

Chapter 7

Local, State, and Federal Controls

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Chapter 7: Local, State, and Federal Controls

7.1 INTRODUCTION

This chapter presents the fourth facet of the District's control strategy: local, state, and federal controls. The eight Metropolitan Planning Organizations that serve the San Joaquin Valley have provided the local control information. The California Air Resources Board (ARB) provided the information on state control measures.

7.2 LOCAL COMPONENT: MEASURES TO REDUCE EMISSIONS BY IMPROVING VEHICLE USE

Motor vehicles are a large source of PM_{2.5} precursor emissions in the San Joaquin Valley. The District is in a partnership with federal, state, and local agencies to combine efforts to reduce the impact of motor vehicles on air quality. This cooperative integration of numerous agencies addresses the difficult challenge of balancing the need to provide increased mobility for the enhancement of the social and economic well being of our valley, with the equally important goal of attaining healthy air quality for all the residents. The District is involved in reducing emissions from motor vehicle use primarily through its Indirect Source Review (ISR) and school bus replacement programs; additional District control options for motor vehicle use (including incentives) are presented in Chapter 6 and Appendix I of this Plan. Also, ARB controls motor vehicle emissions by establishing motor vehicle emissions standards and motor vehicle fuel formulations; additional ARB measures developed for PM_{2.5} are described in section 7.3 of this Plan.

The San Joaquin Valley has eight federally designated Metropolitan Planning Organizations (MPOs), which represent the eight counties of the San Joaquin Valley Air Basin. Collectively, the San Joaquin Council of Governments, the Stanislaus Council of Governments, the Merced County Association of Governments, the Madera County Transportation Commission, the Council of Fresno County Governments, Kings County Association of Governments, the Tulare County Association of Governments and the Kern Council of Governments work in concert with their numerous cities, public interest groups, the District, state, and federal agencies in order to create regional transportation plans (RTPs).

7.2.1 Legislative Requirements

The federal Clean Air Act (CAA) regulates air pollutant emissions from area, stationary, and mobile sources. In addition, the CAA authorizes the EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The goal of the CAA is to set maximum pollutant standards and direct the states to develop SIPs for achieving and maintaining these standards.

Because emissions from motor vehicles make a significant contribution to air pollution, the SIP establishes an emissions budget for each pollutant for the attainment year, as well as reasonable further progress milestone years. This serves as a regulatory limit for on-road mobile source emissions. As a condition to receive federal transportation funding, transportation plans, programs, and projects are required to meet those emission budgets through strategies that increase the efficiency of the transportation system and reduce motor vehicle use.

Transportation plans and programs within the San Joaquin Valley Air Basin are also required to conform with the air quality plans in the region, as established by the Clean Air Act and reinforced by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFTEA-LU). This act is the foundation for federal surface transportation laws. Transportation conformity is discussed in Section 7.2.2 and in Appendix C of this Plan, which includes supporting documentation for the development of the conformity budgets.

The Valley MPOs have limited legal authority to implement emission reduction measures. However, their status as Regional Planning Agencies places them in a position to help coordinate and facilitate consensus among their member jurisdictions, which do have authority to implement local measures.

The MPOs and their member jurisdictions have adopted Reasonably Available Control Measures (RACM) affecting motor vehicle use in the Valley. Three sets of RACM have been adopted in the past five years for the following District-adopted air quality plans: (1) The *2002/2005 Amended Rate of Progress Plan for San Joaquin Valley Ozone*; (2) The *Amended 2003 PM10 Plan (as amended on December 20, 2003)*; and (3) The *2004 Extreme Ozone Attainment Demonstration Plan*.¹ Of these, EPA has only approved the measures for the *2003 PM10 Plan* into the SIP.² The transportation RACM for the *2003 PM10 Plan* provide for the reduction of NOx and direct PM10 emissions for attainment of the PM10 standards by December 31, 2010. Implementation of these measures is underway.

It is important to note that both the local RACM and conformity budget sections were provided for interagency consultation. Consultation is generally conducted through the San Joaquin Valley Model Coordinating Committee. The San Joaquin Valley Model Coordinating Committee (MCC) has been established by the Regional Planning Agency's Executive Director's Committee to provide a coordinated approach to valley air quality, conformity and transportation modeling issues. The MCC's goal is to ensure Valley wide coordination, communication and compliance with Federal and State Clean Air Act requirements. Each of the eight Valley MPOs and the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) are represented. In addition, the Federal Highway Administration, Federal Transit Administration, the Environmental

¹ See each individual plan for a description of the measures and the process used to develop the measures.

