Attachment 2

Mobile Source Control Measure Analyses

Appendix D

BACM and MSM for Mobile Sources (Provided by ARB)

2015 Plan for the 1997 PM2.5 Standard
SJVUAPCD

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Air Resources Board Mobile Source Control Program
Best Available Control Measures and Most Stringent Measures Assessment

Overview

Given the severity of California's air quality challenges and the need for ongoing emission reductions, the Air Resources Board (ARB) has implemented the most stringent mobile source emissions control program in the nation. ARB's comprehensive program relies on four fundamental approaches:

- stringent emissions standards that minimize emissions from new vehicles and equipment;
- in-use programs that target the existing fleet and require the use of the cleanest vehicles and emissions control technologies;
- cleaner fuels that minimize emissions during combustion; and,
- incentive programs that remove older, dirtier vehicles and equipment and pay for early adoption of the cleanest available technologies.

This multi-faceted approach has spurred the development of increasingly cleaner technologies and fuels and achieved significant emission reductions across all mobile source sectors that go far beyond national programs or programs in other states. These efforts extend back to the first mobile source regulations adopted in the 1960s, and pre-date the federal Clean Air Act Amendments (Act) of 1970, which established the basic national framework for controlling air pollution. In recognition of the pioneering nature of ARB's efforts, the Act provides California unique authority to regulate mobile sources more stringently than the federal government by providing a waiver of preemption for its new vehicle emission standards under Section 209(b). This waiver provision preserves a pivotal role for California in the control of emissions from new motor vehicles, recognizing that California serves as a laboratory for setting motor vehicle emission standards. Since then, the ARB has consistently sought and obtained waivers and authorizations for its new motor vehicle regulations. ARB's history of progressively strengthening standards as technology advances, coupled with the waiver process requirements, ensures that California's regulations remain the most stringent in the nation. A list of regulatory actions ARB has taken since 1985 is provided at the end of this analysis to highlight the scope of ARB's actions to reduce mobile source emissions.

As a result of these efforts, ARB's programs to reduce emissions from passenger vehicles have resulted in vehicles on the road today that are significantly cleaner than they were twenty years ago. ARB's groundbreaking Advanced Clean Cars program is now providing the next generation of emission reductions in California, and ushering in a new zero emission passenger transportation system. In addition, California has adopted in-use regulations aimed at reducing emissions from on-road and off-road diesel engines by accelerating the penetration of the cleanest emission technologies into these fleets. Cleaner burning fuels also play an important role in reducing emissions from motor vehicles and engines as ARB has adopted a number of more

stringent standards for fuels sold in California, including the Reformulated Gasoline program, low sulfur diesel requirements, and the Low Carbon Fuel Standard. These fuel standards, in combination with engine technology requirements, ensure that California's transportation system achieves the most effective emission reductions possible.

In addition to these regulatory efforts, ARB and the San Joaquin Valley Air Pollution Control District (District) implement incentive programs that invest significant amounts of funding to accelerate the purchase of cleaner technologies beyond those achieved by regulations alone. Combined, California's incentive programs have provided hundreds of millions of dollars dedicated to reducing emissions from both on- and off-road vehicles and equipment.

ARB and the District both operate highly effective and comprehensive incentive programs. Two of ARB's largest programs are the Proposition 1B (Prop 1B): Goods Movement Emission Reduction Program, and the Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer). Eligible projects span the mobile source sector, and include cleaner on-road and off-road vehicles and equipment, marine, locomotive, lawn and garden, light-duty passenger vehicles, and agricultural equipment. To date, as part of Prop 1B ARB has awarded $718 million over multiple fiscal years to nine local agencies across the state that are impacted by freight movement, and $980 million under the Moyer program. Of these funds, $145 million each in Prop 1B and $145 million in Moyer (including matching funds) were awarded in the San Joaquin Valley. In addition to ARB's incentive funding, the District provides its own funding such as the Indirect Source Review and Voluntary Emission Reduction Agreements and Local Motor Vehicle Surcharge Fees. To date, the District has provided over $600 million in incentive funding, with a combined District and grant recipients matching funds investment of $1.2 billon. These programs help advance the pace of clean technology penetration, and provide for the most cost-effective, feasible degree of emission reductions possible.

The remainder of this document contains a description of State Implementation Plan (SIP) requirements related to assessment of emission control programs. This is followed by a demonstration of how the comprehensive scope of California's current mobile source control program, through a combination of emission standards, in-use requirements, cleaner fuel formulations, and incentive programs, represents the most stringent and far-reaching level of control being implemented in the United States today.

BACM/MSM Requirements

The particulate matter provisions in the Act specify a step-wise process for the required level of emission control in a SIP, depending upon the severity of the air quality problem and amount of time a nonattainment area needs to meet the PM2.5 standard. For a moderate PM2.5 nonattainment area the Act requires SIPs to provide for the implementation of all reasonably available control measures (RACM) as expeditiously as practicable, including at minimum reasonably available control technologies. U.S. EPA has interpreted RACM to be those emission control measures that are

technologically and economically feasible and when considered in aggregate, would advance the attainment date by at least one year.

For a serious nonattainment area, best available control measures (BACM) are the required level of control. BACM is required for those sources with emissions that are a significant contributor to the nonattainment problem. U.S. EPA defines BACM to be the maximum degree of emission reductions achievable from a source or source category determined on a case-by-case basis considering energy, economic, and environmental impacts.

Following U. S. EPA guidance, the District developed a BACM significance level for sulfur oxides, nitrogen oxides, and PM2.5 combustion emissions (Table 1). The following mobile source categories in the San Joaquin Valley have emissions above NOx and PM2.5 significance levels: light- and medium-duty vehicles, heavy-duty vehicles, off-road vehicles, and farm equipment. None of the mobile source categories were above the significance level for SOx.

Table 1
BACM Significance Levels

Emissions	Level of Significance (tpd)
Sulfur Oxide (SOx) Emissions	1.0
Nitrogen Oxide (NOx) Emissions	13.1
PM2.5 Combustion Emissions	1.4

Serious areas that cannot achieve the standard by the serious area attainment date are allowed to request a five-year extension if they have BACM in place and the SIP demonstrates it includes most stringent measures (MSM). The Act specifies that MSM is the maximum degree of emission reduction that has been required or achieved from a source or source category in other SIPs or in practice in other states and can feasibly be implemented in the area.

Review of ARB's Mobile Source Programs

ARB conducted a BACM/MSM assessment for the mobile source categories under ARB's regulatory authority. Ocean Going Vessels have de minimis emission levels in the Valley and aircraft and locomotives are controlled at the federal level; therefore these sources were not included in this analysis. For the remaining mobile source categories, this assessment included:

- Documentation of California waivers and authorizations;
- Description of the scope and stringency of California's regulations and comparison to programs implemented at the federal level or in other states;
- Documentation of states that have been granted waivers to adopt California rules; and,

- Discussion of incentive programs and other initiatives that go beyond regulatory requirements to provide an enhanced level of emission reductions.

The results of this evaluation are described in the sections that follow.

Waiver Approvals

While the Act preempts most states from adopting emission standards and other emission-related requirements for new motor vehicles and engines, it allows California to seek a waiver or authorization from the federal preemption to enact emission standards and other emission-related requirements for new motor vehicles and engines and new and in-use off-road vehicles and engines, except for locomotives and engines used in farm and construction equipment which are less than 175 horsepower (hp). Over the years, California has received waivers and authorizations for over 100 regulations. The most recent California standards and regulations that have received waivers and authorizations are listed in Tables 2 and 3 below.

Table 2
ARB Emission Standards Waivers

Light- and Medium-Duty	
Advanced Clean Cars (including ZEV and LEV III)	
Heavy-duty	
On-Board Diagnostics	Engine Manufacturer Diagnostics
Heavy-Duty Idling	Diesel Engine Standard
Malfunction and Diagnostics System	Gasoline Standard

Table 3
ARB Emission Standards Authorizations

Heavy-Duty	
Heavy-Duty Idling	New Compression Ignition Off-Road Engines
In-Use Off-Road Diesel Fleets	Yard Truck Regulation
Large Spark Ignition Fleet	Transport Refrigeration Unit (TRU)
Mobile Cargo Handling Equipment	Truck & Bus Regulation* (Off-road yard trucks and two-engine sweepers)
Other	
Off-Highway Recreational Vehicles	Portable Airborne Toxic Control Measures
Portable Equipment Registration Program	Small Off-Road Engines (Utility Lawn and Garden)

* On May 23, 2013, ARB obtained an authorization from U.S. EPA to enforce adopted emission standards for off-road engines used in yard trucks and two-engine sweepers. ARB adopted the off-road emission standards as part of its "Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles," (commonly referred to as the Truck and Bus Regulation). The bulk of the regulation applies to in-use (non-new) heavy-duty diesel on-road motor vehicles with a gross vehicle weight rating (GVWR) in excess of 14,000 pounds, which are not subject to preemption under CAA section 209(a) and do not require a waiver under section 209(b).

Light- and Medium-Duty Vehicles

The light- and medium-duty vehicle category is composed of passenger cars, light-duty trucks, and medium-duty trucks. This category is considered significant for the purpose of BACM, and current emissions are shown in Table 4 below.

Table 4
Emissions from Light- and Medium-Duty Vehicles in the San Joaquin Valley

ARB Vehicle Category	NOx Emissions (tpd)	Direct PM2.5 Emissions (tpd)
Light-Duty Passenger	10.5	1.0
Light-Duty Truck 1	3.2	0.1
Light-Duty Truck 2	7.7	0.4
Medium-Duty Trucks	10.8	0.4
Total	32.2	1.9

Appendix B, 2015 Plan for the 1997 PM2.5 Standards

ARB has a long history of programs addressing light- and medium-duty vehicles, dating back to the 1960s when California adopted the first tailpipe emission standards for hydrocarbons and carbon monoxide in the nation. ARB's current efforts encompass stringent emission standards and fuels regulations, requirements for on-board diagnostics, initiatives to facilitate a transformation of California's fleet to zero emissions technologies, and incentive programs to accelerate the retirement of older, dirtier vehicles and support development of a market for zero-emission vehicles.

Light- and medium-duty vehicles are currently regulated under California's Low-Emission Vehicle III (LEV III) and Zero-Emission Vehicle (ZEV) programs that are incorporated in the Advanced Clean Cars program. The Board established California's Low-Emission Vehicle (LEV) program in 1990 and the second-generation LEV II program in 1998. The LEV regulations established increasingly stringent tailpipe standards for passenger cars and trucks each model year through 2025. As a result, today's new vehicles are over 99 percent cleaner than their uncontrolled counterparts. In March 2014, U.S. EPA set Tier 3 standards for passenger vehicles that harmonized with California's LEV III standards.

ARB's Advanced Clean Cars (ACC) Program, approved in January 2012, is a pioneering approach of a 'package' of regulations, that while separate in construction, are related in terms of the synergy developed to address both ambient air quality needs and climate change goals. The ACC program combines the control of smog and soot causing pollutants, and greenhouse gas emissions into a single coordinated package of requirements for model years 2015 through 2025. In 2025, cars under the ACC program will emit 75 percent less smog-forming pollution than the average new car sold in 2012.

Additionally, ARB's ZEV regulation for passenger cars and light-duty trucks, first adopted as part of the original LEV program in 1990, has spurred commercialization of advanced clean cars and light-duty trucks. The ZEV regulation focuses primarily on

zero-emission technology – battery electric vehicles, hydrogen fuel cell vehicles, and plug-in hybrid electric vehicles – in order to ensure that these low-emission technology vehicles transition from demonstration phase to full commercialization in a reasonable timeframe to meet long-term emission reductions goals. Conventional hybrid electric vehicles have now gained a significant market share in California, and the number of models offered for sale continues to expand. In-state ZEV ownership surpasses that of any other state or nation, and Californians own 40 percent of all ZEVs on the road in America. In addition, an increasing number of battery electric vehicles and plug-in hybrid electric vehicles have been introduced for sale, and fuel cell electric vehicles are beginning to be commercialized.

The LEV III element of the ACC program includes increasingly stringent criteria pollutant emission requirements for light-duty vehicles from 2015 through 2025. When fully phased-in, these requirements will achieve near-zero emission levels from new light-duty vehicles. In addition, the ACC program included amendments affecting the current ZEV regulation through the 2017 model year in order to enable manufacturers to successfully meet 2018 and subsequent model year requirements. The ZEV amendments for 2018 and subsequent model years in the ACC program are intended to achieve commercialization through simplifying the regulation and pushing technology to higher volume production in order to achieve cost reductions.

The ACC Program will produce increasing benefits over time as new cleaner cars enter the fleet, displacing older and dirtier vehicles. In this manner, the benefits in 2023 will be realized through the cumulative reduction in emissions achieved by new cars entering the fleet in 2017 through 2023. This program will continue to provide benefits well after 2023 as vehicles meeting the new standards replace older, higher-emitting vehicles.

In addition, in 2012 Governor Brown issued an Executive Order establishing a goal of 1.5 million zero-emission vehicles on the road by 2025. The Executive Order directed the ARB to work with the California Energy Commission and the California Public Utilities Commission to establish benchmarks for ensuring the necessary charging infrastructure, and also specified that California's state vehicle fleet increase the number of its zero-emission vehicles through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles be zero-emission by 2015 and at least 25 percent of fleet purchases of light-duty vehicles be zero-emission by 2020.

Cleaner burning fuels are also integral to reducing emissions. California's Reformulated Gasoline program (CaRFG) sets stringent standards producing cost-effective emission reductions from gasoline-powered vehicles. The CaRFG program was implemented in three increasingly more stringent phases. The final and current phase, Phase 3 CaRFG, eliminated methyl-tertiary-butyl-ether from California gasoline.

