

Staff Report

**Proposed Updates to the 1997 8-Hour Ozone Standard
State Implementation Plans:
Coachella Valley and Western Mojave Desert
8-hour Ozone Nonattainment Areas**

Release Date: September 22, 2014

Hearing Date: October 24, 2014

Electronic copies of this report are online at <http://www.arb.ca.gov/planning/sip/sip.htm>. Alternatively, paper copies may be obtained from the Visitors and Environmental Services Center of the Air Resources Board, located at 1001 I Street, Sacramento, California 95814, or by contacting ARB's Office of Communications at (916) 322-2990.

For individuals with sensory disabilities, this document is available in Braille, large print, audiocassette, or compact disc. Please contact ARB's Disability Coordinator at (916) 323-4916 by voice or through the California Relay Services at 711 to place your request for disability services. If you are a person with limited English and would like to request interpreter services, please contact ARB's Bilingual Manager at (916) 323-7053.

This document has been prepared by the staff of the Air Resources Board. Publication does not signify that the contents reflect the views and policies of the Air Resources Board, nor do trade names or commercial products constitute endorsement or recommendation for use.

Please send written comments to:

Carol Sutkus, Manager
South Coast Air Quality Planning Section
Air Resources Board
P.O. Box 2815
Sacramento, California 95812

Phone: (916) 322-1229
Email: csutkus@arb.ca.gov

For general questions, contact:

Dr. Scott King, Air Pollution Specialist
South Coast Air Quality Planning Section

Phone: (916) 322-2832
Email: sking@arb.ca.gov

Or

Monica Lewis, Air Pollution Specialist
South Coast Air Quality Planning Section

Phone: (916) 324-2716
Email: mlewis@arb.ca.gov

Table of Contents

I.	INTRODUCTION	1
	Staff Recommendation	2
II.	COACHELLA VALLEY UPDATE	3
	Emission Inventory Update	3
	Attainment Demonstration Update.....	4
	Reasonable Further Progress Demonstration Update	5
	Transportation Conformity Budgets Update	6
	Ozone Vehicle Miles Traveled Offset Demonstration	7
III.	WESTERN MOJAVE DESERT UPDATE.....	8
	Emission Inventory Update.....	8
	Attainment Demonstration Update.....	9
	Reasonable Further Progress Demonstration Update	10
	Transportation Conformity Budgets Update	10
	Ozone Vehicle Miles Traveled Offset Demonstration	11

APPENDICES

Appendix A: Updated Emission Inventory	A-1
Appendix B: Attainment Demonstration	B-1
Appendix C: Reasonable Further Progress	C-1
Appendix D: Transportation Conformity Budgets.....	D-1
Appendix E: Vehicle Miles Traveled Offset Demonstration	E-1

I. INTRODUCTION

On September 16, 1997, the U.S. Environmental Protection Agency (U.S. EPA) promulgated an 8-hour ozone National Ambient Air Quality Standard (NAAQS or standard) of 0.08 parts per million (ppm). When designating the nonattainment areas for this standard in 2004, U.S. EPA split the former Southeast Desert 1-hour ozone nonattainment area. The Riverside County portion of the Southeast Desert became the Coachella Valley 8-hour ozone nonattainment area (Coachella Valley), while the Southwestern portion of San Bernardino County and the northeastern portion of Los Angeles County became the Western Mojave Desert 8-hour nonattainment area (Western Mojave Desert). These areas were given different classifications by U.S. EPA, with the Coachella Valley classified as serious and the Western Mojave Desert classified as moderate.

The Clean Air Act (Act) requires states with nonattainment areas to prepare and submit State Implementation Plans (SIPs) to demonstrate how the areas will attain air quality standards. State law assigns the Air Resources Board (ARB) the primary responsibility to ensure California's compliance with the Act. Traditionally, ARB shares that responsibility with local air districts through regulatory actions, incentive programs, and defined SIP commitments for further action to achieve emission reductions necessary for attainment of the standard. The State also has an expectation that the federal government will provide necessary emission reductions from sources under U.S. EPA's authority.

In 2007 and 2008, ARB submitted SIPs to U.S. EPA for the Coachella Valley (2007 Coachella Valley Plan) and the Western Mojave Desert (2008 Western Mojave Desert Plan). These plans included requests that U.S. EPA reclassify both areas to appropriate classifications given the amount of ozone and ozone precursors transported into the areas from the South Coast Air Basin and the much longer deadline the South Coast Air Basin has to reduce emissions and attain the standard.

The 2007 Coachella Valley Plan and the 2008 Western Mojave Desert Plan included updated air quality data, emission inventories, control strategies (based on State, local, and federal measures), modeled attainment demonstrations, reasonable further progress (RFP) demonstrations, and contingency measures.

The attainment demonstrations in the 2007 Coachella Valley Plan and the 2008 Western Mojave Desert Plan outlined strategies for achieving the 1997 8-hour ozone standard in the Coachella Valley and the Western Mojave Desert. The attainment demonstration relied on the statewide measures and commitments in *California's 2007 State Implementation Plan for Federal PM_{2.5} and 8-Hour Ozone Standards* (2007 State Strategy) to provide the needed reductions. Since 2007, ARB has adopted and implemented measures from the 2007 State Strategy.

The 2007 Coachella Valley Plan and the 2008 Western Mojave Desert Plan included RFP demonstrations using U.S. EPA guidance at that time. That guidance allowed emission reductions from sources outside the nonattainment areas to show progress

toward attainment. U.S. EPA later determined that using emissions from sources outside a nonattainment area was inappropriate for RFP purposes, and revised its RFP policy to limit emission reductions to sources within a nonattainment area.

ARB is revising the 2007 Coachella Valley Plan and the 2008 Western Mojave Desert Plan (2014 Update) to reflect the new U.S. EPA guidance for the RFP demonstration and updated emission inventories. The 2014 Update demonstrates that the required RFP milestones are met through adopted measures along with additional emission reductions needed to meet the RFP contingency requirement. The 2014 Update includes updated emission inventories, attainment demonstrations, RFP demonstrations, new transportation conformity budgets, and provides vehicle miles traveled (VMT) offsets demonstrations.

The 2014 Update demonstrates that the adopted regulations will provide the emission reductions necessary to achieve attainment of the 0.08 ppm 8-hour ozone standard in the Coachella Valley and the Western Mojave Desert nonattainment areas by their attainment date and meet RFP requirements in the milestone years. The 2014 Update also sets transportation conformity budgets for 2014, 2017 and 2018, and includes VMT offset demonstrations based on guidance issued by U.S. EPA in August 2012.

Staff Recommendation

Staff recommends that the Board adopt the proposed 2014 Update for the 2007 Coachella Valley Plan and the 2008 Western Mojave Desert Plan as a revision to the California SIP.

II. COACHELLA VALLEY UPDATE

The 2014 Update revises the 2007 Coachella Valley Plan that was adopted and submitted to U.S. EPA as a SIP revision on November 28, 2007. The 2007 Coachella Valley Plan outlined a strategy for achieving the 1997 0.08 ppm 8-hour ozone standard in the Coachella Valley. The 2007 Coachella Valley Plan also included a request that U.S. EPA reclassify the Coachella Valley to severe-15. On May 5, 2010, U.S. EPA approved the reclassification to severe-15 but did not take action on the attainment demonstration or other planning requirements of the Act (such as the RFP demonstration). The 2014 Update provides information to support U.S. EPA approval of the 2007 Coachella Valley Plan.

Emission Inventory Update

An emission inventory is a critical tool used to evaluate, control, and mitigate air pollution. The emission inventory is a systematic listing of the sources of air pollutants along with the amount of pollutants emitted from each source or category over a given time period. For ozone, the emission inventory is a summer season inventory, which reflects the activity levels and conditions present when higher ozone levels occur in the Southern California region.

Appendix A contains a detailed inventory of the two ozone precursors, reactive organic gases (ROG) and oxides of nitrogen (NO_x), for the Coachella Valley. The 2007 Coachella Valley Plan relied in part on emission reduction commitments from the 2007 State Strategy. Mobile sources are the largest contributors to ozone-forming emissions in the Coachella Valley. Adoption of the ARB in-use fleet rules for on-road trucks and off-road equipment provided the emission reductions needed to meet this commitment. The emission inventory has been updated to incorporate the benefits of these rules as well as other adopted rules post 2007, new economic forecasts, and updated transportation activity projections provided by the Southern California Association of Governments (SCAG). The 2014 Update demonstrates that emissions expressed as tons per day (tpd) are lower than assumed in the 2007 Coachella Valley Plan (Table 1).

Total ROG Inventory	2002	2008	2011	2014	2017	2018
2007 Inventory (tpd)	22	20	19	18	18	18
2014 Inventory (tpd)	23	18	15	15	15	15
Percentage ROG change from 2007	2%	-11%	-20%	-19%	-17%	-17%
Total NOx Inventory	2002	2008	2011	2014	2017	2018
2007 Inventory (tpd)	52	44	37	31	26	24
2014 Inventory (tpd)	43	31	24	21	18	17
Percentage NOx change from 2007	-16%	-30%	-36%	-31%	-30%	-31%

Attainment Demonstration Update

The 2007 Coachella Valley Plan used photochemical modeling to demonstrate that the proposed emission reduction strategy would result in the level of reductions necessary to bring the Coachella Valley into attainment for the 0.08 ppm 8-hour ozone standard by 2018, the attainment deadline for severe-15 nonattainment areas.

The modeling used in the 2007 Coachella Valley Plan determined the percentage of emission reductions needed from the base year for the Coachella Valley to reach attainment (20% ROG and 53% NOx). The analysis in the 2014 Update verifies that the emission reductions in the new inventory (30% ROG and 59% NOx) exceed the percentage of emission reductions calculated in the modeled attainment demonstration from the 2007 Coachella Valley Plan (Table 2).

		ROG	NOx
2007 Coachella Valley Plan Inventory	2002 (tpd)	22	52
	2018 (tpd)	18	24
2007 Percentage Reductions		20%	53%
2014 Update Inventory	2002 (tpd)	23	43
	2018 (tpd) [*]	16	18
2014 Percentage Reductions^{**}		30%	59%

^{*}Includes transportation conformity budgets safety margin (see Appendix D)

^{**}Percentages may be slightly different due to rounding

Since the revised inventory changed both the base year and attainment year emission estimates, the 2014 Update attainment analysis, to be conservative, recalculates the attainment target by applying the percentage of NOx and ROG emission reductions needed in the 2007 Coachella Valley Plan to the updated inventory, resulting in new NOx and ROG emission targets, expressed as tons per day. Those targets are then compared to the updated inventory, which includes the effects of new rules, to assess current progress toward attainment of the standard. The analysis is detailed in Appendix B. It shows that adopted controls will provide the new ROG and NOx reductions needed, from 2002 levels, to attain the standard.

Ozone in the Coachella Valley is significantly affected by emissions transported from the South Coast Air Basin. While the updated Coachella Valley inventory predicts that emissions will meet their attainment targets before the 2018 deadline, the attainment target of 2018 has been retained due to the extent of transported emissions into the Coachella Valley from the South Coast Air Basin.

Reasonable Further Progress Demonstration Update

The Act requires RFP demonstrations to ensure that between the base year and the attainment year, an area is making continued and steady progress toward attaining air quality standards.

Section 182(b)(1)(A) of the Act requires nonattainment areas classified as moderate and above to achieve a 15 percent reduction of ROG within six years of the nonattainment designation. Section 182(c)(2)(B) requires further emission reductions of ROG or NOx, in areas classified as serious and above, of three percent per year after the initial six year period. Finally, the RFP demonstration must also include contingency emission reductions available if an area fails to meet the required milestone year emission reduction targets.

The 2007 Coachella Valley Plan submittal to U.S. EPA demonstrated RFP in accordance with U.S. EPA's implementation rule and guidance at the time, which allowed the inclusion of ozone precursor emissions transported from upwind areas. Since that time, U.S. EPA determined it was no longer appropriate to include emissions from sources outside the nonattainment area in the RFP demonstration and revised its RFP policy to limit emission reductions to sources within the nonattainment area.

ARB staff has revised the RFP demonstration using the newly updated emissions inventory and reflecting the most recent U.S. EPA implementation rule and technical guidance, which no longer allow the inclusion of upwind transport area emission reductions.

Appendix C demonstrates that the Coachella Valley nonattainment area meets the RFP targets in all milestone years.

Transportation Conformity Budgets Update

Transportation conformity is a provision of the Act that requires transportation planning agencies to demonstrate that their transportation plans, funding programs, and projects are consistent with or conform to the SIPs purpose of achieving expeditious attainment of the standards. The Act distinguishes transportation actions [those undertaken by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA)] from all other federal actions.

Metropolitan Planning Organizations (MPOs) must make findings that the regional transportation plans (RTPs) and transportation improvement programs (TIPs) conform to the SIP. They submit this conformity finding along with the RTP and TIP to FHWA and FTA for approval. The conformity finding must demonstrate that the emissions associated with the RTP and TIP do not exceed “emission budgets” that are contained in the SIP. An emissions budget is the maximum level of emissions from on-road motor vehicles that ensures an area makes progress toward clean air and ultimately meets air quality standards by the mandated deadline.

