIP and 2018 RTP are:

- For 2008 and 2015 8-hour ozone, the total regional on-road vehicle-related emissions (ROG and NOx) associated with implementation of the 2021 FTIP and the 2018 RTP for all years tested are projected to be less than the approved emissions budgets specified in the *2018 Updates to the California State Implementation Plan for the San Joaquin Valley* (2018 SIP Update). 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 2021 FTIP and the 2018 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 annual and 24-hour and 2012 annual PM2.5 standards, the total regional on-road vehicle-related emissions associated with implementation of the 2021 FTIP and the 2018 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)*. In addition,

this conformity analysis includes an “upcoming budget test” demonstrating conformity to the 2018 PM<sub>2.5</sub> Plan transportation conformity budgets for the 1997 and 2012 PM<sub>2.5</sub> budgets, should EPA approve or find these adequate before federal approval of the 2021 FTIP conformity analysis. The conformity tests for PM<sub>2.5</sub> for the 1997 and 2012 standards are therefore satisfied.

- For the 2006 24-hour PM<sub>2.5</sub> standard, the total regional on-road vehicle-related emissions associated with implementation of the 2021 FTIP and the 2018 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 PM<sub>2.5</sub> and NO<sub>x</sub> trading mechanism for transportation conformity purposes from the *2018 Plan for the 1997, 2006, and 2012 PM<sub>2.5</sub> Standards (2018 PM<sub>2.5</sub> Plan)*. The conformity tests for PM<sub>2.5</sub> for the 2006 standard are therefore satisfied.
- The 2021 FTIP and the 2018 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 2021 FTIP, 2018 RTP and the corresponding Conformity Analysis on February 3, 2021. 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 and the 2021 FTIP and 2018 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.

The Merced County Association of Governments is the designated Metropolitan Planning Organization (MPO) for Merced County in the San Joaquin Valley. As a result of this designation Merced County Association of Governments prepares the TIP, RTP, and associated conformity analyses. The TIP serves as a detailed four year (FY 2020/21 – 2023/24) programming document for the preservation, expansion, and management of the transportation system. The 2018 RTP has a 2042 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 NAAQS. 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 February 16, 2018, the U.S. Court of Appeals ruled against parts of the EPA's 2015 Ozone Implementation Rule related to the revocation of the 1997 ozone standard and the relevant "anti-backsliding" requirements. However, according to *Transportation Conformity Guidance for the South Coast II Court Decision*, nonattainment areas with existing 2008 ozone conformity budgets are not required to address the 1997 ozone standards for conformity purposes.

On December 6, 2018, EPA published the *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area State Implementation Plan Requirements* final rule, effective February 4, 2019 (EPA, 2018). The rule clarified that nonattainment areas must continue to demonstrate conformity to the 2008 ozone standards.

On August 24, 2016, EPA published 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. The Transportation Conformity Guidance for 2015 Ozone NAAQS Nonattainment Areas released in June 2018 incorporates the 2012 Multi-Jurisdictional Guidance by reference.

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 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 September 2020 (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. EPA has approved EMFAC2017 for conformity use on August 15, 2019 and the final rule started the two-year grace period to transition to the new emissions model for use in conformity demonstrations. Therefore, EMFAC2014 continued to be used in this conformity analysis as documented in Chapter 3. EPA issued a federal register notice on December 14, 2015 formally approving EMFAC2014 for use in conformity determinations. On November 20, 2019, California Air Resources Board (CARB) released “EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicles Rule Part One” for use in regional conformity analyses. On March 12, 2020, EPA concurred on the use of CARB’s EMFAC off-model adjustment factors in conformity demonstrations. On April 30, EPA and NHTSA published SAFE Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (Final SAFE Rule) rolling back federal fuel economy standards. On June 26, 2020 CARB issued a public notice stating that EMFAC adjustments released in November continue to be suitable for conformity purposes. The conformity analysis for the 2021 FTIP and 2018 RTP incorporates these adjustments.

3) *Timely Implementation of TCMs* — Section 93.113 provides a detailed description of the steps necessary to demonstrate that the 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. The conformity analysis is required to be publicly available and an opportunity for public review and comment is provided. Merced County Association of Governments 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.

Merced County Association of Governments 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 the 2021 FTIP and 2018 RTP includes analyses 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, 2008 and 2015 standards), particulate matter under 2.5 microns in diameter (PM<sub>2.5</sub>) (1997, 2006 and 2012 standards); and has a maintenance plan for particulate matter under 10 microns in diameter (PM-10). Note that the urbanized/metropolitan areas of Kern, Fresno, Stanislaus and San Joaquin Counties have attained the CO standard and maintained attainment for 20 years. In accordance with Section 93.102(b)(4), conformity requirements for the CO standard stop applying 20 years after EPA approves an attainment redesignation request or as of June 1, 2018. Therefore, future conformity analyses no longer include a CO conformity demonstration.

State Implementation Plans have been prepared to address ozone, PM-10 and PM<sub>2.5</sub>:

- 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. EPA found the new ozone budgets adequate on June 29, 2017 (effective July 14, 2017). In response to recent court decisions regarding the baseline RFP year, ARB adopted the revised 2008 ozone conformity budgets as part of the *2018 Updates to the California State Implementation Plan* (2018 SIP Update) on October 25, 2018. EPA approved the 2016 Ozone Plan and the budgets on March 25, 2019.
- 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<sub>2.5</sub> Plan (1997 Standard), as revised in 2011, was approved by EPA on November 9, 2011 (effective January 9, 2012).
- The 2018 PM<sub>2.5</sub> Plan was partially approved by EPA on July 22, 2020 (effective as of publication) inclusive of the revised conformity budgets and trading mechanism for the 2006 24-hr PM<sub>2.5</sub> standard.

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 February 16, 2018, the U.S. Court of Appeals ruled against parts of the EPA’s 2015 Ozone Implementation Rule related to the revocation of the 1997 ozone standard and the relevant “anti-backsliding” requirements. However, according to the *Transportation Conformity Guidance for the South Coast II Court Decision*, nonattainment areas with existing 2008 ozone conformity budgets are not required to address the 1997 ozone standards for conformity purposes.

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.

On June 4, 2018 EPA published final designations classifying the San Joaquin Valley as “extreme” nonattainment for 2015 ozone with an attainment deadline of 2038, effective August 3, 2018. Transportation conformity applies one year after the effective date or August 3, 2019. It is important to note that the 2015 ozone standard nonattainment area boundary for the San Joaquin Valley is exactly the same as the nonattainment area boundary for the 2008 ozone standard.

On November 13, 2009, EPA published Air Quality Designations for the 2006 24-hour PM<sub>2.5</sub> 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<sub>2.5</sub> 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<sub>2.5</sub> nonattainment area boundary for the San Joaquin Valley is exactly the same as the nonattainment area boundary for the 1997 annual PM<sub>2.5</sub> standard.

EPA’s nonattainment area designations for the new 2012 PM<sub>2.5</sub> 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<sub>2.5</sub> standards nonattainment area boundary for the San Joaquin Valley are exactly the same as the nonattainment area boundary for the 1997 annual PM<sub>2.5</sub> 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 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 AND 2015 STANDARDS)**

The San Joaquin Valley currently violates both the 2008 and 2015 ozone standards; thus the conformity determination includes all corresponding analyses (see discussion under Air Quality Designations Applicable to the San Joaquin Valley above). Under the existing conformity regulations, regional emissions analyses for ozone areas must address nitrogen oxides (NO<sub>x</sub>) 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'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. Current federal guidance does not require 2008 ozone nonattainment areas to address the 1997 ozone standard for conformity purposes.

On March 25, 2019, EPA published a final rule approving the 2008 ozone conformity budgets and the *2018 Updates to the California State Implementation Plan*. The EPA final rule identified both reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>) subarea budgets in tons per average summer day for each MPO in the nonattainment area.

In accordance with Section 93.109(c)(2) of the conformity rule and the 2015 Ozone Transportation Conformity Guidance, if a 2015 ozone nonattainment area has adequate or approved SIP budgets that address the 2008 ozone standard, it must use the budget test until new 2015 ozone standard budgets are found adequate or approved. It is important to note that the boundaries for the 2015 ozone standard and 2008 ozone standard are identical. In addition, the 2015 Ozone Implementation Rule did not revoke 2008 standard requirements. Consequently, for this conformity analysis, the SJV MPOs will conduct demonstrations for both 2008 and 2015 ozone standards using subarea emissions budgets as established in the *2018 Updates to the California State Implementation Plan*.

The conformity budgets from Table 1 of the March 25, 2019 Federal Register are provided in Table 1-1 below. These budgets will be used to compare to emissions resulting from the 2021 FTIP and the 2018 RTP.

**Table 1-1:  
On-Road Motor Vehicle 2008 and 2015 Ozone Standard Emissions Budgets**  
(summer tons/day)

County	2020		2023		2026		2029		2031	
	ROG	NOx								
Fresno	6.7	23.9	5.5	14.1	4.9	13.2	4.5	12.4	4.2	12.1
Kern (SJV)	5.4	20.9	4.5	14.5	4.2	14.4	4.0	14.3	3.9	14.3
Kings	1.2	4.5	1.0	2.7	0.9	2.6	0.8	2.6	0.8	2.6
Madera	1.5	4.3	1.1	2.7	1.0	2.5	0.9	2.4	0.8	2.3
Merced	2.2	8.8	1.7	6.0	1.5	5.9	1.3	5.6	1.2	5.4
San Joaquin	4.7	11.2	3.9	7.4	3.5	7.0	3.1	6.6	2.8	6.3
Stanislaus	3.1	8.8	2.6	5.6	2.2	4.9	2.0	4.5	1.8	4.3
Tulare	3.0	7.6	2.4	4.6	2.1	4.0	1.8	3.7	1.7	3.5

<sup>(a)</sup> Note that 2008 ozone budgets were established by rounding up each county's emissions totals to the nearest tenth of a ton.

## 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 July 8, 2016, 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 1-2:  
On-Road Motor Vehicle PM-10 Emissions Budgets**  
(tons per average annual day)

<b>County</b>	<b>2020<sup>(b)</sup></b>	
	<b>PM-10</b>	<b>NOx</b>
Fresno	7.0	25.4
Kern <sup>(a)</sup>	7.4	23.3
Kings	1.8	4.8
Madera	2.5	4.7
Merced	3.8	8.9
San Joaquin	4.6	11.9
Stanislaus	3.7	9.6
Tulare	3.4	8.4

<sup>(a)</sup>Kern County subarea includes only the portion of Kern County within the San Joaquin Valley Air Basin.

<sup>(b)</sup>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).

The 2018 PM2.5 Plan addressing 1997, 2006 and 2012 PM2.5 standards was adopted by the San Joaquin Valley Air District on November 15, 2018 and California Air Resources Board on January 24, 2019 and subsequently submitted for EPA review. On March 27, EPA published a proposed rule approving portions of the 2018 PM2.5 Plan, including the 2006 PM2.5 conformity budgets and trading mechanism. Final rule on sections that pertain to 2006 24-hour PM2.5 standard Serious area nonattainment was released on July 22, 2020 (effective as of publication), therefore this conformity analysis incorporates new 2018 PM2.5 SIP budgets for the 2006 24-hour PM2.5 standard.