² As of April 30, 2008, EPA has taken no final approval action on the *Amended 2002/2005 Rate of Progress Plan for San Joaquin Valley Ozone* or the *2004 Extreme Ozone Attainment Demonstration Plan*.

Protection Agency, the California Air Resources Board and Caltrans are all represented on the committee. The MCC meets approximately monthly; agendas, minutes, and other air quality related items are posted on the Fresno COG website at <http://www.fresnocog.org>. No comments were received from the interagency consultation partners on either the local RACM or conformity budget sections.

Another local planning effort worth noting is the San Joaquin Valley Regional Blueprint Planning Process. This process will result in a “visioning” plan for the Valley on behalf of the eight San Joaquin Valley regional planning agencies. The goal of the SJV Blueprint is to develop a 2050 vision for the valley that is created and shared by its residents. The Blueprint is being prepared over a 2-year period from 2006 - 2008. Public workshops will be held on a regular basis during that time to engage the public on topics of regional vision, goals, evaluation of alternative planning scenarios, and programs and policy development. Once complete, the San Joaquin Valley Blueprint Planning Process will include policy and program tools to encourage local governments, business, and agriculture to implement the vision. The District is an active participant in the Blueprint Process and is a sponsor of the project.

7.2.2 Conformity Budgets

In accordance with the 1990 Clean Air Act Amendments, conformity requirements are intended to ensure that transportation activities do not interfere with air quality progress. Section 176 of the CAA Amendments requires that transportation plans, programs, and projects conform to applicable air quality plans before being approved by a MPO.

Section 176(c) provides the framework for ensuring that Federal actions conform to air quality plans under section 110. Conformity to an implementation plan means that proposed activities must not (1) cause or contribute to any new violation of any standard in any area, (2) increase the frequency or severity of any existing violation of any standard in any area, or (3) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area. For nonattainment areas that demonstrate Reasonable Further Progress (RFP) and attainment, as well as for continued maintenance of NAAQS already attained, EPA requires that the SIP revision specify the motor vehicle emissions on which the demonstrations are based. The plans and programs produced by the transportation planning process are required to conform to the budget levels in the respective plans.

EPA transportation conformity regulations establish criteria involving the comparison of projected transportation plan emissions with the motor vehicle emissions specified in the applicable air quality plans. The regulations define the term “motor vehicle emissions budget” as meaning “the portion of the total allowable emissions defined in a revision of the applicable implementation plan (or in an implementation plan revision endorsed by the Governor or his or her designee) for a certain date for the purpose of meeting reasonable further progress milestones or attainment or maintenance

demonstrations, for any criteria pollutant or its precursors, allocated by the applicable implementation plan to highway and transit vehicles.”³

PM2.5 Requirements

The *Final Rule* implementing the 1997 PM2.5 NAAQS (72 FR 20586) addresses the types of motor vehicle emissions that must be addressed when setting transportation conformity budgets. In the *Final Rule*, EPA notes that “RFP plans, attainment demonstrations, and maintenance plans must include a budget for direct PM2.5 emissions, except for certain cases as described below. All PM2.5 SIP budgets would include directly emitted PM2.5 motor vehicle emissions from tailpipe, brake wear, and tire wear. States should also consider whether re-entrained road dust or highway and transit construction dust are significant contributors and should be included in the PM2.5 budget.” (72 FR 20645). The rule goes on to state that “Under certain circumstances, directly emitted PM2.5 from on-road mobile sources may be found an insignificant contributor to the air quality problem and NAAQS.”

The conformity rule applies for particles with aerodynamic diameter less than or equal to a nominal 2.5 micrometers (PM2.5). The precursor NOx must also be addressed unless there is a finding of insignificance.

Section 93.102(b)(2)(iv and v) of 40 CFR Part 51, subpart T identifies Volatile Organic Compounds (VOC), sulfur oxides (SOx) and/or ammonia as PM2.5 precursor pollutants that must also have a motor vehicle emissions budget if deemed significant. In addition, Section 93.102(b)(3) identifies reentrained road dust from paved and unpaved roads as PM2.5 emissions that must also have a motor vehicle emissions budget if deemed significant. While the applicability section of the rule does not address fugitive dust from road construction specifically, the rule does indicate that the consultation process should be used during the development of PM2.5 SIPs when construction emissions are a significant contributor, so that these emissions are included in the SIP’s motor vehicle emissions budget for conformity purposes.