The *ARB Early Progress Plans Demonstrating Progress Toward Attaining the 8-hour National Air Quality Standard for Ozone and Setting Transportation Conformity Budgets for Ventura County, Antelope Valley-Western Mojave Desert, Coachella Valley, Eastern Kern County, Imperial County* was submitted to U.S. EPA on March 24, 2008. The U.S. EPA published an adequacy finding on the Coachella Valley motor vehicle emissions budgets on May 5, 2008, effective May 20, 2008. Transportation conformity budgets were established for ROG and NO_x using the California Emissions FACTor Model (EMFAC 2007) and included off-model reductions from adopted rules not reflected in EMFAC 2007.

The updated emission budgets have been developed with EMFAC 2011 using the latest SCAG VMT data and speed distributions where available. On March 6, 2013, U.S. EPA approved the use of this latest version of the California EMFAC model for use in SIP development.

The updated transportation conformity budgets include a safety margin to provide flexibility to adjust for uncertainties that may affect on-road mobile emission estimates. The safety margin has been included in both the RFP and attainment demonstrations (see Appendix B and C).

The updated transportation conformity budgets are applicable to the federal 0.08 ppm 8-hour ozone standard for the Coachella Valley, and ensure that on-road emissions will be consistent with the attainment demonstration in future years. This technical revision of the transportation conformity budgets accounts for the current emission inventory included in this update, and includes transportation conformity budgets for the years 2014, 2017, and 2018 (see Appendix D).

Ozone Vehicle Miles Traveled Offset Demonstration

Section 182(d)(1)(A) of the Act requires that SIPs for areas classified as severe and above include a demonstration that "...identifies and adopts specific enforceable transportation control strategies and transportation control measures to offset any growth in emissions from growth in vehicle miles traveled or numbers of vehicle trips in such area....".¹ Appendix E to this 2014 Update includes a VMT offset demonstration for the Coachella Valley that complies with the Act by demonstrating that emission increases due to VMT growth in the SIP timeframe are appropriately offset by transportation control strategies and transportation control measures.

¹ 42 U.S. Code 7511A

III. WESTERN MOJAVE DESERT UPDATE

The 2014 Update revises the 2008 Western Mojave Desert Plan that was adopted and submitted to U.S. EPA as a SIP revision on July 22, 2008. The 2008 Western Mojave Desert Plan outlined a strategy for achieving the 1997 0.08 ppm 8-hour ozone standard in the Western Mojave Desert.

In 2008, photochemical modeling of the Mojave Desert Air Basin indicated that the Western Mojave Desert, then classified as a moderate nonattainment area, would not meet the emission reduction target required for attainment of the standard by the moderate attainment deadline. The 2008 Western Mojave Desert Plan demonstrated that the proposed emission reduction strategy would bring the Western Mojave Desert into attainment by 2020, the attainment deadline for severe-17 nonattainment areas. The 2008 Western Mojave Desert Plan therefore included a request that U.S. EPA reclassify the Western Mojave Desert from moderate to severe-17.

U.S. EPA later determined that the Act only allowed reclassification to severe-15 and not severe-17. This determination was based on section 181(b)(3) of the Act that permits reclassification only to the classifications listed in Table 1 of the Act section 181(a), which does not include severe-17.² On March 14, 2012, ARB requested that U.S. EPA reclassify the Western Mojave Desert from moderate to severe-15 rather than severe-17. On June 7, 2012, U.S. EPA reclassified Western Mojave Desert to severe-15 but did not take action on the attainment demonstration or other planning requirements of the Act, such as the RFP demonstration. The 2014 Update provides information to support U.S. EPA approval of the 2008 Western Mojave Desert Plan.

Emission Inventory Update

An emissions inventory is a critical tool used to evaluate, control, and mitigate air pollution. The emissions inventory is a systematic listing of the sources of air pollutants along with the amount of pollutants emitted from each source or category over a given time period. For ozone, the emissions inventory is a summer season inventory which reflects the activity levels and conditions present when higher ozone levels occur in the Southern California region.

Appendix A contains a detailed inventory of the two ozone precursors, reactive organic gases (ROG) and oxides of nitrogen (NOx), for the Western Mojave Desert. The inventory has been updated since the previous submission to U.S. EPA as part of the 2007 State Strategy. The updated inventory incorporates implementation of control measures since 2007, new economic forecasts, and updated transportation activity projections provided by the Southern California Association of Governments (SCAG). The 2014 Update demonstrates that emissions are lower than assumed in the 2008 Western Mojave Desert Plan (Table 3).

² FR 66, Number 217, 56476-56484

Table 3
Western Mojave Desert
Change in Emission Inventory between the 2008 Western Mojave Desert Plan
and the 2014 Update

Total ROG Inventory	2002	2008	2011	2014	2017	2018	2020
2007 Inventory	71	71	70	70	71	71	73
2014 Inventory	71	63	56	54	55	55	56
Percentage ROG change from 2007	0%	-11%	-20%	-22%	-23%	-23%	-24%
Total NOx Inventory	2002	2008	2011	2014	2017	2018	2020
2007 Inventory	184	168	151	138	129	127	125
2014 Inventory	168	123	94	89	85	82	79
Percentage NOx change from 2007	-8%	-26%	-38%	-35%	-34%	-35%	-36%

Attainment Demonstration Update

The modeling used in the 2008 Western Mojave Desert Plan determined the percentage of emission reductions needed from the base year of 2002 for the Western Mojave Desert to reach attainment in 2020 (-2% ROG, 32% NOx). With the classification change to severe-15, the attainment year in the 2014 Update is 2018. The analysis in the 2014 Update demonstrates that the Western Mojave Desert achieves a greater percentage of emission reductions by 2018 (23% ROG, 51% NOx) than the percentage reductions needed as determined by the 2008 Western Mojave Desert Plan to attain in 2020, the attainment year in the 2008 Western Mojave Desert Plan (Table 4).

Table 4
Reductions from the 2002 base year to the 2018 attainment year
in the 2008 Western Mojave Desert Plan and 2014 Update

		ROG	NOx
2008 Western Mojave Desert Plan Inventory	2002 (tpd)	71	184
	2018 (tpd)	73	125
2008 Percentage Reductions		-2%	32%
2014 Update Inventory	2002 (tpd)	71	168
	2018 (tpd) [*]	56	84
2014 Percentage Reductions^{**}		22%	50%

^{*} Includes transportation conformity budgets safety margin (see Appendix D)

^{**} Percentages may be slightly different due to rounding

Since the revised inventory changed both the base year and attainment year emission estimates, the 2014 Update attainment analysis, to be conservative, recalculates the attainment target by applying the percentage of NOx and ROG emission reductions needed in the 2008 Western Mojave Desert Plan to the updated inventory, resulting in new NOx and ROG emission targets, expressed as tons per day. Those targets are

then compared to the updated inventory, which includes the effects of new rules, to assess current progress toward attainment of the standard. The analysis is detailed in Appendix B. It shows that adopted controls will provide the new ROG and NOx reductions needed, from 2002 levels, to attain the standard.

While the updated Western Mojave Desert inventory predicts that emission levels will meet attainment targets before the 2018 deadline for severe-15 areas, ozone in the Western Mojave Desert is significantly affected by emissions transported from outside areas. Due to the amount of emissions transported into the Western Mojave Desert from the South Coast Air Basin, the attainment target of 2018 is being retained in the 2014 Update.

Reasonable Further Progress Demonstration Update

The Act requires RFP demonstrations to ensure that between the base year and the attainment year, an area is making continued and steady progress toward attaining air quality standards.

Section 182(b)(1)(A) of the Act requires nonattainment areas classified as moderate and above to achieve a 15 percent reduction of ROG within six years of the nonattainment designation. Section 182(c)(2)(B) requires further emission reductions of ROG or NOx in areas classified as serious and above, of three percent per year after the initial six year period. Finally, the RFP demonstration must also include contingency emission reductions available if an area fails to meet the required interim milestone year emission reduction targets.

The 2008 Western Mojave Desert Plan submittal to U.S. EPA demonstrated RFP in accordance with U.S. EPA's implementation rule and guidance, which at the time allowed the inclusion of ozone transport from upwind areas. Since that time, U.S. EPA determined it was no longer appropriate to include emissions from sources outside the attainment area in an RFP demonstration and revised its RFP policy to limit emission reductions to sources within a nonattainment area. ARB staff has revised the RFP demonstration using the newly updated emissions inventory and reflecting the most recent U.S. EPA implementation rule and technical guidance, which no longer allow the inclusion of upwind transport area emission reductions.

As shown in Appendix C, the Western Mojave Desert nonattainment area met the RFP targets in all milestone years, except 2008, when the area was required to meet the target solely through reductions in ROG. The 15 percent ROG-only target was achieved by 2011 and the remaining targets were met through 2018. The additional reductions necessary for RFP contingency were met in all years.

Transportation Conformity Budgets Update

Transportation conformity is a provision of the Act that requires transportation planning agencies to demonstrate that their transportation plans, funding programs, and projects are consistent with or conform to the SIP's purpose of achieving expeditious attainment

of the standards. The Act distinguishes transportation actions [those undertaken by FHWA or FTA] from all other federal actions.

MPOs must make findings that the RTPs and TIPs conform to the SIP. They submit this conformity finding along with the RTP and TIP to FHWA and FTA for approval. The conformity finding must demonstrate that the emissions associated with the RTP and TIP do not exceed “emission budgets” contained in the SIP. An emissions budget is the maximum level of emissions from on-road motor vehicles that ensures an area makes progress toward clean air and ultimately meets air quality standards by the mandated deadline.

The ARB Early Progress Plans Demonstrating Progress Toward Attaining the 8-hour National Air Quality Standard for Ozone and Setting Transportation Conformity Budgets for Ventura County, Antelope Valley-Western Mojave Desert, Coachella Valley, Eastern Kern County, Imperial County was submitted to U.S. EPA on March 24, 2008. The U.S. EPA published an adequacy finding on the Western Mojave Desert motor vehicle emissions budgets on May 5, 2008, effective May 20, 2008. Transportation conformity budgets were established for ROG and NO_x in 2009 using the EMFAC 2007 and included off-model reductions from adopted rules not reflected in EMFAC 2007.

The updated emission budgets have been developed with EMFAC 2011 using the latest SCAG VMT data and speed distributions where available. On March 6, 2013, U.S. EPA announced the availability of this latest version of the California EMFAC model for use in SIP development.

The updated budgets include a safety margin to provide flexibility to adjust for uncertainties that may affect on-road mobile emission estimates. The safety margin has been included in both the RFP and attainment demonstrations (see Appendix B and C).

The budgets are applicable to the federal 0.08 ppm 8-hour ozone standard for the Western Mojave Desert nonattainment area, and ensure that on-road emissions will be consistent with the attainment demonstration in future years. This technical revision of the transportation conformity budgets accounts for the current emission inventory included in this update, and includes transportation conformity budgets for the years 2014, 2017, and 2018 (see Appendix D).

Ozone Vehicle Miles Traveled Offset Demonstration

Section 182(d)(1)(A) of the Act requires that SIPs for areas classified as severe and above include a demonstration that “...identifies and adopts specific enforceable transportation control strategies and transportation control measures to offset any growth in emissions from growth in vehicle miles traveled or numbers of vehicle trips in such area....”.³ Appendix E to this 2014 Update includes a VMT offset demonstration

³ 42 U.S. Code 7511A

for the Western Mojave Desert nonattainment area that complies with the Act by demonstrating that emission increases due to VMT growth in the SIP timeframe are appropriately offset by TCSs and TCMs.

APPENDICES

Appendix A: Updated Emission Inventory

The 2014 Update includes an updated 2008 baseline emission inventory. The inventory was based on 2008 emissions and activity levels and emissions in other years were backcasted or forecasted from the 2008 baseline inventory. The inventory reflects rules received through September 2012. This update incorporates updated emissions, benefits from regulations, activity data provided by SCAG for on-road mobile sources, and the effects of reduced economic growth due to the recession not included in the 2007 SIP. The on-road mobile portion of the inventory was generated using the latest version of the California EMFAC 2011 on-road mobile emissions model. EMFAC 2011 was approved by U.S. EPA on March 6, 2013.

The tables below summarize the summer season ROG and NO_x emission inventory, and future year inventory forecasts for the Coachella Valley and Western Mojave Desert.