Given that EPA may act on the remaining components of the 2018 PM2.5 Plan prior to federal approval of the 2021 FTIP conformity analysis, the new transportation conformity budgets addressing the 1997 and 2012 PM2.5 standards are also included in this conformity analysis (“upcoming budget test”).

### *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 1-3 below and will be used to compare emissions resulting from the 2021 FTIP and the 2018 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 2008 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 demonstrate conformity to these standards until attainment. In the San Joaquin Valley, the 1997 standards (both 24-hour and annual) continue to apply.

**Table 1-3:  
On-Road Motor Vehicle 1997 (24-hour and annual) and 2012 (annual) PM2.5 Standard  
Emissions Budgets  
(tons per average annual day)**

County	2012 <sup>(a)</sup>		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

<sup>(a)</sup> 2012 budgets are not in the timeframe of this conformity analysis.

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.

*“Upcoming Budget Test” to the 1997 and 2012 PM2.5 Standards*

The 2018 PM2.5 Plan 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 applicable conformity budgets are provided in Table 1-4 for the 1997 PM2.5 standard and Table 1-5 for the 2012 PM2.5 standard and will be used to compare emissions resulting from the 2021 FTIP and the 2018 RTP.

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

County	2017 <sup>(a)</sup>		2020	
	PM2.5	NOx	PM2.5	NOx
Fresno	0.9	28.5	0.8	15.1
Kern (SJV)	0.8	28.0	0.7	13.3
Kings	0.2	5.8	0.2	2.8
Madera	0.2	5.3	0.2	2.5
Merced	0.3	10.7	0.3	5.3
San Joaquin	0.7	14.9	0.6	7.6
Stanislaus	0.4	11.9	0.4	6.1
Tulare	0.4	10.8	0.4	5.2

<sup>(a)</sup> 2017 budgets are not in the timeframe of this conformity analysis.

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

County	2019		2022		2025	
	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx
Fresno	0.9	27.6	0.9	21.2	0.8	13.5
Kern (SJV)	0.8	25.1	0.8	19.4	0.8	11.9
Kings	0.2	5.1	0.2	4.1	0.2	2.5
Madera	0.2	4.6	0.2	3.5	0.2	2.0
Merced	0.3	9.4	0.3	7.6	0.3	4.5
San Joaquin	0.6	12.7	0.6	10.0	0.6	6.3
Stanislaus	0.4	10.5	0.4	8.1	0.4	5.2
Tulare	0.4	9.3	0.4	6.9	0.4	4.2

<sup>(a)</sup> Note that 2019 PM2.5 budgets are not in the timeframe of this conformity analysis.

The 2018 PM2.5 SIP includes a trading mechanism that allows trading from the motor vehicle emissions budget for the PM2.5 precursor NOx to the motor vehicle emissions budget for primary PM2.5 using a 6.5 to 1 ratio on an annual basis. The trading mechanism allows the agencies responsible for demonstrating transportation conformity in the San Joaquin Valley to supplement the applicable budget for PM2.5 with a portion of the applicable corresponding budget for NOx, and use these adjusted motor vehicle emissions budgets for PM2.5 and NOx to demonstrate transportation conformity with the 2018 PM2.5 SIP.

The trading mechanism will be used only for conformity analyses for analysis years after 2020. To ensure that the trading mechanism does not impact the ability to meet the NOx budget, the NOx emission reductions available to supplement the PM2.5 budget shall only be those remaining after the NOx budget has been met.

#### *2006 24-Hour PM2.5 Standard*

The 2018 PM2.5 Plan addressing 1997, 2006 and 2012 PM2.5 standards was adopted by the San Joaquin Valley Air District on November 15, 2018 and California Air Resources Board on January 24, 2019. On March 27, EPA published a proposed rule approving portions of the 2018 PM2.5 Plan, including the 2006 PM2.5 conformity budgets and trading mechanism. Final rule on sections that pertain to 2006 24-hour PM2.5 standard Serious area nonattainment was published on July 22, 2020. Therefore, the conformity analysis for the 2021 FTIP and 2018 RTP incorporates new transportation conformity budgets and the new attainment year of 2024 for 2006 24-hour PM2.5 standards.

The 2018 PM2.5 Plan for the 2006 PM2.5 standard 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 March 27, 2020 Federal Register, Table 14 are provided in Table 1-4 below and will be used to compare emissions resulting from the 2021 FTIP and the 2018 RTP.

**Table 1-6  
On-Road Motor Vehicle 2006 24-Hour PM2.5 Standard Emissions Budgets**  
(tons per average winter day)

County	2017		2020		2023		2024	
	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx
Fresno	0.9	29.3	0.9	25.9	0.8	15.5	0.8	15.0
Kern (SJV)	0.8	28.7	0.8	23.8	0.7	13.6	0.7	13.4
Kings	0.2	5.9	0.2	4.9	0.2	2.9	0.2	2.8
Madera	0.2	5.5	0.2	4.4	0.2	2.6	0.2	2.5
Merced	0.3	11.0	0.3	9.1	0.3	5.5	0.3	5.3
San Joaquin	0.7	15.5	0.6	12.3	0.6	7.9	0.6	7.6
Stanislaus	0.4	12.3	0.4	9.8	0.4	6.2	0.4	6.0
Tulare	0.4	11.2	0.4	8.7	0.4	5.3	0.4	5.1

<sup>(4)</sup> Note that 2017 PM2.5 budgets are not in the timeframe of this conformity analysis.

The 2018 PM2.5 SIP includes a trading mechanism that allows trading from the motor vehicle emissions budget for the PM2.5 precursor NOx to the motor vehicle emissions budget for primary PM-2.5 using an 2 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 PM2.5 and NOx to demonstrate transportation conformity with the PM2.5 SIP for analysis years after 2020. As noted above, EPA approved the 2018 PM2.5 Plan budgets and the trading mechanism for 2006 24-hr PM2.5 standards on July 22, 2020 (effective as of publication).

## **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.

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. Table 1-7 below provides a summary of conformity analysis years that apply to this conformity analysis. Table 1-8 summarizes conformity analysis years for the “upcoming budget test”.

**Table 1-7:  
San Joaquin Valley Conformity Analysis Years**

<b>Pollutant</b>	<b>Budget Years<sup>1</sup></b>	<b>Attainment/ Maintenance Year</b>	<b>Intermediate Years</b>	<b>RTP Horizon Year</b>
2008 and 2015 Ozone	2011/2017/2020/2023/2026 /2029	2031/2037 <sup>2</sup>	NA	2042
PM-10	NA	2020	2029/2037	2042
1997 and 2012 PM2.5	NA	2014/2021 <sup>3</sup>	2029/2037	2042
2006 24-hour PM2.5	2017/2020/2023/2024/2026	2024	2029/2037	2042

<sup>1</sup>Budget years that are not in the time frame of the transportation plan/conformity analysis are not included as analysis years (e.g., 2011, 2014, 2017), although they may be used to demonstrate conformity.

<sup>2</sup>2031 is the attainment year for the 2008 ozone standard. 2037 is the attainment year for the 2015 ozone standard.

<sup>3</sup> 2014 is the attainment year for the 1997 PM2.5 standards. 2021 is the attainment year for the 2012 PM2.5 standards.

<sup>4</sup>2026 is a post-attainment budget year for the 2006 PM2.5 standard and is not required to be included in a conformity analysis.

**Table 1-8:  
 San Joaquin Valley Conformity Analysis Years for the Upcoming Budgets**

<b>Pollutant</b>	<b>Budget Years<sup>1</sup></b>	<b>Attainment/ Maintenance Year</b>	<b>Intermediate Years</b>	<b>RTP Horizon Year</b>
1997 annual and 24-hour PM2.5	2017/2020/2023 <sup>2</sup>	2020	2029/2037	2042
2012 annual PM2.5	2019/2022/2025/2028 <sup>3</sup>	2025	2031/2037	2042

<sup>1</sup>Budget years that are not in the time frame of the transportation plan/conformity analysis are not included as analysis years (e.g., 2017), although they may be used to demonstrate conformity.

<sup>2,3</sup> 2023 and 2028 are the post-attainment budget years for the 1997 PM2.5 standard and 2012 PM2.5 standard, respectively, and are not required to be included in a conformity analysis.

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 (i.e. 2031).

For the 2015 ozone standard, the San Joaquin Valley has been classified as an extreme nonattainment area with an attainment date of August 3, 2038. In accordance with the December 2018 final rule, *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area State Implementation Plan Requirements*, the attainment year of 2037 must be modeled. When using the budget test, the attainment year of the 2015 ozone standard must be analyzed (i.e. 2037).

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. The San Joaquin Valley 2018 PM2.5 Plan includes an attainment deadline extension request for the 1997 PM2.5 standards. Therefore, the attainment year 2020 must be modeled for the “upcoming budget test”, should EPA approve the bump up to Serious request and/or find the new 1997 PM2.5 budgets adequate.

On January 20, 2016, EPA finalized reclassification of the San Joaquin Valley to Serious nonattainment for the 2006 24-hour PM2.5 Standard. On August 16, 2016, the 2012 PM2.5 Plan was approved by EPA, effective September 30, 2016, inclusive of new conformity budgets and trading mechanism for the 2006 24-hour PM2.5 standard with a requirement to attain the standard as expeditiously as practicable and no later than December 31, 2019. In 2019, CARB submitted an

attainment deadline extension request as part of the 2018 PM2.5 Plan. On March 27, EPA published a proposed rule approving portions of the 2018 PM2.5 Plan, including the 2006 PM2.5 standard attainment deadline extension, as well as conformity budgets and trading mechanism. The attainment year of 2024 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. The San Joaquin Valley 2018 PM2.5 Plan includes a reclassification request to Serious for the 2012 PM2.5 standards with an attainment deadline of 2025. Therefore, the attainment year 2025 must be modeled for the “upcoming budget test”, should EPA approve the request for a later attainment year and/or find the new 2012 PM2.5 budgets adequate.

## **CHAPTER 2: LATEST PLANNING ASSUMPTIONS AND TRANSPORTATION MODELING**

For this conformity determination, there are:

- No revisions to the TIP/RTP, including no additions or deletions of regionally significant projects,
- No changes in the design concept and scope of existing regionally significant projects, that require a new regional emissions analysis,
- No revisions that delay or accelerate the completion of regionally significant projects across conformity analysis years, and
- No changes to the time frame of the transportation plan.

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 September 2020.