The rule also indicates that, as a practical matter, conformity for ammonia would not be required in California until there is an acceptable method for estimating such emissions, because a method would be needed to estimate current or future ammonia emissions for either a significance finding or SIP motor vehicle emissions budget. It is important to note that EMFAC 2007 does not estimate onroad mobile ammonia emissions. In addition, this plan indicates ammonia is abundant throughout the Valley and does not act as a limiting precursor, which means reducing ammonia is ineffective in reducing PM2.5 in the Valley. Consequently, ammonia emissions are NOT included in the motor vehicle emissions budgets for conformity purposes.

³ Federal transportation conformity regulations are found in 40 CFR Part 51, subpart T – Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. of the Federal Transit Laws. Part 93, subpart A of this chapter was revised by the EPA in the August 15, 1997 Federal Register.

The conformity rule indicates that the following criteria will be considered in making significance or insignificance findings for PM_{2.5} precursors: the contribution of on-road emissions of the precursor to the total 2002 baseline SIP inventory; the current state of air quality for the area; the results of speciation monitoring for the area; the likelihood that future motor vehicle control measures will be implemented for a given precursor; and projections of future on-road emissions of the precursor.

In addition, significance findings for re-entrained road dust emissions will be based on a review of the following factors: the contribution of road dust to current and future PM_{2.5} nonattainment; an area's current design value for the PM_{2.5} standard; whether control of road dust appears necessary to reach attainment; and whether increases in re-entrained dust emissions may interfere with attainment. Such a review would include consideration of local air quality data and/or air quality or emissions modeling results.

Assessment of Significance

It is important to note that 4 of the 8 counties are already in attainment with the PM_{2.5} standards and 2 others are projected to be in attainment by 2014 with existing controls. The air quality modeling for the attainment demonstration shows that NO_x is the dominant pollutant for reducing PM_{2.5} concentration in the Valley, which indicates that NO_x controls are the most effective way to reduce PM_{2.5} levels in the Valley. The proposed control strategy for NO_x results in attainment of the annual standard in 2014 for the other 2 counties.

VOC: While the onroad mobile estimates for VOC are approximately 18 percent of the total, they continue to decrease over time. Similar to PM-10, the air quality modeling indicates that VOC is not a significant precursor to secondary PM_{2.5} formation in the San Joaquin Valley Air Basin. Accordingly, motor vehicle emissions budgets for VOC are NOT being established.

SO_x: Onroad mobile exhaust estimates are less than 1 ton per day valley wide in the budget years, which equates to approximately 3 percent of the total SO_x emissions inventory. In addition, the onroad emissions total remains essentially constant from 2009 to 2014, despite the increasing VMT. SO_x controls are focused on industrial sources as they contribute almost 90 percent of the total inventory. As a result, onroad SO_x emissions are NOT included in the motor vehicle emissions budgets for conformity purposes.

Paved Road Dust: For this 2008 PM_{2.5} Plan, the paved road dust direct PM_{2.5} emission inventory is a small percentage of total direct PM_{2.5} emissions for all source categories; in 2005, paved road dust represents only 6% of the total, and in 2014 this increases to only 7%. As noted in Chapter 9, all geologic and construction source categories combined represent only about 7.5% of the annual PM_{2.5} concentrations measured in the Valley. Since paved road dust is about 20% of the geologic and construction emissions shown in the area-wide categories in the inventory (Appendix B), the contribution of paved road dust to ambient PM_{2.5} concentrations is only about 1%

(assuming that relative ambient contributions reflect relative emissions contributions). In addition, there are no fugitive dust controls included in the attainment demonstration for this plan; however, paved road dust is controlled via the PM-10 Plan and is evaluated continually as part of the PM-10 conformity determinations. As a result, paved road dust emissions are NOT included in the motor vehicle emissions budgets for conformity purposes.

Unpaved Road Dust: Total unpaved road dust is estimated at approximately 4 tons per day valley wide, which equates to approximately 5 percent of the total PM_{2.5} emissions inventory. Local roads are a sub-part of this category and are less than 0.6 tons per day, which is less than 1 percent valley wide and therefore considered insignificant. In addition, there are no fugitive dust controls included in the plan; however, unpaved road dust is controlled via the PM-10 Plan, including the prohibition of any new local unpaved roads, and is evaluated as continually as part of the PM-10 conformity determinations. As a result, unpaved road dust emissions are NOT included in the motor vehicle emissions budgets for conformity purposes.