Table A-1: Coachella Valley Emission Inventory

Coachella Valley Summer Planning Emissions Inventory for Reactive Organic Gases (ROG) in tons per day (tpd)

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
STATIONARY SOURCES						
ELECTRIC UTILITIES	0.004	0.000	0.000	0.000	0.000	0.000
COGENERATION	0.000	0.000	0.000	0.000	0.000	0.000
MANUFACTURING AND INDUSTRIAL	0.065	0.092	0.074	0.156	0.211	0.230
FOOD AND AGRICULTURAL PROCESSING	0.001	0.000	0.000	0.000	0.000	0.000
SERVICE AND COMMERCIAL	0.129	0.135	0.125	0.127	0.126	0.125
OTHER (FUEL COMBUSTION)	0.013	0.007	0.006	0.007	0.005	0.005
SEWAGE TREATMENT	0.000	0.000	0.000	0.000	0.000	0.000
LANDFILLS	0.000	0.000	0.000	0.000	0.000	0.000
INCINERATORS	0.000	0.001	0.001	0.001	0.001	0.001
SOIL REMEDIATION	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (WASTE DISPOSAL)	0.264	0.346	0.290	0.233	0.233	0.233
LAUNDERING	0.044	0.004	0.003	0.004	0.005	0.005
DEGREASING	0.530	0.156	0.124	0.269	0.368	0.400
COATINGS AND RELATED SOLVENTS	1.037	1.025	0.867	1.345	1.634	1.731
PRINTING	0.040	0.017	0.013	0.026	0.032	0.034
ADHESIVES AND SEALANTS	0.105	0.129	0.102	0.224	0.306	0.334
OTHER (CLEANING AND SURFACE COATINGS)	0.029	0.013	0.011	0.023	0.032	0.035
OIL AND GAS PRODUCTION	0.000	0.000	0.000	0.000	0.000	0.000
PETROLEUM REFINING	0.000	0.000	0.000	0.000	0.000	0.000
PETROLEUM MARKETING	0.609	0.756	0.773	0.745	0.710	0.730

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.000	0.000	0.000	0.000	0.000	0.000
CHEMICAL	0.007	0.049	0.041	0.088	0.123	0.135
FOOD AND AGRICULTURE	0.014	0.020	0.019	0.027	0.032	0.034
MINERAL PROCESSES	0.014	0.009	0.009	0.009	0.009	0.009
METAL PROCESSES	0.000	0.000	0.000	0.000	0.000	0.000
WOOD AND PAPER	0.000	0.000	0.000	0.000	0.000	0.000
ELECTRONICS	0.006	0.023	0.018	0.038	0.051	0.055
OTHER (INDUSTRIAL PROCESSES)	0.157	0.205	0.108	0.078	0.084	0.086
TOTAL STATIONARY	3.067	2.986	2.583	3.399	3.962	4.182
AREAWIDE SOURCES						
CONSUMER PRODUCTS	2.482	2.541	2.407	2.436	2.597	2.653
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	1.429	0.754	0.692	0.601	0.651	0.669
PESTICIDES/FERTILIZERS	0.924	0.211	0.210	0.289	0.270	0.264
ASPHALT PAVING / ROOFING	0.028	0.043	0.028	0.046	0.060	0.064
RESIDENTIAL FUEL COMBUSTION	0.090	0.094	0.092	0.093	0.092	0.092
FARMING OPERATIONS	0.055	0.055	0.055	0.055	0.055	0.055
CONSTRUCTION AND DEMOLITION	0.000	0.000	0.000	0.000	0.000	0.000
PAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000	0.000
UNPAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000	0.000
FUGITIVE WINDBLOWN DUST	0.000	0.000	0.000	0.000	0.000	0.000
FIRES	0.006	0.006	0.006	0.006	0.006	0.006
MANAGED BURNING AND DISPOSAL	0.020	0.021	0.017	0.016	0.015	0.015
COOKING	0.028	0.035	0.032	0.041	0.046	0.047
OTHER (MISCELLANEOUS PROCESSES)	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL AREAWIDE	5.061	3.758	3.538	3.582	3.791	3.863
ON-ROAD MOTOR VEHICLES						
LIGHT DUTY PASSENGER (LDA)	4.263	2.320	1.601	1.209	0.862	0.758
LIGHT DUTY TRUCKS - 1 (LDT1)	0.878	0.595	0.428	0.370	0.290	0.266
LIGHT DUTY TRUCKS - 2 (LDT2)	1.284	0.695	0.545	0.482	0.394	0.364
MEDIUM DUTY TRUCKS (MDV)	0.810	0.684	0.637	0.640	0.594	0.569
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.197	0.188	0.173	0.166	0.159	0.152
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.065	0.030	0.023	0.020	0.019	0.017
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.110	0.079	0.057	0.044	0.033	0.029
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.039	0.022	0.015	0.010	0.007	0.007
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.015	0.028	0.026	0.026	0.025	0.023
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.007	0.009	0.009	0.009	0.008	0.008

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.064	0.046	0.042	0.030	0.019	0.017
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	1.110	0.898	0.636	0.360	0.318	0.321
MOTORCYCLES (MCY)	0.319	0.351	0.303	0.319	0.323	0.321
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.014	0.009	0.009	0.009	0.009	0.008
HEAVY DUTY GAS URBAN BUSES (UB)	0.049	0.025	0.024	0.024	0.024	0.023
SCHOOL BUSES - GAS (SBG)	0.015	0.009	0.007	0.002	0.001	0.001
SCHOOL BUSES - DIESEL (SBD)	0.008	0.006	0.005	0.001	0.002	0.001
OTHER BUSES - GAS (OBG)	0.015	0.012	0.011	0.009	0.008	0.008
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.006	0.004	0.003	0.001	0.001	0.001
ALL OTHER BUSES - DIESEL (OBD)	0.003	0.002	0.002	0.001	0.000	0.000
MOTOR HOMES (MH)	0.024	0.011	0.008	0.006	0.004	0.003
TOTAL ON-ROAD MOTOR VEHICLES	9.294	6.023	4.563	3.739	3.097	2.897
OTHER MOBILE SOURCES						
AIRCRAFT	0.062	0.057	0.071	0.084	0.098	0.103
TRAINS	0.259	0.220	0.177	0.167	0.148	0.140
RECREATIONAL BOATS	1.515	1.264	1.162	1.035	0.928	0.894
OFF-ROAD RECREATIONAL VEHICLES	0.412	0.606	0.566	0.550	0.562	0.567
OFF-ROAD EQUIPMENT	2.263	2.077	1.856	1.835	1.864	1.875
FARM EQUIPMENT	0.235	0.186	0.160	0.123	0.093	0.085
FUEL STORAGE AND HANDLING	0.541	0.405	0.336	0.291	0.262	0.255
TOTAL OTHER MOBILE SOURCES	5.287	4.814	4.326	4.085	3.953	3.919
Total for ROG emissions (tpd)	22.709	17.581	15.010	14.804	14.803	14.861

Base Year: 2008

**Coachella Valley Summer Planning Emissions Inventory for
Nitrogen Oxides (NOx) in tpd**

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
STATIONARY SOURCES						
ELECTRIC UTILITIES	0.063	0.057	0.050	0.051	0.051	0.050
COGENERATION	0.000	0.000	0.000	0.000	0.000	0.000
MANUFACTURING AND INDUSTRIAL	0.161	0.205	0.152	0.289	0.390	0.423
FOOD AND AGRICULTURAL PROCESSING	0.011	0.000	0.000	0.000	0.000	0.000
SERVICE AND COMMERCIAL	0.493	0.481	0.309	0.269	0.261	0.260
OTHER (FUEL COMBUSTION)	0.131	0.103	0.096	0.096	0.079	0.079
SEWAGE TREATMENT	0.000	0.000	0.000	0.000	0.000	0.000
LANDFILLS	0.000	0.000	0.000	0.000	0.000	0.000
INCINERATORS	0.015	0.020	0.015	0.026	0.034	0.037
SOIL REMEDIATION	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (WASTE DISPOSAL)	0.000	0.000	0.000	0.000	0.000	0.000
LAUNDERING	0.000	0.000	0.000	0.000	0.000	0.000
DEGREASING	0.000	0.000	0.000	0.000	0.000	0.000
COATINGS AND RELATED PROCESS SOLVENTS	0.000	0.000	0.000	0.000	0.000	0.000
PRINTING	0.000	0.000	0.000	0.000	0.000	0.000
ADHESIVES AND SEALANTS	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (CLEANING AND SURFACE COATINGS)	0.000	0.000	0.000	0.000	0.000	0.000
OIL AND GAS PRODUCTION	0.000	0.000	0.000	0.000	0.000	0.000
PETROLEUM REFINING	0.000	0.000	0.000	0.000	0.000	0.000
PETROLEUM MARKETING	0.001	0.000	0.000	0.000	0.000	0.000
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.000	0.000	0.000	0.000	0.000	0.000
CHEMICAL	0.000	0.000	0.000	0.000	0.000	0.000
FOOD AND AGRICULTURE	0.000	0.006	0.004	0.003	0.003	0.003
MINERAL PROCESSES	0.000	0.000	0.000	0.000	0.000	0.000
METAL PROCESSES	0.000	0.000	0.000	0.000	0.000	0.000
WOOD AND PAPER	0.000	0.000	0.000	0.000	0.000	0.000
ELECTRONICS	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (INDUSTRIAL PROCESSES)	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL STATIONARY	0.875	0.873	0.626	0.734	0.817	0.851
AREAWIDE SOURCES						
CONSUMER PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.000
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.000	0.000	0.000	0.000	0.000	0.000
PESTICIDES/FERTILIZERS	0.000	0.000	0.000	0.000	0.000	0.000

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
ASPHALT PAVING / ROOFING	0.000	0.000	0.000	0.000	0.000	0.000
RESIDENTIAL FUEL COMBUSTION	0.469	0.427	0.335	0.337	0.291	0.289
FARMING OPERATIONS	0.000	0.000	0.000	0.000	0.000	0.000
CONSTRUCTION AND DEMOLITION	0.000	0.000	0.000	0.000	0.000	0.000
PAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000	0.000
UNPAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000	0.000
FUGITIVE WINDBLOWN DUST	0.000	0.000	0.000	0.000	0.000	0.000
FIRES	0.002	0.002	0.002	0.002	0.002	0.002
MANAGED BURNING AND DISPOSAL	0.021	0.021	0.017	0.016	0.015	0.014
COOKING	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (MISCELLANEOUS PROCESSES)	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL AREAWIDE	0.492	0.450	0.353	0.354	0.308	0.305
ON-ROAD MOTOR VEHICLES						
LIGHT DUTY PASSENGER (LDA)	3.671	1.655	1.133	0.928	0.712	0.647
LIGHT DUTY TRUCKS - 1 (LDT1)	0.863	0.465	0.299	0.277	0.223	0.204
LIGHT DUTY TRUCKS - 2 (LDT2)	2.064	0.953	0.693	0.575	0.425	0.380
MEDIUM DUTY TRUCKS (MDV)	1.636	1.122	0.924	0.847	0.694	0.637
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.531	0.567	0.515	0.527	0.506	0.482
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.094	0.074	0.065	0.065	0.060	0.056
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.214	0.210	0.168	0.143	0.109	0.096
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.090	0.066	0.061	0.065	0.065	0.065
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.997	1.593	1.314	1.186	1.024	0.936
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.437	0.522	0.430	0.387	0.336	0.308
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	1.449	1.014	0.901	0.786	0.579	0.518
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	19.981	14.458	10.615	8.173	6.106	5.631
MOTORCYCLES (MCY)	0.046	0.066	0.063	0.074	0.078	0.078
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.382	0.231	0.238	0.236	0.235	0.221
HEAVY DUTY GAS URBAN BUSES (UB)	0.087	0.053	0.051	0.055	0.054	0.053
SCHOOL BUSES - GAS (SBG)	0.007	0.005	0.004	0.003	0.002	0.002
SCHOOL BUSES - DIESEL (SBD)	0.104	0.078	0.068	0.069	0.072	0.067
OTHER BUSES - GAS (OBG)	0.038	0.045	0.041	0.037	0.030	0.027
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.110	0.078	0.062	0.051	0.033	0.028
ALL OTHER BUSES - DIESEL (OBD)	0.063	0.047	0.039	0.037	0.025	0.024
MOTOR HOMES (MH)	0.148	0.127	0.120	0.108	0.098	0.096
TOTAL ON-ROAD MOTOR VEHICLES	33.009	23.429	17.806	14.630	11.468	10.558

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
OTHER MOBILE SOURCES						
AIRCRAFT	0.172	0.158	0.192	0.226	0.260	0.271
TRAINS	3.429	2.176	1.597	1.850	2.026	1.997
RECREATIONAL BOATS	0.151	0.157	0.149	0.146	0.144	0.144
OFF-ROAD RECREATIONAL VEHICLES	0.004	0.007	0.006	0.007	0.009	0.009
OFF-ROAD EQUIPMENT	4.034	2.887	2.331	2.443	2.410	2.257
FARM EQUIPMENT	1.122	0.871	0.755	0.604	0.471	0.431
FUEL STORAGE AND HANDLING	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL OTHER MOBILE SOURCES	8.912	6.256	5.031	5.276	5.319	5.109
Total for NOx emissions (tpd)	43.287	31.009	23.816	20.994	17.912	16.823