ARB is also active in implementing programs for consumers with older dirtier vehicles to retire them early. Replacing older, dirtier vehicles with new vehicles provides permanent emission reductions and accelerates the introduction of the cleanest technologies. ARB's voluntary vehicle retirement or "car scrap" programs, like the Enhanced Fleet Modernization Program (EFMP), provide monetary incentives of $1,500

to vehicle owners to retire older, more polluting vehicles, and up to $9,000 for low-income consumers to scrap and replace their vehicle with a zero-emission vehicle. Approximately $30 million is available annually through 2015 to fund the EFMP via a $1 increase in vehicle registration fees. ARB developed the program in consultation with Bureau of Automotive Repair (BAR). The program is jointly administered by both BAR (for vehicle retirement) and the local air district (for vehicle replacement). In addition, ARB's Clean Vehicle Rebate Project is designed to promote the purchase of new battery electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles. Rebates of up to $5,000 per light-duty vehicle are available and approximately 90,000 rebates have been issued to date, totaling nearly $200 million in the State.

Other programs, in addition to vehicle retirement programs, help clean up the light-duty fleet. The Air Quality Improvement Program (AQIP), established by AB 118, is an ARB voluntary incentive program to fund clean vehicle and equipment projects. The Clean Vehicle Rebate Project (CVRP) is one of the current projects under AQIP. CVRP, started in 2009, is designed to accelerate widespread commercialization of zero-emission vehicles and plug-in hybrid electric vehicles by providing consumer rebates up to $2,500 to partially offset the higher cost of these advanced technologies.

As a result of ARB's efforts, and as provided for in the Act, a number of other states have now adopted ARB's LEV III and ZEV programs as listed below in Table 5. These states are also known as the "Section 177 States" in reference to this provision of the Act.

Table 5
State's Adoption of ARB's Light- and Medium-Duty Vehicle Regulations

Section 177 States	2012 ZEV	2012 LEVIII
Connecticut	X	X
Delaware		X
Maine	X	X
Maryland	X	X
Massachusetts	X	X
New Jersey	X	X
New York	X	X
Oregon	X	X
Pennsylvania		X
Rhode Island	X	X
Washington		X
Vermont	X	X

Taken together, California's comprehensive suite of emission standards, fuel specifications, and incentive programs for on-road light- and medium-duty vehicles represent the most stringent level of control and achieve the maximum feasible emission reductions for this category in the nation.

Heavy-Duty Vehicles

The heavy-duty vehicles category is composed of heavy-duty gas and diesel trucks, heavy-duty gas and diesel urban buses, school buses, and motor homes. Emissions from heavy-duty diesel trucks in the San Joaquin Valley are a significant BACM category (Table 6).

Table 6
Emissions from Heavy-Duty Vehicles in SJV

Vehicle Category	NOx Emissions (tpd)	Direct PM2.5 Emissions (tpd)
Heavy Heavy-Duty Diesel Trucks	120.5	4.0
Medium Heavy-Duty Diesel Trucks	18.1	0.8
Total	138.6	4.8

Appendix B, 2015 Plan for the 1997 PM2.5 Standards

California also has the most stringent and successful heavy-duty vehicle emissions control program in the nation. These regulatory efforts include not only requirements for increasingly tighter new engine standards, but also address vehicle idling, certification procedures, on-board diagnostics, and emissions control device verification. More stringent diesel fuel requirements further ensure that diesel engines are operating as cleanly as possible. The ARB has also adopted in-use requirements that provide substantial further emission reductions beyond those occurring anywhere else in the nation. These in-use requirements began with a focus on public fleets and solid waste collection vehicles, followed by drayage trucks, and now encompass all trucks operating in California. Together, they are designed to achieve an on-road heavy-duty diesel fleet with 2010 engine standards years ahead of a normal vehicle attrition rate. Substantial investments in incentive programs are providing further reductions by accelerating the turnover of the fleet ahead of regulatory requirements.

Examples of ARB's most recent regulations and efforts that provide for significant reductions well beyond current federal programs or programs in other states are listed below.

New Vehicle Standards

- Engine standards for 2007 and Subsequent Model Year Heavy-Duty Diesel Engines/Vehicles;
- 2005 Not-to-Exceed and Euro III European Stationary Source Cycle Supplemental Test Procedures;
- Heavy-Duty Vehicle and Engine Certification;
- Optional Reduced Emissions Standards for Heavy-Duty Engines;
- Heavy-Duty Hybrid Electric Vehicle Certification Procedures; and
- Heavy-Duty Vehicle and Engine On-Board Diagnostics Requirements.

A central element of ARB's heavy-duty diesel vehicle program is increasingly stringent standards for new trucks and urban buses, as shown in the Table 7. Through implementation of these standards, new heavy-duty trucks sold since 2010 emit 98 percent less NOx and PM2.5 than new trucks sold in 1986.

Table 7
Phase-in of Truck Engine Standards

Model Year	Applicable Standard (g/bhp-hr)	
	NOx	PM
1986 and older	10.7	0.60
1987-2006	From 6.0 to 2.0	From 0.6 to 0.1
2007-2009	1.1	0.01
2010	0.2	0.01

On August 26, 2005, ARB obtained a waiver from the federal preemption for the Engine standards for 2007 and Subsequent Model Year Heavy-Duty Diesel Engines/Vehicles regulation, generally aligning California's standards with the federal standards for 2007 and subsequent model year vehicles and engines. Thus California's current standards are equal to or more stringent than current federal standards.

Most recently, in ongoing efforts to go beyond federal standards and achieve further reductions, ARB adopted the Optional Reduced Emissions Standards for Heavy-Duty Engines regulation in 2014. This regulation establishes the new generation of optional NOx emission standards for heavy-duty engines which are 50 percent, 70 percent, and 90 percent lower than the current primary standard of 0.2 g/bhp-hr.

Requirements for vehicle certification demonstrate that emission control systems are durable, and that the exhaust emissions and evaporative emissions, as applicable, comply with the regulatory standards for the duration of the required useful life of the product. This demonstration is accomplished through durability and certification testing of the prototype certification engine or vehicle. Such demonstrations include the 2005 Not-to-Exceed and Euro III European Stationary Source Cycle Supplemental Test Procedures, Heavy-Duty Hybrid Electric Vehicle Certification Procedures, and Heavy-Duty Vehicle and Engine On-Board Diagnostics Requirement. These test procedures require the control of emissions during the majority of real world operating conditions, ensuring that in the future defect devices will no longer be employed and determining that vehicles are, in fact, heavy-duty hybrid electric vehicles. Finally, the Heavy-Duty Vehicle and Engine On-Board Diagnostics Requirement detect emission control system malfunctions as they occur by monitoring virtually every component and system that can cause increases in emissions.

While these requirements collectively ensure that new vehicles are as clean as possible, older, higher-emitting heavy-duty vehicles with long service lives can remain on the road for many years. To address this legacy fleet, ARB has adopted heavy-duty

vehicle in-use control measures to significantly reduce PM2.5 and NOx emissions from existing diesel vehicles operating in California. These recent in-use control measures include:

- On-Road Heavy-Duty Diesel Vehicle (In-Use) Regulation;
- Drayage (Port or Rail Yard) Regulation;
- Public Agency and Utilities Regulation;
- Solid Waste Collection Vehicle Regulation;
- Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation;
- ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling;
- Heavy-Duty Diesel Vehicle Inspection Program;
- Periodic Smoke Inspection Program;
- Fleet Rule for Transit Agencies;
- Lower-Emission School Bus Program; and
- Heavy-Duty Truck Idling Requirements.

Many of these ARB's in-use regulations focus on fleets by trade such as the Drayage, Public Agency and Utilities, and Solid Waste Collection Vehicle Regulations. Each of these regulations focuses on the unique duty cycles of these trades to maximize the emission reduction effectiveness. Along with these in-use trade-specific regulations, ARB also adopted the Periodic Smoke Inspection Program (PSIP) and Heavy-Duty Truck Idling Requirements. The PSIP requires that diesel and bus fleet owners conduct annual smoke opacity inspections of their vehicles and repair those with excessive smoke emissions to ensure compliance. As a follow up to the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling, ARB approved the Heavy-Duty Truck Idling Requirements to further reduce emissions from NOx and PM2.5 by limiting idling of new and in-use sleeper berth equipped diesel trucks.

ARB's bus program is composed of the transit bus fleet rule, school bus idling program, and the lower-emission school bus program. Adopted in 2000, the Fleet Rule for Transit Agencies (Transit Fleet Rule) requires reductions in emissions from urban buses and transit fleet vehicles. In effect since 2003, the school bus airborne toxic control measure has limited bus and commercial motor vehicle idling near schools or at school bus destinations. The lower-emission school bus program provides grant funding for new, safer school buses and to install air pollution control equipment that are already on the road.

ARB's Cleaner In-Use Heavy-duty Truck Regulation (Truck and Bus Regulation) is one of the most significant elements in this suite of recent actions. This measure leverages the benefits provided by new truck emission standards by accelerating introduction of the cleanest trucks. The Truck and Bus Regulation was adopted in December 2008, and amended in December 2010 and December 2014. The rule represents a multi-year effort to turn over the legacy fleet of engines and replace them with the cleanest technology available.

Starting in 2012, the Truck and Bus Regulation phases in requirements so that by 2014, nearly all vehicles operating in California will have PM emission controls, and by 2023 nearly all vehicles will meet 2010 model year engine emissions levels. The regulation applies to nearly all diesel fueled trucks and buses with a gross vehicle weight rating greater than 14,000 pounds that are privately or federally owned, including on-road and off-road agricultural yard goats, and privately and publicly owned school buses. Moreover, the regulation applies to any person, business, school district, or federal government agency that owns, operates, leases or rents affected vehicles. The regulation also establishes requirements for any in-state or out-of-state motor carrier, California-based broker, or any California resident who directs or dispatches vehicles subject to the regulation. Finally, California sellers of a vehicle subject to the regulation must disclose the regulation's potential applicability to buyers of the vehicles.

To further encourage the replacement of dirtier vehicles/engines with cleaner ones, ARB and the District have made extensive investments in incentive programs. The Proposition 1B: Goods Movement Reduction Program is a partnership between ARB and agencies to reduce air pollution emissions and health risk from freight movement along California's trade corridors through incentives. The Carl Moyer Program is a voluntary grant program, for various vehicles including on-road heavy-duty, which reduces air pollution from vehicles and equipment by providing incentive funds to private companies and public agencies to purchase cleaner-than-required engines, equipment, and emission reduction technologies. The District's truck voucher programs have been designed to provide an alternative source of incentive funding for small businesses that do not qualify for funding under Prop 1B. The District contracts with Valley dealerships and makes the review and approval process efficient and streamlined to provide vouchers to truck operators.

Only one other state, Texas, has received SIP credit for emission reductions from incentive programs. The Texas Clean Fleet Program encourages large fleets in Texas to replace light- and heavy-duty on-road diesel vehicles with alternative fuel vehicles. The Texas program currently has two-year funding of approximately $7.7 million. By comparison, in the San Joaquin Valley, $32 million is available for Prop 1B projects in the 2013/14 fiscal year and $12 million will be available for Carl Moyer projects in the 2014/15 fiscal year. To date, the Prop1B program has scrapped and replaced old on-road trucks with over 2,000 cleaner trucks in the SJV while the Carl Moyer Program has replaced over 200 trucks.

In addition to new engine and in-use standards, cleaner burning fuels represent an important component in reducing emissions from heavy-duty diesel trucks. The California diesel fuel program sets stringent standards for diesel fuel sold in California and produces cost-effective emission reductions from diesel-powered vehicles. Diesel fuel regulations in California set fuel mixture specifications for aromatic hydrocarbons and sulfur, and establish a lubricity standard. The program applies to sales of fuel used in on-road vehicles and off-road vehicles and locomotives in California.

Similar to the light-duty sector, as provided for in the Act, a number of other states have followed California's lead and adopted at least one of California's heavy-duty regulations. These states are listed below in Table 8.

Table 8
States Adoption of ARB's Heavy-Duty Vehicle Regulation

Section 177 States	Heavy-Duty Diesel Engine Regulation
Connecticut	X
Delaware	X
Georgia	X
Maine	X
Massachusetts	X
New Jersey	X
New York	X
North Carolina	X
Pennsylvania	X

In aggregate, ARB's heavy-duty diesel program goes beyond stringent tailpipe emission standards through in-use control measures, idling restrictions, certification and verification requirements, and the clean diesel fuel program. The in-use control measures are national models for aggressive and successful efforts to reduce in-use emissions and accelerate fleet turnover to cleaner engines. ARB's significant investment in incentive programs provides an additional mechanism to achieve maximum emission reductions from this source sector.

Off-Road Vehicles and Engines

The off-road equipment category is composed of off-road compression ignition (diesel) engines and equipment, small spark ignition off-road engines and equipment less than 25 hp (including lawn and garden equipment, and small industrial equipment), off-road large spark ignition (gasoline and liquefied petroleum gas) engines and equipment 25 hp and greater (including industrial equipment, forklifts, and portable generators), and airport ground support equipment. Requirements for the cargo handling equipment (CHE) subcategory are discussed separately. The off-road mobile source category is considered a significant BACM category (Table 9).

Table 9
Emissions from Off-Road Equipment in SJV

Vehicle Category	NOx Emissions (tpd)	Direct PM2.5 Emissions (tpd)
Off-Road Equipment excluding CHE	19.2	1.1
Total	19.2	1.1

Appendix B, 2015 Plan for the 1997 PM2.5 Standards

Similar to the on-road sectors, California has a comprehensive program for reducing emissions from off-road equipment that goes well beyond current requirements in place elsewhere in the nation. Regulations for off-road equipment include not only increasingly stringent standards for new off-road diesel engines, but also in-use requirements and idling restrictions. These in-use requirements are designed to accelerate the penetration of the cleanest equipment into California fleets beyond rates achieved elsewhere in the nation through new vehicle standards alone. Substantial investments in incentive programs are also facilitating additional turnover to cleaner engines to further maximize emission reductions.

New engine standard requirements vary according to the power rating of engines. Table 10 shows the schedule for phasing in tiered requirements for new off-road engines with a power rating between 175 and 300 hp. Beginning in 2014, new Tier 4 construction equipment with the power rating shown below must emit about 96 percent less NOx and PM than new Tier 1 equipment sold in the year 2000.