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 TP+/CUBE transportation model. The model was validated in 2017 for the 2015 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**

<b>Assumption</b>	<b>Year and Source of Data (MPO action)</b>	<b>Modeling</b>	<b>Next Scheduled Update</b>
Population	Base Year:2015  Projections:  MCAG accepted population projections from University of the Pacific (UOP)..	This data is disaggregated to the TAZ level for input into the TP+/CUBE for the base year validation.	Population projections will be reviewed and updated by 2022.
Employment	Base Year:2015  Projections:  Employment data is based on projections from the UOP Center for Business and Policy.	This data is disaggregated to the TAZ level for input into the CUBE for the base year validation.	Employment projections will be reviewed and updated by 2022.
Traffic Counts	The model was validated in 2017 to the 2015 base year using daily and peak hour counts.	CUBE was validated using these traffic counts.	Traffic counts are updated every five years, if funds are available.
Vehicle Miles of Travel	MCAG accepted the 2017 transportation model validation for the 2015 base year in May 2018.	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	<p>The 2017 transportation model validation was based on survey data on peak and off-peak highway speeds collected in 2017.</p> <p>Speed distributions were updated in EMFAC2014, using methodology approved by ARB and with information from the transportation model.</p>	<p>CUBE. The transportation model includes a feedback loop that assures congested speeds are consistent with travel speeds.</p> <p>EMFAC2014</p>	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:*

MCAG used employment projections to the year 2050 for Merced County. StanCOG hired the University of Pacific (UOP) Research and Forecasting Center which developed employment projections based on HIS-Global Insight regional forecasting models and prepared using IHS-Global Insight's Aremos forecasting software. Merced County's forecast is based on its own unique econometric model, but has drivers linked to state and national forecasts to account for macro trends. UOP developed judgement to adjust the econometric forecasts to account for local knowledge and foreseeable short and medium-term developments such as opening and closing years of large facilities, local real estate market trends or major infrastructure projects.

MCAG also used population forecasts to the year 2050, also prepared by UOP. The study includes three primary forecasts of population, households, and housing units. Other projections developed include age distribution, average household size, household income, household type, race/ethnicity, are derived from the three primary forecasts. The 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.

For Population, Employment, and Land Use assumptions, MCAG, in conjunction with SJCOG and StanCOG used a tool called Envision Tomorrow.

## **B. TRANSPORTATION MODELING**

The San Joaquin Valley Metropolitan Planning Organizations (MPOs) utilize the TP+/CUBE traffic modeling software. The Valley MPO 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 MPO 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 validation to a new base year of 2015. 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.

## **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 Three County Model was validated to 2015 using available 2014-2017 counts. 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 2015 validated base year calibrated to within 3 percent of the estimate in the 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 valley traffic models include 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 travel speeds used throughout the traffic model process.

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. The validated 2015 MCAG Model estimate of total Vehicle Miles Traveled (VMT) was within 3 percent of the estimate of the VMT from the 2015 Highway Performance Monitoring System.

## **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 2021 FTIP and the 2018 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 MPO 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**

<b>Horizon Year</b>	<b>Total Population</b>	<b>Employment</b>	<b>Average Weekday VMT (millions)</b>	<b>Total Lane Miles</b>
2020	291,056	82,017	8.00	3,104
2021	294,959	82,825	8.12	N/A
2022	298,863	83,633	8.22	N/A
2023	302,766	84,440	8.33	N/A
2024	306,959	85,381	8.42	N/A
2025	311,153	86,322	8.52	N/A
2026	315,346	87,264	8.67	N/A
2029	329,669	90,890	8.78	3,128
2031	339,054	93,062	8.77	N/A
2037	366,520	99,464	9.23	3,143
2042	388,939	105,766	9.71	3,143

**D. VEHICLE REGISTRATIONS**

Merced County Association of Governments 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](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. While EPA issued final approval for EMFAC2017 use in conformity demonstrations on August 15, 2019, the Conformity Analysis for 2021 FTIP and 2018 RTP relies on EMFAC2014 in line with the grace period established in the Final Rule. 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.

**OZONE**

No committed control measures are included in the 2008 ozone standard conformity demonstration as part of the 2016 Ozone Plan.

**PM-10**

Committed control measures in the EPA approved 2007 PM-10 Maintenance Plan that reduce mobile source emissions are shown in Table 2-3. However, reductions from these control measures were not applied to this conformity analysis because they were not needed to demonstrate conformity.

**Table 2-3:  
 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) and 2012 PM2.5 Plan (as revised in 2015) that reduce mobile source emissions are shown in Table 2-4 and 2-5, respectively. However, reductions from these control measures were not applied to this conformity analysis because they were not needed to demonstrate conformity.

**Table 2-4:  
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 2-5:  
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 ozone precursors and particulate matter is EMFAC2014. CARB emission factors for PM10 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 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. EPA found the new ozone budgets adequate on June 29, 2017 (effective July 14, 2017). In response to recent court decisions regarding the baseline RFP year, ARB adopted the revised 2008 ozone conformity budgets as part of the 2018 Updates to the California State Implementation Plan Update on October 25, 2018. EPA approved the budgets and the plan on March 25, 2019.
- 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 Standards), as revised in 2011, was approved by EPA on November 9, 2011 (effective January 9, 2012).
- The 2018 PM2.5 Plan was partially approved by EPA on July 22, 2020 (effective as of publication) inclusive of the revised conformity budgets and trading mechanism for the 2006 24-hr PM2.5 standard.

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 1-7 and Table 1-8 for the “upcoming budget test”.

### **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 was required for conformity analysis on or after December 14, 2017.

On March 1, 2018 ARB released the latest update to the EMFAC model – EMFAC2017v1.0.2. The model was submitted for EPA review in the fall of 2018 and EPA published final approval of EMFAC for conformity use on August 15, 2019. The announcement set a grace period of 2 years before EMFAC2017 is required for use in new regional emissions analyses, therefore this analysis still relies on EMFAC2014 for all conformity tests.

On September 27, 2019, the United States Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA) published the “Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program” (effective November 26, 2019). The Part One Rule revoked California’s authority to set its own greenhouse gas emissions standards, which were incorporated in EMFAC2014 emissions model. On November 20, 2019, California Air Resources Board (CARB) released “EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicles Rule Part One” for use in regional conformity analyses. On March 12, 2020, EPA concurred on the use of CARB’s EMFAC off-model adjustment factors in conformity demonstrations. On April 30, EPA and NHTSA published SAFE Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (Final SAFE Rule) rolling back federal fuel economy standards. On June 26, 2020 CARB issued a public notice stating that EMFAC adjustments released in November continue to be suitable for conformity purposes. The conformity analysis for the 2021 FTIP and the 2018 RTP incorporates these emissions modeling adjustments.<sup>1</sup>

A transportation data template has been prepared to summarize the transportation model output for use in EMFAC 2014. 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 as appropriate.

## **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

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<sup>1</sup> [https://ww3.arb.ca.gov/msei/emfac\\_off\\_model\\_adjustment\\_factors\\_final\\_draft.pdf](https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf).

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 NO<sub>x</sub> 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 PM<sub>2.5</sub> must address all standards in the conformity determination. The San Joaquin Valley currently violates both the 1997 and 2012 annual PM<sub>2.5</sub> standards, and the 1997 and 2006 24-hour PM<sub>2.5</sub> standards; thus the conformity determination includes analyses to all PM<sub>2.5</sub> standards.

The following PM<sub>2.5</sub> 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<sub>2.5</sub> and NO<sub>x</sub> 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<sub>2.5</sub> annual emission estimates. The availability of seasonal or monthly VMT data and the corresponding variability of that data need to be evaluated.

PM<sub>2.5</sub> 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<sub>2.5</sub> 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<sub>2.5</sub> nonattainment areas must consider directly emitted PM<sub>2.5</sub> 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<sub>x</sub> emissions are included; however, VOC, SO<sub>x</sub>, and ammonia emissions are not.

*1997 Standard* – If EPA does not approve or find adequate the 1997 PM<sub>2.5</sub> budgets in the 2018 PM<sub>2.5</sub> Plan, the 2008 PM<sub>2.5</sub> Plan budgets will continue to be used. The 2008 PM<sub>2.5</sub> 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<sub>2.5</sub> and NO<sub>x</sub> established based on average annual daily emissions. The annual inventory methodology contained in the 2008 PM<sub>2.5</sub> 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<sub>2.5</sub> includes directly emitted PM<sub>2.5</sub> motor vehicle emissions from tailpipe, brake wear and tire wear. VOC, SO<sub>x</sub>, 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. However, if the 2018 PM<sub>2.5</sub> Plan conformity budgets are approved or found adequate, the “upcoming budget test” addresses conformity to these budgets.

*2006 Standard* – On March 27, 2020, EPA proposed approval of portions of the 2018 PM<sub>2.5</sub> Plan that pertain to the 2006 24-hour PM<sub>2.5</sub> standard, including granting attainment deadline extension to 2024. This portion of the 2018 PM<sub>2.5</sub> Plan was finalized on July 22, 2020, effective as of publication. The 2018 PM<sub>2.5</sub> Plan contains motor vehicle emission budgets for PM<sub>2.5</sub> and NO<sub>x</sub> established based on average winter daily emissions. The winter inventory methodology contained in the 2018 PM<sub>2.5</sub> Plan and used to establish emissions budgets is consistent with the methodology used herein. The motor vehicle emissions budget for PM<sub>2.5</sub> include directly emitted PM<sub>2.5</sub> motor vehicle emissions from tailpipe, brake wear and tire wear. VOC, SO<sub>x</sub>, 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<sub>2.5</sub> nonattainment area boundary for the San Joaquin Valley is exactly the same as the nonattainment area boundary for the 1997 PM<sub>2.5</sub> standards.

*2012 Standard* – EPA’s nonattainment area designations for the 2012 PM<sub>2.5</sub> 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<sub>2.5</sub> area has adequate or approved SIP budgets that address the annual 1997 standards, it must use the budget test until new 2012 PM<sub>2.5</sub> standard budgets are found adequate or approved. It is important to note that the 2012 annual PM<sub>2.5</sub> nonattainment area boundary for the San Joaquin

Valley is exactly the same as the nonattainment area boundary for the 1997 and 2006 PM<sub>2.5</sub> standards. If EPA does not take action on the new 2012 PM<sub>2.5</sub> budgets in the 2018 PM<sub>2.5</sub> Plan, the 2008 PM<sub>2.5</sub> Plan (as revised in 2011) budgets will continue to be used in this conformity analysis. However, if the new conformity budgets are approved or found adequate, the “upcoming budget test” addresses conformity to these budgets.

#### **1997 and 2012 PM<sub>2.5</sub> TRADING MECHANISM**

Consistent with the PM<sub>2.5</sub> implementation rule, the 2008 PM<sub>2.5</sub> Plan budgets and trading mechanism will continue to be used in this conformity analysis. The 2008 PM<sub>2.5</sub> SIP (as revised in 2011) allows trading from the motor vehicle emissions budget for the PM<sub>2.5</sub> precursor NO<sub>x</sub> to the motor vehicle emissions budget for primary PM<sub>2.5</sub> using a 9 to 1 ratio. This trading mechanism will be used for the 1997 annual and 24-hour hour and 2012 PM<sub>2.5</sub> standard conformity analyses for analysis years after 2014.

For the “upcoming budget test”, the 2018 PM<sub>2.5</sub> Plan budgets and trading mechanism will also be used in this conformity analysis. The 2018 PM<sub>2.5</sub> Plan allows trading from the motor vehicle emissions budget for the PM<sub>2.5</sub> precursor NO<sub>x</sub> to the motor vehicle emissions budget for primary PM<sub>2.5</sub> using a 6.5 to 1 ratio. This trading mechanism will be used for the 1997 annual and 24-hour hour and 2012 PM<sub>2.5</sub> standard conformity analyses for analysis years after 2020.

#### **2006 PM<sub>2.5</sub> TRADING MECHANISM**

On July 22, 2020, EPA partially approved the 2018 PM<sub>2.5</sub> SIP including the 2006 PM<sub>2.5</sub> standard trading mechanism that allows trading from the motor vehicle emissions budget for the PM<sub>2.5</sub> precursor NO<sub>x</sub> to the motor vehicle emissions budget for primary PM-2.5 using an 2 to 1 ratio. This trading mechanism will be used for the 2006 24-hour PM<sub>2.5</sub> standard conformity analysis for analysis years after 2020.