Base Year: 2008

Table A-2: Western Mojave Desert Inventory**Western Mojave Desert Summer Planning Emissions Inventory for
ROG in tpd**

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
STATIONARY SOURCES						
ELECTRIC UTILITIES	0.138	0.138	0.127	0.145	0.158	0.163
COGENERATION	0.002	0.002	0.002	0.002	0.002	0.002
MANUFACTURING AND INDUSTRIAL	0.225	0.321	0.304	0.319	0.333	0.336
FOOD AND AGRICULTURAL PROCESSING	0.009	0.007	0.003	0.002	0.001	0.001
SERVICE AND COMMERCIAL	0.256	0.573	0.556	0.662	0.751	0.780
OTHER (FUEL COMBUSTION)	0.033	0.050	0.051	0.055	0.055	0.056
SEWAGE TREATMENT	0.000	0.009	0.008	0.009	0.009	0.010
LANDFILLS	0.135	0.153	0.161	0.169	0.177	0.179
INCINERATORS	0.004	0.004	0.004	0.005	0.007	0.007
SOIL REMEDIATION	0.000	0.002	0.004	0.003	0.003	0.003
OTHER (WASTE DISPOSAL)	0.040	0.048	0.050	0.053	0.055	0.056
LAUNDERING	0.072	0.089	0.083	0.092	0.100	0.103
DEGREASING	4.221	4.559	4.352	5.279	6.683	7.151
COATINGS AND RELATED PROCESS SOLVENTS	1.251	1.894	1.878	2.266	2.742	2.900
PRINTING	0.010	0.050	0.052	0.060	0.075	0.080
ADHESIVES AND SEALANTS	0.088	0.054	0.053	0.059	0.073	0.078
OTHER (CLEANING AND SURFACE COATINGS)	0.003	0.005	0.005	0.005	0.007	0.007
OIL AND GAS PRODUCTION	0.000	0.000	0.000	0.001	0.001	0.001
PETROLEUM REFINING	0.000	0.001	0.001	0.001	0.001	0.001
PETROLEUM MARKETING	4.008	5.688	6.385	6.806	7.292	7.448
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.000	0.000	0.000	0.000	0.000	0.000
CHEMICAL	0.212	0.218	0.199	0.264	0.339	0.364
FOOD AND AGRICULTURE	0.013	0.013	0.013	0.014	0.016	0.017
MINERAL PROCESSES	0.470	0.366	0.337	0.359	0.383	0.391
METAL PROCESSES	0.000	0.018	0.016	0.024	0.032	0.035
WOOD AND PAPER	0.000	0.000	0.000	0.000	0.000	0.000
GLASS AND RELATED PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (INDUSTRIAL PROCESSES)	0.290	0.140	0.135	0.148	0.162	0.167
TOTAL STATIONARY	11.480	14.398	14.774	16.803	19.457	20.334
AREAWIDE SOURCES						
CONSUMER PRODUCTS	5.383	5.042	4.774	4.656	4.988	5.104
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	3.078	2.799	2.852	3.045	3.237	3.302
PESTICIDES/FERTILIZERS	0.334	0.094	0.128	0.086	0.087	0.087

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
ASPHALT PAVING / ROOFING	0.413	0.427	0.311	0.398	0.498	0.532
RESIDENTIAL FUEL COMBUSTION	0.125	0.129	0.129	0.130	0.131	0.132
FARMING OPERATIONS	2.189	2.189	2.189	2.189	2.189	2.189
CONSTRUCTION AND DEMOLITION	0.000	0.000	0.000	0.000	0.000	0.000
PAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000	0.000
UNPAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000	0.000
FUGITIVE WINDBLOWN DUST	0.000	0.000	0.000	0.000	0.000	0.000
FIRES	0.016	0.018	0.018	0.018	0.018	0.018
MANAGED BURNING AND DISPOSAL	0.299	0.319	0.311	0.323	0.329	0.330
COOKING	0.646	0.779	0.718	0.814	0.891	0.916
OTHER (MISCELLANEOUS PROCESSES)	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL AREAWIDE	12.481	11.796	11.428	11.658	12.366	12.609
ON-ROAD MOTOR VEHICLES						
LIGHT DUTY PASSENGER (LDA)	9.712	5.635	3.605	2.402	1.625	1.391
LIGHT DUTY TRUCKS - 1 (LDT1)	3.473	2.048	1.267	0.923	0.650	0.568
LIGHT DUTY TRUCKS - 2 (LDT2)	3.843	2.241	1.579	1.179	0.885	0.781
MEDIUM DUTY TRUCKS (MDV)	2.297	1.934	1.551	1.344	1.212	1.147
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.556	0.726	0.650	0.586	0.526	0.495
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.172	0.065	0.048	0.037	0.030	0.027
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.176	0.125	0.087	0.060	0.046	0.039
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.082	0.048	0.036	0.026	0.020	0.019
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.054	0.150	0.149	0.148	0.138	0.131
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.029	0.043	0.043	0.043	0.041	0.039
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.075	0.057	0.052	0.035	0.022	0.020
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	2.207	1.640	1.177	0.658	0.637	0.640
MOTORCYCLES (MCY)	1.481	1.712	1.428	1.454	1.527	1.521
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.016	0.012	0.013	0.012	0.012	0.012
HEAVY DUTY GAS URBAN BUSES (UB)	0.088	0.059	0.054	0.055	0.056	0.055
SCHOOL BUSES - GAS (SBG)	0.043	0.033	0.029	0.021	0.019	0.018
SCHOOL BUSES - DIESEL (SBD)	0.025	0.022	0.018	0.005	0.006	0.004
OTHER BUSES - GAS (OBG)	0.025	0.029	0.026	0.024	0.020	0.020
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.009	0.007	0.005	0.002	0.002	0.002
ALL OTHER BUSES - DIESEL (OBD)	0.006	0.004	0.003	0.002	0.001	0.001
MOTOR HOMES (MH)	0.116	0.075	0.053	0.038	0.025	0.021
TOTAL ON-ROAD MOTOR VEHICLES	24.483	16.664	11.872	9.055	7.500	6.951
OTHER MOBILE SOURCES						
AIRCRAFT	0.879	1.025	1.139	1.251	1.355	1.389
TRAINS	2.607	2.216	1.779	1.688	1.493	1.420
RECREATIONAL BOATS	8.886	7.276	6.639	5.877	5.233	5.035

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
OFF-ROAD RECREATIONAL VEHICLES	6.582	6.318	5.597	5.053	4.789	4.724
OFF-ROAD EQUIPMENT	2.841	2.565	2.214	2.018	1.912	1.888
FARM EQUIPMENT	0.119	0.093	0.080	0.061	0.046	0.042
FUEL STORAGE AND HANDLING	1.096	0.738	0.589	0.491	0.427	0.411
TOTAL OTHER MOBILE SOURCES	23.009	20.231	18.037	16.438	15.256	14.909
Total for ROG Emissions (tpd)	71.453	63.088	56.111	53.955	54.579	54.803

Base Year: 2008

**Western Mojave Desert Summer Planning Emissions Inventory for
Nitrogen Oxides (NOx) in tons per day (tpd)**

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
STATIONARY SOURCES						
ELECTRIC UTILITIES	4.653	1.838	1.690	1.926	2.107	2.167
COGENERATION	0.098	0.098	0.090	0.103	0.112	0.116
MANUFACTURING AND INDUSTRIAL	3.744	5.704	5.377	5.644	5.830	5.889
FOOD AND AGRICULTURAL PROCESSING	0.135	0.109	0.060	0.057	0.020	0.019
SERVICE AND COMMERCIAL	2.872	3.008	2.991	3.474	3.874	4.004
OTHER (FUEL COMBUSTION)	0.375	0.589	0.515	0.605	0.641	0.662
SEWAGE TREATMENT	0.003	0.003	0.003	0.003	0.003	0.003
LANDFILLS	0.000	0.009	0.008	0.009	0.010	0.011
INCINERATORS	0.055	0.056	0.049	0.058	0.065	0.068
SOIL REMEDIATION	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (WASTE DISPOSAL)	0.002	0.000	0.000	0.000	0.000	0.000
LAUNDERING	0.000	0.000	0.000	0.000	0.000	0.000
DEGREASING	0.000	0.000	0.000	0.000	0.000	0.000
COATINGS AND RELATED PROCESS SOLVENTS	0.001	0.000	0.000	0.000	0.001	0.001
PRINTING	0.000	0.000	0.000	0.000	0.000	0.000
ADHESIVES AND SEALANTS	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (CLEANING AND SURFACE COATINGS)	0.000	0.000	0.000	0.000	0.000	0.000
OIL AND GAS PRODUCTION	0.000	0.000	0.000	0.000	0.000	0.000
PETROLEUM REFINING	0.000	0.000	0.000	0.000	0.000	0.000
PETROLEUM MARKETING	0.015	0.019	0.019	0.023	0.026	0.027
OTHER (PETROLEUM PRODUCTION AND MARKETING)	0.000	0.000	0.000	0.000	0.000	0.000
CHEMICAL	0.000	0.004	0.007	0.006	0.005	0.005
FOOD AND AGRICULTURE	0.000	0.000	0.000	0.000	0.000	0.000
MINERAL PROCESSES	30.084	20.587	12.740	13.433	14.223	14.481
METAL PROCESSES	0.498	0.479	0.816	0.768	0.689	0.663
WOOD AND PAPER	0.000	0.000	0.000	0.000	0.000	0.000
GLASS AND RELATED PRODUCTS	1.580	0.001	0.001	0.001	0.001	0.001
OTHER (INDUSTRIAL PROCESSES)	0.247	0.448	0.425	0.462	0.509	0.524
TOTAL STATIONARY	44.361	32.950	24.790	26.571	28.116	28.640
AREAWIDE SOURCES						
CONSUMER PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.000
ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.000	0.000	0.000	0.000	0.000	0.000
PESTICIDES/FERTILIZERS	0.000	0.000	0.000	0.000	0.000	0.000
ASPHALT PAVING / ROOFING	0.000	0.000	0.000	0.000	0.000	0.000

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
RESIDENTIAL FUEL COMBUSTION	0.665	0.692	0.691	0.714	0.741	0.751
FARMING OPERATIONS	0.000	0.000	0.000	0.000	0.000	0.000
CONSTRUCTION AND DEMOLITION	0.000	0.000	0.000	0.000	0.000	0.000
PAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000	0.000
UNPAVED ROAD DUST	0.000	0.000	0.000	0.000	0.000	0.000
FUGITIVE WINDBLOWN DUST	0.000	0.000	0.000	0.000	0.000	0.000
FIRES	0.004	0.005	0.005	0.005	0.005	0.005
MANAGED BURNING AND DISPOSAL	0.109	0.119	0.115	0.120	0.123	0.123
COOKING	0.000	0.000	0.000	0.000	0.000	0.000
OTHER (MISCELLANEOUS PROCESSES)	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL AREAWIDE	0.779	0.816	0.810	0.839	0.869	0.879
ON-ROAD MOTOR VEHICLES						
LIGHT DUTY PASSENGER (LDA)	12.045	6.379	4.094	3.079	2.342	2.114
LIGHT DUTY TRUCKS - 1 (LDT1)	4.115	2.317	1.405	1.216	0.988	0.903
LIGHT DUTY TRUCKS - 2 (LDT2)	7.930	4.526	3.079	2.325	1.719	1.523
MEDIUM DUTY TRUCKS (MDV)	5.434	4.552	3.517	3.009	2.543	2.345
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	1.454	2.118	1.902	1.867	1.699	1.600
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.236	0.150	0.129	0.121	0.106	0.098
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.299	0.287	0.231	0.190	0.148	0.131
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.247	0.168	0.151	0.150	0.142	0.139
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	2.781	6.968	5.973	5.470	4.716	4.340
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	1.686	2.107	1.787	1.632	1.426	1.315
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	1.791	1.302	1.156	0.948	0.687	0.609
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	40.695	27.631	20.163	14.320	10.057	9.099
MOTORCYCLES (MCY)	0.273	0.384	0.353	0.396	0.435	0.436
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.332	0.241	0.259	0.256	0.252	0.250
HEAVY DUTY GAS URBAN BUSES (UB)	0.145	0.116	0.114	0.120	0.120	0.118
SCHOOL BUSES - GAS (SBG)	0.028	0.024	0.022	0.019	0.017	0.017
SCHOOL BUSES - DIESEL (SBD)	0.352	0.289	0.258	0.258	0.268	0.246
OTHER BUSES - GAS (OBG)	0.102	0.144	0.124	0.112	0.088	0.081
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.179	0.128	0.103	0.085	0.056	0.048
ALL OTHER BUSES - DIESEL (OBD)	0.102	0.078	0.065	0.062	0.042	0.040
MOTOR HOMES (MH)	0.503	0.464	0.425	0.371	0.319	0.305
TOTAL ON-ROAD MOTOR VEHICLES	80.728	60.371	45.307	36.006	28.170	25.754

SOURCE CATEGORY	2002	2008	2011	2014	2017	2018
OTHER MOBILE SOURCES						
AIRCRAFT	1.084	1.197	1.315	1.429	1.535	1.571
TRAINS	34.688	22.219	16.441	18.927	20.649	20.362
RECREATIONAL BOATS	1.030	1.073	1.021	0.999	0.993	0.991
OFF-ROAD RECREATIONAL VEHICLES	0.124	0.836	1.315	1.211	1.081	1.037
OFF-ROAD EQUIPMENT	5.116	3.568	3.112	3.121	2.984	2.826
FARM EQUIPMENT	0.565	0.436	0.377	0.300	0.233	0.213
FUEL STORAGE AND HANDLING	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL OTHER MOBILE SOURCES	42.608	29.329	23.580	25.987	27.475	26.999
Total for NOx Emissions (tpd)	168.475	123.466	94.488	89.402	84.630	82.273

Base Year: 2008

Appendix B: Attainment Demonstration

The tables below demonstrate that the percentage of reductions achieved by 2018 in the 2014 Update are greater than the percentage of reductions required for attainment in the 2007 Coachella Valley Plan and the 2008 Western Mojave Desert Plan.