Table 10
Phase-in of Off-Road Engine Standards

Model year	Level of Control	Applicable Emission Standard for New Off-road Engines 175<hp<300 g/bhp-hr	
		NOx	PM
1996-2002	Tier 1	6.9	0.4
2003-2005	Tier 2	4.9*	0.15
2006-2010	Tier 3	3.0*	0.15
2011-2013	Tier 4 interim	1.5	0.015
2014+	Tier 4 final	0.3	0.015

*Reflects combined limit for non-methane hydrocarbons and NOx

U.S. EPA adopted the Tier 4 standards in May 2004. California's current standards were also adopted in 2004, and are equal in stringency to current federal standards.

However, large diesel off-road equipment typically remains in use for long periods of time. As with heavy-duty trucks, this long life means that newer, lower-emitting engines would be introduced into fleets relatively slowly. To address this, the Cleaner In-use Off-Road Equipment Regulation (Off-Road Regulation) was adopted in 2007, with amendments in 2010. U.S. EPA provided their authorization for this regulation in 2013.

Affected off-road equipment is used in construction, manufacturing, the rental industry, road maintenance, airport ground support, and landscaping. In December 2011, the Off-Road Regulation was modified to include on-road trucks with two diesel engines.

The Off-Road Regulation is an extensive program designed to accelerate the penetration of the cleanest equipment into California's fleets. This regulation will significantly reduce emissions of diesel PM and NOx from the over 150,000 in-use off-road diesel vehicles that operate in California by requiring their owners to modernize their fleets and install exhaust retrofits. In 2015, this extensive program will have affected 10,447 vehicles used in 838 fleets by requiring owners to modernize their fleets

by replacing older engines or vehicles with newer, cleaner models, retiring older vehicles or using them less often, or by applying retrofit exhaust controls.

The Off-Road Regulation imposes idling limits on off-road diesel vehicles, requires a written idling policy, and requires a disclosure when selling vehicles. The regulation also requires that all vehicles be reported to ARB and labeled, restricts the addition of older vehicles into fleets, and requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing verified exhaust retrofits. The requirements and compliance dates of the Off-Road Regulation vary by fleet size.

Funding from incentive programs such as Carl Moyer also provides an additional mechanism to achieve emission reductions from off-road sources. The Moyer Off-Road Voucher Incentive Program provides a streamlined approach to reduce emissions by replacing existing, high polluting equipment with newer, lower-emission equipment. The Moyer Program also provides incentives for off-road compression-ignition equipment, off-road large-spark equipment, and off-road equipment replacement.

The District funds the replacement and retrofit of forklifts through its Large Spark-Ignited (LSI) forklift retrofit program and its Electric Forklift New-Purchase program. Because emission standards for new engines in this source category have only been in effect for the past few years, a significant number of high-emitting units are still in operation and available for retrofit.

Finally, the Act allows other states to adopt ARB's regulations for off-road engine or off-road vehicles provided that such standards are identical to the ARB standards for which an authorization has been obtained. Other states are considering, but have not yet adopted, rules equivalent to the California off-road regulation.

The ARB first approved exhaust and evaporative emission standards for small off-road engines in 1990. This category includes handheld and nonhandheld lawn and garden and industrial equipment such as string trimmers, leaf blowers, walk-behind lawn mowers, generators, and lawn tractors. The 1990 regulations were implemented in two stages, with first tier standards taking effect in 1995 and second tier standards being implemented in 1999. In September 2003, ARB Board approved more stringent exhaust and evaporative standards for small off-road engines and also directed staff to evaluate the potential for the use of more zero-emissions equipment in this category.

In summary, California's off-road program goes beyond emission standards for new engines through comprehensive in-use requirements for legacy fleets. These in-use control measures are national models for aggressive and successful efforts to reduce in-use emissions and accelerate fleet turnover to cleaner engines. Similar to the on-road emission categories, incentive program funding provides an additional mechanism that achieves further emission reductions. Together, these approaches provide for the most stringent and comprehensive suite of emission reductions.

Farm Equipment

The farm equipment category is composed of agricultural equipment that includes tractors, harvesting equipment, and sprayers and is considered a significant BACM category (Table 11).

Table 11
Emissions from Farm Equipment in SJV

Vehicle Category	NOx Emissions (tpd)	Direct PM2.5 Emissions (tpd)
Farm Equipment	50.4	2.9
Total	50.4	2.9

Appendix B, 2015 Plan for the 1997 PM2.5 Standards

As noted above, in 2004, U.S. EPA and California adopted equivalent standards that require additional reductions from off-road engines, including engines used in mobile agricultural equipment. These new engine standards will achieve substantial reductions in PM2.5 and NOx as new farm equipment is introduced into the fleet. Tier 4 engine technologies will not be introduced for all mobile agricultural equipment applications until about the 2020 timeframe. Therefore, to achieve maximum PM2.5 and NOx reduction benefits now, a significant investment in incentive funds is encouraging the mobile agricultural fleet in the San Joaquin Valley to upgrade to Tier 3 equipment, which will be further enhanced upon full introduction of Tier 4 engines. Since 2008, this effort has provided over $100 million in incentive funding for agricultural equipment from the Carl Moyer Program, District funding, and the USDA Natural Resources Conservation Service, contributing to the replacement of over 3000 pieces of equipment.

Cargo Handling Equipment

As a subcategory of the off-road equipment category, cargo handling equipment (CHE) is used to transfer goods or perform maintenance and repair activities and includes equipment such as yard trucks (hostlers), rubber-tired gantry cranes, top handlers, side handlers, forklifts, and loaders at ports and intermodal rail yards. This category represents a small portion of the inventory and is not considered significant for BACM purposes (Table 12).

Table 12
Emissions from Cargo Handling Equipment in SJV

Vehicle Category	NOx Emissions (tpd)	Direct PM2.5 Emissions (tpd)
Cargo Handling Equipment	0.1	0.0
Total	0.1	0.0

Appendix B, 2015 Plan for the 1997 PM2.5 Standards

California's CHE regulation was adopted in 2005 and amended in 2011. ARB obtained authorization for the 2005 version of the regulation in 2012. ARB's CHE regulations set performance standards for engines in newly acquired, as well as in-use, mobile CHE at ports or intermodal rail yards in California. Prop 1B also funds cleaner port-related cargo handling equipment.

Other Mobile Sources

The other mobile source category is composed of motorcycles, recreational boats, off-road recreational vehicles, and commercial harbor craft. This group of sources represents a small portion of the inventory and is not considered significant for BACM purposes (Table 13).

Table 13
Emissions from Other Mobile Sources in SJV

Vehicle Category	NOx Emissions (tpd)	Direct PM2.5 Emissions (tpd)
Motorcycles	1.0	0.0
Recreational Boats	1.6	0.4
Off-Road Recreational Vehicles	0.1	0.0
Commercial Harbor Craft	0.7	0.0
Total	3.4	0.5

Appendix B, 2015 Plan for the 1997 PM2.5 Standards

While representing a smaller share of the inventory, ARB has taken a comprehensive regulatory approach to provide ongoing emission reductions from sources in this sector. These efforts have focused on adoption of stringent new engine standards and ensuring that cleaner engines are introduced into the fleet at an accelerated pace.

Motorcycles for the most part are on-road two-wheeled, self-powered vehicles with engine displacements of 50 cubic centimeters (cc) or greater. First adopted in 1975, California's motorcycle regulation obtained its first waiver of preemption from U.S. EPA in 1976. ARB then obtained a waiver of preemption in 2006 for 1998 amendments. The 1975 regulation set emission standards for all motorcycles with engine displacements of at least 50 cc. The 1998 amendments affected only Class 3 motorcycles (280 cc or greater) and set a Tier I and Tier II standard for 2004 and 2008 model years, respectively. While ARB has the same emission standard as the federal standard, the California standard applies to engines starting in 2008 rather than 2010 under the federal requirement.

The recreational boat (marine) engine program is another important element in ARB's efforts to address emissions from all mobile source sectors. In 1998, ARB approved exhaust emission regulations for spark-ignition marine engines that accelerated implementation of the federal standards for 2006 engines for personal watercraft (PWC) and outboard (OB) marine engines in California to 2001. In 2001, ARB adopted Tier I and Tier II emission standards for inboard and stern-drive marine engines. In 2007,

U.S. EPA granted California authorization to enforce ARB's regulations for OB/PWC engines and Tier I of the California inboard and stern-drive marine engine emissions standards. In 2011, U.S. EPA granted California authorization to enforce ARB's Tier II exhaust emission standards for spark ignited inboard and stern-drive marine engines. While ARB has the same exhaust emission standard as the federal standard, the California standard applies to engines starting in 2008 rather than 2010 under the federal requirement. In February 2015, ARB Board approved more stringent evaporative emission control design standards than those set forth by the U.S. EPA's 2008 rule for gasoline-fueled spark-ignition marine watercraft configured with engines greater than 30 kilowatts.

There are several types of commercial harbor craft (CHC) used in California, including crew and supply boats, charter fishing vessels, commercial fishing vessels, ferry/excursion vessels, pilot vessels, towboats or push boats, tug boats, and work boats. The CHC regulation pertains to the reduction of diesel PM and NOx. The Board adopted the first CHC regulation in 2007 that implemented in-use limits and upgraded engine requirements. For this regulation, ARB obtained an authorization of preemption in 2011 from U.S. EPA. In addition, the Board approved an amended CHC regulation in 2010, which extended the in-use engine requirements to other types of CHC, deleting certain exemptions, defining swing engines, clarifying certain in-use requirements, adding replacement engine exemptions, expanding compliance extension options, and allowing continued use of existing engines in certain circumstances. On November 24, 2014, U.S. EPA issued a notice of rulemaking for these amendments. Prop 1B also funds cleaner commercial harbor craft.

Off-road recreation vehicles or off-highway recreational vehicles (OHRV) primarily include off-highway motorcycles, all-terrain vehicles, and utility-terrain vehicles. In 1994, ARB adopted exhaust emission standards for OHRVs. At that time, there were no equivalent federal standards regulating exhaust emissions from the vehicles and engines covered by California's OHRV regulations. U.S. EPA granted authorization for ARB's 1994 OHRV regulations in 1996. ARB subsequently adopted three rounds of amendments to these regulations, the first in 1999, the second in 2003, and the third in 2006. All three amendments were granted authorization concurrently by U.S. EPA in 2014. In July 2013, ARB Board approved evaporative emission control standards for green sticker OHRVs.

The emission limits established for these other mobile source categories, coupled with U.S. EPA waivers and authorization of preemption establish that California's programs for motorcycles, recreational boats, off-road recreational vehicles, and commercial harbor craft sources meet the requirements for BACM and MSM and represent the most stringent and comprehensive approach for achieving ongoing emission reductions from these categories.

Summary

California's long history of comprehensive and innovative emissions control has resulted in the strongest mobile source control program in the nation. U.S. EPA has acknowledged the strength of these programs in their approval of ARB's regulations and through the waiver process. In addition, U.S. EPA has provided past determinations that ARB's mobile source control programs meet BACM and MSM requirements as part of their 2004 approval of the Valley's 2003 PM10 Plan:

> "We believe that the State's control programs constitute BACM at this time for the mobile source and fuels categories, since the State's measures reflect the most stringent emission control programs currently available, taking into account economic and technological feasibility."

Since then, ARB has continued to substantially enhance and accelerate reductions from our mobile source control programs through the implementation of more stringent engine emissions standards, in-use requirements, incentive funding, and other policies and initiatives as described in the preceding sections. These efforts not only ensure that all source sectors continue to achieve maximum emission reductions through implementation of the cleanest current technologies, but also promote the ongoing development of more advanced zero and near-zero technologies. As a result, California's mobile source control programs reflect the most stringent and feasible level of emissions control in the nation and fully meet the requirements for BACM and MSM.

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Proposed Regulation for the Commercialization of Alternative Diesel Fuels (1 of 2): proposed regulation governing the introduction of alternative diesel fuels into the California commercial market, including special provisions for biodiesel. This is the first of two hearings on the item, and the Board will not take action to approve the proposed regulation.	2/19/15
Evaporative Emission Control Requirements for Spark-Ignition Marine Watercraft: proposed regulation for controlling evaporative emissions from spark-ignition marine watercraft. The proposed regulation will harmonize, to the extent feasible, with similar federal requirements, while adding specific provisions needed to support California's air quality needs.	2/19/15
2015 Low Carbon Fuel Standard (LCFS) Amendments (1 of 2): proposed regulation for a Low Carbon Fuel Standard that includes re-adoption of the existing Low Carbon Fuel Standard with updates and revisions. This is the first of two hearings on the item, and the Board will not take action to approve the proposed regulation.	2/19/15
CA Cap on GHG Emissions and Market-Based Compliance Mechanisms to Add the Rice Cultivation Projects and Updated U.S. Forest Projects Protocols (1 of 2): updates to the Cap and Trade Regulation to include a new Rice Cultivation Compliance Offset Protocol and an update to the United States Forest Compliance Offset Protocol that would include project eligibility in parts of Alaska	12/18/14
2014 Amendments to ZEV Regulation: additional compliance flexibility to ZEV manufacturers working to bring advanced technologies to market	10/23/14
LEV III Criteria Pollutant Requirements for Light- and Medium-Duty Vehicles the Hybrid Electric Vehicle Test Procedures, and the HD Otto-Cycle and HD Diesel Test Procedures: applies to the 2017 and subsequent model years	10/23/14
Amendments to Mandatory Reporting Regulation for Greenhouse Gases: further align reporting methods with USEPA methods and factors, and modify reporting requirements to fully support implementation of California's Cap and Trade program	9/19/14
Amendments to the California Cap on Greenhouse Gas Emissions and Market Based Compliance Mechanisms Technical revisions to Mandatory Reporting of Greenhouse Gas Emissions Regulation to further align reporting methods with U.S.EPA update methods and factors, and modify reporting requirements to fully support implementation of California's Cap and Trade program.	9/18/14
Amendments to the AB 32 Cost of Implementation Fee Regulation: proposed amendments to the regulation to make it consistent with the revised mandatory reporting regulation, to add potential reporting requirements, and to incorporate requirements within the mandatory reporting regulation to streamline reporting.	9/18/14
Low Carbon Fuel Standard 2014 Update: As a result of a California Court of Appeal decision, ARB will revisit the LCFS rulemaking process to meet certain procedural requirements of the APA and CEQA. Following incorporation of any modifications to the regulation, the Board will consider the proposed regulation for adoption at a second hearing held in the spring of 2015	7/24/14
Revisions to the Carl Moyer Memorial Air Quality Standards Attainment Program Guidelines for On-Road Heavy-Duty Trucks Revisions to 1) reduce surplus emission reduction period, 2) reduce minimum CA usage requirement, 3) prioritize on-road funding to small fleets, 4) include light HD vehicles 14000-19500 libs, and 5) clarify program specifications.	7/24/14
Amendments to Enhanced Fleet Modernization (Car Scrap) Program: amendments consistent with SB 459 which requires ARB to increase benefits for low-income California residents, promote cleaner replacement vehicles, and enhance emissions reductions.	6/26/14
Proposed Approval of Amendments to CA Cap on GHG Emissions and Market-Based Compliance Mechanisms - Second hearing of two, continued from October 2013	4/24/14
Truck and Bus Rule Update -- Amendments to the Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and Other Criteria Pollutants From In-Use On-Road Diesel-Fueled Vehicles: increasing low-use vehicle thresholds, allowing owners to newly opt-in to existing flexibility provisions, adjusting "NOx exempt" vehicle provisions, and granting additional time for fleets in certain areas to meet PM filter requirements.	4/24/14