### **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 originally provided for interagency consultation in May 2016 and updated in September 2020. EPA, FHWA, and ARB concurred.

Documentation of the conformity analysis for the 2021 FTIP and 2018 RTP is provided in Appendix C, including:

- 2021 FTIP Conformity EMFAC Spreadsheet
- 2021 FTIP Conformity Paved Road Spreadsheet
- 2021 FTIP Conformity Unpaved Road Dust Spreadsheet
- 2021 FTIP Conformity Construction Spreadsheet
- 2021 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 2016 Ozone Plan does not include new 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**

Portions of the 2018 PM2.5 Plan pertaining to 2006 24-hour PM2.5 standards were approved by EPA on July 22, 2020 (effective as of publication). 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 any additional 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. 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. 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, Merced County Association of Governments undertook a process to identify and evaluate potential control measures that could be included in the 2018 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 2018 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. Merced County Association of Governments 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 approved since 2012. New PM-10 plans that have been reviewed include:

- A. West Pinal County, AZ Moderate PM-10 Nonattainment Area SIP, submitted December 21, 2015 (EPA approval effective May 31, 2017). Contingency measures include paving or chemically stabilizing unpaved roads.
- B. Owens Valley, CA Serious PM-10 Nonattainment Area SIP, submitted June 9, 2016 (EPA approval effective April 12, 2017). Road dust was determined to be below de minimis thresholds and no mobile source control measures were adopted.
- C. Mammoth Lake, CA PM-10 Redesignation Request and Maintenance Plan, submitted October 21, 2014 (EPA approval effective November 4, 2015). The Mammoth Lake general

plan places a cap on the growth of VMT. Contingency measures include improved street sweeping procedures and reduced use of volcanic cinders on roadways.

- D. Las Vegas, NV Serious PM-10 Redesignation Request and Maintenance Plan, submitted September 7, 2012 (EPA approval effective November 5, 2014). Most stringent measures were introduced in 2001. Stabilization of unpaved roads including paving roads with volumes over 150 vehicles per day. Paved road sweeping and mitigation measures.
- E. Payson, AZ PM-10 Limited Maintenance Plan submitted January 23, 2012 (EPA approval effective May 19, 2014). Contingency measures include paving or chemically stabilizing unpaved roads.
- F. South Coast, CA PM-10 Redesignation Request and Maintenance Plan submitted April 28, 2010 (EPA approval effective July 26, 2013). No PM-10 specific dust control measures cited for mobile sources.
- G. Juneau's Mendenhall Valley, AK PM-10 Limited Maintenance Plan submitted February 20, 2009 (EPA approval effective July 8, 2013). The attainment plan control measures included optimizing sanding and de-icing materials to minimize entrainment, spring street sweeping, and paving of dirt roads. No additional measures were identified for the LMP to continue attainment of the NAAQS. Contingency measures include paving of dirt roads and stabilization of unpaved shoulders.
- H. Eugene-Springfield, OR PM-10 Redesignation Request and Limited Maintenance Plan submitted January 13, 2012 (EPA approval effective June 10, 2013). Motor vehicles were not identified as a significant source and no control measures were included for onroad mobile sources.
- I. Sandpoint, ID PM-10 Limited Maintenance Plan submitted December 12, 2011 (EPA approval effective May 23, 2013). Ordinances require the application of certain types of sand in the winter along with increased street 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, Merced County Association of Governments considered priority funding allocations in the 2018 RTP for PM-10 and NOx 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 draft boilerplate conformity document was distributed for interagency consultation on October 14, 2020. Comments received have been addressed and incorporated into this version of the analysis.

The Conformity Analysis for the 2021 FTIP and 2018 RTP was developed in consultation with Merced County Association of Governments local partner agencies, including member jurisdictions, Caltrans, and local transit agencies.

The Conformity Analysis for the 2021 FTIP and 2018 RTP was released on January 18, 2021 for a 30-day public comment period, followed by adoption on February 18, 2021. Federal approval is anticipated on or before April 30, 2021.

## **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. Merced County Association of Governments has an adopted consultation process and policy for conformity analysis which includes a 30-day public notice and 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<sub>x</sub>), PM-10 (PM-10/NO<sub>x</sub>), and PM2.5 (PM2.5/NO<sub>x</sub>) respectively, in tons per day for each of the horizon years tested.

### Ozone:

For 2008 and 2015 8-hour ozone, the applicable conformity test is the emissions budget test, using the *2018 Updates to the California State Implementation Plan* budgets for the San Joaquin Valley established for ROG and NO<sub>x</sub> for an average summer (ozone) season day. EPA approved the plan and the budgets on March 25, 2019. The modeling results for all analysis years indicate that the on-road vehicle ROG and NO<sub>x</sub> 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<sub>x</sub>. 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:

If EPA does not take action on the 2018 PM2.5 Plan, the 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. 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. However, if the 2018 PM2.5 Plan conformity budgets are approved or found adequate, the “upcoming budget test” demonstrates conformity to the new 1997 PM2.5 budgets. The TIP/RTP therefore satisfy the conformity emissions test for PM2.5 and nitrogen oxides.

2006 PM2.5 Standard:

On July 22, 2020, EPA approved portions of the 2018 PM2.5 Plan that pertain to the 2006 24-hour PM2.5 standard, including new transportation conformity budgets and trading mechanism. For the 2006 PM2.5 standard, the applicable conformity test is the emission budget test, using approved budgets established in the 2018 PM2.5 Plan. 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(c)(2), 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. If EPA does not take action on the 2018 PM2.5 Plan, the 2008 PM2.5 Plan (as revised in 2011) budgets will continue to be used in this conformity analysis. For the 2012 PM2.5 standards, the applicable conformity test is the emissions budget test, using the 2008 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. However, if the 2018 PM2.5 Plan conformity budgets are approved or found adequate, the “upcoming budget test” demonstrates conformity to the new 2012 PM2.5 budgets. 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 2021 FTIP and the 2018 RTP is supported.

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

2021 FTIP Conformity Analysis Results Summary -- Merced

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		ROG (tons/day)	NOx (tons/day)	ROG	NOx
2008 and 2015 Ozone	2020 Budget	2.2	8.8		
	2020	2.1	8.3	YES	YES
	2023 Budget	1.7	6.0		
	2023	1.7	4.9	YES	YES
	2026 Budget	1.5	5.9		
	2026	1.5	4.4	YES	YES
	2029 Budget	1.3	5.6		
	2029	1.3	4.0	YES	YES
	2031 Budget	1.2	5.4		
	2031	1.2	3.8	YES	YES
	2037	0.9	3.5	YES	YES
	2042	0.9	3.5	YES	YES

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		PM-10 (tons/day)	NOx (tons/day)	PM-10	NOx
PM-10	2020 Budget	3.8	8.9		
	2020	3.4	8.6	YES	YES
	2029 Budget	3.8	8.9		
	2029	3.0	4.1	YES	YES
	2020 Budget	3.8	8.9		
	2037	3.1	3.5	YES	YES
	2020 Budget	3.8	8.9		
	2042	3.1	3.5	YES	YES

PM-10	Total On-Road PM-10	Paved Road Dust		Unpaved Road Dust		Road Construction Dust		Total PM-10	Nox
		Nox	PM-10	Nox	PM-10	Nox	PM-10		
2020	0.571	8.644	1.038		1.273		0.552	3.4	8.6
2029	0.583	4.099	1.129		1.273		0.040	3.0	4.1
2037	0.604	3.544	1.153		1.273		0.028	3.1	3.5
2042	0.632	3.530	1.228		1.273		0.000	3.1	3.5

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		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		
	2021	0.3	7.9	YES	YES
	2014 Budget	0.6	17.4		
	2029	0.2	4.1	YES	YES
	2014 Budget	0.6	17.4		
	2037	0.2	3.5	YES	YES
	2014 Budget	0.6	17.4		
	2042	0.3	3.5	YES	YES

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
2006 PM2.5 Winter 24-Hour Standard	2020 Budget	0.3	9.1		
	2020	0.3	8.9	YES	YES
	2023 Budget	0.3	5.5		
	2023	0.3	5.2	YES	YES
	2024 Budget	0.3	5.3		
	2024	0.3	5.0	YES	YES
	2024 Budget	0.3	5.3		
	2031	0.3	4.0	YES	YES
	2024 Budget	0.3	5.3		
	2037	0.3	3.7	YES	YES
	2024 Budget	0.3	5.3		
	2042	0.3	3.6	YES	YES

**UPCOMING BUDGET TEST**  
(Note: EPA Action is Pending as of This Analysis; The 1997 and 2012 PM2.5 Budget Test Above Will be Used if EPA Doesn't Determine Adequacy or Approval of the New Budgets before Federal Approval of the 2021 FTIP Conformity Analysis)

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
1997 24-Hour and Annual PM2.5 Standards	2020 Budget	0.3	8.9		
	2020	0.3	8.7	YES	YES
	2020 Budget	0.3	8.9		
	2029	0.3	4.1	YES	YES
	2020 Budget	0.3	8.9		
	2037	0.3	3.6	YES	YES
	2020 Budget	0.3	8.9		
	2042	0.3	3.6	YES	YES

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
2012 Annual PM2.5 Standards	2019 Budget	0.3	9.4		
	2020	0.3	8.7	YES	YES
	2022 Budget	0.3	7.6		
	2022	0.3	7.3	YES	YES
	2025 Budget	0.3	5.0		
	2025	0.3	4.7	YES	YES
	2025 Budget	0.3	5.0		
	2031	0.3	3.9	YES	YES
	2025 Budget	0.3	5.0		
	2037	0.3	3.6	YES	YES
	2025 Budget	0.3	5.0		
	2042	0.3	3.6	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 PM<sub>2.5</sub> and PM<sub>10</sub> Amendments; Final Rule*. Federal Register, March 24, 2010, Vol. 75, No. 56, p. 14260.

EPA, 2010b. *Transportation Conformity Regulations EPA-420-B-10-006*. March.

EPA, 2012a. 40 CFR Part 93. *Transportation Conformity Rule Restructuring Amendments; Final Rule*. Federal Register, March 14, 2012, Vol. 77, No. 50, p. 14979.

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

EPA, 2012c. *Guidance for Transportation Conformity Implementation in Multi-Jurisdictional Nonattainment and Maintenance Areas*. U.S. Environmental Protection Agency. EPA-420-B-12-046. July 2012.

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.

EPA, 2018(a). *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area State Implementation Plan Requirements*. Final Rule. U.S. Environmental Protection Agency. Vol. 83, No. 234, December 6, 2018.

EPA, 2018(b). *Transportation Conformity Guidance for the South Coast II Court Decision*. EPA-420-B-12-050. November 2018.

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EPA, 2018(c). *Transportation Conformity Guidance for 2015 Ozone NAAQS Nonattainment Areas*. EPA-420-B-18-023. June 2018.