Construction Dust: Total construction and demolition direct PM_{2.5} emissions are approximately 1 ton per day valley wide, which equates to approximately 1.5 percent of the total PM_{2.5} emissions inventory. Road construction is a sub-part of this category and is less than 0.3 tons per day, which is less than 0.5 percent valley wide, which is considered insignificant. In addition, there are no fugitive dust controls included in the plan; however, road construction dust is controlled extensively via the PM-10 Plan and is evaluated as continually as part of the PM-10 conformity determinations. As a result, road construction emissions are NOT included in the motor vehicle emissions budgets for conformity purposes.

Conformity Budgets

This plan includes reasonable further progress demonstrations for 2009 and 2012 and attainment of the PM_{2.5} standard is projected by 2014. Average annual day emissions are used in the plan to address both the 24-hour and annual standards. Consequently, conformity budgets have been estimated for the analysis years 2009, 2012, and 2014.

Section 93.124(e) of the federal conformity rule indicates that nonattainment areas with more than one MPO may establish motor vehicle emission budgets for each MPO in the implementation plan. As a result, County-level emission budgets are provided in this plan.

The budgets are derived starting with projections from ARB's EMFAC 2007 on-road mobile source emission factor model. The emission budgets are based on the latest MPO VMT data and speed distributions (see 2007 Conformity Analyses) where available. The EMFAC 2007 model runs include the updated VMT through adjustments to vehicle population per the EPA approved ARB Recommended Methods for use of EMFAC2002 To Develop Motor Vehicle Emissions Budgets and Assess Conformity (note that ARB has indicated the methods will remain unchanged with the transition to

EMFAC 2007). Updated speed distributions are input directly. If updated MPO VMT data and speed distributions were not available, the EMFAC 2007 default data was used.

District and ARB control measures which reduce on-road mobile source emissions but are not included in EMFAC 2007 are included in the Plan and have been included in the conformity emission budgets. District controls include:

- existing Indirect Source Mitigation and School Bus Fleets rules
- *Note: reductions from proposed Employee Trip Reduction are not included since they are not quantified in this SIP.*

ARB controls include:

- existing Heavy-duty truck “reflash” reductions, public fleet emission controls, Heavy-duty Truck Idling limits, co-benefits of AB 1493 greenhouse gas tailpipe emission controls, and Carl Moyer Program reductions
- Passenger vehicle and truck measures included in the Adopted 2007 State Strategy (see Table 7-1).

While valley-wide emission reductions are presented throughout the Plan, by County emission reduction estimates have been estimated for inclusion in the conformity emission budgets. In general, by County emission estimates were calculated by distributing the valley-wide emission reductions by population or ratio of emissions sub-category to total motor vehicle estimate (e.g., heavy-duty truck emissions/total motor vehicle emissions). Table 7-1 and 7-2 reflects these emission reductions. Detailed documentation supporting the conformity emission budget development is contained in Appendix C. The following provides a sample budget calculation.

**Table 7-1 Example County Emission Budget Calculation
(tons per average annual day)**

	PM2.5	NOx
<i>Emissions Baseline</i>		
Baseline EMFAC 2007	1.65	40.60
State and Local Measures not included in EMFAC 07	0.02	4.03
ARB 2007 State Strategy	0.61	11.31
<i>Conformity Emissions Budgets*</i>	1.1	25.3

* Rounded up to the nearest tenth.

This plan establishes subarea county emission budgets for PM2.5 and NOx for the horizon years 2009, 2012, and 2014. Appendix C provides more detailed calculations.

**Table 7-2 Transportation Conformity Budgets
(tons per average annual day)**

County	2009		2012		2014	
	PM2.5	NOx	PM2.5	NOx	PM2.5	NOx
Fresno	2.2	56.5	1.9	44.2	1.1	26.0
Kern (SJV)	3.4	87.7	3.0	74.2	1.4	41.6
Kings	0.7	17.9	0.6	14.6	0.3	8.1
Madera	0.6	14.1	0.5	11.4	0.3	6.7
Merced	1.5	33.6	1.2	26.7	0.6	14.8
San Joaquin	1.6	39.1	1.4	32.8	0.9	20.3
Stanislaus	1.0	25.8	0.9	20.8	0.5	12.4
Tulare	0.9	23.3	0.8	19.5	0.5	12.2

7.2.3 Local Reasonably Available Control Measure (RACM) Strategy

The Clean Air Act (Section 172 (c)(1)) requires State Implementation Plans (SIPs) to contain Reasonably Available Control Measures (RACM) to provide for attainment of the air quality standard as expeditiously as practicable. The PM2.5 Implementation Rule (72FR20586) also contains regulatory language requiring RACM analyses for all source categories (stationary, area, and mobile) in PM2.5 SIPs (40CFR51.1010). The San Joaquin Valley Air Pollution Control District (SJVAPCD) requested that the Valley Metropolitan Planning Organizations (MPOs) develop Local RACM for the PM2.5 SIP.