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Heavy-Duty GHG Phase I: On-Road Heavy-Duty GHG Emissions Rule, Tractor-Trailer Rule, Commercial Motor Vehicle Idling Rule, Optional Reduced Emission Standards, Heavy-Duty Hybrid-Electric Vehicles Certification Procedure New GHG standards for MD and HD engines and vehicles identical to those adopted by the USEPA in 2011 for MYs 2014-18.	12/12/13
Agricultural equipment SIP credit rule Incentive-funded projects must be implemented using Carl Moyer Program Guidelines; must be surplus, quantifiable, enforceable, and permanent, and result in emission reductions that are eligible for SIP credit	10/25/13
Mandatory Report of Greenhouse Gas Emissions Approved a regulation that establishes detailed specifications for emissions calculations, reporting, and verification of GHG emission estimates from significant sources	10/25/13
CA Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Technical revisions to the Mandatory Reporting of Greenhouse Gas Emissions Reg to further align reporting methods with U.S.EPA, update factors, and modify definitions to maintain consistency with the Cap and Trade program.	10/25/13
Zero emission vehicle test procedures: existing certification test procedures for plug-in hybrid vehicles need to be updated to reflect technology developments. The ZEV reg will require minor modifications to address clarity and implementation issues.	10/24/13
Consumer Products: Antiperspirants, Deodorants, Test Method 310, Aerosol Coatings, Proposed Repeal of Hairspray Credit) Amendments to require various consumer products to reformulate to reduce VOC or reactivity content to meet specified limits, and to clarify various regulatory provisions, improve enforcement, and add analytical procedures.	9/26/13
Alternative fuel certification procedures Amendments to current alternative fuel conversion certification procedures for motor vehicles and engines that will allow small volume conversion manufacturers to reduce the upfront demonstration requirements and allow systems to be sold sooner with lower certification costs than with the current process, beginning with MY 2018.	9/26/13
Vapor Recovery for Gasoline Dispensing Facilities Amendments to certification and test procedures for vapor recovery equipment used on cargo tanks and at gasoline dispensing facilities.	7/25/13
Off-highway recreational vehicle evaporative emission control Staff proposes to set evaporative emission standards to control hydrocarbon emissions from Off-Highway Recreational Vehicles. The running loss, hot soak, and diurnal performance standards can be met by using proven automobile type control technology	7/25/13
Gasoline and diesel fuel test standards Adopted amendments to add test standards for the measurement of prohibited oxygenates at trace levels specified in existing regulations	1/25/13
LEV III and ZEV Programs for Federal Compliance Option Adopted amendments to deem compliance with national GHG new vehicle standards in 2017-2025 as compliance with California GHG standards for the same model years	11/15/12 12/6/12 EO
Consumer products (automotive windshield washing fluid) Adopted amendments to add portions of 14 California counties to the list of areas with freezing temperatures where 25% VOC content windshield washing fluid could be sold	10/18/2012 EO 03/15/13
GHG mandatory reporting, Fee Regulation, and Cap and Trade 2012 Adopted amendments to eliminate emission verification for facilities emitting less than 25,000 MTCO2e and make minor changes in definitions and requirements	9/20/12 11/2/12 EO
Amendments to Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines Approved amendments to the verification procedure used to evaluate diesel retrofits through emissions, durability, and field testing. Amendments will lower costs associated with required in-use compliance testing, streamline the in-use compliance process, and will extend time allowed to complete verifications.	8/23/2012 EO 07/02/13
Amendments to On-Board Diagnostics (OBD I and II) Regulations Approved amendments to the light- and medium-duty vehicle and heavy-duty engine OBD regulations.	8/23/2012 EO 06/26/13

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Cap and Trade: Amendments to CA Cap on GHG Emissions and Market-Based Compliance Mechanisms, and Amendments Allowing Use of Compliance Instruments Issued by Linked Jurisdictions Amends Cap-and-Trade and compliance mechanisms to add security to the market system and to aid staff in implementation. Amendments include first auction rules, offset registry, market monitoring provisions, and information gathering necessary for the financial services operator.	6/28/12 7/31/12 EO
Vapor recovery defect list Adopted amendments to add defects and verification procedures for equipment approved since 2004, and make minor changes to provide clarity	6/11/12 EO
Tractor-Trailer GHG Regulation: Emergency Amendment Adopted emergency amendment to correct a drafting error and delay the registration date for participation in the phased compliance option	2/29/2012 2/29/12 EO
Advanced Clean Cars (ACC) Regulation: Low-Emission Vehicles and GHG Adopted more stringent criteria emission standards for MY 2015-2025 light and medium duty vehicles (LEV III), amended GHG emission standards for model year 2017-2025 light and medium duty vehicles (LEV GHG), amended ZEV Regulation to ensure the successful market penetration of ZEVs in commercial volumes, amended hydrogen fueling infrastructure mandate of the Clean Fuels Outlet regulation, and amended cert fuel for light duty vehicles from an MTBE-containing fuel to an E10 certification fuel.	1/26/12
Zero Emission Vehicles (ZEV) Adopted amendments to increase compliance flexibility, add two new vehicle categories for use in creating credits, increase credits for 300 mile FCVs, increase requirements for ZEVs and TZEVs, eliminate credit for PZEVs and AT PZEVs, expand applicability to smaller manufacturers, base ZEV credits on range, and make other minor changes in credit requirements	1/26/12
Amendments to Low Carbon Fuel Standard Regulation The amendments address several aspects of the regulation, including: reporting requirements, credit trading, regulated parties, opt-in and opt-out provisions, definitions, and other clarifying language.	12/16/11 10/10/12 EO
Amendments to Small Off-Road Engine and Tier 4 Off-Road Compression-Ignition Engine Regulations And Test Procedures; also "Recreational Marine" Spark-Ignition Marine Engine Amendments (Recreational Boats) adopted. Aligns California test procedures with U.S. EPA test procedures and requires off-road CI engine manufacturers to conduct in-use testing of their entire product lines to confirm compliance with previously established Not-To-Exceed emission thresholds.	12/16/2011 10/25/12 EO
Regulations and Certification Procedures for Engine Packages used in Light-Duty Specially Constructed Vehicles (Kit Cars) Ensures that certified engine packages, when placed into any Kit Car, would meet new vehicle emission standards, and be able to meet Smog Check requirements.	11/17/11 9/21/12 EO
Amendments to the California Reformulated Gasoline Regulations Corrects drafting errors in the predictive model, deletes outdated regulatory provisions, updates the notification requirements, and changes the restrictions on blending CARBOB with other liquids.	10/21/11 8/24/12 EO
Amendments to the In-Use Diesel Transport Refrigeration Units (TRU) ATCM Mechanisms to improve compliance rates and enforceability.	10/21/11 8/31/12 EO
Amendments to the AB 32 Cost of Implementation Fee Regulation Clarifies requirements and regulatory language, revises definitions.	10/20/11 8/21/12 EO
Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, Including Compliance Offset Protocols Greenhouse Gas Emissions Cap-and-Trade Program, including compliance offset protocols and multiple pathways for compliance.	10/21/11 8/21/12 EO
Amendments to the Regulation for Cargo Handling Equipment (CHE) at Ports and Intermodal Rail Yards (Port Yard Trucks Reg) Provides additional compliance flexibility, and maintains anticipated emissions reductions. As applicble to yard trucks and two-engine sweepers.	9/22/11 8/2/12 EO
Amendments to the Enhanced Vapor Recovery Regulation for Gasoline Dispensing Facilities New requirement for low permeation hoses at gasoline dispensing facilities.	9/22/11 7/26/12 EO
Amendments to Cleaner Main Ship Engines and Fuel for Ocean-Going Vessels Adjusts the offshore regulatory boundary. Aligns very low sulfur fuel implementation deadlines with new federal requirements.	6/23/11 9/13/12 EO
Particulate Matter Emissions Measurement Allowance For Heavy-Duty Diesel In-Use Compliance Regulation Emission measurement allowances provide for variability associated with the field testing required in the regulation.	6/23/11 10/12/11 EO

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Low Carbon Fuel Standard Carbon Intensity Lookup Table Amendments Adds new pathways for vegetation-based fuels	2/24/11 1/6/12 EO
Amendments to Cleaner In-Use Heavy-Duty On-Road Diesel Trucks and LSI Fleets Regulations Amends five regulations to provide relief to fleets adversely affected by the economy, and take into account the fact that emissions are lower than previously predicted.	12/16/10 9/19/11 EO
Tractor-Trailer GHG Regulation Amendment Enacts administrative changes to increase compliance flexibility and reduce costs	12/16/10 10/26/11 EO
Amendments to Cleaner In-Use Off-Road Diesel-Fueled Fleets Regulation Amendments provide relief to fleets adversely affected by the economy, and take into account the fact that emissions are lower than previously predicted.	12/16/10 10/28/11 EO
In-Use On-Road Diesel-Fueled Heavy-Duty Drayage Trucks at Ports and Rail Yard Facilities Amendments add flexibility to fleets' compliance schedules, mitigate the use of noncompliant trucks outside port and rail properties, and provide transition to the Truck and Bus regulation.	12/16/10 9/19/11 EO
Amendments to the Regulation for Mandatory Reporting of Greenhouse Gas Emissions Changes requirements to align with federal greenhouse gas reporting requirements adopted by US EPA.	12/16/10 10/28/11 EO
Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation Establishes framework and requirements for Greenhouse Gas Emissions Cap-and-Trade Program, including compliance offset protocols.	12/16/10 10/26/11 EO
Amendments to the Consumer Products Regulation Amendments set new or lower VOC limits for some categories, prohibit certain toxic air contaminants, high GWP compounds, and surfactants toxic to aquatic species. Also changes Method 310, used to determine aromatic content of certain products.	11/18/10 9/29/11 EO
Amendment of the ATCM for Diesel Transportation Refrigeration Units (TRU) Amendments expand the compliance options and clarify the operational life of various types of TRUs.	11/18/10 2/2/11 EO
Amendments to the ATCM for Stationary Compression Ignition Engines Approved amendments to closely align the emission limits for new emergency standby engines in the ATCM with the emission standards required by the federal Standards of Performance.	10/21/10 3/25/11 EO
Diesel Vehicle Periodic Smoke Inspection Program Adopted amendments to exempt medium duty diesel vehicles from smoke inspection requirements if complying with Smog Check requirements	10/21/10 8/23/11 EO
Renewable Electricity Standard Regulation Approved a regulation that will require electricity providers to obtain at least 33% of their retail electricity sales from renewable energy resources by 2020.	9/23/10
Energy Efficiency at Industrial Facilities Adopted standards for the reporting of GHG emissions and the feasibility of emissions controls by the largest GHG-emitting stationary sources	7/22/10 5/9/11 EO
Amendments to Commercial Harbor Craft Regulation Approved amendments to require the use of cleaner engines in diesel-fueled crew and supply, barge, and dredge vessels.	6/24/10 4/11/11 EO
Accelerated Introduction of Cleaner Line-Haul Locomotives Agreement with railroads sets prescribed reductions in diesel risk and target years through 2020 at four major railyards	6/24/10
Amendments to New Passenger Motor Vehicle Greenhouse Gas Emission Standards Approved amendments deeming complinace with EPA's GHG standards as compliance with California's standards in 2012 through 2016 model years	2/25/2010 03/29/10
Sulfur Hexafluoride (SF6) Regulation Approved a regulation to reduce emissions of sulfur hexafluoride (SF6), a high-GWP GHG, from high-voltage gas-insulated electrical switchgear.	2/25/10 12/15/10 EO
Amendments to the Statewide Portable Equipment Registration Regulation and Portable Engine ATCM Approved amendments that extend the deadline for removal of certain uncertified portable engines for one year.	1/28/10 8/27/10 EO 12/8/10 EO
Diesel Engine Retrofit Control Verification, Warranty, and Compliance Regulation Amendments Approved amendments to require per-installation compability assessment, performance data collection, and reporting of additional information, and enhance enforceabiility	1/28/10 12/6/10 EO
Stationary Equipment High-GWP Refrigerant Regulation Approved a regulation to reduce emissions of high-GWP refrigerants from stationary non-residential equipment.	12/1/09 9/14/10 EO