Table B-1: Coachella Valley Attainment Demonstration

2007 Coachella Valley Plan Inventory	ROG	NOx
A. 2002 Total Emissions (tpd)	22	52
B. 2018 Attainment Target (tpd)	18	24
C. 2018 Emission Reductions Required from 2002 Baseyear [A-B] (tpd)	4	27
D. % Emission Reductions Required from 2002 Baseyear [C/A]	20%	53%
2014 Update Inventory		
E. 2002 Updated Emissions (tpd)	23	43
F. Percentage Reductions Required from 2002 Baseyear [from D]	20%	53%
G. Reductions Required from 2002 Baseyear [E*F] (tpd)	4	23
H. Updated Attainment Demonstration Target [E-G] (tpd)	18	20
I. 2018 Updated Emissions with Adopted Rules* (tpd)	16	18
J. % 2018 Reductions from 2002 Baseyear	30%	59%
Are the % of emission reductions in the 2014 Update greater than the % of emission reductions in the 2007 Coachella Valley Plan (J>D)	YES	YES

*Includes transportation conformity budgets safety margin (see Appendix D)

Table B-2: Western Mojave Desert Attainment Demonstration

2008 Western Mojave Desert Plan Inventory	ROG	NOx
A. 2002 Total Emissions (tpd)	71	184
B. 2020 Attainment Target (tpd)	73	125
C. 2020 Emission Reductions Required from 2002 Baseyear [A-B] (tpd)	-2	60
D. % Emission Reductions Required from 2002 Baseyear [C/A]	-2%	32%
2014 Update Inventory		
E. 2002 Updated Emissions (tpd)	71	168
F. Percentage Reductions Required from 2002 Baseyear [from D]	-2%	32%
G. Reductions Required from 2002 Baseyear [E*F] (tpd)	-2	54
H. Updated Attainment Demonstration Target [E-G] (tpd)	73	114
I. 2018 Updated Emissions with Adopted Rules* (tpd)	56	84
J. % 2018 Reductions from 2002 Baseyear	22%	50%
Is the % of emission reductions in the 2014 Update greater than the % of emission reductions in the 2008 Western Mojave Desert Plan (J>D)	YES	YES

*Includes transportation conformity budgets safety margin (see Appendix D)

**Percentages may be slightly different due to rounding

Table B-3 compares the updated 2019 emission inventory to the attainment target calculated in Tables B-1 and B-2. Table B-3 demonstrates that in aggregate already adopted measures reflected in the 2014 Update provide for at least three percent emission reductions in 2019, beyond those needed for attainment, as required by the Act's section 182(c)(9) contingency requirement.

Table B-3: Attainment Contingency Measure Reductions (tpd)

Revised Inventory	ROG	NOx
Coachella Valley		
A. Updated Attainment Demonstration Target* (tpd)	18	20
B. 2019 Emissions (tpd)	15	16
C. 2019 Emission Reductions From Emission Target [A-B] (tpd)	3	4
D. Percent Reduction from SIP Emission Target [C/A]	16%	20%
Contingency Met	YES	YES
Western Mojave Desert		
E. Updated Attainment Demonstration Target** (tpd)	73	114
F. 2019 Emissions (tpd)	55	81
G. 2019 Emission Reductions From Emission Target [E-F] (tpd)	18	33
H. Percent Reduction from SIP Emission Target [G/E]	24%	28%
Contingency Met	YES	YES

*Table B-1

**Table B-2

Appendix C: Reasonable Further Progress

The tables below demonstrate that the Coachella Valley and Western Mojave Desert meet the RFP requirements in the milestone years of 2011, 2014, 2017 and 2018, and a three percent contingency set-aside in 2008 and carried through to 2018.

Table C-1: Coachella Valley Reasonable Further Progress

(summer planning inventory, tons per day)

	2002	2008	2011	2014	2017	2018
Baseline ROG	22.7	17.6	15.0	15.8*	15.8*	15.9*
CA MVCP Adjustment	0.0	1.1	1.5	1.8	1.9	2.0
Adjusted 2002 Baseline ROG in milestone year	22.7	21.6	21.2	20.9	20.8	20.7
RFP commitment, ROG reductions, new measures	0	0	0	0	0	0
Future Year ROG, existing and proposed measures		17.6	15.0	15.8	15.8	15.9
Required % change since previous milestone year (ROG or NOx) compared to 2002		15%	9%	9%	9%	3%
Required % change since 2002 (ROG or NOx)		15%	24%	33%	42%	45%
Target ROG levels		18.4	16.4	14.6	13.2	12.7
Apparent shortfall in ROG		-0.8	-1.3	1.2	2.6	3.2
Apparent shortfall in ROG, %		-3.7%	-6.4%	5.6%	12.7%	15.3%
ROG shortfall previously provided by NOx substitution, %		0%	0.0%	0.0%	5.6%	12.7%
Actual ROG shortfall, %		-3.7%	-6.4%	5.6%	7.1%	2.5%

	2002	2008	2011	2014	2017	2018
Baseline NOx	43.3	31.0	23.8	22.0*	18.9*	17.8*
CA MVCP Adjustment	0.0	1.6	2.0	2.2	2.3	2.3
Adjusted 2002 Baseline NOx in milestone year	43.3	41.7	41.3	41.1	41.0	40.9
Change in NOx since 2002		10.6	17.5	19.1	22.1	23.1
% Change in NOx since 2002		25.6%	42.3%	46.5%	53.9%	56.5%
NOx reductions already used for RFP substitution and contingency through last milestone year, %		0.0%	3.0%	3.0%	8.6%	15.7%
NOx reductions from 2002 available for RFP substitution and contingency in milestone year, %		25.6%	39.3%	43.5%	45.2%	40.7%
Change in NOx since 2002 used for ROG substitution in this milestone year, %		0.0%	0.0%	5.6%	7.1%	2.5%
Change in NOx since 2002 available for contingency in this milestone year, %		3.0%	0.0%	0.0%	0.0%	0.0%
NOx surplus since 2002 after meeting substitution and contingency needs in this milestone year, %		22.6%	39.3%	37.8%	38.1%	38.2%
Is RFP Met?		YES	YES	YES	YES	YES
Is the Contingency Met?		YES	YES	YES	YES	YES

*Includes transportation conformity budgets safety margin (see Appendix D)

Table C-2: Western Mojave Desert Reasonable Further Progress

(summer planning inventory, tons per day)

	2002	2008	2011	2014	2017	2018
Baseline ROG	71.5	63.1	56.1	55.0*	55.6*	55.8*
CA MVCP Adjustment	0.0	2.9	4.1	4.9	5.3	5.5
Adjusted 2002 Baseline ROG in milestone year	71.5	68.5	67.4	66.6	66.1	66.0
RFP commitment, ROG reductions from new measures	0	0	0	0	0	0
Future Year ROG with existing and proposed measures		63.1	56.1	54.0	54.6	54.8
Required % change since previous milestone year (ROG or NOx) compared to 2002		15%	9%	9%	9%	3%
Required % change since 2002 (ROG or NOx)		15%	24%	33%	42%	45%
Target ROG levels		58.2	52.0	46.6	42.0	40.5
Apparent shortfall in ROG		4.8	4.1	8.4	13.6	15.3
Apparent shortfall in ROG, %		7.1%	6.1%	12.6%	20.6%	23.1%
ROG shortfall previously provided by NOx substitution, %		0%	0.0%	6.1%	12.6%	20.6%
Actual ROG shortfall, %		7.1%	6.1%	6.4%	8.0%	2.5%
	2002	2008	2011	2014	2017	2018
Baseline NOx	168.5	123.5	94.5	91.4*	86.6*	84.3*
CA MVCP Adjustment	0.0	5.4	6.6	7.3	7.7	7.8
Adjusted 2002 Baseline NOx in milestone year	168.5	163.0	161.9	161.2	160.8	160.7
Change in NOx since 2002		39.6	67.4	69.8	74.2	76.4
Change in NOx since 2002, %		24.3%	41.6%	43.3%	46.1%	47.5%
NOx reductions since 2002 already used for RFP substitution* and contingency through last milestone year, %		0.0%	3.0%	9.1%	15.6%	23.6%
NOx reductions since 2002 available for RFP substitution and contingency in this milestone year, %		24.3%	38.6%	34.2%	30.5%	24.0%
Change in NOx since 2002 used for ROG substitution in this milestone year, %		0.0%	6.1%	6.4%	8.0%	2.5%
Change in NOx since 2002 available for contingency in this milestone year, %		3.0%	0.0%	0.0%	0.0%	0.0%
NOx surplus since 2002 after meeting substitution and contingency needs in this milestone year, %		21.3%	32.5%	27.7%	22.6%	21.4%
RFP Met?		NO	YES	YES	YES	YES
Contingency Met?		YES	YES	YES	YES	YES

Baseline emissions include an additional safety margin for transportation conformity budgets (see Appendix D)

Appendix D: Transportation Conformity Budgets

Emission budgets have been developed using the latest SCAG VMT data and speed distributions where available (see Amendment No. 1 to the 2012-2035 RTP/SCS and Amendment No. 4 to the 2013 FTIP, Transportation Conformity Analysis). On March 6, 2013, U.S. EPA approved EMFAC 2011 for use in SIP development in California. When specific VMT and speed distribution data is unavailable, VMT values are interpolated and speed distributions are applied for the nearest previous analysis year. More specifically, 2014 VMT and speed distribution data was available and used directly; 2017 and 2018 VMT was estimated via interpolation between 2014 and 2020; 2020 speed distributions were applied for 2017 and 2018.

ARB control measures that are included in the 2014 Update and affect on-road mobile sources, but are not fully reflected in EMFAC 2011 have been included in the conformity emission budgets. These control measures include:

- Advanced Clean Cars
- Smog Check Improvements
- Reformulated Gasoline

The transportation conformity budgets include a safety margin to provide flexibility to adjust for uncertainties that may affect on-road mobile emission estimates. The safety margin has been included in both the reasonable further progress and attainment demonstrations (see Appendices B and C).

Table D-1: Coachella Valley Transportation Conformity Budgets
(summer inventory, tons per day)

	2014		2017		2018	
	ROG	NOx	ROG	NOx	ROG	NOx
Onroad Emissions from EMFAC 2011	4.00	14.79	3.34	11.39	3.19	10.74
Off Model Reductions*	0.28	0.10	0.27	0.12	0.26	0.13
Net Onroad Emissions	3.72	14.69	3.07	11.27	2.93	10.61
Safety Margin	1	1	1	1	1	1
Conformity Budget**	5	16	5	13	4	12

* Reductions from adopted controls not fully reflected in EMFAC 2011

**Rounded up to the nearest ton

Table D-2: Western Mojave Desert Transportation Conformity Budgets
(summer inventory, tons per day)

	2014		2017		2018	
	ROG	NOx	ROG	NOx	ROG	NOx
Onroad Emissions from EMFAC 2011	8.34	28.32	6.75	22.42	6.37	20.99
Off Model Reductions*	0.58	0.30	0.52	0.39	0.50	0.44
Net Onroad Emissions	7.76	28.02	6.23	22.03	5.87	20.55
Safety Margin	1	2	1	2	1	2
Conformity Budget**	9	31	8	25	7	23

*Reductions from adopted controls not fully reflected in EMFAC 2011

**Rounded up to the nearest ton

Appendix E: Vehicle Miles Traveled Offset Demonstration

The requirement to offset growth in vehicle miles traveled (VMT) is contained in section 182(d)(1)(A) of the federal Clean Air Act (Act). This section applies to areas classified as severe or extreme nonattainment of the National Ambient Air Quality Standard (NAAQS) for ozone. Both, the Coachella Valley and Western Mojave Desert ozone nonattainment areas are currently designated as severe-15 for the 8-hour ozone NAAQS and are subject to this requirement. This demonstration is included as part of the Update to the 2007 8-hour ozone State Implementation Plan for the Coachella Valley and Western Mojave Desert (2014 Update) to address the requirements of section 182(d)(1)(A).