In December 2006, the SJV MPOs prepared documentation for the Draft Implementation of Local Reasonably Available Control Measure (RACM) strategy for the 8-Hour Ozone SIP. The strategy consisted of two parts: (1) evaluation of potential RACM for advancing the attainment date and (2) the adoption of a Congestion Mitigation and Air Quality (CMAQ) policy to fund cost-effective emission reduction projects.

For the PM2.5 efforts, the evaluation of potential RACM for advancing the attainment date was re-visited and updated accordingly. In addition, the CMAQ policy has been adopted by all eight SJV MPOs that includes developing a standardized process across the Valley for distributing 20 percent of the CMAQ funds to projects that meet a minimum cost-effectiveness beginning in FY2011. This policy focuses on achieving the most cost-effective emission reductions, while maintaining flexibility to meet local needs.

Evaluation of Potential RACM for Advancing Attainment Date

The MPOs have applied EPA's final rule to implement the PM2.5 standard for identifying the RACM commitments. The EPA rule reinforces earlier RACM guidance providing for a limited RACM analysis of available measures, an estimate of emission reductions, and examination of the time needed to implement the measures. If it is demonstrated that the combined local RACM can not advance the attainment date by at

least one year, then those additional measures are not deemed “reasonably available” under EPA policy and do not need to be included in the State Implementation Plan (SIP). The evaluation of potential RACM for advancing the attainment date is presented in three steps as documented below.

Step 1: The list of local control measures developed for the 8-Hour Ozone Plan was reviewed. Documentation for development of the list of control measures for possible consideration is contained in Appendix C of the 2007 Ozone Plan. Steps 1 – 6 resulted in an extensive list of control measures for consideration and demonstrates due diligence in identifying potential local RACM; in total, over 65 documents were referenced in developing the list of control measures for consideration.

Additionally, for the PM_{2.5} plan development, the PM_{2.5} Implementation Rule was reviewed to assure that there were no such changes made to the RACM policy that would result in additional measures for consideration. It should be noted that EPA has not established mandatory measures for all areas to consider as RACM and EPA continues to suggest that RACM be an area-by-area decision. All relevant PM_{2.5} measures contained in the rule were already included in the list of potential RACMs reviewed and analyzed in the 8-hour Ozone SIP. Also, the EPA draft list of measures included in the ozone RACM analysis dated December 2006 was finalized (see <http://www.epa.gov/air/particles/measures.html>) and reviewed again for any additional PM_{2.5} control measures that would need to be considered as potential RACMs in this PM_{2.5} SIP.

Furthermore, the process for the PM_{2.5} plan includes a review of new plans and measures developed for consideration since April 2007, including the South Coast 2007 Air Quality Management Plan (AQMP) and the New Jersey 2007 SIP. It is important to note that while there are at least 66 designated PM_{2.5} areas in the nation, we were unable to find additional PM_{2.5} SIP strategies to review. Some areas are not proceeding with SIP development since the EPA PM_{2.5} implementation rule has been comprehensively challenged by the environmental community in the DC Circuit, and some are awaiting the need to address the revised PM_{2.5} NAAQS.

The adopted South Coast 2007 (AQMP) was reviewed to see if any additional RACMs had been identified. This AQMP combines regulations and control measures to attain the PM_{2.5} standard by 2015 and the 8-hour ozone standard by 2024. The AQMP was bifurcated to address both pollutants, as most of the control strategies are complementary. The Draft AQMP’s RACM approach, which is discussed in Appendix IV-C of that plan, was previously reviewed as part of the ozone RACM efforts. It clearly states that all the RACMs and Transportation Control Measures (TCM) in the final AQMP were taken from the 2004 RTP and 2006 RTIP. Thus, these were previously reviewed during the original analysis of RACMs in the SJV 8-hour final Ozone SIP. While the South Coast AQMP identified numerous TCMs, they were all specific to individual transportation projects in their 2006 RTIP and not general in scope. In summary, no new measures for which local agencies have implementation authorities were found in the final South Coast 2007 AQMP.