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Amendments to Limit Ozone Emissions from Indoor Air Cleaning Devices Adopted amendments to delay the labeling compliance deadlines by one to two years and to make minor changes in testing protocols	12/9/09 7/30/10 EO
Emission Warranty Information Reporting Regulation Amendments Repealed the 2007 regulation and readopted the 1988 regulation with amendments to implement adverse court decision	11/19/09 9/27/10 EO
Amendments to Maximum Incremental Reactivity Tables Added many new compounds and modified reactivity values for many existing compounds in the tables to reflect new research data	11/3/09 7/23/10 EO
AB 32 Cost of Implementation Fee Regulation AB 32 authorizes ARB to adopt by regulation a schedule of fees to be paid by sources of greenhouse gas emissions regulated pursuant to AB 32. ARB staff will propose a fee regulation to support the administrative costs of AB 32 implementation.	9/24/2009 05/06/10 EO
Passenger Motor Vehicle Greenhouse Gas Limits Amendments Approved amendments granting credits to manufacturers for compliant vehicles sold in other states that have adopted California regulations	9/24/09 2/22/10 EO
Consumer Products Amendments Approved amendments that set new VOC limits for multi-purpose solvent and paint thinner products and lower the existing VOC limit for double phase aerosol air fresheners.	9/24/09 8/6/10 EO
Amendments to In-Use Off-Road Diesel-Fueled Fleets Regulation Approved amendments to implement legislatively directed changes and provide additional incentives for early action.	7/23/09 12/2/09 EO 6/3/10 EO
Methane Emissions from Municipal Solid Waste Landfills Approved a regulation to require smaller and other uncontrolled landfills to install gas collection and control systems, and also requires existing and newly installed systems to operate optimally.	6/25/09 5/5/10 EO
Cool Car Standards Approved a regulation requiring the use of solar management window glass in vehicles up to 10,000 lb GVWR.	6/25/09
Enhanced Fleet Modernization (Car Scrap) Approved guidelines for a program to scrap up to 15,000 light duty vehicles statewide.	6/25/09 7/30/10 EO
Amendments to Heavy-Duty On-Board Diagnostics Regulations Approved amendments to the light and medium-duty vehicle and heavy duty engine OBD regulations.	5/28/2009 4/6/10 EO
Smog Check Improvements BAR adopted amendments to implement changes in state law and SIP commitments adopted by ARB between 1996 and 2007	5/7/09 by BAR 6/9/09 EO
AB 118 Air Quality Improvement Program Guidelines The Air Quality Improvement Program provides for up to $50 million per year for seven years beginning in 2009-10 for vehicle and equipment projects that reduce criteria pollutants, air quality research, and advanced technology workforce training. The AQIP Guidelines describe minimum administrative, reporting, and oversight requirements for the program, and provide general criteria for how the program shall be implemented.	04/23/09 08/28/09 EO
Pesticide Element Reduce volatile organic compound (VOC) emissions from the application of agricultural field fumigants in the South Coast, Southeast Desert, Ventura County, San Joaquin Valley, and Sacramento Metro federal ozone nonattainment areas.	4/20/09 10/12/09 EO (2) 8/2/11 EO
Low Carbon Fuel Standard Approved new standards to lower the carbon content of fuels.	4/20/09 11/25/09 EO
Pesticide Element for San Joaquin Valley DPR Director approved pesticide ROG emission limit of 18.1 tpd and committed to implement restrictions on non-fumigant pesticide use by 2014 in the San Joaquin Valley	4/7/09 DPR
Tire Pressure Inflation Regulation Approved a regulation requiring automotive service providers to perform tire pressure checks as part of every service.	3/26/09 2/4/10 EO
Sulfur Hexafluoride from Non-Utility and Non-Semiconductor Applications Approved a regulation to phase out use of Sulfur Hexafluoride over the next several years.	2/26/09 11/12/09 EO
Semiconductor Operations Approved a regulation to set standards to reduce fluorinated gas emissions from the semiconductor and related devices industry.	2/26/09 10/23/09 EO
Plug-In Hybrid Electric Vehicles Test Procedure Amendments Amends test procedures to address plug-in-hybrid electric vehicles	1/23/09 12/2/09 EO
In-Use Off-Road Diesel-Fueled Fleets Amendments Makes administrative changes to recognize delays in the supply of retrofit control devices	1/22/09
Small Containers of Automotive Refrigerant Approved a regulation to reduce leakage from small containers, adopt a container deposit and return program, and require additional container labeling and consumer education requirements.	1/22/09 1/5/10 EO

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Aftermarket Critical Emission Parts on Highway Motorcycles Allows for the sale of certified critical emission parts by aftermarket manufacturers	1/22/09 6/19/09 EO
Heavy-Duty Tractor-Trailer Greenhouse Gas (GHG) Reduction Approved a regulation to reduce greenhouse gas emissions by improving long haul tractor and trailer efficiency through use of aerodynamic fairings and low rolling resistance tires.	12/11/08 10/23/09 EO
Cleaner In-Use Heavy-Duty Diesel Trucks (Truck and Bus Reg) Approved a regulation to reduce diesel particulate matter and oxides of nitrogen through fleet modernization and exhaust retrofits. Makes enforceability changes to public fleet, off-road equipment, and portable equipment regulations.	12/11/08 10/19/09 EO 10/23/09 EO
Large Spark-Ignition Engine Amendments Approved amendments to reduce evaporative, permeation, and exhaust emissions from large spark-ignition (LSI) engines equal to or below 1 liter in displacement.	11/1/08 3/12/09 EO
Small Off-Road Engine (SORE) Amendments Approved amendments to address the excessive accumulation of emission credits.	11/21/08 2/24/10 EO
Proposed AB 118 Air Quality Guidelines for the Air Quality Improvement Program and the Alternative and Renewable Fuel and Vehicle and Technology Program. The California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007 (AB 118) requires ARB to develop guidelines for both the Alternative and Renewable Fuel and Vehicle Technology Program and the Air Quality Improvement Program to ensure that both programs do not adversely impact air quality.	09/25/08 EO 05/20/09
Portable Outboard Marine Tanks and Components (part of Additional Evaporative Emission Standards) Approved a regulation that establishes permeation and emission standards for new portable outboard marine tanks and components.	9/25/08 7/20/09 EO
Cleaner Fuel in Ocean Going Vessels Approved a regulation that requires use of low sulfur fuel in ocean-going ship main engines, and auxiliary engines and boilers.	7/24/08 4/16/09 EO
Spark-Ignition Marine Engine and Boat Amendments Provides optional compliance path for > 500 hp sterndrive/inboard maring engines	7/24/08 6/5/09 EO
Consumer Products Amendments Approved amendments that add volatile organic compound (VOC) limits for seven additional categories and lower limits for twelve previously regulated categories.	6/26/08 5/5/09 EO
Zero emission vehicles Updated California's ZEV requirements to provide greater flexibility with respect to fuels, technologies, and simplifying compliance pathways. Amendments give manufacturers increased flexibility to comply with ZEV requirements by giving credit to plug-in hybrid electric vehicles and establishing additional ZEV categories in recognition of new developments in fuel cell vehicles and battery electric vehicles.	3/27/08 12/17/08 EO
Amendments to the Verification Procedure, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines Adds verification requirements for control technologies that only reduce NOx emissions, new reduction classifications for NOx reducing technologies, new testing requirements, and conditional extensions for verified technologies	1/24/08 12/4/08 EO
Mandatory Report of Greenhouse Gas Emissions Approved a regulation that establishes detailed specifications for emissions calculations, reporting, and verification of GHG emission estimates from significant sources	12/6/07 10/12/08 EO
Gaseous Pollutant Measurement Allowances for In-Use Heavy-Duty Diesel Compliance Measurement accuracy margins are to be determined through an ongoing comprehensive testing program performed by an independent contractor. Amendments include these measurement accuracy margins into the regulation.	12/6/07 10/14/08 EO
Ocean-Going Vessels While at Berth (aka Ship Hotelling) - Auxiliary Engine Cold Ironing and Clean Technology Approved a regulation that reduces emissions from auxiliary engines on ocean-going ships while at-berth.	12/6/07 10/16/08 EO
In-Use On-Road Diesel-Fueled Heavy-Duty Drayage Trucks at Ports and Rail Yard Facilities Approved a regulation that establishes emission standards for in-use, heavy-duty diesel-fueled vehicles that transport cargo to and from California's ports and intermodal rail facilities.	12/6/07 10/12/08 EO
Commercial Harbor Craft Approved a regulation that establishes in-use and new engine emission limits for both auxiliary and propulsion diesel engines on ferries, excursion vessels, tugboats, and towboats.	11/15/07 9/2/08 EO
Suggested Control Measure for Architectural Coatings Amendments Approved amendments to reduce the recommended VOC content of 19 categories of architectural coatings	10/26/07

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Board Action	Hearing Date
Aftermarket Catalytic Converter Requirements Approved amendments that establish more stringent emission performance and durability requirements for used and new aftermarket catalytic converters offered for sale in California	10/25/07 2/21/08 NOD
Limiting Ozone Emissions from Indoor Air Cleaning Devices Approved ozone emission limit of 0.050 ppm for portable indoor air cleaning devices in response to requirements of AB 2276 (2006)	9/27/07 8/7/08 EO
Pesticide Commitment for Ventura County in 1994 SIP Approved substitution of excess ROG emission reductions from state motor vehicle program for 1994 SIP reduction commitment from pesticide application in Ventura County	9/27/07 11/30/07 EO
In-Use Off-Road Diesel Equipment Approved a regulation that requires off-road diesel fleet owners to modernize their fleets and install exhaust retrofits.	7/26/07 4/4/08 EO
Emission Control and Environmental Performance Label Regulations Approved amendments to add a Global Index Label and modify the formal of the Smog Index Label on new cars	6/21/07 5/2/08 EO
Vapor Recovery from Aboveground Storage Tanks Approved a regulation to establish new performance standards and specifications for the vapor recovery systems and components used with aboveground storage tanks.	6/21/07 5/2/08 EO
CaRFG Phase 3 amendments Approved amendments to mitigate the increases in evaporative emissions from on-road motor vehicles resulting from the addition of ethanol to gasoline.	6/14/07 4/25/08 EO 8/7/08 EO
Formaldehyde from Composite Wood Products Approved an ATCM to limit formaldehyde emissions from hardwood plywood, particleboard, and medium density fiberboard to the maximum amount feasible	4/26/07 3/5/08 EO
Portable equipment registration program (PERP) and airborne toxic control measure for diesel-fueled portable engines Approved amendments to allow permitting of Tier 0 portable equipment engines used in emergency or low use duty and to extend permitting of certain Tier 1 and 2 "resident" engines to 1/1/10	3/22/07 7/31/07 EO
Perc Control Measure Amendments Approved amendments to the Perchloroethylene ATCM to prohibit new Perc dry cleaning machines beginning 2008 and phase out all Perc machines by 2023.	1/25/07 11/7/07 EO
Amendments to Emission Warranty Information Reporting & Recall Regulations Approved amendments that tighten the provisions for recalling vehicles for emissions-related failures, helping ensure that corrective action is taken to vehicles with defective emission control devices or systems.	12/7/06 3/22/07 10/17/07 EO
Voluntary accelerated vehicle retirement regulations Approved amendments that authorize the use of remote sensing to identify light-duty high emitters and that establish protocols for quantifying emissions reductions from high emitters proposed for retirement	12/7/06
Emergency regulation for portable equipment registration program (PERP), airborne toxic control measures for portable and stationary diesel-fueled engines	12/7/06
Amendments to the Hexavalent Chromium ATCM Approved amendments that require use of best available control technology on all chrome plating and anodizing facilities.	12/7/06
Consumer Products Regulation Amendments Approved amendments that set lower emission limits in 15 product categories.	11/17/06 9/25/07 EO
Requirements for Stationary Diesel In-Use Agricultural Engines Approved amendments to the stationary diesel engine ATCM which set emissions standards for in-use diesel agricultural engines.	11/16/06 7/3/07 NOD
Ships - Onboard Incineration Approved amendments to cruise ship incineration ATCM to include all oceangoing ships of 300 gross registered tons or more.	11/16/06 9/11/07 EO
Zero Emission Bus Approved amendments postponing the 15 percent purchase requirement three years for transit agencies in the diesel path and one to two years for transit agencies in the alternative fuel path, in order to keep pace with developments in zero emission bus technology, and adding an Advanced Demonstration requirement to offset emission losses.	10/19/06 8/27/07 EO
Distributed generation certification Approved amendments improving the emissions durability and testing requirements, addng waste gas emission standards, and eliminating a redundant PM standard in the current 2007 emission standards.	10/19/06 5/17/07 NOD