Background

In 1997, the U.S. Environmental Protection Agency (U.S. EPA) replaced the 1-hour ozone standard set in 1979 with an 8-hour standard of 0.08 ppm (62 FR 38856 (July 18, 1997)). The U.S. EPA promulgated rules implementing the new standard. The “Phase 1” rule was issued on April 30, 2004 (69 FR 23951). That rule included anti-backsliding requirements that meant that many requirements in place as a result of not attaining the 1-hour NAAQS remained applicable even after the revocation of that standard, which was effective June 2005 (40 CFR §51.905(a)(1) and §51.900(f)). In particular, an area that was classified as Severe for the 1-hour standard would remain subject to the VMT emissions offset requirement even if it would not otherwise have been subject to that requirement based on its classification under the new 8-hour ozone standard (40 CFR §51.900(f)(11)). The U.S. EPA’s Phase 2 rule, issued on November 29, 2005 (70 FR 71612) required that areas classified as severe or extreme under the new 8-hour standard would also be subject to the VMT offset requirement.

Litigation of the Vehicle Miles Traveled Offset Requirement

Previous to the litigation described below, VMT offset demonstrations addressed the requirements of section 182(d)(1)(A) according to U.S. EPA’s longstanding interpretation that no further transportation control measures (TCM) are necessary if aggregate motor vehicle emissions are projected to decline each year from the base year of the plan to the attainment year.

Subsequent to Phase 1 and 2 implementation rules, a decision of the Ninth Circuit Court of Appeals in *Association of Irrigated Residents (AIR) v U.S. EPA* (reprinted as amended on January 27, 2012, 632 F.3d 584, 9th Cir. 2011) rejected U.S. EPA’s interpretation of the Act, which had provided the basis for U.S. EPA’s previous approvals of other VMT offset demonstrations in district plans. With the AIR decision, the Court determined that the Act requires additional transportation control strategies (TCS) and TCMs whenever vehicle emissions are projected to be higher than would have been had VMT not grown, even if aggregate vehicle emissions are decreasing.

U.S. EPA Guidance on Vehicle Miles Traveled Offset Requirement

In August 2012, U.S. EPA issued guidance entitled “Implementing Clean Air Act Section 182(d)(1)(A): Transportation Control Measures and Transportation Control Strategies to Offset Growth in Emissions Due to Growth in Vehicle Miles Travelled.” Among other things, U.S. EPA’s guidance points out that in the AIR decision the Court omitted any reference to “transportation control strategies” (TCSs), which are not defined in the Act or U.S. EPA regulation, are eligible to offset growth in emissions due to growth in VMT. The U.S. EPA’s new guidance indicates that technology improvements such as vehicle technology improvements, motor vehicle fuels, and other control strategies that are transportation-related could be used to offset increases in emissions due to VMT. U.S. EPA’s revised guidance sets forth a method of calculating the actual growth in emissions due to growth in VMT. Essentially, the state would compare projected attainment year emissions assuming no new control measures and no VMT growth with projected actual attainment year emissions (including new control measures and VMT growth). If the latter number is smaller than the former, no additional TCMs or TCSs would be required. If additional TCMs and TCSs are required, they should be clearly identified and distinguished from the measures included in the initial calculations for the base year and the three scenarios identified for the attainment year.

In addition, the guidance recommends that the base year to be used in the demonstration be the base year used in the attainment demonstration for the ozone standard. This update includes a VMT offset demonstration in accordance with U.S. EPA’s new guidance for the 8-hour ozone requirements. To address U.S. EPA’s guidance on the base year, 2002 is used as the base year for the 1997 8-hour standard.

Transportation Control Strategies and Transportation Control Measures

By listing them separately, section 182(d)(1)(A) of the Act differentiates between TCSs and TCMs, and thus provides for a wide range of strategies and measures as options to offset increased emissions from growth in VMT. In addition, the example TCMs listed in section 108(f)(1)(A) of the Act include measures that reduce emissions by reducing VMT, reducing tailpipe emissions, and removing dirtier vehicles from the fleet. California’s motor vehicle control program includes a variety of strategies and measures including new engine standards and in-use programs (e.g., smog check, vehicle scrap, fleet rules, and idling restrictions). The Southern California Association of Governments (SCAG) has also developed a number of TCMs to provide emission reductions.

Based on the provisions in section 182(d)(1)(A) of the Act and the clarifications provided in the U.S. EPA guidance, any combination of TCSs and TCMs may be used to meet the requirement to offset growth in emissions resulting from VMT growth. Since 1990 when this requirement was established, California has adopted a substantial number of enforceable transportation strategies – more than enough to meet the requirement to offset the growth in emissions from VMT growth. For the 1997 8-hour standard offset demonstration, 2002 controls are used as the base case control level since 2002 is the base year of the SIP.

A listing of the mobile source control programs adopted by the State since 1990 is provided in Table E-4. There are no TCMs in the SIP for the Coachella Valley and Western Mojave Desert because upwind emissions from the South Coast Air Basin and Ventura County largely influence air quality in both the Coachella Valley and Western Mojave Desert. TCMs have been implemented by the SCAG in those upwind areas.

Emissions Due to Vehicle Miles Traveled Growth

As discussed above, the U.S. EPA guidance provides a recommended calculation methodology that could be done to determine if sufficient TCSs and TCMs have been adopted and implemented to offset the growth in emissions due solely to growth in VMT. As such, any increase in emissions solely from VMT increases in the future attainment year from the base year (assuming that there are no further motor vehicle control programs implemented after the base year) would need to be offset. In addition, a calculation is needed to show the emissions levels if VMT had remained constant from the base year to the future attainment year. As discussed earlier, a comparison of the projected attainment year emissions assuming no new control measures and no VMT growth with projected actual attainment year emissions (including new control measures and VMT growth) would be made. If the latter number is smaller than the former, no additional TCMs or TCSs would be required.

Methodology

The following calculations are based on the U.S. EPA guidance recommended calculation methodology. For the Coachella Valley and Western Mojave Desert 8-hour ozone standard, 2002 is the base year used for the attainment demonstration and 2018 is the attainment year.

Analysis Tool

This analysis uses California's approved motor vehicle emissions model, EMFAC.

The EMFAC model estimates the emissions from two combustion processes: running exhaust and start exhaust, and four evaporative processes: hot soak, running losses, diurnal, and resting losses.

Emissions from running exhaust, start exhaust, hot soak, and running losses are a function of how much a vehicle is driven. Emissions from these processes are directly related to VMT, trips, and starts. These processes are included in the calculation of the emissions levels used in the VMT offset demonstration. Emissions from resting loss and diurnal loss processes are not related to VMT, trips or vehicle starts and are not included in the analysis because these emissions occur regardless if the vehicle makes a trip (i.e. a start) or not.

EMFAC combines trip-based VMT from the regional transportation planning agencies, starts data based on household travel surveys, and vehicle population data from the

Department of Motor Vehicles with corresponding emission rates to calculate emissions.⁴

With the EMFAC model, the calculation of emissions growth and whether it is offset is simplified to a comparison of future year emissions with “no growth” in VMT or new control strategies to future emissions with VMT growth and new control strategies. This follows U.S. EPA’s 2012 guidance and is consistent with the Ninth Circuit’s interpretation of Act section 182(d)(1)(A).

The Advanced Clean Cars (ACC) regulations adopted by ARB in 2012 are not included in EMFAC 2011. The output from EMFAC 2011 was adjusted off-model to estimate the benefits of the ACC regulations. No other off-model adjustments were taken.

Analysis for Coachella Valley and Western Mojave Desert Using 2002 as the Base Year for the 1997 8-hour Ozone Standard with Attainment Year of 2018

Step 1. Provide the emissions level for the base year.

The following table shows the ROG emissions, VMT, starts, and vehicle population for calendar year 2002 from the EMFAC2011 model.

Table E-1: Summary of Coachella Valley and Western Mojave Desert 2002 Baseyear

	VMT (thousand miles/day)	Starts (thousands/day)	Vehicle Population (thousands)	ROG Emissions (tons/day)
2002 Base Year for Coachella Valley	10,293	1,248	198	8
2002 Base Year for Western Mojave Desert	26,920	2,274	367	23

Step 2. Calculate three emissions levels in the attainment year.

For the attainment year,

- (1) Calculate emissions level with the motor vehicle control program frozen at 2002 levels and with projected VMT, starts, and vehicle population for the attainment year. This represents what the emissions in the attainment year would have been if TCSs and TCMs had not been implemented after 2002;

⁴ More information on data sources can be found in the EMFAC technical document which is located on the web at: <http://www.arb.ca.gov/msei/emfac2011-technical-documentation-final-updated-0712-v03.pdf>

- (2) Calculate emissions level with the motor vehicle control program frozen at 2002 levels and assuming VMT, starts, and vehicle population do not increase from 2002 levels; and
- (3) Calculate an emissions level that represents emissions with full implementation of all TCSs and TCMs since 2002 and which represents the projected future year baseline emissions inventory using the VMT, starts, and vehicle population for the attainment year.

Calculation 1. Calculate the emissions in the attainment year assuming no new measures since the base year, and including growth in vehicle miles traveled, starts, and vehicle population.

To perform this calculation, ARB staff identified the on-road motor vehicle control programs adopted since 2002 and adjusted the EMFAC2011 results to reflect the ROG emissions levels in 2018 without the benefits of the post-2002 control programs. The projected ROG emissions for Coachella Valley and Western Mojave Desert are 4 tons/day and 9 tons/day, respectively.

Calculation 2. Calculate the emissions with no growth in vehicle miles traveled, starts, or vehicle population.

EMFAC2011 allows the user to input different VMT, starts, and vehicle population than default. As such, for this calculation, the EMFAC 2011 model was run without the benefit of the post 2002 control program for calendar year 2018 for Coachella Valley with the 2002 level of VMT of 10,293,000 miles per day, the 2002 level of starts at 1,248,220 per day, and the 2002 level of population at 198,000 vehicles. The ROG emissions associated with 2002 VMT, starts, and vehicle population are 3 tons/day. The EMFAC 2011 model was also run for Western Mojave Desert without the benefit of the post 2002 control program for calendar year 2018 with the 2002 level of VMT of 26,920,000 miles per day, the 2002 level of starts at 2,274,199 per day, and the 2002 level of population at 367,000 vehicles. The ROG emissions associated with 2002 VMT, starts, and vehicle population are 7 tons/day.

Calculation 3. Calculate emission reductions with full Implementation of Transportation Control Strategies & Transportation Control Measures.

The ROG emission levels for 2018 assuming the benefits of the post-2002 motor vehicle control program and the projected VMT, starts, and vehicle population in 2018 are calculated using EMFAC2011. The projected ROG emissions level for Coachella Valley and Western Mojave Desert are 2 and 6 tons per day, respectively. ROG emissions for the three sets of calculations described above are provided in the following table.

Table E-2: Summary of Coachella Valley 2018 Attainment Year Emissions Levels

Coachella Valley					
	Description	VMT* (miles/day, thousands)	Starts (thousands/day)	Vehicle Population (thousands)	ROG Emissions** (tons/day)
(1)	Emissions with Motor Vehicle Control Program Frozen at 2002 Levels. (VMT, starts and vehicle population at 2018 levels.)	14,329	1,811	283	4
(2)	Emissions with Motor Vehicle Control Program Frozen at 2002 Levels. (VMT, starts, and vehicle population at 2002 levels)	10,293	1,248	198	3
(3)	Emissions with Full Motor Vehicle Control Program in Place (VMT, starts and vehicle population at 2018 levels)	14,329	1,811	283	2

*2018 VMT based on SCAG's 2012 Regional Transportation Plan Amendment 1.

**Does not include diurnal or resting loss emissions.

Table E-3: Summary of Western Mojave Desert 2018 Attainment Year Emissions Levels

Western Mojave Desert					
	Description	VMT* (miles/day, thousands)	Starts (thousands/day)	Vehicle Population (thousands)	ROG Emissions** (tons/day)
(1)	Emissions with Motor Vehicle Control Program Frozen at 2002 Levels. (VMT, starts and vehicle population at 2018 levels.)	31,071	2,793	435	9
(2)	Emissions with Motor Vehicle Control Program Frozen at 2002 Levels. (VMT, starts, and vehicle population at 2002 levels)	26,920	2,274	367	7
(3)	Emissions with Full Motor Vehicle Control Program in Place (VMT, starts and vehicle population at 2018 levels)	31,071	2,793	435	6

*2018 VMT based on SCAG's 2012 Regional Transportation Plan Amendment 1.