In June, 2007, the New Jersey Department of Environmental Protection submitted an 8-hour Ozone SIP to the EPA. It contains an extensive analysis of RACM and Reasonably Available Control Technology (RACT). Beginning with a list of 457 potential control measures (all categories), New Jersey identified 26 TCMs and onroad mobile measures for use in EPA's RACM analysis review guidelines, i.e., must advance the attainment date by one year. The "political feasibility" criteria narrowed the list to 11 measures and those advanced to final RACM analysis. These measures have been analyzed and it has been determined that all "non-NJ specific" measures are contained in some form in the 8-hour ozone RACM analysis (see Table C.6).

In summary, no new additional measures were identified from those considered for the 8-Hour Ozone Plan RACM analysis in this PM_{2.5} RACM evaluation.

Step 2: As documented in the 2007 Ozone Plan, emission reduction estimates were developed for the Section 108(f) categories to assess the local RACM list of applicable measures. The maximum feasible emission reduction for NO_x estimated from implementing all of those TCMs was approximately 7 tons per day (tpd) in 2020 and 5 tpd in 2023. Those estimates were based on the maximum travel reductions that could be expected from applicable measures and the average gram/mile emission rate of light-duty vehicles (i.e., passenger cars and light-duty trucks) operated during the summer.

A review of the SIP shows that 75% of annual PM_{2.5} concentrations can be attributed to the period between November and January and that ammonium nitrate is the main component of PM_{2.5} during the winter. The California Regional Particulate Air Quality Study (CRPAQS) found that reductions in NO_x emissions are more effective in reducing secondary ammonium nitrate aerosol concentrations. Similarly, the control measures selected in the SIP have focused on NO_x reductions to demonstrate attainment. For these reasons, NO_x is the pollutant to be considered when assessing whether TCM reductions can advance attainment.

Since NO_x formation is directly influenced by combustion temperature, motor vehicle NO_x emission rates are higher during the summer than during either the winter or on annual average basis when average temperatures are lower. This means that NO_x reductions estimated for 108(f) measures during summer months provide a conservative (i.e., higher or greater) estimate of the reductions that can be expected from these measures on either an annual average or winter basis.

Due to the benefits of fleet turnover (i.e., replacement of older scrapped vehicles with newer vehicles) and increasingly stringent motor vehicle emission standards, the fleet average emission rates in 2020 and 2023 are lower than those in 2013/2014. This means the NO_x reductions estimated in 2020 and 2023 underestimate the reductions that could be produced in earlier years. To quantify the impact of those reductions in 2013, fleet average NO_x emission rates were computed for light-duty vehicles in that year. This value was used to adjust the 7 tpd reduction estimated in 2020 by the ratio of 2013/2020 average NO_x rates. The ratio was computed to be 2.07, which means that

TCMs analyzed for the ozone plan are estimated to produce a reduction of roughly 14 tpd in 2013 (assuming the same level of travel reductions apply in 2013 as did in 2020 and 2023).

Step 3: The emission reduction estimates were compared against the attainment demonstration information contained in the February 2008 version of the Draft 2008 PM_{2.5} Plan to determine if they collectively advance attainment by a full year. According to Table 9-1, an additional 100.5 tons per average annual day of NO_x emission reductions is necessary in 2013 to advance attainment of the PM_{2.5} plan by one year. As shown in Step 2, the maximum NO_x reductions that can be expected from the applicable TCMs in 2013 is on the order of 14 tpd. Since this estimate is conservative (i.e., it is based on summer emission rates and annual average values will be lower) and falls far short of the 100.5 tpd reduction needed to advance attainment by a year, the emission reduction analysis concludes that the TCM categories will not advance attainment for the PM_{2.5} Plan.

In conclusion, the local PM_{2.5} RACM analysis finds that the potential measures identified will not advance attainment by a full year and therefore, no further efforts to adopt additional local commitments for the SIP are necessary.

7.3 SUMMARY OF THE STATE STRATEGY ADOPTED BY THE AIR RESOURCES BOARD

On September 27, 2007, the Air Resources Board (ARB or Board) adopted the state emission reduction strategy to achieve new emission reductions needed to bring areas of the State into attainment of both the federal PM_{2.5} and ozone air quality standards. The commitment for 2014 in the state strategy includes reductions needed to attain the PM_{2.5} standards and provide progress towards meeting the ozone standard.