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

### Checklist for MPO TIPs/RTPs January 2018

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. 9	
§93.102 (b)(2)(iii)	PM10 areas: document whether EPA or state has found VOC and/or NOx to be a significant contributor or if the SIP establishes a budget	Ch. 1 p. 12	
§93.102 (b)(2)(iv)	PM2.5 areas: document if both EPA and the state have found that NOx is <b>not</b> a significant contributor or that the SIP does <b>not</b> establish a budget (otherwise, conformity applies for NOx)	N/A	
§93.102 (b)(2)(v)	PM2.5 areas: document whether EPA or state has found VOC, SO2, and/or NH3 to be a significant contributor or if the SIP establishes a budget	Ch. 1 p. 13	
§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 made by DOT.	ES 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	Document that horizon years are no more than 10 years apart ((a)(1)(i)). Document that the first horizon year is no more than 10 years from the based year used to validate the transportation demand planning model ((a)(1)(ii)). Document that the attainment year is a horizon year, if in the timeframe of the plan ((a)(1)(iii)). Describe the regionally significant additions or modifications to the existing transportation network that are expected to be open to traffic in each analysis year ((a)(2)(ii)). 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. 1 p. 16 Appx. B	
§93.108	Document that the TIP/RTP is fiscally constrained (23 CFR 450).	ES p. 1	

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<b>40 CFR</b>	<b>Criteria</b>	<b>Page</b>	<b>Comments</b>
§93.109 (a, b)	Document that the TIP/RTP complies with any applicable conformity requirements of air quality implementation plans (SIPs) and court orders.	Es p. 1, Ch. 1-6	
§93.109 (c.)	Provide either a table or text description that details, for each pollutant, precursor and applicable standard, whether the interim emissions test(s) 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 p. 10-16	
§93.109(e)	CO or PM10: Document if the area has a limited maintenance plan and from where that information comes	N/A	
§93.109(f)	Document if motor vehicle emissions are an insignificant contributor and in what SIP that determination is found	Ch. 1, p. 10-16	
§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. 19-32	
EPA-DOT guidance	Document the use of planning assumptions less than five years old. If unable, include written justification for the use of older data. (December 2008 guidance,)	Ch. 2	
§93.110 (c,d,e,f)	Document any changes in transit operating policies and assumed ridership levels since the previous conformity determination (c). Document the assumptions about transit service, use of the latest transit fares, and road and bridge tolls (d). Document the use of the latest information on the effectiveness of TCMs and other SIP measures that have been implemented (e). Document the key assumptions and show that they were agreed to through Interagency and public consultation (f).	Ch. 2, p. 26-27	
§93.111	Document the use of the latest emissions model approved by EPA. If the previous model was used and the grace period has ended, document that the analysis began before the end of the grace period.	Ch. 3, p. 33	
§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, p. 47-48	

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<b>40 CFR</b>	<b>Criteria</b>	<b>Page</b>	<b>Comments</b>
§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, Appx. D	
§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).	Appx. B	
For Areas with SIP Budgets:			
§93.118, §93.124	Document what the applicable budgets are, and for what years. Document if there are subarea budgets established, and for which areas (93.124(c)). Document if there is a safety margin established, and what are the budgets with the safety margin included. (93.124(a)). Document if there has been any trading among budgets, and if so, which SIP establishes the trading mechanism, and how it is used in the conformity analysis (93.124(b)). If there is more than one MPO in the area, document whether separate budgets are established for each MPO (93.124(d)).	Ch. 6, p. 41	
§93.118 (a, c, e)	Document that emissions from the transportation network for each applicable pollutant and precursor, including projects in any associated donut area that are in the 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.	N/A	
§93.118 (b)	Document for which years consistency with motor vehicle emissions budgets must be shown.	Ch. 1, p. 16	
§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, p. 41	
For Areas without Applicable SIP Budgets:			
§93.119	<u>Document whether the area must meet just one or both interim emissions tests. If both, document that it is the “less than” form of these tests (i.e., §93.119(b)(1) and (c)(1) vs. (b)(2), (c)(2), and (d)).</u>	N/A	
§93.119 <sup>i</sup> (a, b, c, d)	Document that emissions from the transportation network for each applicable pollutant and precursor, including projects in any associated donut area that	N/A	

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<b>40 CFR</b>	<b>Criteria</b>	<b>Page</b>	<b>Comments</b>
	are in the TIP and regionally significant non-Federal projects, are consistent with the requirements of the “Action/Baseline” or “Action/Baseline Year” emissions tests as applicable.		
§93.119 (e)	Document the appropriate baseline year.	Ch. 3, p. 30-32	
§93.119 (f)	Document the use of appropriate pollutants and if EPA or the state has made a finding that a particular precursor or component of PM10 is significant or insignificant.	Ch. 6, p. 49-50	
§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. 33	
For All Areas Where a Regional Emissions Analysis Is Needed			
§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 year it will be open to traffic. Document that VMT for non-regionally significant Federal projects is accounted for in the regional emissions analysis	N/A	
§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 (a)(2). 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 (a)(3).	Ch. 3, p. 33	
§93.122 (a)(4,5,6,7)	For nonregulatory measures that are not included in the transportation plan and TIP, include written commitments from appropriate agencies (a)(4). Document that assumptions for measures outside the transportation system (e.g. fuels measures) are the same for baseline and action scenarios (a)(5). Document that factors such as ambient temperature are consistent with those used in the SIP unless modified through interagency consultation (a)(6).	Ch. 6, p. 49-50	

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<b>40 CFR</b>	<b>Criteria</b>	<b>Page</b>	<b>Comments</b>
	Document the method(s) used to estimate VMT on off-network roadways in the analysis (a)(7).		
§93.122 (b)(1)(i) <sup>ii</sup>	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, p. 19-29	
§93.122 (b)(1)(ii) <sup>ii</sup>	Document the land use, population, employment, and other network-based travel model assumptions.	Ch. 2, p. 19-29	
§93.122 (b)(1)(iii) <sup>ii</sup>	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, p. 19-29	
§93.122 (b)(1)(iv) <sup>ii</sup>	Document 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.	Ch. 2, p. 19-29	
§93.122 (b)(1)(v) <sup>ii</sup>	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, p. 19-29	
§93.122 (b)(1)(vi) <sup>ii</sup>	Document how travel models are reasonably sensitive to changes in time, cost, and other factors affecting travel choices.	Ch. 2, p. 19-29	
§93.122 (b)(2) <sup>ii</sup>	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, p. 19-29	
§93.122 (b)(3) <sup>ii</sup>	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, p. 19-29	
§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, p. 19-29	
§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. 2, p. 19-29	

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<b>40 CFR</b>	<b>Criteria</b>	<b>Page</b>	<b>Comments</b>
§93.122 (g)	If appropriate, document that the conformity determination relies on a previous regional emissions analysis and is consistent with that analysis, i.e. that:	Ch. 2, p. 19-29	
	(g)(1)(i): the new plan and TIP contain all the projects that must be started to achieve the highway and transit system envisioned by the plan	Ch. 2, p. 19-29	
	(g)(1)(ii): all plan and TIP projects are included in the transportation plan with design concept and scope adequate to determine their contribution to emissions in the previous determination;	Ch. 2, p. 19-29	
	(g)(1)(iii): the design concept and scope of each regionally significant project in the new plan/TIP are not significantly different from that described in the previous;	Ch. 3	
	(g)(1)(iv): the previous regional emissions analysis meets 93.118 or 93.119 as applicable	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.	Appx. B	

<sup>i</sup> Note that some areas are required to complete both Interim emissions tests.

<sup>ii</sup> 40 CFR 93.122(b) refers only to serious, severe and extreme ozone areas and serious CO areas above 200,000 population. Also note these procedures apply in any areas where the use of these procedures has been the previous practice of the MPO (40 CFR 93.122(d)).

**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.

**APPENDIX B**  
**TRANSPORTATION PROJECT LISTING**

## Regionally Significant Project Listing

Agency	CTIPs Project ID	Description			Estimated Cost (\$millions)	Conformity Analysis Years (project open to traffic)											
		Facility Name/Route		Project Limits		2021	2022	2023	2024	2025	2026	2027	2030	2031	2035	2037	2042
Merced County	205-0000- 0269	Campus Parkway segments 2 and 3 (4-lane Expressway)	new	Childs Ave. to SR 140 and SR 140 to Yosemite Ave. (two segments of one project)	100			X	X	X	X	X	X	X	X	X	X
Caltrans	105-0000- 0135	SR 99 "Livingston Widening Southbound" (2F to 3F)	widen	Hammatt Ave. to Stanislaus County line (southbound direction only)	34				X	X	X	X	X	X	X	X	X
Caltrans	105-0000- 0134	SR 99 "Livingston Widening Northbound" (2F to 3F)	widen	Hammatt Ave. to Stanislaus County line (northbound direction only)	35				X	X	X	X	X	X	X	X	X
Los Banos		Pioneer Rd. Widening	widen	SR-152/Merced College to Pioneer/Ward Rd.	45					X	X	X	X	X	X	X	X
Merced County		Atwater-Merced Expressway (AME) Phases 1B and 2	new	Green Sands to Santa Fe Ave. and Santa Fe Ave. to SR 59/Bellevue	79					X	X	X	X	X	X	X	X
Merced		Mission Ave. Widening	widen	SR-59 to SR-99	28							X	X	X	X	X	X
Caltrans		SR 59 Merced: 2 to 4 lanes	widen	16th St. to Olive Ave./Santa Fe	30					X	X	X	X	X	X	X	X
Caltrans		SR 99 "Merced Widening" (4F to 6F)	widen	Through Merced	200							X	X	X	X	X	X
Caltrans		SR 99 "Atwater Widening" (4F to 6F)	widen	Through Atwater	220									X	X	X	X
Caltrans		SR 59 Merced: 2 to 4 lanes	widen	Olive Ave. to Bellevue Rd.	39									X	X	X	X
Merced		Bellevue Rd. Widening	widen	SR-59 to Lake Rd.	41									X	X	X	X
Caltrans		SR 165 Widening in Los Banos (2 to 4 lanes)	widen	SR-152 to Henry Miller Rd.	20									X	X	X	X