**Does not include diurnal or resting loss emissions.

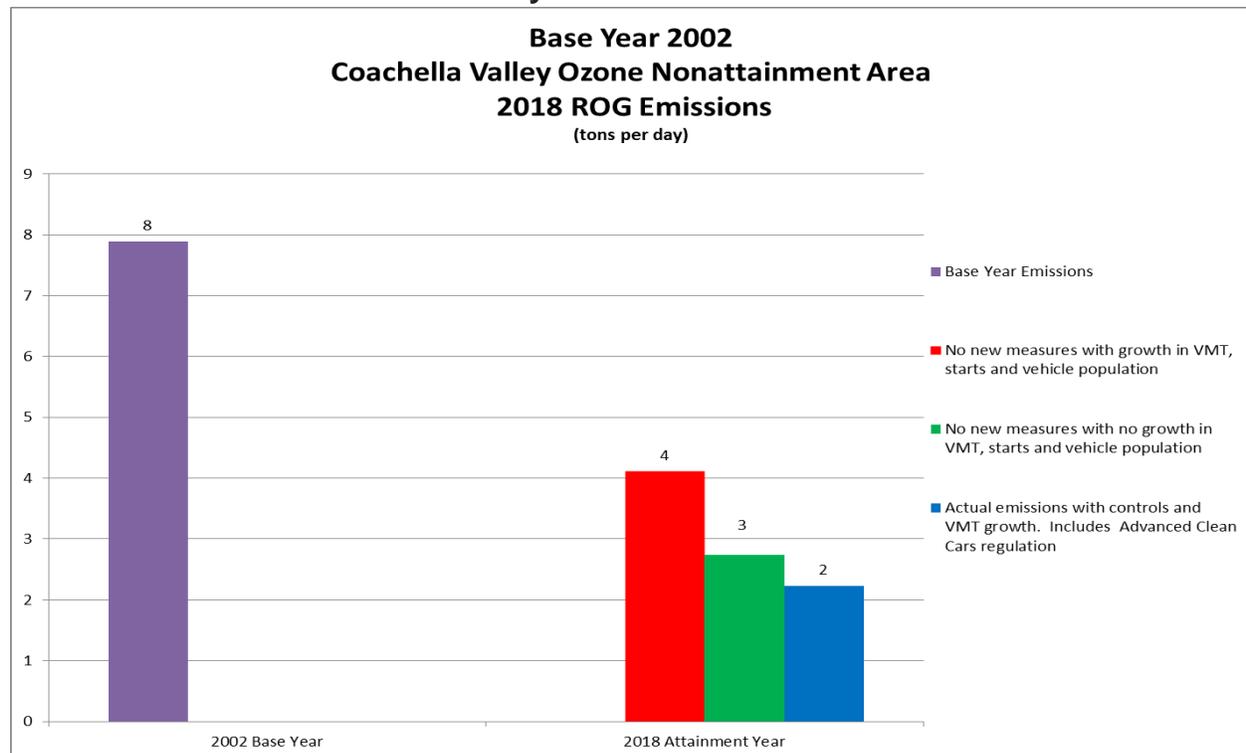
As provided in the U.S. EPA guidance, to determine compliance with the provisions of the Act, the emissions levels calculated in Calculation 3 should be less than the emissions levels in Calculation 2:

Coachella Valley ROG: 2 < 3 tons per day
 Western Mojave Desert ROG: 6 < 7 tons per day

Summary

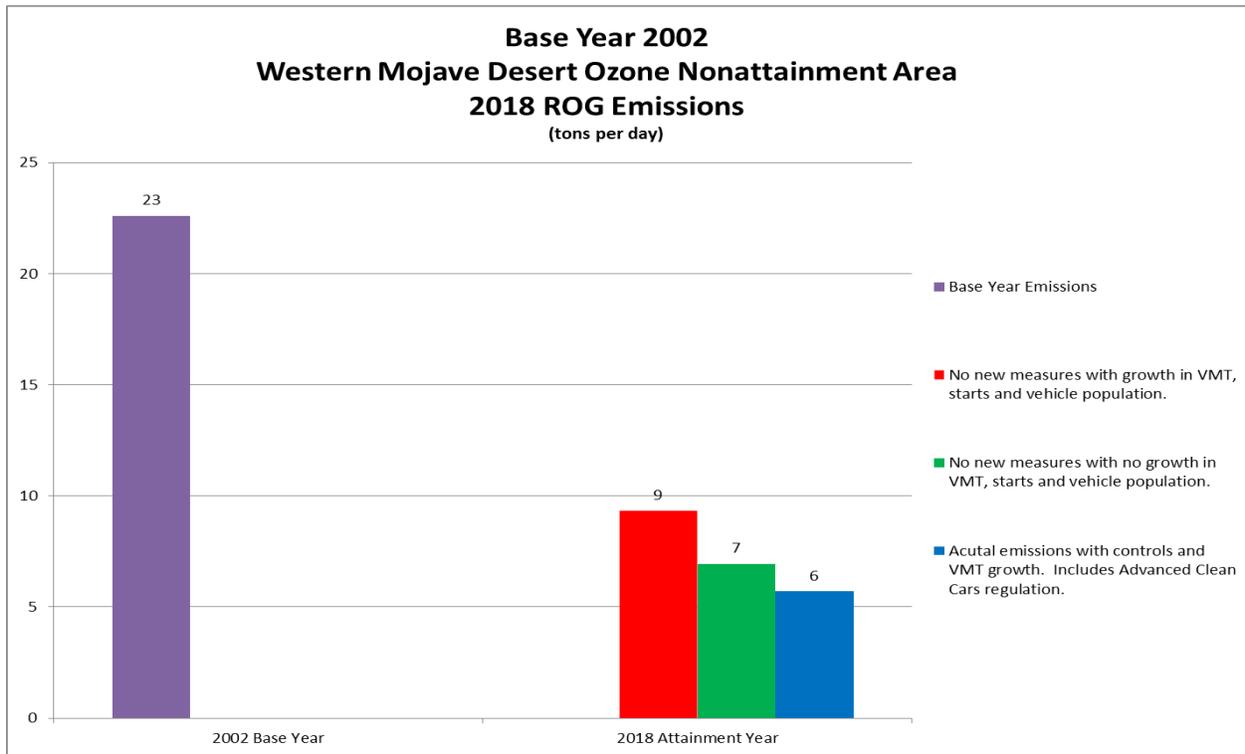
The previous sections provide an analysis to demonstrate compliance with the provisions of the Act. To further illustrate the demonstration, Figure 1 and 2 below show graphically the emissions benefits of the motor vehicle control programs in offsetting ROG emissions due to increased VMT, starts, and vehicle population in the Coachella Valley and Western Mojave Desert, respectively, for the 1997 8-hour ozone standard (2002 base year). The left bar (in purple) shows the emissions in the base year with base year controls. The three bars on the right in each figure show the emissions levels in the attainment year for the three calculations identified above: the red bar shows attainment year emissions with base year controls and attainment year VMT, starts, and vehicle population, the green bar shows attainment year emissions with base year controls, VMT, starts, and vehicle population, and the blue bar shows attainment year emissions with attainment year controls, VMT, starts, and vehicle population. Based on the U.S. EPA guidance, if the blue bar is lower than the green bar, then the identified TCSs and TCMs are sufficient to offset the growth in emissions.

Figure E-1: ROG Emissions* from On-Road Mobile Sources in the Coachella Valley Ozone Nonattainment Area



* Does not include resting or diurnal loss emissions

**Figure E-2: ROG Emissions* from On-Road Mobile Sources
in the Western Mojave Desert Ozone Nonattainment Area**



* Does not include resting or diurnal loss emissions

Table E-4: State of California Motor Vehicle Control Program

State of California Motor Vehicle Control Program (1990-Present)

Table E-4: Transportation Control Strategies Adopted by the California Air Resources Board since 1990		
Measure	Hearing Date	Category
Emission Control System Warranty. T 13, CCR, 2035-2041, 1977	12/14/89	On-road
Certification Procedure for Aftermarket Parts. VC 27156 & 38391	02/08/90	On-road
Emission Standards for Medium Duty Vehicles. T 13, CCR, 1900, 1956.8, 1960.1, 1968.1, 2061, 2112, 2139	06/14/90	On-road
Wintertime Limits for Sulfur in Diesel Fuel. T 13, CCR, 2255 06/21/90 Fuels		
Evaporative Emission Standards. T 13, CCR, 1976	08/09/90	On-road
California Reformulated Gasoline (CaRFG), Phase I. T 13, CCR, 2251.5	09/27/90	Fuels
Low Emission Vehicles and Clean Fuels. T 13, CCR, 1900, 1904, 1956.8, 1960.1, 1960.1.5, 1960.5 and 2111, 2112, 2125, and 2139, 2061.	09/28/90	On-road
Heavy Duty Diesel Smoke Emission Testing. T 13, CCR, 2180-2187	11/08/90	On-road
Limit on Aromatic Content of Diesel Fuel. T 13, CCR, 2256	12/13/90	Fuels
Onboard Diagnostics for Light-Duty Trucks and Light & Medium-Duty Motor Vehicles. T 13, CCR, 1977, 1968.1	09/12/91	On-road
Onboard Diagnostic, Phase II. T 13, CCR, 1968.1, 1977	11/12/91	On-road
Low Emission Vehicles amendments revising reactivity adjustment factor (RAF) provisions and adopting a RAF for M85 transitional low emission vehicles. T 13, CCR, 1960.1	11/14/91	On-road
California Reformulated Gasoline, Phase II. T 13, CCR, 2250, 2255.1, 2252, 2260 - 2272, 2295	11/21/91	Fuels
Wintertime Gasoline Program. T 13, CCR, 2258, 2298, 2251.5, 2296	11/21/91	Fuels
Specifications for Alternative Motor Vehicle Fuel. T 13, & 26, CCR, 2290, 2291, 2292.1, 2292.2, 2292.3, 2292.5, 2292.6, 2292.7, 1960.1(k), 1956.8(b), 1956.8(d)	12/12/91	Fuels
Specifications for Alternative Motor Vehicle Fuels. T 13, & 26, CCR, 2290-2292.7, 1960.1(k), 1956.8(b), 1956.8(d)	03/12/92	On-road
Standards and Test Procedures for Alternative Fuel Retrofit Systems. T 13, CCR, 2030, 2031	05/14/92	On-road
Phase 2 RFG certification fuel specifications. T 13, CCR, 1960.1,	08/13/92	On-road

Table E-4: Transportation Control Strategies Adopted by the California Air Resources Board since 1990		
Measure	Hearing Date	Category
1956.8(d)		
Substitute Fuel or Clean Fuel Incorporated Test Procedures. T 13, CCR, 1960.1(k), 2317	11/12/92	On-road
Smoke Self Inspection Program for Heavy Duty Diesel & Gasoline Engines. T 13, CCR, 21902194, 2180-2187, 1956.8(b)	12/10/92	On-road
Certification Requirements for Low Emission Passenger Cars, Light-Duty Trucks & Medium Duty Vehicles. T 13, CCR, 1960.1, 1976, 2061, 1900	01/14/93	On-road
Urban Transit Buses. T 13, CCR, 1956.8, 1965, 2112	06/10/93	On-road
Onboard Diagnostic, Phase II. T 13, CCR, 1968.1	07/09/93	On-road
Wintertime Oxygenate Program. T 13, CCR, 2258, 2251.5, 2263(b), 2267, 2298, 2259, 2283, 2293.5	09/09/93	Fuels
Diesel Fuel Regulations -Emergency. T 13, CCR, 2281(h), 2282(1)	10/15/93	Fuels
Evaporative Emission Standards and Test Procedures. T 13, CCR, 1976	02/10/94	On-road
Predictive Model for Phase II CaRFG. T 13, CCR, 2261, 2262-2270	06/09/94	Fuels
Small Refiner Diesel. T 13, CCR, 2282(e)(1)	07/24/94	Fuels
Diesel Fuel Certification. T 13, CCR, 1956.8(b)&(d), 1960.1(k), 2292.6	09/22/94	Fuels
Self Inspection Program for Heavy Duty Diesel & Gasoline Engines. T 13, CCR, 2190-2194, 21802187, 1956.8(b)	11/09/94	On-road
Onboard Diagnostics, Phase II. T 13, CCR, 1963.1, & Certification Procedures	12/08/94	On-road
Periodic Smoke Inspection Program. T 13, CCR, 2190	12/08/94	On-road
Specification for Alternative Motor Vehicle Fuels (M100). T 13 CCR, 2292.1	12/08/94	Fuels
Heavy Duty Vehicle Exhaust Emission Standards. T 13, CCR, 1956.8 and incorporate test procedures.	06/29/95	On-road
Onboard Refueling Vapor Recovery Standards. T 13, CCR, 1976, 1978 and incorporate test procedures	06/29/95	On-road
Test Method for Oxygen in Gasoline. T 13, CCR, 2251.5(c), 2258(c), 2263(b)	06/29/95	Fuels
Retrofit Emission Standards. T 13, CCR, 1956.9, 2030, 2031, and incorporate test procedures	07/27/95	On-road
Low Emission Vehicle Standards 3 (LEV 3). T 13, CCR, 1956.8, 1960.1, 1965, 2101, 2061, 2062, and incorporate test procedures	09/28/95	On-road