Through the public consultation process described below, ARB staff obtained input on California's State Implementation Plan (SIP) efforts. In October 2006, ARB staff held a SIP Symposium, followed by a workshop in November to discuss development of potential control concepts for meeting the federal 8-hour ozone and PM_{2.5} standards. In January 2007, ARB staff circulated for public review, the *Draft Air Resources Board's Proposed State Strategy for California's 2007 State Implementation Plan* (Proposed State Strategy) and, in April 2007, conducted a series of public workshops. On April 26, 2007, ARB staff released a revised draft of the Proposed State Strategy that incorporated changes based on further staff analysis and public comments. ARB staff also participated in SIP workshops conducted by the staff of the San Joaquin Valley APCD to discuss how the statewide control measures fit into the local 8-hour ozone strategy. At the June 2007 Board hearing, the Board directed staff to work with the San Joaquin Valley APCD to identify additional measures to achieve emission reductions sooner in the Valley. As a result, in September 2007, the Board adopted the Revised Proposed State Strategy. The Revised State Strategy includes the April 26, 2007 total emission reduction commitments to be accomplished by 2014 for

attainment of the PM_{2.5} standard in the Valley, and strengthened commitments to be accomplished by 2017 for the 8-hour ozone standard.

The quantified emission reduction estimates for 2014 from the mix of concepts in the state strategy in the San Joaquin Valley are shown in Table 7-3. The San Joaquin Valley is relying on NO_x, direct PM_{2.5}, and SO₂ emission reductions to demonstrate attainment of the PM_{2.5} NAAQS; the state measures emphasize NO_x and direct PM_{2.5} reductions. This section also includes short descriptions of the measures currently under evaluation by ARB staff.

**Table 7-3 Expected Emission Reductions from 2007 SIP State Strategy
(tons per day) San Joaquin Valley -- 2014**

Proposed New State SIP Measures	NO _x	ROG	Direct PM _{2.5}	SO _x
Passenger Vehicles	3.8	6.5	0.1	--
Smog Check Improvements (BAR)	3.3	2.9	0.05	--
Expanded Vehicle Retirement	0.5	0.7	0.01	--
Modifications to Reformulated Gasoline Program	--	2.9	--	--
Heavy-Duty Trucks	61.4	6.4	3.6	--
Cleaner In-Use Heavy-Duty Trucks	61.4	6.4	3.6	--
Goods Movement Sources	7.2	0.5	0.2	--
Ship Auxiliary Engine Cold Ironing & Clean Technology	--	--	--	--
Cleaner Main Ship Engines and Fuel	--	--	--	--
Port Truck Modernization	--	--	--	--
Accelerated Introduction of Cleaner Line-Haul Locomotives	7.2	0.5	0.2	--
Clean Up Existing Harbor Craft	--	NYQ	--	--
Off-Road Equipment	3.7	0.9	0.8	--
Cleaner In-Use Off-Road Equipment (over 25hp)	3.7	0.9	0.8	--
Cleaner In-Use Agricultural Equipment	NYQ	NYQ	NYQ	--
Other Off-Road Sources	0.1	3.5	--	--
New Emission Standards for Recreational Boats	0.1	1.3	--	--
Expanded Off-Road Rec. Vehicle Emission Standards	--	2.2	--	--
Additional Evaporative Emission Standards	--	NYQ	--	NYQ
Vapor Recovery for Above Ground Storage Tanks	--	NYQ	--	NYQ
Areawide Sources	--	5.7	--	--
Consumer Products Program	--	3.2	--	--
Pesticides: DPR Regulation	--	2.5	--	--
Reductions from Proposed New State Measures	76	23	5	0
Reductions from Adopted State Measures	211	49	7	0
Total Emission Reductions from State Strategy	287	72	12	0

NYQ = Not Yet Quantified. BAR = Bureau of Automotive Repair. DPR = Dept. of Pesticide Regulation. Locomotives measure relies on U.S. EPA rulemaking and industry agreement to accelerate fleet turnover. Note: Emission reductions reflect the combined impact of regulations and supportive incentive programs. Emission reduction estimates for each proposed measure are shown for informational purposes only. Actual emission reductions from any particular measure may be greater than or less than the amounts shown.

Overview of the 2007 Statewide Strategy

Responsibility for implementing emission reduction measures is shared between the agencies with primary responsibility for controlling air pollution in California: the State Air Resources Board (ARB), 35 local air pollution control and air quality management districts (air districts), and the U.S. Environmental Protection Agency (U.S. EPA).