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Exempt Projects Listing

AGENCY	CTIPS ID	DESCRIPTION	ESTIMATED COST*	EXEMPT CODE
MCAG	105-0000-0017	Plan, Program, & Monitor (PPM)	\$ 559,000	4.01
MCAG	205-0000-0042	Transportation Demand Management (TDM) / Alternative Modes Program	\$ 300,000	3.01
MCAG	205-0000-0268	Vanpooling Program	\$ 340,000	3.01
Transit JPA	205-0000-0022	Transit Joint Powers Authority for Merced County: "The Bus": Operations and Maintenance	\$ 44,020,000	2.01
Transit JPA	205-0000-0223	Transit Joint Powers Authority for Merced County: "The Bus": Public Outreach and Marketing	\$ 400,000	4.01
Transit JPA	205-0000-0307	Grouped Projects for TJPA Purchase of new buses to replace existing vehicles or for minor expansions of the fleet.	\$ 4,200,000	2.10
Transit JPA	205-0000-0310	TJPAMC: Administration Building Remodel	\$ 100,000	2.08
Transit JPA	205-0000-0311	TJPAMC: Purchase Two Utility Vehicles	\$ 100,000	2.02
YARTS	205-0000-0112	Yosemite Area Regional Transportation System (YARTS) Operations and Maintenance	\$ 10,554,000	2.01
YARTS	205-0000-0130	Yosemite Area Regional Transportation System (YARTS) Public Outreach and Marketing	\$ 255,000	4.01
Atwater	205-0000-0297	CMAQ: In Atwater. Construct Phase 1 Pedestrian Improvements to Connect w Downtown.	\$ 1,124,530	3.02
Atwater	205-0000-0298	CMAQ: In Atwater. Construct Phase 2 Pedestrian Improvements to Connect w Downtown.	\$ 181,110	3.02
Atwater	205-0000-0299	CMAQ: In Atwater. Construct Phase 3 Pedestrian Improvements to Connect w Downtown.	\$ 131,910	3.02
Gustine	205-0000-0238	CMAQ: In Gustine. Construct a Roundabout at 5th Street & 4th Ave.		5.01
Gustine	205-0000-0300	CMAQ: In Gustine. Construct Pedestrian Improvements on North Ave.	\$ 395,010	3.02
Gustine	205-0000-0301	CMAQ: In Gustine. Construct Pedestrian Improvements on 3rd Ave, East Ave & South Ave.	\$ 98,687	3.02
Livingston	205-0000-0302	CMAQ: In Livingston. Construct Phase 1 Max Foster Multiluse Path.	\$ 580,683	3.02
Los Banos	205-0000-0303	CMAQ: In Los Banos. SR-152 / Pacheco Blvd. Signals Synchronization.	\$ 900,000	5.07
Merced	205-0000-0228	CMAQ: In Merced. Right-turn Channelization on S/B SR-59 Approaching 16th Street.	\$ 215,000	5.01
Merced	205-0000-0231	CMAQ: In Merced. Traffic Signal at SR-59 & 16th Street.	\$ 448,500	5.02
Merced	205-0000-0266	CMAQ: In Merced. Purchase Two (2) CNG Street Sweepers.	\$ 684,000	4.01
Merced	205-0000-0262	CMAQ: In Merced. Construct Pedestrian Improvements near John Muir Elementary School.	\$ 722,296	3.02
Merced	205-0000-0263	CMAQ: In Merced. Construct Sidewalk and Bike Lane on Motel Drive.	\$ 574,209	3.02
Merced	205-0000-0286	CMAQ: In Merced. Construct Sidewalks Along R Street, S Street, T Street & Stuart Drive.	\$ 775,961	3.02
Merced	205-0000-0287	CMAQ: In Merced. Construct Sidewalks Along Olive Ave, Parsons Ave & Alexander Ave.	\$ 455,211	3.02
Merced	205-0000-0288	CMAQ: In Merced. Construct Sidewalks Along 7th Street, 8th Street & Linda Lane.	\$ 455,746	3.02
Merced	205-0000-0304	CMAQ: In Merced. Construct North Transit Hub.	\$ 764,186	5.06
Merced	205-0000-0305	CMAQ: In Merced. Construct Pedestrian Improvements on Nottingham, Tamworth, Buckingham & Alexander.	\$ 584,812	3.02
Merced County	205-0000-0264	CMAQ: In Community of Franklin/Beachwood. Construct Pedestrian Infill of Beachwood Drive.	\$ 1,373,031	3.02
Merced County	205-0000-0306	CMAQ: In Community of Planada. Construct Plainsburg Road Complete Street ATP.	\$ 564,780	3.02
Merced County	205-0000-0275	ATP: Plainsburg Road Complete Street Upgrade.	\$ 1,395,000	3.02
Caltrans	205-0000-0126	Grouped Projects for SHOPP Bridge Rehab./Reconstruction	\$ 26,496,000	1.19
Caltrans	305-0000-0000	Grouped Projects for SHOPP Collision Reduction	\$ 27,582,000	1.06
Caltrans	205-0000-0222	Grouped Projects for SHOPP Mandates	\$ 8,527,000	1.06
Caltrans	205-0000-0128	Grouped Projects for SHOPP Mobility	\$ 21,451,000	1.06
Caltrans	205-0000-0276	Grouped Projects for SHOPP Roadside Preservation	\$ 27,063,000	1.06
Caltrans	205-0000-0127	Grouped Projects for SHOPP Roadway Preservation	\$ 30,359,000	1.10
Caltrans	205-0000-0279	Grouped Projects for SHOPP Emergency Response	\$ 450,000	4.13
Caltrans	205-0000-0308	Grouped Projects for SHOPP Minor A & B Programs	\$ 6,490,000	1.06
Various	205-0000-0037	Highway Bridge Program (HBP)	\$ 7,717,485	1.19
Various	205-0000-0135	Highway Safety Improvement Program (HSIP)	\$ 1,922,300	1.06
Caltrans	105-0000-0182	Plainsburg-Arboleda Freeway Mitigation	\$ 1,478,000	4.09

NOTE (\*): Estimated Costs represent amounts programmed in the 2021 FTIP

**APPENDIX C**

**CONFORMITY ANALYSIS DOCUMENTATION**

Year	NOx Exhaust	TOG Evaporative	TOG Exhaust	PM Exhaust	CO Exhaust
2021	1.0001	1.0001	1.0001	1.0012	1.0004
2022	1.0002	1.0004	1.0001	1.0034	1.0013
2023	1.0005	1.0008	1.0003	1.0066	1.0026
2024	1.001	1.0014	1.0005	1.0105	1.0041
2025	1.0016	1.0021	1.0009	1.0149	1.0058
2026	1.0022	1.003	1.0012	1.0183	1.0076
2027	1.0029	1.0039	1.0016	1.0208	1.0095
2028	1.0036	1.005	1.002	1.0224	1.0116
2029	1.0044	1.0063	1.0025	1.0241	1.0139
2030	1.0052	1.0078	1.003	1.026	1.0162
2031	1.0061	1.0095	1.0036	1.0279	1.0186
2032	1.0071	1.0114	1.0042	1.0299	1.021
2033	1.0081	1.0134	1.005	1.032	1.0235
2034	1.0091	1.0156	1.0059	1.0341	1.026
2037	1.0103	1.0179	1.007	1.0362	1.0285
2036	1.0114	1.0202	1.0082	1.0382	1.0309
2037	1.0125	1.0224	1.0096	1.04	1.0332
2038	1.0137	1.0247	1.0111	1.0418	1.0353
2039	1.0148	1.0269	1.0126	1.0435	1.0372
2040	1.0158	1.029	1.0141	1.0449	1.0389
2041	1.0167	1.0309	1.0154	1.0461	1.0404
2042	1.0176	1.0326	1.0168	1.0471	1.0418
2043	1.0183	1.034	1.018	1.048	1.0429
2044	1.019	1.0352	1.019	1.0487	1.0439
2045	1.0195	1.0364	1.0199	1.0494	1.0448
2046	1.02	1.0373	1.0206	1.0499	1.0454
2047	1.0204	1.0384	1.0213	1.0504	1.0461
2048	1.0208	1.0393	1.0218	1.0508	1.0467
2049	1.0209	1.04	1.0221	1.051	1.047
2050	1.021	1.0406	1.0224	1.0512	1.0472

**EMFAC Emissions (tons/day)**

**Merced**

Pollutant	Source	Description			2026	2029	2031	2037	2042
<b>2008 and 2015 Ozone</b>									
Ozone	EMFAC 2014 (Summer Run)	ROG Total Exhaust (All Vehicles Total)	2020 2.04	2023 1.62	1.41	1.23	1.11	0.90	0.82
		<b>Conformity Total</b>	<b>2.10</b>	<b>1.70</b>	<b>1.50</b>	<b>1.30</b>	<b>1.20</b>	<b>0.90</b>	<b>0.90</b>
Ozone	EMFAC 2014 (Summer Run)	NOx Total Exhaust (All Vehicles Total)	8.27	4.83	4.38	3.95	3.71	3.42	3.41
		<b>Conformity Total</b>	<b>8.30</b>	<b>4.90</b>	<b>4.40</b>	<b>4.00</b>	<b>3.80</b>	<b>3.50</b>	<b>3.50</b>
<hr/>									
PM-10	EMFAC 2014 (Annual Run)	PM-10 Total (All Vehicles Total) * includes tire & brake wear	2020 0.57		2029 0.58		2037 0.60	2042 0.63	
		<b>Conformity Total</b>	<b>0.57</b>		<b>0.58</b>		<b>0.60</b>	<b>0.63</b>	
PM-10	EMFAC 2014 (Annual Run)	NOx Total Exhaust (All Vehicles Total)	8.64		4.10		3.54	3.53	
		<b>Conformity Total</b>	<b>8.64</b>		<b>4.10</b>		<b>3.54</b>	<b>3.53</b>	
<hr/>									
PM2.5 Annual (1997 and 2012 standards)	EMFAC 2014 (Annual Run)	PM2.5 Total Exhaust (All Vehicles Total) * includes tire & brake wear	2021 0.25		2029 0.24		2037 0.25	2042 0.26	
		<b>Conformity Total</b>	<b>0.30</b>		<b>0.20</b>		<b>0.20</b>	<b>0.30</b>	
PM2.5 Annual (1997 and 2012 standards)	EMFAC 2014 (Annual Run)	NOx Total Exhaust (All Vehicles Total)	7.90		4.10		3.54	3.53	
		<b>Conformity Total</b>	<b>7.90</b>		<b>4.10</b>		<b>3.50</b>	<b>3.50</b>	
<hr/>									
PM2.5 24-hour (2006 standard)	EMFAC 2014 (Winter Run)	PM2.5 Total Exhaust (All Vehicles Total) * includes tire & brake wear	2020 0.26	2023 0.24	2024 0.24		2031 0.24	2037 0.25	2042 0.26
		<b>Conformity Total</b>	<b>0.30</b>	<b>0.30</b>	<b>0.30</b>		<b>0.30</b>	<b>0.30</b>	<b>0.30</b>
PM2.5 24-hour (2006 standard)	EMFAC 2014 (Winter Run)	NOx Total Exhaust (All Vehicles Total)	8.86	5.17	4.97		3.92	3.60	3.59
		<b>Conformity Total</b>	<b>8.90</b>	<b>5.20</b>	<b>5.00</b>		<b>4.00</b>	<b>3.70</b>	<b>3.60</b>
<hr/>									
<b>UPCOMING BUDGET TEST</b>									
(Note: EPA Action is Pending as of This Analysis; The 1997 and 2012 PM2.5 Budget Test Above Will be Used if EPA Doesn't Determine Adequacy or Approval of the New Budgets before Federal Approval of the 2021 FTIP Conformity Analysis)									
PM2.5 Annual (1997 standard)	EMFAC 2014 (Annual Run)	PM2.5 Total Exhaust (All Vehicles Total) * includes tire & brake wear	2020 0.26		2029 0.24		2037 0.25	2042 0.26	
		<b>Conformity Total</b>	<b>0.30</b>		<b>0.30</b>		<b>0.30</b>	<b>0.30</b>	
PM2.5 Annual (1997 standard)	EMFAC 2014 (Annual Run)	NOx Total Exhaust (All Vehicles Total)	8.64		4.10		3.54	3.53	
		<b>Conformity Total</b>	<b>8.70</b>		<b>4.10</b>		<b>3.60</b>	<b>3.60</b>	
<hr/>									
PM2.5 Annual (2012 standard)	EMFAC 2014 (Annual Run)	PM2.5 Total Exhaust (All Vehicles Total) * includes tire & brake wear	2020 0.26	2022 0.25	2025 0.24		2031 0.24	2037 0.25	2042 0.26
		<b>Conformity Total</b>	<b>0.30</b>	<b>0.30</b>	<b>0.30</b>		<b>0.30</b>	<b>0.30</b>	<b>0.30</b>
PM2.5 Annual (2012 standard)	EMFAC 2014 (Annual Run)	NOx Total Exhaust (All Vehicles Total)	8.64	7.22	4.68		3.85	3.54	3.53
		<b>Conformity Total</b>	<b>8.70</b>	<b>7.30</b>	<b>4.70</b>		<b>3.90</b>	<b>3.60</b>	<b>3.60</b>