Table E-4: Transportation Control Strategies Adopted by the California Air Resources Board since 1990		
Measure	Hearing Date	Category
Test Methods for CaRFG 13, CCR, 2263(b)	10/26/95	Fuels
Required Additives in Gasoline (Deposit Control Additives). T 13, CCR, 2257 and incorporates testing procedures.	11/16/95	Fuels
CaRFG Housekeeping & CARBOB. T 13, CCR, 2263.7, 2266.5, 2260, 2262.5, 2264, 2265, 2272	12/14/95	Fuels
Exemption of Military Tactical Vehicles. T 13, CCR, 1905, 2400, 2420	12/14/95	On Road/Off Road
CaRFG Variance Requirements. T 13, CCR, 2271 (Emergency)	01/25/96	Fuels
Postpone Zero Emission Vehicle Requirements. T 13, CCR, 1900, 1960.1, 1976	03/28/96	On-road
Regulation Improvements and Repeals (fuel additives). T 13, CCR, 2201, 2202	05/30/96	Fuels
Diesel Fuel Certification Test Methods . T 13, CCR, 1956.8(b), 1960.1(k), 2281(c), 2282(b), (c) and (g)	10/24/96	Fuels
Diesel Fuel Test Methods. T 13, CCR, 1956.8(b), 1960.1(k), 2281(c), 2282(b), (c) and (g)	10/24/96	Fuels
Onboard Diagnostics, Phase II, Technical Status. T 13, CCR, 1968.1, 2030, 2031	12/12/96	On-road
Liquefied Petroleum Gas Propane Limit Specification Delay. T 13, CCR, 2292.6	03/27/97	Fuels
Postpone Enhanced Evaporative Emission Requirements for Ultra-Small Volume Vehicle Manufacturers. T 13, CCR, 1976 and incorporate test procedures	05/22/97	On-road
Off-Cycle Emissions Supplemental Federal Test Procedures (SFTPs). T 13, CCR, 1960.1, 2101 and incorporate test procedures	07/24/97	On-road
Heavy Duty Vehicle Smoke Inspection Program/Periodic Smoke Inspection Program. T 13, CCR, 2180-2188 and 2190-2194	12/11/97	On-road
Heavy Duty Vehicle Regulations: 2004 Standards. T 13, CCR, 1956.8, 1965, 2036, 2112 and test procedures	04/23/98	On-road
Cleaner Burning Gasoline Model Flexibility. T 13, CCR, sections 2260, 2262.1, 2262.3, 2262.4, 2262.5, 2262.6, 2262.7 and 2265	08/27/98	Fuels
Gasoline Vapor Recovery Systems. T 17, CCR, 94010-94015 and 94150, 94156, 94157, 94158, 94159, 94160, 94162	08/27/98	Vapor Recovery
Gasoline Deposit Control Additive Regulation. T 13, CCR, 2257, and incorporating test procedures	09/24/98	Fuels
Low Emission Vehicles Standards (LEV 2)	11/05/98	On-road

Table E-4: Transportation Control Strategies Adopted by the California Air Resources Board since 1990

Measure	Hearing Date	Category
and Compliance Assurance Program (CAP 2000). T 13, CCR, 1961 & 1962 (both new); 1900, 1960.1, 1965, 1968.1, 1976, 1978, 2037, 2038, 2062, 2101, 2106, 2107, 2110, 2112, 2114, 2119, 2130, 2137-2140, 2143-2148		
Exhaust Standards for (On-Road) Motorcycles. T 13, CCR, 1958	12/10/98	On-road
Voluntary Accelerated Light Duty Vehicle Retirement Regulations. T 13, CCR, 2600-2610	12/10/98	On-road
Cleaner Burning Gasoline (Increasing the Oxygen Content). T 13, CCR, sections 2262.5(b) and 2265(a)(2)	12/11/98	Fuels
Specifications for Liquid Petroleum Gas Used as a Motor Vehicle Fuel. T 13, CCR, 2292.6	12/11/98	Fuels
Cleaner Burning Gasoline, Oxygen Requirement for Wintertime In Lake Tahoe Area/Gas Pump Labeling for MTBE. T 13, CCR, 2262.5, and 2273	06/24/99	Fuels
Clean Fuels Regulation Requirements. T 13, CCR, sections 2300-2317, and 2303.5, 2311.5	07/22/99	On-road
CaRFG Phase 3 Amendments (Phase out of MTBE, standards, predictive model). T 13, CCR, 2260, 2261, 2262.1, 2262.5, 2263, 2264, 2264.2, 2265, 2266 etc...	12/09/99	Fuels
Transit Bus Standards. T 13, CCR, 1956.1, 1956.2, 1956.3, 1956.4, 1956.8, 1965	02/24/00	On-road
CaRFG Phase 3 Follow-up Amendments. T 13, CCR, sections 2260, 2261, 2262.3, 2262.5, 2263, 2264, 2265, 2266, 2266.5, 2270, 2272, 2273, 2282, 2296, 2297, 2262.9 and incorporated test procedures	11/16/00	Fuels
CaRFG Phase 3 Test Methods. T 13, CCR, sections 2263(b)	11/16/00	Fuels
Heavy Duty Diesel Engines "Not-to-Exceed (NTE)" Test Procedures. T 13 CCR, 1956.8, 2065	12/07/00	On-road
Light-and Medium Duty Low Emission Vehicle Alignment with Federal Standards. Exhaust Emission Standards for Heavy Duty Gas Engines. T 13, CCR, 1956.8 & 1961	12/07/00	On-road
Zero Emission Vehicle Regulation Update. T 13, CCR, 1900, 1960.1(k), 1961, 1962 & incorporated Test Procedure	01/25/01	On-road
Zero Emission Vehicle Infrastructure and Standardization of Electric Vehicle Charging Equipment. T 13, CCR, 1900(b), 1962(b) 1962.1	06/28/01	On-road
Heavy Duty Diesel Engine Standards for	10/25/01	On-road

Table E-4: Transportation Control Strategies Adopted by the California Air Resources Board since 1990

Measure	Hearing Date	Category
2007 and Later. T 13, CCR, 1956.8 and incorporated test procedures		
Low Emission Vehicle Regulations. T 13, CCR, 1960.1,1960.5, 1961, 1962 and incorporate test procedures and guidelines	11/15/01	On-road
California Motor Vehicle Service Information Rule. T 13&17, CCR, 1969 & 60060.1 -60060.7	12/13/01	On-road
Voluntary Accelerated Light Duty Vehicle Retirement Regulations. T 13, CCR, 2601-2605, 2606 & appendices C & D, and 2607-2610	02/21/02	On-road
On-Board Diagnostic II Review Amendments. T 13, CCR, 1968.1, 1968.2, 1968.5	04/25/02	On-road
Diesel Retrofit Verification Procedure, Warranty and In-Use Compliance Requirements. T 13, CCR, 2700-2710	05/16/02	On-road
Revision to Transit Bus Regulations Amendments. T 13, CCR, 1956.1, 1956.2, 1956.4,1956.8, and 2112, & documents incorporated by reference	10/24/02	On-road
Airborne Toxic Control Measure for Diesel Particulate from School Bus Idling. T13, CCR, 2480	12/12/02	On-road
Low Emission Vehicles II. Align Heavy Duty Gas Engine Standards with Federal Standards; minor administrative changes. T 13, CCR, 1961, 1965, 1956.8, 1956.1, 1978, 2065 and documents incorporated by reference	12/12/02	On-road
Zero Emission Vehicle Amendments for 2003. T 13, CCR, 1960.1(k), 1961(a) and (d), 1900, 1962, and documents incorporated by reference	03/25/03	On-road
Solid Waste Collection Vehicles. T 13, CCR, 2020, 2021, 2021.1, 2021.2	09/24/03	On-road
Airborne Toxic Control Measure for Diesel Particulate for Transport Refrigeration Units. T 13, CCR, 2022 & 2477	12/11/03	On-road
Diesel Retrofit Verification Procedure, Warranty and In-Use Compliance Requirements (Amendments). T 13, CCR, 2701-2707 & 2709	12/11/03	On-road
CA Motor Vehicle Service Information Rule. T 13, CCR, 1969	01/22/04	On-road
Heavy Duty Diesel Engine-Chip Reflash. T 13, CCR, 2011, 2180.1, 2181, 2184, 2185, 2186, 2192, and 2194	03/27/04	On-road
Engine Manufacturer Diagnostic System Requirements for 2007 and Subsequent Model Heavy Duty Engines. T 13, CCR,	05/20/04	On-road

Table E-4: Transportation Control Strategies Adopted by the California Air Resources Board since 1990

Measure	Hearing Date	Category
1971		
Urban Bus Engines/Fleet Rule for Transit Agencies. T 13, CCR, 1956.1, 1956.2, 1956.3, and 1956.4,	06/24/04	On-road
Airborne Toxic Control Measure for Diesel Particulate from Diesel Fueled Commercial Vehicle Idling. T 13, CCR, 2485	07/22/04	On-road
Greenhouse Gas. T 13, CCR, 1961.1, 1900, 1961 and Incorporated Test Procedures	09/23/04	On-road
California Reformulated Gasoline, Phase 3. T 13, CCR, 2260, 2262, 2262.4, 2262.5, 2262.6, 2262.9, 2263, 2265 (and the incorporated "California Procedures"), and 2266.5	11/18/04	Fuels
Diesel Fuel Standards for Harborcraft & Locomotives. T 13, CCR, 2299, 2281, 2282, and 2284, and T 17, CCR, 93117	11/18/04	Fuels
Emergency Regulation for Temporary Delay of Diesel Fuel Lubricity Standard. T 13, CCR, 2284	11/24/04	Fuels
Transit Fleet Rule. T 13, CCR, 2023, 2023.1, 2023.2, 2023.3, 2023.4, 1956.1, 2020, 2021, repeal 1956.2, 1956.3, 1956.4	02/24/05	On-road
On-Board Diagnostic System Requirements for 2010 and Subsequent Model-Year Heavy-Duty Engines (HD OBD). T 13, CCR, 1971.1	07/21/05	On-road
2007-2009 Model-Year Heavy Duty Urban Bus Engines and the Fleet Rule for Transit Agencies. T 13, CCR, 1956.1, 1956.2, and 1956.8	09/15/05	On-road
Requirements to Reduce Idling Emissions from New and In-Use Trucks, Beginning in 2008. T 13, CCR section 1956.8 and the incorporated document	10/20/05	On-road
Diesel Particulate Matter Control Measure for On-Road Heavy-Duty Diesel-Fueled Vehicles Owned or Operated by Public Agencies and Utilities. T 13, CCR, 2022 and 2022.1	12/08/05	On-road
AB1009 Heavy-Duty Vehicle Smoke Inspection Program. T 13, CCR, 2180, 2180.1, 2181, 2182, 2183, 2184, 2185, 2186, 2187, and 2188, 2189	01/26/06	On-road
Diesel Verification Procedure, Warranty & In-Use. T 13, CCR, 2702, 2703, 2704, 2706, 2707, and 2709.	03/23/06	On-road
Technical Amendments to Evaporative Exhaust and Evaporative Emissions Test Procedures. T 13, CCR, 1961, 1976 and 1978.	05/25/06	On-road

Table E-4: Transportation Control Strategies Adopted by the California Air Resources Board since 1990		
Measure	Hearing Date	Category
California Motor Vehicle Service Information Rule. T 13, CCR, 1969 and incorporated documents	06/22/06	On-road
Heavy-Duty In-Use Compliance Regulation. T 13, CCR, 1956.1, 1956.8, and documents incorporated by reference	09/28/06	On-road
On-Board Diagnostic II. T 13, CCR, 1968.2, 1968.5, 2035, 2037 and 2038	09/28/06	On-road
Zero Emission Bus Regulation. T13, CCR, 2023.1, 2023.3, & 2023.4	10/19/06	On-road
Voluntary Accelerated Retirement Regulation. T 13, CCR, 2601-2610 and appendices A-D	12/07/06	On-road
Phase 3 Reformulated Gasoline (Ethanol Permeation) T 13, CCR, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2270, 2271, and 2273	06/14/07	On-road
Aftermarket Catalytic Converters and Used Catalytic Converters T 13, CCR, 2222	10/25/07	On-road
Port Truck Modernization T 13, CCR, 2027	12/07/07	On-road
Cleaner In-Use Heavy-Duty Trucks T 13, CCR, 2025	12/11/08	On-road
Enhanced Fleet Modernization Program (formerly "Expanded Vehicle Retirement Program") T 13, CCR, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, and 2630	06/26/09	On-road
Advanced Clean Cars T 13, CCR, 1900, 1956, 1960, 1961, 1962, 1965, 1968, 1976, 1978, 2037, 2038, 2062, 2112, 2139, 2140, 2145, 2147, 2235, 2300, 2302, 2303, 2304, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, and 2318	01/27/12	On-road