ARB is responsible for controlling emissions from mobile sources (except where federal law preempts ARB's authority) and consumer products, developing fuel specifications, establishing gasoline vapor recovery standards and certifying vapor recovery systems, providing technical support to the districts, and overseeing local district compliance with State and federal law. The State Department of Pesticide Regulation is responsible for control of agricultural, commercial and structural pesticides, while the Bureau of Automotive Repair runs the State's Smog Check programs to identify and repair polluting cars.

In the San Joaquin Valley, emission reductions from the existing federal, State, and local source control program are not enough to attain the federal standards. Consequently, further emission reductions from new measures must be achieved in order to meet the emission reduction target. In September 2007, the Board approved the State Strategy for California's 2007 State Implementation Plan. The new measures that provide attainment of the PM_{2.5} standards in the San Joaquin Valley under consideration by ARB staff are summarized below. For a comprehensive list of measure descriptions in the State Strategy visit:

<http://www.arb.ca.gov/planning/sip/2007sip/2007sip.htm>

Passenger Vehicles

Improvements and Enhancements to California's Smog Check Program

- **More Stringent Cutpoints.** More stringent pass/fail cutpoints would require more cars to be repaired, and help ensure more complete and durable repairs.
- **Annual Inspections for Older Vehicles.** Inspect older vehicles annually rather than every two years. Older vehicles tend to have greater deterioration of emission controls, and consequently, higher emissions.
- **Annual Inspections for High Annual Mileage Vehicles.** Inspect annually, rather than every two years, vehicles that accrue very high mileage on a yearly basis. High mileage vehicles tend to have greater deterioration of emission controls, and consequently, higher emissions.
- **Add Visible Smoke Test.** As part of the Smog Check test, include a check for visible smoke to identify vehicles with excess particulate matter (PM) emissions.

- **Inspection of Light and Medium Duty Diesels.** Include light and medium duty diesel vehicles in the Smog Check program to provide for improved maintenance and reduced emissions for this part of the fleet, and require the repair of poorly maintained or old emission systems.
- **Inspection of Motorcycles.** Include motorcycle inspections as part of Smog Check. Studies indicate that motorcycles are subject to high rates of exhaust system tampering.

Expanded Passenger Vehicle Retirement. Increase the number of vehicles that are voluntarily retired by implementing a scrappage program for vehicles that are off cycle from their Smog Check inspections.

Heavy-Duty Trucks

Cleaner In-Use Heavy-Duty Trucks. This proposed measure is a comprehensive in-use diesel truck emissions reduction program that includes a fleet modernization rule and an enhanced screening and repair program. Fleet modernization would focus on overcoming the typically slow rate of heavy-duty truck turnover by requiring truck owners to meet specified emission levels through replacing or cleaning up the oldest trucks in their fleets, and would also include a program for out-of-state trucks operating in California. ARB's roadside heavy-duty vehicle inspection program would be expanded to more effectively identify and screen trucks that need emission control system repairs. In addition, under the Goods Movement Program, incentive funding would be available to accelerate or attain surplus emission reductions. ARB rulemaking for this measure is underway.

Goods Movement Sources

Accelerated Introduction of Cleaner Line Haul Locomotives. Replace existing locomotive engines with cleaner Tier 3 engines beginning in 2012 and conduct concurrent rebuilds of older engines to Tier 2.5 standards. This measure can only occur once U.S. EPA adopts Tier 3 engine standards for locomotives.

Off-Road Equipment

Cleaner In-Use Off-Road Equipment. Establish fleet average emission limits for off-road equipment (over 25 horsepower) that requires older, dirtier engines to be replaced with engines reflecting current technologies or retrofitted with emission control devices. The measure also includes setting idling limits. In July 2007, the Board approved this rule for adoption. In addition, the Board approved an opt-in provision for a regional incentive program to achieve additional NOx reductions, the Surplus Off-Road Opt-in for NOx (SOON) program. ARB will continue working with the San Joaquin Valley APCD to identify funding for the SOON program.

Cleaner In-Use Agricultural Equipment. Accelerate the modernization of the agricultural equipment fleet used in California, removing older, dirtier equipment from service to be replaced with engines reflecting cleaner technologies. Availability of incentives along with equipment availability will determine how soon emission reductions will be realized.

Other Off-Road Sources

New Emission Standards for Recreational Boats. Adopt catalyst-based standards (5 g/kW-hr) for new outboard engines and evaporative emission standards.

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