2021 FTIP Conformity Analysis Results Summary -- Merced

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		ROG (tons/day)	NOx (tons/day)	ROG	NOx
2008 and 2015 Ozone	2020 Budget	2.2	8.8		
	2020	2.1	8.3	YES	YES
	2023 Budget	1.7	6.0		
	2023	1.7	4.9	YES	YES
	2026 Budget	1.5	5.9		
	2026	1.5	4.4	YES	YES
	2029 Budget	1.3	5.6		
	2029	1.3	4.0	YES	YES
	2031 Budget	1.2	5.4		
	2031	1.2	3.8	YES	YES
	2037	0.9	3.5	YES	YES
	2042	0.9	3.5	YES	YES

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		PM-10 (tons/day)	NOx (tons/day)	PM-10	NOx
PM-10	2020 Budget	3.8	8.9		
	2020	3.4	8.6	YES	YES
	2029 Budget	3.8	8.9		
	2029	3.0	4.1	YES	YES
	2020 Budget	3.8	8.9		
	2037	3.1	3.5	YES	YES
	2020 Budget	3.8	8.9		
	2042	3.1	3.5	YES	YES

PM-10	Total On-Road	Paved Road Dust		Unpaved Road Dust		Road Construction Dust		Total	NOx
		PM-10	Nox	PM-10	Nox	PM-10	Nox		
2020	0.571	8.644	1.038		1.273		0.552	3.4	8.6
2029	0.583	4.099	1.129		1.273		0.040	3.0	4.1
2037	0.604	3.544	1.153		1.273		0.028	3.1	3.5
2042	0.632	3.530	1.228		1.273		0.000	3.1	3.5

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		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		
	2021	0.3	7.9	YES	YES
	2014 Budget	0.6	17.4		
	2029	0.2	4.1	YES	YES
	2014 Budget	0.6	17.4		
	2037	0.2	3.5	YES	YES
	2014 Budget	0.6	17.4		
	2042	0.3	3.5	YES	YES

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
2006 PM2.5 Winter 24-Hour Standard	2020 Budget	0.3	9.1		
	2020	0.3	8.9	YES	YES
	2023 Budget	0.3	5.5		
	2023	0.3	5.2	YES	YES
	2024 Budget	0.3	5.3		
	2024	0.3	5.0	YES	YES
	2024 Budget	0.3	5.3		
	2031	0.3	4.0	YES	YES
	2024 Budget	0.3	5.3		
	2037	0.3	3.7	YES	YES
	2024 Budget	0.3	5.3		
	2042	0.3	3.6	YES	YES

**UPCOMING BUDGET TEST**  
(Note: EPA Action is Pending as of This Analysis; The 1997 and 2012 PM2.5 Budget Test Above Will be Used if EPA Doesn't Determine Adequacy or Approval of the New Budgets before Federal Approval of the 2021 FTIP Conformity Analysis)

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
1997 24-Hour and Annual PM2.5 Standards	2020 Budget	0.3	8.9		
	2020	0.3	8.7	YES	YES
	2020 Budget	0.3	8.9		
	2029	0.3	4.1	YES	YES
	2020 Budget	0.3	8.9		
	2037	0.3	3.6	YES	YES
	2020 Budget	0.3	8.9		
	2042	0.3	3.6	YES	YES

Standard	Analysis Year	Emissions Total		DID YOU PASS?	
		PM2.5 (tons/day)	NOx (tons/day)	PM2.5	NOx
2012 Annual PM2.5 Standards	2019 Budget	0.3	9.4		
	2020	0.3	8.7	YES	YES
	2022 Budget	0.3	7.6		
	2022	0.3	7.3	YES	YES
	2025 Budget	0.3	5.0		
	2025	0.3	4.7	YES	YES
	2025 Budget	0.3	5.0		
	2031	0.3	3.9	YES	YES
	2025 Budget	0.3	5.0		
	2037	0.3	3.6	YES	YES
	2025 Budget	0.3	5.0		
	2042	0.3	3.6	YES	YES

**PM10 Emission Trading Worksheet**

**Merced (SJV) CONFORMITY ESTIMATES (tons/day)**

	2020		2029		2037		2042	
	PM10	NOx	PM10	NOx	PM10	NOx	PM10	NOx
Total On-Road Exhaust	0.571	8.644	0.583	4.099	0.604	3.544	0.632	3.530
Paved Road Dust	1.038		1.129		1.153		1.228	
Unpaved Road Dust	1.273		1.273		1.273		1.273	
Road Construction Dust	0.552		0.040		0.028		0.000	
<b>Total</b>	<b>3.433</b>	<b>8.644</b>	<b>3.024</b>	<b>4.099</b>	<b>3.057</b>	<b>3.544</b>	<b>3.133</b>	<b>3.530</b>

**Difference (2020 Budget - 2020)**

	PM10	NOx
2020 Budgets	3.8	8.9
2020	3.4	8.6
<b>Difference</b>	<b>0.4</b>	<b>0.3</b>
* 1.5 (Adjustment to NOx Budget)	-0.6	

**NOTE: ONLY IMPLEMENT TRADING IF**

**Difference (2020 Budget - 2029)**

	PM10	NOx
2020 Budgets	3.8	8.9
2029	3.0	4.1
<b>Difference</b>	<b>0.8</b>	<b>4.8</b>
* 1.5 (Adjustment to NOx Budget)	-1.2	

**NOTE: ONLY IMPLEMENT TRADING IF**

**Difference (2020 Budget - 2037)**

	PM10	NOx
2020 Budgets	3.8	8.9
2037	3.1	3.5
<b>Difference</b>	<b>0.7</b>	<b>5.4</b>
* 1.5 (Adjustment to NOx Budget)	-1.1	

**NOTE: ONLY IMPLEMENT TRADING IF**

**Difference (2020 Budget - 2042)**

	PM10	NOx
2020 Budgets	3.8	8.9
2042	3.1	3.5
<b>Difference</b>	<b>0.7</b>	<b>5.4</b>
* 1.5 (Adjustment to NOx Budget)	-1.1	

**NOTE: ONLY IMPLEMENT TRADING IF**

**1:1.5 PM10 to NOx Trading**

<b>Adjusted 2020 Budget</b>	<b>3.4</b>	<b>9.5</b>
2020 Conformity Total	3.4	8.6
<b>Difference</b>	<b>0.0</b>	<b>0.9</b>

TRADING WAS NOT IMPLEMENTED

**NOTE: FINAL DIFFERENCE MUST BE POSITIVE**

<b>Adjusted 2020 Budget</b>	<b>3.0</b>	<b>10.1</b>
2029 Conformity Total	3.0	4.1
<b>Difference</b>	<b>0.0</b>	<b>6.0</b>

TRADING WAS NOT IMPLEMENTED

**NOTE: FINAL DIFFERENCE MUST BE POSITIVE**

<b>Adjusted 2020 Budget</b>	<b>3.1</b>	<b>10.0</b>
2037 Conformity Total	3.1	3.5
<b>Difference</b>	<b>0.0</b>	<b>6.5</b>

TRADING WAS NOT IMPLEMENTED

**NOTE: FINAL DIFFERENCE MUST BE POSITIVE**

<b>Adjusted 2020 Budget</b>	<b>3.1</b>	<b>10.0</b>
2042 Conformity Total	3.1	3.5
<b>Difference</b>	<b>0.0</b>	<b>6.5</b>

TRADING WAS NOT IMPLEMENTED

**NOTE: FINAL DIFFERENCE MUST BE POSITIVE**

1997 and 2012 Annual PM2.5 Emission Trading Worksheet

Merced (SJV) CONFORMITY ESTIMATES (tons/day)

	2020		2029		2037		2042	
	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx
Total On-Road Exhaust	0.3	7.9	0.2	4.1	0.2	3.5	0.3	3.5

Difference (2014 Budget - 2021)

	PM2.5	NOx
2014 Budgets	0.6	17.4
2020	0.3	7.9
<b>Difference</b>	<b>0.3</b>	<b>9.5</b>
* 9 (Adjustment to NOx Budget)	-2.7	

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY (I.E., CONFORMITY FAILURE IN TOTALS WORKSHEET)

Difference (2014 Budget - 2029)

	PM2.5	NOx
2014 Budgets	0.6	17.4
2029	0.2	4.1
<b>Difference</b>	<b>0.4</b>	<b>13.3</b>
* 9 (Adjustment to NOx Budget)	-3.6	

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY (I.E., CONFORMITY FAILURE IN TOTALS WORKSHEET)

Difference (2014 Budget - 2037)

	PM2.5	NOx
2014 Budgets	0.6	17.4
2037	0.2	3.5
<b>Difference</b>	<b>0.4</b>	<b>13.9</b>
* 9 (Adjustment to NOx Budget)	-3.6	

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY (I.E., CONFORMITY FAILURE IN TOTALS WORKSHEET)

Difference (2014 Budget - 2042)

	PM2.5	NOx
2014 Budgets	0.6	17.4
2042	0.3	3.5
<b>Difference</b>	<b>0.3</b>	<b>13.9</b>
* 9 (Adjustment to NOx Budget)	-2.7	

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY (I.E., CONFORMITY FAILURE IN TOTALS WORKSHEET)

1:9 PM2.5 to NOx Trading

Adjusted 2014 Budget	0.3	20.1
2020 Conformity Total	0.3	7.9
<b>Difference</b>	<b>0.0</b>	<b>12.2</b>

TRADING WAS NOT IMPLEMENTED

NOTE: FINAL DIFFERENCE MUST BE POSITIVE

Adjusted 2014 Budget	0.2	21.0
2029 Conformity Total	0.2	4.1
<b>Difference</b>	<b>0.0</b>	<b>16.9</b>

TRADING WAS NOT IMPLEMENTED

NOTE: FINAL DIFFERENCE MUST BE POSITIVE

Adjusted 2014 Budget	0.2	21.0
2037 Conformity Total	0.2	3.5
<b>Difference</b>	<b>0.0</b>	<b>17.5</b>

TRADING WAS NOT IMPLEMENTED

NOTE: FINAL DIFFERENCE MUST BE POSITIVE

Adjusted 2014 Budget	0.3	20.1
2042 Conformity Total	0.3	3.5
<b>Difference</b>	<b>0.0</b>	<b>16.6</b>

TRADING WAS NOT IMPLEMENTED

NOTE: FINAL DIFFERENCE MUST BE POSITIVE

2006 24-hr Winter PM2.5 Emission Trading Worksheet

Merced (SJV) CONFORMITY ESTIMATES (tons/day)