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Board Action	Hearing Date
Heavy-Duty Diesel In-Use Compliance Regulation Approved amendments to the heavy-duty diesel engine regulations and test procedures to create a new in-use compliance program conducted by engine manufacturers. The amendments would help ensure compliance with applicable certification standards throughout an engine's useful life.	9/28/06 7/19/07 NOD
Revisions to OBD II and the Emission Warranty Regulations Approved amendments to the OBD II regulation to provide for improved emission control monitoring including air-fuel cylinder imbalance monitoring, oxygen sensor monitoring, catalyst monitoring, permanent fault codes for gasoline vehicles and new thresholds for diesel vehicles.	9/28/06 8/9/07 EO
Off-Highway Recreational Vehicle Amendments Approved amendments to the Off-Highway Recreational Vehicle Regulations including harmonizing evaporative emission standards with federal regulations, expanding the definition of ATVs, modifying labeling requirements, and adjusting riding seasons.	7/20/06 6/1/07 EO
Portable Equipment Registration Program (PERP) Amendments Approved amendments to the Statewide Portable Equipment Registration program that include installation of hour meters on equipment, and revisions to recordkeeping, reporting, and fees.	6/22/06 11/13/06 NOD
Heavy Duty Vehicle Service Information Approved amendments to the Service Information Rule to require manufacturers to make available diagnostic equipment and information for sale to the aftermarket.	6/22/06 5/3/07 EO
LEV II technical amendments Approved amendments to evaporative emission test procedures, four-wheel drive dynamometer provisions, and vehicle label requirements	6/22/06 9/27/06 NOD
Dry Cleaning ATCM Amendments Approved amendments to the Dry Cleaning ATCM to limit siting of new dry cleaners, phase out use of Perc at co-residential facilities, phase out higher emitting Perc sources at other facilities, and require enhanced ventilation at existing and new Perc facilities	5/25/06
Forklifts and other Large Spark Ignition (LSI) Equipment Adopted a regulation to reduce emissions from forklifts and other off-road spark-ignition equipment by establishing more stringent standards for new equipment, and requiring retrofits or engine replacement on existing equipment. Adopts EPA's stamdards fpr 2007; adopts more stringent standards for 2010.	5/25/06 3/2/07 EO
Enhanced Vapor Recovery Amendments Approved amendments to the vapor recovery system regulation and adopted revised test procedures.	5/25/06
Diesel Retrofit Technology Verification Procedure Approved amendments to the Diesel Emission In-use Control Strategy Verification Procedure to substitute a 30% increase limit in NOx concentration for an 80% reduction requirement from PM retrofit devices	3/23/06 12/21/06 NOD
Heavy duty vehicle smoke inspection program amendments Approved amendments to impose a fine on trucks not displaying a current compliance certification sticker	1/26/06 12/4/06 EO
Ocean-going Ship Auxiliary Engine Fuel Approved a regulation to require ships to use cleaner marine gas oil or diesel to power auxiliary engines within 24 nautical miles of the California coast.	12/8/05 10/20/06 EO
Diesel Cargo Handling Equipment Approved a regulation to require new and in-use cargo handling equipment at ports and intermodal rail yards to reduce emissions by utilizing best available control technology.	12/8/05 6/2/06 EO
Public and Utility Diesel Truck Fleets Approved a regulation to reduce diesel particulate matter emissions from heavy duty diesel trucks in government and private utility fleets.	12/8/05 10/4/06 EO
Cruise ships – Onboard Incineration Adopted an Air Toxic Control Measure to prohibit cruise ships from conducting onboard incineration within three nautical miles of the California coast.	11/17/05 2/1/06 NOD
Inboard Marine Engine Rule Amendments Approved amendments to the 2001 regulation to include additional compliance options for manufacturers.	11/17/05 9/26/06 EO
Heavy-Duty Diesel Truck Idling Technology Approved a regulation to limit sleeper truck idling to 5 minutes. Allows alternate technologies to provide cab heating/cooling and power.	10/20/05 9/1/06 EO
Automotive Coating Suggested Control Measure Approved an SCM for automotive coatings for adoption by air districts. The measure will reduce the VOC content of 11 categories of surface protective coatings.	10/20/05
2007-09 Model-year heavy duty urban bus engines and the fleet rule for transit agencies Adopted amendments to align urban bus emission limits with on-road heavy duty truck emission limits and allow for the purchase of non-complying buses under the condition that bus turnover increase to offset NOx increases	10/20/05 10/27/05 7/28/06 EO
Portable fuel containers (part 2 of 2) Approved amendments to revise spout and automatic shutoff design	9/15/05 7/28/06 EO

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Board Action	Hearing Date
Portable Fuel Containers (part 1 of 2) Approved amendments to include kerosene containers in the definition of portable fuel containers	9/15/05 11/9/05 NOD
2007-09 Model-year heavy duty urban bus engines and the fleet rule for transit agencies Adopted amendments to require all transit agencies in SCAQMD to purchase only alternate fuel versions of new buses	Superceded by 10/20/05 and
Reid vapor pressure limit emergency rule Approved amendments to relax Reid vapor pressure limit to accelerate fuel production for Hurricane Katrina victims	9/8/05 Operative for September and October 2005 only
Heavy-Duty Truck OBD Approved a regulation to require on-board diagnostic (OBD) systems for new gas and diesel trucks, similar to the systems on passenger cars.	7/21/05 12/28/05 EO
Definition of Large Confined Animal Facility Adopted a regulation to define the size of a large CAF for the purposes of air quality permitting and reduction of ROG emissions to the extent feasible	6/23/05 4/13/06 EO
ATCM for stationary compIression ignition engines: Approved emergency amendments (3/17/05) and permanent amendments (5/26/05) to relax the diesel PM emission limits on new stationary diesel engines to current off-road engine standards to respond to the lack of availability of engines meeting the original ATCM standard.	3/17/05 5/26/05 7/29/05 EO
Transit Fleet Rule Approved amendments to add emission limits for non-urban bus transit agency vehicles, require lower bus and truck fleet-average NOx and PM emission limits, and clarify emission limits for CO, NMHC, and formaldehyde	2/24/05 10/19/05 NOD
Thermal Spraying ATCM Approved a regulation to reduce emissions of hexavalent chromium and nickel from thermal spraying operations	12/9/04 7/20/05 EO
Tier 4 Standards for Small Off-Road Diesel Engines (SORE) Approved new emission standards for off-road diesel engines to be phased in between 2008 and 2015	12/9/04 10/21/05 EO
Emergency Regulatory Amendment Delaying the January 1, 2005 Implementation Date for the Diesel Fuel Lubricity Standard Adopted an emergency regulation delaying the lubricity standard compliance deadline by five months to respond to fuel pipeline contamination problems	11/24/04 12/10/04 EO
Enhanced vapor recovery compliance extension Approved amendments to the EVR regulation to extend the compliance date for onboard refueling vapor recovery compatibility to the date of EVR compliance	11/18/04 2/11/05 EO
CaRFG Phase 3 amendments Approved amendments correcting errors and streamlining requirements for comliance and enforcement of CaRFG Phase 3 regulations adopted in 1999	11/18/04
Clean diesel fuel for harborcraft and intrastate locomotives Approved a regulation that required harborcraft and locomotives operating solely within California to use clean diesel fuel.	11/18/04 3/16/05 EO
Nonvehicular Source, Consumer Product, and Architectural Coating Fee Regulation Amendment Approved amendments to fee regulations to collect supplemental fees when authorized by the Legislature	11/18/04
Greenhouse gas limits for motor vehicles Approved a regulation that sets the first ever greenhouse gas emission standards on light and medium duty vehicles starting with the 2009 model year.	9/24/04 8/4/05 EO
Gasoline vapor recovery system equipment defects list Approved the addition of defects to the VRED list for use by compliance inspectors	8/24/04 6/22/05 EO
Unihose gasoline vapor recovery systems Approved an emergency regulation and an amendment to delay the compliance date for unihose installation to the date of dispenser replacement	7/22/04 11/24/04 EO
General Idling Limits for Diesel Trucks Approved a regulation that limits idling of heavy-duty diesel trucks operating in California to five minutes, with exceptions for sleeper cabs.	7/22/04
Consumer Products Approved a regulation to reduce ROG emissions from 15 consumer products categories, prohibit the use of 3 toxic compounds in consumer products, ban the use of PDCB in certain products, allow for the use of Alternative Control Plans, and revise Test Method 310	6/24/04 5/6/05 EO
Urban bus engines/fleet rule for transit agencies Approved amendments to allow for the purchase of hybrid diesel buses and revise the zero emission bus demonstration and purchase timelines	6/24/04
Engine Manufacturer Diagnostics Approved a regulation that would require model year 2007 and later heavy duty truck engines to be equipped with engine diagnostic systems to detect malfunctions of the emission control system.	5/20/04
Chip Reflash Approved a voluntary program and a backstop regulation to reduce heavy duty truck NOx emissions through the installation of new software in the engine's electronic control module.	3/25/04 3/21/05 EO

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Board Action	Hearing Date
Portable equipment registration program (PERP) Approved amendments to allow uncertified engines to be registered until December 31, 2005, to increase fees, and to modify administrative requirements	2/26/04 1/7/05 EO 6/21/05 EO
Portable Diesel Engine ATCM Adopted a regulation to reduce diesel PM emissions from portable engines through a series of emission standards that increase in stringency through 2020	2/26/04 1/4/05 EO
California motor vehicle service information rule Adopted amendments to allow for the purchase of heavy duty engine emission-related service information and diagnostic tools by independent service facilities and aftermarket parts manufacturers.	1/22/04 5/20/04
Transportation Refrigeration Unit ATCM Adopted a regulation to reduce diesel PM emissions from transport refrigeration units by establishing emission standards and facility reporting requirements to streamline inspections	12/11/03 2/26/04 11/10/04 EO
Diesel engine verification procedures Approved amendments that reduced warranty coverage to the engine only, delayed the NOx reduction compliance date to 2007, added requirements for proof-of-concept testing for new technology, and harmonized durability requirements with those of EPA	12/11/03 2/26/04 10/17/04
Chip Reflash Approved a voluntary program and a backstop regulation to reduce heavy duty truck NOx emissions through the installation of new software in the engine's electronic control module.	12/11/03 3/27/04 3/21/05 EO
Revised tables of maximum incremental reactivity values Approved the addition of 102 more chemicals with associated maximum incremental reactivity values to existing regulation allowing these chemicals to be used in aerosol coating formulations	12/3/03
Stationary Diesel Engines ATCM Adopted a regulation to reduce diesel PM emissions from stationary diesel engines through the use of clean fuel, lower emission standards, operational practices	11/20/03 12/11/03 2/26/2004 9/27/04 EO
Solid waste collection vehicles Adopted a regulation to reduce toxic diesel particulate emissions from solid waste collection vehicles by over 80 percent by 2010. This measure is part of ARB's plan to reduce the risk from a wide range of diesel engines throughout California.	9/25/03 5/17/04 EO
Small off-road engines (SORE) Adopted more stringent emission standards for the engines used in lawn and garden and industrial equipment, such as string trimmers, leaf blowers, walk-behind lawn mowers, generators, and lawn tractors.	9/25/03 7/26/04 EO
Off-highway recreational vehicles Changes to riding season restrictions	7/24/03
Clean diesel fuel Adopted a regulation to reduce sulfur levels and set a minimum lubricity standard in diesel fuel used in vehicles and off-road equipment in California, beginning in 2006.	7/24/03 5/28/04 EO
Ozone Transport Migitation Amendments Adopted amendments to require upwind districts to (1) have the same no-net-increase permitting thresholds as downwind districts, and (2) adopt "all feasible measures"	5/22/03 10/2/03 NOD
Zero emission vehicles Updated California's ZEV requirements to support the fuel cell car development and expand sales of advanced technology partial ZEVs (like gasoline-electric hybrids) in the near-term, while retaining a role for battery electric vehicles.	3/27/03 12/19/03 EO
Heavy duty gasoline truck standards Aligned its existing rules with new, lower federal emission standards for gasoline-powered heavy-duty vehicles starting in 2008.	12/12/02 9/23/03 EO
Low emission vehicles II Minor administrative changes	12/12/02 9/24/03 EO
Gasoline vapor recovery systems test procudures Approved amendments to add advanced vapor recovery technology certification and testing standards	12/12/02 7/1/03 EO 10/21/03 EO
CaRFG Phase 3 amendments Approved amendments to allow for small residual levels of MTBE in gasoline while MTBE is being phased out and replaced by ethanol	12/12/02 3/20/03 EO
School bus Idling Adopted a measure requiring school bus drivers to turn off the bus or vehicle engine upon arriving at a school and restart it no more that 30 seconds before departure in order to limit children's exposure to toxic diesel particulate exhaust.	12/12/02 5/15/03 EO
California Interim Certification Procedures for 2004 and Subsequent Model Year Hybrid-Electric Vehicles in the Urban Transit Bus and Heavy-Duty Vehicle Classes Regulation Amendment Adopted amendments to allow diesel-path transit agencies to purchase alternate fuel buses with higher NOx limits, establish certification procedures for hybrid buses, and require lower fleet-average PM emission limits	10/24/02 9/2/03 EO

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Board Action	Hearing Date
CaRFG Phase 3 amendments Approved amendments delaying removal of MTBE from gasoline by one year to 12/31/03	7/25/02 11/8/02 EO
Diesel retrofit verification procedures, warranty, and in-use compliance requirements Adopted regulations to specify test procedures, warranty, and in-use compliance of diesel engine PM retrofit control devices	5/16/02 3/28/03 EO
On-board diagnostics for cars Adopted changes to the On-Board Diagnostic Systems (OBD II) regulation to improve the effectiveness of OBD II systems in detecting motor vehicle emission-related problems.	4/25/02 3/7/03 EO
Voluntary accelerated light duty vehicle retirement regulations Establishes standards for a voluntary accelerated retirement program	2/21/02 11/18/02 EO
Residential burning Adopted a measure to reduce emissions of toxic air contaminants from outdoor residential waste burning by eliminating the use of burn barrels and the outdoor burning of residential waste materials other than natural vegetation	2/21/02 12/18/02 EO
California motor vehicle service information rule Adopted regulations to require light- and medium-duty vehicle manufacturers to offer for sale emission-related service information and diagnostic tools to independent service facilities and aftermarket parts manufacturers	12/13/01 7/31/02 EO
Vapor recovery regulation amendments Adopted amendments to expand the list of specified defects requiring equipment to be removed from service	11/15/01 9/27/02 EO
Distributed generation guidelines and regulations Adopted regulations requiring the permitting by ARB of distributed generation sources that are exempt from air district permitting and approved guidelines for use by air districts in permitting non-exempt units	11/15/01 7/23/02 EO
Low emission vehicle regulations (LEV II) Approved amendments to apply PM emission limits to all new gasoline vehicles, extend gasoline PZEV emission limits to all fuel types, and streamline the manufacturer certification process	11/15/01 8/6/02 EO
Gasoline vaport recovery systems test methods and compliance procedures Adopted amendments to add test methods for new technology components, streamline test methods for liquid removal equipment, and***	10/25/01 7/9/02 EO
Heavy-duty diesel trucks Adopted amendments to emissions standards to harmonize with EPA regulations for 2007 and subsequent model year new heavy-duty diesel engines	10/25/01
Automotive coatings Adopted Air Toxic Control Measure which prohibits the sale and use in California of automotive coatings that contain hexavalent chromium or cadmium.	9/20/01 9/2/02 EO
Inboard and sterndrive marine engines Lower emission standards for 2003 and subsequent model year inboard and sterndrive gasoline-powered engines in recreational marine vessels.	7/26/01 6/6/02 EO
Asbestos from construction, grading, quarrying, and surface mining Adopted an Airborne Toxic Control Measure for construction, grading, quarrying, and surface mining operations requiring dust mitigation for construction and grading operations, road construction and maintenance activities, and quarries and surface mines to minimize emissions of asbestos-laden dust	7/26/01 6/7/02 EO
Zero emission vehicle infrastructure and standardization of electric vehicle charging equipment Adopted amendments to the ZEV regulation to alter the method of quantifying production volumes at joint-owned facilities and to add specifications for standardized charging equipment	6/28/01 5/10/02 EO
Pollutant transport designation Adopted amendments to add two transport couples to the list of air basins in which upwind areas are required to adopt permitting thresholds no less stringent than those adopted in downwind areas	4/26/01
Zero emission vehicle regulation amendments Adopted amendments to reduct the numbers of ZEVs required in future years, add a PZEV category and grant partial ZEV credit, modify the ZEV range credit, allow hybrid-electric vehicles partial ZEV credit, grant ZEV credit to advanced technology vehicles, and grant partial ZEV credit for several other minor new programs	1/25/01 12/7/01 EO 4/12/02 EO
Heavy duty diesel engines supplemental test procedures Approved amendments to extend "Not-To-Exceed" and EURO III supplemental test procedure requirements through 2007 when federal requirements will included these tests	12/7/00
Light and medium duty low emission vehicle alignment with federal standards Approved amendments that require light and medium duty vehicles sold in California to meet the more restrictive of state or federal emission standards	12/7/00 12/27/00 EO
Exhaust emission standards for heavy duty gas engines Adopted amendments that establish 2005 emission limits for heavy duty gas engines that are equivalent to federal limits	12/7/00 12/27/00 EO
CaRFG Phase 3 amendments Approved amendments to regulate the replacement of MTBE in gasoline with ethanol	11/16/00 4/25/01 EO
CaRFG Phase 3 test methods Approved amendments to gasoline test procedures to quantify the olefin content and gasoline distillation temperatures	11/16/00 7/11/01 EO 8/28/01 EO

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Board Action	Hearing Date
Antiperspirant and deordorant regulations Adopted amendments to relax a 0% VOC limit to 40% VOC limit for aerosol antiperspirants	10/26/00
Diesel risk reduction plan Adopted plan to reduce toxic particulate from diesel engines through retrofits on existing engines, tighter standards for new engines, and cleaner diesel fuel.	9/28/00
Conditional rice straw burning regulations Adopted regulations to limit rice straw burning to fields with demonstrated disease rates reducing production by more than 5 percent	9/28/00
Asbestos from unpaved roads Tightened an existing Air Toxic Control Measure to prohibit the use of rock containing more than 0.25% asbestos on unsurfaced roads	7/20/00
Architectural coatings Approved amendments to replace mass-based VOC limits with reactivity-based limits, add a table of Maximum Incremental Reactivity values, add limits for polyolefin adhesion promoters, prohibit use of certain toxic solvents, and make other minor changes	6/22/00 5/1/01 EO
Consumer products aerosol adhesives Adopted amendments to delete a 25% VOC limit by 2002, add new VOC limits for six categories of adhesives, prohibit the use of toxic solvents, and add new labeling and reporting requirements	5/25/00 3/14/01 EO
Automotive care products Approved an Air Toxic Control Measure to eliminate use of perchloroethylene, methylene chloride, and trichloroethylene in automotive products such as brake cleaners and degreasers.	4/27/00 2/28/01 EO
Enhanced vapor recovery emergency regulation Adopted a four-year term for equipment certifications	5/22/01 EO
Enhanced vapor recovery Adopted amendments to require the addition of components to reduce spills and leakage, adapt to onboard varpor recovery systems, and continuously monitor system operation and report equipment leaks immediately	3/23/00 7/25/01 EO
Agricultural burning smoke management Adopted amendments to add marginal burn day designations, require day-specific burn authrorizations by districts, and smoke management plans for larger prescribed burn projects	3/23/00 1/22/01 EO
Urban transit buses Adopted a public transit bus fleet rule and emissions standards for new urban buses that mandates a lower fleet-average NOx emission limit, PM retrofits, lower sulfur fuel use, and purchase of specified percentages of zero emission buses in future years	1/27/00 2/24/00 11/22/00 EO 5/29/01 EO
Small Off-Road (diesel) Equipment (SORE) Adopted amendments to conform with new federal requirements for lower and engine power-specific emission limits, and for the averaging, banking, and trading of emissions among SORE manufacturers	1/28/00
CaRFG Phase 3 MTBE phase out Adopted regulations to enable refiners to produce gasoline without MTBE while preserving the emissions benefits of Phase 2 cleaner burning gasoline	12/9/99 6/16/00 EO
Consumer products – mid-term measures II Adopted a regulation which adds emission limits for 2 new categories and tightens emission limits for 15 categories of consumer products	10/28/99
Portable fuel cans Adopted a regulation requiring that new portable fuel containers, used to refuel lawn and garden equipment, motorcycles, and watercraft, be spill-proof beginning in 2001	9/23/99 7/6/00 EO
Clean fuels at service stations Adopted amendments rescinding requirements applicable to SCAB in 1994-1995, modifying the formula for triggering requirements, and allowing the Executive Officer to make adjustments to the numbers of service stations required to provide clean fuels	7/22/99
Gasoline vapor recovery Adopted amendments to certification and test methods	6/24/99
Reformulated gasoline oxygenate Adopted amendments rescinding the requirement for wintertime oxygenate in gasoline sold in the Lake Tahoe Air Basin and requiring the statewide labeling of pumps dispensing gasoline containing MTBE	6/24/99
Marine pleasurecraft Adopted regulations to control emissions from spark-ignition marine engines, specifically, outboard marine engines and personal watercraft	12/11/98 2/17/00 EO 6/14/00 EO
Voluntary accelerated light duty vehicle retirement Adopted regulation setting standards for voluntary accelerated retirement program	12/10/98 10/22/99 EO

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Board Action	Hearing Date
Off-highway recreational vehicles and engines Approved amendments to allow non-complying vehicles to operate in certain seasons and in certain ORV-designated areas	12/10/98 10/22/99 EO
On-road motorcycles Amended on-road motorcycle regulations, to lower the tailpipe emission standards for ROG and NOx	12/10/98
Portable equipment registration program (PERP) Approved amendments to exclude non-dredging equipment operating in OCS areas and equipment emitting hazardous pollutants, include NSPS Part OOO rock crushers, require SCR emission limits and onshore emission offsets from dredging equipment operating in OCS areas, set catalyst emission limits for gasoline engines, and relieve certain retrofitted engines from periodic source testing	12/10/98
Liquid petroleum gas motor fuel specifications Approved amendment rescinding 5% propene limit and extending 10% limit indefinitely	12/11/98
Reformulated gasoline Approved amendments to rescind the RVP exemption for fuel with 10% ethanol and allow for oxygen contents up to 3.7% if the Predictive Model weighted emissions to not exceed original standards	12/11/98
Consumer products Adopted amendments to add new VOC test mothods, to modify Method 310 to quantify low vapor pressure VOC (LVP-VOC) constituents, and to exempt LVP-VOC from VOC content limits	11/19/98
Consumer products Approved amendments to extend the 1999 VOC compliance deadline for several aerosol coatings, antiperspirants and deodorants, and other consumer products categories to 2002, to exempt methyl acetate from the VOC definition, and make other minor changes	11/19/98
Low-emission vehicle program (LEV II) Adopted regulations adding exhaust emission standards for most sport utility vehicles, pick-up trucks and mini-vans, lowering tailpipe standards for cars, further reducing evaporative emission standards, and providing additional means for generating zero-emission vehicle credits	11/5/98 9/17/99 EO
Off-road engine aftermarket parts Approved imiplementation of a new program to test and certify aftermarket parts in gasoline and diesel, light-duty through heavy duty, engines used in off-road vehicles and equipment	11/19/98 10/1/99 EO 7/18/00 EO
Off-road spark ignition engines Adopted new emission standards for small and large spark ignition engines for off-road equipment, a new engine certification program, an in-use compliance testing program, and a three-year phase-in for large LSI	10/22/98
Gasoline deposit control additives Adopted amendments to decertify pre-RFG additives, tighten the inlet valve deposit limits, add a combustion chamber deposit limit, and modify the test procedures to align with the characteristics of reformulated gasoline formulations	9/24/98 4/5/99 EO
Stationary source test methods Adopted amendments to stationary source test methods to align better with federal methods	8/27/98 7/2/99 EO
Locomotive MOA for South Coast Memorandum of agreement (MOA) signed by ARB, U.S. EPA, and major railroads to concentrate cleaner locomotives in the South Coast by 2010 and fulfill a 1994 ozone SIP commitment	7/2/98
Gasoline vapor recovery Adopted amendments to certification and test methods to add methods for onboard refueling vapor recovery, airport refuelers, and underground tank interconnections, and make minor changes to existing methods	5/21/98 8/27/98
Reformulated gasoline Approved amendments to rescind the wintertime oxygenate requirement, allow for sulfur content averaging, and make other minor technical amendments	8/27/98
Ethylene oxide sterilizers Adopted amendments to the ATCM to streamline source testing requirements, add EtO limits in water effluent from control devices, and make other minor changes	5/21/98
Chrome platers Adopted amendments to ATCM to harmonize with requirements of federal NESHAP standards for chrome plating and chromic acid anodizing facilities	5/21/98
On-road heavy-duty vehicles Approved amendments to align on-road heavy duty vehicle engine emission standards with EPA's 2004 standards and align certification, testing, maintenance, and durability requirements with those of EPA	4/23/98 2/26/99 EO
Small off-road engines (SORE) Approved amendments to grant a one-year delay in implementation, relaxation of emissions standards for non-handheld engines, emissions durability requirements, averaging/banking/trading, harmonization with the federal diesel engine regulation, and modifications to the production line testing requirements	3/26/98
Heavy duty vehicle smoke inspection program Adopted amendments to require annual smoke testing, set opacity limits, and exempt new vehicles from testing for the first four years	12/11/97 3/2/98 EO
Consumer products (hairspray credit program) Adopted standards for the granting of tradable emission reduction credits achieved by sales of hairspray products having VOC contents less than required limits	11/13/97

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Light-duty vehicle off-cycle emissions Adopted standards to control excess emissions from aggressive driving and air conditioner use in light duty vehicles and added two light duty vehicle test methods for certification of new vehicles under these standards	7/24/97 3/19/98 EO
Consumer products Adopted amendments to add VOC limits to 18 categories of consumer products used in residential and industrial cleaning, automobile maintenance, and commercial poisons	7/24/97
Enhanced evaporative emissions standards Adopted amendments extending the compliance date for ultra-small volume vehicle manufacturers by one year	5/22/97
Emission reduction credit program Adopted standards for District establishment of ERC programs including certification, banking, use limitation, and reporting requirements	5/22/97
Lead as a toxic air contaminant Adopted an amendment to designate inorganic lead as a toxic air contaminant	4/24/97
Consumer products (hair spray) Adopted amendments to (1) delay a January 1, 1998, compliance deadline to June 1, 1999, (2) require progress plans from manufacturers, and (3) authorize the Executive Officer to require VOC mitigation when granting variances from the June 1, 1999 deadline	3/27/97
Portable engine registration program (PERP) Adopted standards for (1) the permitting of portable engines by ARB and (2) District recognition and enforcement of permits	3/27/97
Liquefied petroleum gas Adopted amendments to extend the compliance deadline from January 1, 1997, to January 1, 1999, for the 5% propene limit in liquefied petroleum gas used in motor vehicles	3/27/97
Onboard diagnostics, phase II Adopted amendments to extend the phase-in of enhanced catalyst monitoring, modify misfire detection requirements, add PVC system and thermostat monitoring requirements, and require manufacturers to sell diagnostic tools and service information to repair shops	12/12/96
Consumer products Adopted amendments to delay 25% VOC compliance date for aerosol adhesives, clarify portions of the regulation, exempt perchloroethylene from VOC definition, extend the sell-through time to three years, and add perchloroethylene reporting requirements	11/21/96
Consumer products (test method) Adopted an amendment to add Method 310 for the testing of VOC content in consumer products	11/21/96
Pollutant transport designation Adopted amendments to modify transport couples from the Broader Sacramento area and add couples to the newly formed Mojave Desert and Salton Sea Air Basins	11/21/96
Diesel fuel certification test methods Approved amendments specifying the test methods used for quantifying the constituents of diesel fuel	10/24/96 6/4/97 EO
Wintertime requirements for utility engines & off-highway vehicles: optional hydrocarbon and NOx standards for snowthrowers and ice augers, raising CO standard for specialty vechiles under 25hp	9/26/96
Large off-road diesel Statement of Principles National agreement between ARB, U.S. EPA, and engine manufacturers to reduce emissions from heavy-duty off-road diesel equipment four years earlier than expected in the 1994 SIP for ozone	9/13/96
Regulatory improvement initiative Rescinded two regulations relating to fuel testing in response to Executive Order W-127-95	5/30/96
Zero emission vehicles Adopted amendments to eliminate zero emission vehicle quotas between 1998 and 2002, and approved MOUs with seven automobile manufacturers to accelerate release of lower emission "49 state" vehicles	3/28/96 7/24/96 EO
CaRFG variance requirements Approved amendments to add a per gallon fee on non-compliant gasoline covered by a variance and to made administrative changes in variance processing and extension	1/25/96 2/5/96 EO 4/2/96 EO
Utility and lawn and garden equipment engines Adopted an amendment to relax the CO standard from 300 to 350 ppm for Class I and II utility engines	1/25/96
National security exemption of military tactical vehicles: such vehicles would not be required to adhere to exhaust emission standards	12/14/95
CaRFG regulation amendments Approved amendments to allow for downstream addition of oxygenates and expansion of compliance options for gasoline formulation	12/14/95
Required additives in gasoline (deposit control additives): terms, definitions, reporting requirements, and tes procedures for compliance are to be clarified	11/16/95
CaRFG test method amendments Approved amendments to designate new test methods for benzene, aromatic hydrocarbon, olefin, and sulfur content of gasoline	10/26/95
Motor vehicle inspection and maintenance program: handled by BAR	10/19/95 by BAR