	2020	
	PM2.5	NOx
Total On-Road Exhaust	0.30	8.90

Difference (2020 Budget - 2020)

	PM2.5	NOx
2020 Budgets	0.3	9.1
2020	0.3	8.9
<b>Difference</b>	<b>0.0</b>	<b>0.2</b>
* 2 (Adjustment to NOx Budget)	0.0	

2023	
PM2.5	NOx
0.30	5.20

2024	
PM2.5	NOx
0.30	5.00

2031	
PM2.5	NOx
0.30	4.00

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY (I.E., CONFORMITY FAILURE IN TOTALS WORKSHEET)

Difference (2023 Budget - 2023)

	PM2.5	NOx
2023 Budgets	0.3	5.5
2023	0.3	5.2
<b>Difference</b>	<b>0.0</b>	<b>0.3</b>
* 2 (Adjustment to NOx Budget)	0.0	

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY (I.E., CONFORMITY FAILURE IN TOTALS WORKSHEET)

Difference (2024 Budget - 2024)

	PM2.5	NOx
2024 Budgets	0.3	5.3
2024	0.3	5.0
<b>Difference</b>	<b>0.0</b>	<b>0.3</b>
* 2 (Adjustment to NOx Budget)	0.0	

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY (I.E., CONFORMITY FAILURE IN TOTALS WORKSHEET)

Difference (2024 Budget - 2031)

	PM2.5	NOx
2024 Budgets	0.3	5.3
2031	0.3	4.0
<b>Difference</b>	<b>0.0</b>	<b>1.3</b>
* 2 (Adjustment to NOx Budget)	0.0	

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY (I.E., CONFORMITY FAILURE IN TOTALS WORKSHEET)

Difference (2024 Budget - 2037)

	PM2.5	NOx
2024 Budgets	0.3	5.3
2037	0.3	3.7
<b>Difference</b>	<b>0.0</b>	<b>1.6</b>
* 2 (Adjustment to NOx Budget)	0.0	

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY

Difference (2024 Budget - 2042)

	PM2.5	NOx
2024 Budgets	0.3	5.3
2042	0.3	3.6
<b>Difference</b>	<b>0.0</b>	<b>1.7</b>
* 2 (Adjustment to NOx Budget)	0.0	

NOTE: ONLY IMPLEMENT TRADING IF NECESSARY

1:2 PM2.5 to NOx Trading

Adjusted 2020 Budget	0.3	9.1
2020 Conformity Total	0.3	8.9
<b>Difference</b>	<b>0.0</b>	<b>0.2</b>
Adjusted 2023 Budget	0.3	5.5
2023 Conformity Total	0.3	5.2
<b>Difference</b>	<b>0.0</b>	<b>0.3</b>
Adjusted 2024 Budget	0.3	5.3
2024 Conformity Total	0.3	5.0
<b>Difference</b>	<b>0.0</b>	<b>0.3</b>
Adjusted 2024 Budget	0.3	5.3
2031 Conformity Total	0.3	4.0
<b>Difference</b>	<b>0.0</b>	<b>1.3</b>
Adjusted 2024 Budget	0.3	5.3
2037 Conformity Total	0.3	3.7
<b>Difference</b>	<b>0.0</b>	<b>1.6</b>
Adjusted 2024 Budget	0.3	5.3
2042 Conformity Total	0.3	3.6
<b>Difference</b>	<b>0.0</b>	<b>1.7</b>

NOTE: FINAL DIFFERENCE MUST BE POSITIVE

TRADING WAS NOT IMPLEMENTED  
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TRADING WAS NOT IMPLEMENTED

**Road Construction Dust**

**MERCED**

Description	2020		2029		2037		2042	
	Year	Lane Miles						
Baseline	2005	2550	2020	3104	2029	3128	2037	3143
Horizon	2020	3,104	2029	3,128	2037	3,143	2042	3,143
Difference	15	554	9	24	8	15	5	0
Lane Miles per Year		37		3		2		0
Acres Disturbed		143		10		7		0
Acre-Months		2579		186		131		0
Emissions (tons/year)		283.648		20.480		14.400		0.000
Annual Average Day Emissions (tons)		0.777		0.056		0.039		0.000
District Rule 8021 Control Rates		0.290		0.290		0.290		0.290
<b>Total Emissions (tons per day)</b>		<b>0.552</b>		<b>0.040</b>		<b>0.028</b>		<b>0.000</b>

**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	5,361,777	1,957	149.536	144.285	0.395	0.366
Enter Arterial VMT ==>	Arterial	2,266,324	827	105.178	101.484	0.278	0.200
Enter Collector VMT ==>	Collector	196,968	72	9.141	8.820	0.024	0.014
Enter Total of Urban and Rural Local VMT Here =>	Urban	56,133	20	19.517	18.831	0.052	0.035
	Rural	117,117	43	176.145	169.959	0.090	0.424
	<b>Totals</b>	<b>7,998,319</b>	<b>2,919</b>	<b>459.517</b>	<b>443.380</b>	<b>1.215</b>	<b>1.038</b>

MERCED 2029

	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	5,914,937	2,159	164.964	159.170	0.436	0.403
Enter Arterial VMT ==>	Arterial	2,438,416	890	113.165	109.190	0.299	0.215
Enter Collector VMT ==>	Collector	242,893	89	11.272	10.877	0.030	0.018
Enter Total of Urban and Rural Local VMT Here =>	Urban	60,318	22	20.972	20.235	0.055	0.037
	Rural	125,848	46	189.277	182.630	0.500	0.455
	<b>Totals</b>	<b>8,782,413</b>	<b>3,206</b>	<b>499.650</b>	<b>482.102</b>	<b>1.321</b>	<b>1.129</b>

MERCED 2037

	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	6,435,546	2,349	179.483	173.180	0.474	0.439
Enter Arterial VMT ==>	Arterial	2,416,264	882	112.137	108.198	0.296	0.213
Enter Collector VMT ==>	Collector	198,218	72	9.199	8.876	0.024	0.014
Enter Total of Urban and Rural Local VMT Here =>	Urban	59,530	22	20.698	19.971	0.055	0.037
	Rural	124,204	45	186.804	180.243	0.494	0.449
	<b>Totals</b>	<b>9,233,762</b>	<b>3,370</b>	<b>508.320</b>	<b>490.468</b>	<b>1.344</b>	<b>1.153</b>

MERCED 2042

	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	6,708,827	2,449	187.105	180.534	0.495	0.458
Enter Arterial VMT ==>	Arterial	2,584,774	943	119.957	115.744	0.317	0.228
Enter Collector VMT ==>	Collector	218,193	80	10.126	9.771	0.027	0.016
Enter Total of Urban and Rural Local VMT Here =>	Urban	64,498	24	22.425	21.637	0.059	0.040
	Rural	134,569	49	202.393	195.286	0.535	0.487
	<b>Totals</b>	<b>9,710,861</b>	<b>3,544</b>	<b>542.006</b>	<b>522.972</b>	<b>1.433</b>	<b>1.228</b>

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 2029**

	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 2037**

	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 2042**

	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**

<b>MERCED</b>													
	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

**APPENDIX D**

**TIMELY IMPLEMENTATION DOCUMENTATION FOR  
TRANSPORTATION CONTROL MEASURES**

Merced County Association of Governments  
2002 RACM Timely Implementation Documentation

<b>RACM Commitment</b>	<b>Agency</b>	<b>Measure Title</b>	<b>Measure Description (not verbatim)</b>	<b>Implementation Status (as of August 2019)</b>	<b>Conformity Analysis for the 2021 FTIP and 2018 RTP (as of November 2020)</b>
TCM3	MCAG	Rideshare Programs	Implement Rideshare Program through FY 2006- 2024	Service provided via www.dibsmway.com	Service provided via www.dibsmway.com
ME5.3	Atwater	Reduce Traffic Congestion at Major Intersections	Improve intersections projected to experience congestion.	Intersections are evaluated using standard warrants. Implemented as part of traffic signals synchronization project.	Intersections are evaluated using standard warrants. Implemented as part of traffic signals synchronization project.
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. Traffic signals synchronization was implemented.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. Traffic signals synchronization was implemented.
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.	Intersections are evaluated using standard warrants. No improvement needs identified.
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.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. No need for traffic flow improvements identified.
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.	Intersections are evaluated using standard warrants. No improvement needs identified.
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.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history.
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.	Intersections are evaluated using standard warrants. No improvement needs identified.
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.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history.
ME5.3	Los Banos	Reduce Traffic Congestion at Major Intersections	Improve intersections projected to experience congestion.	Intersections are evaluated using standard warrants.	Intersections are evaluated using standard warrants.
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.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history.

*Merced County Association of Governments  
Conformity Analysis for 2021 FTIP and 2018 RTP*

<b>RACM Commitment</b>	<b>Agency</b>	<b>Measure Title</b>	<b>Measure Description (not verbatim)</b>	<b>Implementation Status (as of August 2019)</b>	<b>Conformity Analysis for the 2021 FTIP and 2018 RTP (as of November 2020)</b>
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.	Intersections are evaluated using standard warrants. No improvement needs identified.
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. Traffic signals synchronization along G & 16 <sup>th</sup> Streets implemented.	Traffic conditions are determined by staff using traffic counts, traffic flow, and accident history. Traffic signals synchronization along G & 16 <sup>th</sup> Streets implemented.
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.	Intersections are evaluated using standard warrants. No improvement needs identified.
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.	Project implemented.
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 HEARING  
ON THE DRAFT 2021 FEDERAL TRANSPORTATION  
IMPROVEMENT PROGRAM,  
AND THE DRAFT CONFORMITY ANALYSIS**

NOTICE IS HEREBY GIVEN that the Merced County Association of Governments (MCAG) will hold a public hearing on February 3, 2021 at 2 p.m. via phone call-in, regarding the Draft 2021 Federal Transportation Improvement Program (2021 FTIP) and the Corresponding Draft Conformity Analysis. During the public hearing, comments can be made by calling 1-800-325-1307 and entering code: 579459. The purpose of the public hearing is to receive public comments on these documents.

- The 2021 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 2018 Regional Transportation Plan (RTP) is a long-term coordinated transportation/land use strategy to meet Merced County's transportation needs out to the year 2042.
- The corresponding Conformity Analysis contains the documentation to support a finding that the 2021 FTIP and 2018 RTP meet the air quality conformity requirements for ozone and particulate matter.

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

A 30-day (minimum) public review and comment period will commence on January 18, 2021 and conclude on February 17, 2021. The draft documents are available for review at the MCAG office, located at 369 West 18<sup>th</sup> Street, Merced, California 95340 and on the MCAG website at [www.mcagov.org](http://www.mcagov.org).

Public comments are welcomed at the hearing, or may be submitted in writing by 5 p.m. on February 17, 2021 to Ty Phimmasone at the address below.

After considering the comments, the documents will be considered for adoption, by resolution, by the MCAG Governing Board at a regularly scheduled meeting to be held on February 18, 2021. The documents will then be submitted to state and federal agencies for approval.

Contact Person:  
Ty Phimmasone, Transportation Planner  
369 West 18th Street  
Merced CA 95340  
209-723-3153  
[ty.phimmasone@mcagov.org](mailto:ty.phimmasone@mcagov.org)

**APPENDIX F**

**RESPONSE TO PUBLIC COMMENTS**

No comments were received.