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Antiperspirants and deordorants, consumer products, and aerosol coating products: ethanol exemption for all products, modifications to aerosol special requirements, modifications for regulatory language consistency, modifications to VOC definition.	9/28/95
Low emission vehicle (LEV III) standards: reactivity adjustment factors, introduction of medium-duty ULEVs, window labels, and certification requirements and test procedures for LEVs	9/28/95
Medium- and heavy-duty gasoline trucks Expedited introduction of ultra-low emission medium-duty vehicles and lower NOx emission standards for heavy-duty gasoline trucks to fulfill a 1994 ozone SIP commitment	9/1/95
Retrofit emission standards: all vehicle classes to be included in the alternate durability test plan, kit manufacturers to be allowed two years to validate dterioration factors under the test plan, update retrofit procedures allowing manufacturers to disable specific OBDs if justified by law.	7/27/95
Gasoline vapor recovery systems: adopts revised certification and test procedures	6/29/95
Onboard refueling vapor recovery standards: 1998 and subsequent MY engine cars, LD trucks, and MD trucks less then 8500 GVWR	6/29/1995 4/24/96 EO
Heavy duty vehicle exhaust emission standards for NOx: amendments to standards and test procedures for 1985 and subsequent MY HD engines, amendments to emission control labels, amendments to Useful Life definition and HD engines and in-use vehicle recalls	6/29/95
Aerosol coatings regulation Adopted regulation to meet California Clean Air Act requirements and a 1994 ozone SIP commitment	3/23/95
Periodic smoke inspection program: delays start of PSIP from 1995 to 1996	12/8/94
Onboard diagnostics phase II: amendments to clarify reg language, ensure maximum effectiveness, and address manufacturer concerns regarding implementation.	12/8/94
Alternative control plan (ACP) for consumer products: a voluntary, market-based VOC emissions cap upon a grouping of consumer products, flexible by manufacturer, that will minimize overall costs of emission reduction methods and programs.	9/22/94
Diesel fuel certification: new specifications for diesel engine certification fuel, amended oxygen specification for CNG certification fuel, and amended commercial motor vehicle liquefied petroleum gas regulations.	9/22/94
Utility and lawn and garden equipment (UGLE) engines: modification to emission test procedures, ECLs, defects warranty, quality-audit testing, and new engine compliance testing.	7/28/94
Evaporative emissions standards and test procuedures Adopted evaporative emissions standards for medium-duty vehicles	2/10/94
Off-road recreational vehicles Adopted emission control regulations for off-road motorcycles, all-terrain vehicles, go-karts, golf carts, and specialty vehicles	1/1/94
Perchloroethylene from dry cleaners Adopted measure to control perchloroethylene emissions from dry cleaning operations	10/1/93
Wintertime oxygenate program: amendments to the control time period for San Luis Obispo County, exemption for small retailers bordering Nevada, flexibility in gasoline delivery time, calibration of ethanol blending equipment, gasoline oxygen content test method	9/9/93
Onboard diagnostic phase II	7/9/93
Urban transit buses Amended regulation to tighten state NOx and particulate matter (PM) standards for urban transit buses beyond federal standards beginning in 1996	6/10/93
1-year implementation delay in emission standards for utility engines	4/8/93
Non-ferrous metal melting Adopted Air Toxic Control Measure for emissions of cadmium, arsenic, and nickel from non-ferrous metal melting operations	1/1/93
Certifications requirements for low emission passenger cars, light-duty trucks & medium duty vehicles	1/14/93
Airborne toxic control measure for emissions of toxic metals from non-ferrous metal melting	12/10/92
Periodic self-inspection program Implemented state law establishing a periodic smoke self-inspection program for fleets operating heavy-duty diesel-powered vehicles	12/10/92
Notice of general public interest for consumer products	11/30/92
Substitute fuel or clean fuel incorporated test procedures	11/12/92
New vehicle testing using CaRFG Phase 2 gasoline Approved amendments to require the use of CaRFG Phase 2 gasoline in the certification of exhaust emissions in new vehicle testing	8/13/92

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Standards and test procedures for alternative fuel retrofit systems	5/14/92
Alternative motor vehicle fuel certification fuel specification	3/12/92
Heavy-duty off-road diesel engines Adopted the first exhaust emission standards and test procedures for heavy-duty off-road diesel engines beginning in 1996	1/9/92
Consumer Products - Tier II Adopted Tier II of regulations to reduce emissions from consumer products	1/9/92
Wintertime oxygen content of gasoline Adopted regulation requiring the addition of oxygenates to gasoline during winter to satisfy federal Clean Air Act mandates for CO nonattainment areas	12/1/91
CaRFG Phase 2 Adopted CaRFGPphase 2 specifications including lowering vapor pressure, reducing the sulfur, olefin, aromatic, and benzene content, and requiring the year-round addition of oxygenates to achieve reductions in ROG, NOx, CO, oxides of sulfur (SOx) and toxics	11/1/91
Low emissions vehicles amendments revising reactivity adjust factor (RAF) provisions and adopting a RAF for M85 transitional low emission vehicles	11/14/91
Onboard diagnostic, phase II	11/12/91
Onboard diagnostics for light-duty trucks and light & medium-duty motor vehicles	9/12/91
Utility and lawn & garden equipment Adopted first off-road mobile source controls under the California Clean Air Act regulating utility, lawn and garden equipment	12/1/90
Control for abrasive blasting	11/8/90
Roadside smoke inspections of heavy-duty vehicles Adopted regulations implementing state law requiring a roadside smoke inspection program for heavy-duty vehicles	11/8/90
Consumer Products Tier I Adopted Tier I of standards to reduce emissions from consumer products	10/11/90
CaRFG Phase I Adopted CaRFG Phase I reformulated gasoline regulations to phase-out leaded gasoline, reduce vapor pressure, and require deposit control additives	9/1/90
Low-emission vehicle (LEV) and clean fuels Adopted the landmark LEV/clean fuel regulations which called for the gradual introduction of cleaner cars in California. The regulations also provided a mechanism to ensure the availability of alternative fuels when a certain number of alternative fuel vehicles are sold	9/1/90
Evaporative emissions from vehicles Modified test procedure to include high temperatures (up to 105 F) and ensure that evaporative emission control systems function properly on hot days	8/9/90
Dioxins from medical waste incinerators Adopted Airborne Toxic Control Measure to reduce dioxin emissions from medical waste incinerators	7/1/90
CA Clean Air Act guidance for permitting Approved California Clean Air Act permitting program guidance for new and modified stationary sources in nonattainment areas	7/1/90
Consumer products BAAQMD	6/14/90
Medium duty vehicle emission standards Adopted three new categories of low emission MDVs, required minimum percentages of production, and established production credit and trading	6/14/90
Medium-duty vehicles Amended test procedures for medium-duty vehicles to require whole-vehicle testing instead of engine testing. This modification allowed enforcement of medium-duty vehicle standards through testing and recall	6/14/90
Ethylene oxide sterilizers Adopted Airborne Toxic Control Measure to reduce ethylene oxide emissions from sterilizers and aerators	5/10/90
Asbestos in serpentine rock Adopted Airborne Toxic Control Measure for asbestos-containing serpentine rock in surfacing applications	4/1/90
Certification procedure for aftermarket parts	2/8/90
Antiperspirants and deodorants Adopted first consumer products regulation, setting standards for antiperspirants and deodorants	11/1/89
Residential woodstoves Approved suggested control measure for the control of emissions from residential wood combustion	11/1/89
On-Board Diagnostic Systems II Adopted regulations to implement the second phase of on-board diagnostic requirements which alert drivers of cars, light-trucks and medium-duty vehicles when the emission control system is not functioning properly	9/1/89
Cars and light-duty trucks Adopted regulations to reduce ROG and CO emissions from cars and light trucks by 35 percent	6/1/89
Architectural coatings Approved a suggested control measure to reduce ROG emissions from architectural coatings	5/1/89

Air Resources Board Control Measures, 1985 - 2015

Board Action	Hearing Date
Chrome from cooling towers Adopted Airborne Toxic Control Measure to reduce hexavalent chromium emissions from cooling towers	3/1/89
Reformulated Diesel Fuel Adopted regulations requiring the use of clean diesel fuel with lower sulfur and aromatic hydrocarbons beginning in 1993	11/1/88
Vehicle Recall Adopted regulations implementing a recall program which requires auto manufacturers to recall and fix vehicles with inadequate emission control systems (Vehicles are identified through in-use testing conducted by the ARB)	9/1/88
Suggested control measure for oil sumps Approved a suggested control measure to reduce emissions from sumps used in oil production operations	8/1/88
Chrome platers Adopted Airborne Toxic Control Measure to reduce emissions of hexavalent chromium emissions from chrome plating and chromic acid anodizing facilities	2/1/88
Suggested control measure for boilers Approved suggested control measure to reduce NOx emissions from industrial, institutional, and commercial boilers, steam generators and process heaters	9/1/87
Benzene from service stations Adopted Airborne Toxic Control Measure to reduce benzene emissions from retail gasoline service stations (Also known as Phase II vapor recovery)	7/1/87
Agricultural burning guidelines Amended existing guidelines to add provisions addressing wildland vegetation management	11/1/86
Heavy-duty vehicle certification Amended certification of heavy-duty diesel and gasoline-powered engines and vehicles to align with federal standards	4/1/86
Cars and light-duty trucks Adopted regulations reducing NOx emissions from passenger cars and light-duty trucks by 40 percent	4/1/86
Sulfur in diesel fuel Removed exemption for small volume diesel fuel refiners	6/1/85
On-Board Diagnostics I Adopted regulations requiring the use of on-board diagnostic systems on gasoline-powered vehicles to alert the driver when the emission control system is not functioning properly	4/1/85
Suggested control measure for wood coatings Approved a suggested control measure to reduce emissions from wood furniture and cabinet coating operations	3/1/85
Suggested control measure for resin manufacturing Approved a suggested control measure to reduce ROG emissions from resin manufacturing	1/1/85

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Appendix D

Mobile Source Control Strategy

2016 PLAN FOR THE 2008 8-HOUR OZONE STANDARD

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Appendix D: Mobile Source Control Strategy

Mobile sources—on-road and off-road combined—account for over 85% of the San Joaquin Valley's total NOx emissions. According to the emissions inventory in Appendix B, mobile source emissions will decrease by nearly 42% from the 2012 baseline year to the 2031 attainment deadline due to already-adopted regulations and associated engine, fuel, and fleet improvements. However, the Valley's total vehicle miles traveled (VMT) are predicted to increase about 36% over the 2012-2031 timeframe, as the Valley remains a fast growing region and continues to serve as one of the state's major goods movement corridors. Additionally, as EPA promulgates increasingly stringent standards, and the District has already reduced over 80% of stationary source emissions within its jurisdiction, coming into attainment will continue to be difficult. Considering all of this in conjunction with the magnitude of the Valley's attainment challenges, it is clear that mobile source emissions reductions must be a key component of the District's strategies to attain EPA's health-based air quality standards.

Despite the need for mobile source control measures, the District does not have the authority to directly regulate the mobile source engines themselves. As discussed in *Chapter 5: Attainment Strategy*, the District has adopted innovative regulations such as Indirect Source Review (ISR) and Employer-based Trip Reduction (eTRIP) to reduce emissions from mobile sources, but only the state of California and the federal government can directly regulate tailpipe emissions from mobile sources. Additionally, land use decisions, such as building new roads, are controlled by the individual cities and eight counties that make up the District, despite the fact that these decisions can affect VMT (and therefore emissions). As such, the Air Resources Board (ARB) and Metropolitan Planning Organizations (MPOs) have adopted a number of comprehensive regulations and programs that have helped the District meet Valley air quality challenges. This appendix, provided by the California Air Resources Board, discusses these key mobile source strategies and demonstrates that these programs will cause a decrease in emissions despite an increase in VMT.

D.1 Key Statewide Mobile Source Regulations and Programs Providing Emission Reductions

Given the severity of California's air quality challenges and the need for ongoing emission reductions, the ARB has implemented the most stringent mobile source emissions control program in the nation. ARB's comprehensive program relies on four fundamental approaches:

- Stringent emissions standards that minimize emissions from new vehicles and equipment;
- In-use programs that target the existing fleet and require the use of the cleanest vehicles and emissions control technologies;
- Cleaner fuels that minimize emissions during combustion; and,
- Incentive programs that remove older, dirtier vehicles and equipment and pay for early adoption of the cleanest available technologies.

This multi-faceted approach has spurred the development of increasingly cleaner technologies and fuels and achieved significant emission reductions across all mobile source sectors that go far beyond national programs or programs in other states. These efforts extend back to the first mobile source regulations adopted in the 1960s, and pre-date the federal *Clean Air Act Amendments (Act) of 1970*, which established the basic national framework for controlling air pollution. In recognition of the pioneering nature of ARB's efforts, the Act provides California unique authority to regulate mobile sources more stringently than the federal government by providing a waiver of preemption for its new vehicle emission standards under Section 209(b). This waiver provision preserves a pivotal role for California in the control of emissions from new motor vehicles, recognizing that California serves as a laboratory for setting motor vehicle emission standards. Since then, the ARB has consistently sought and obtained waivers and authorizations for its new motor vehicle regulations. ARB's history of progressively strengthening standards as technology advances, coupled with the waiver process requirements, ensures that California's regulations remain the most stringent in the nation. A list of regulatory actions ARB has taken since 1985 is provided in Attachment A to highlight the scope of ARB's actions to reduce mobile source emissions.

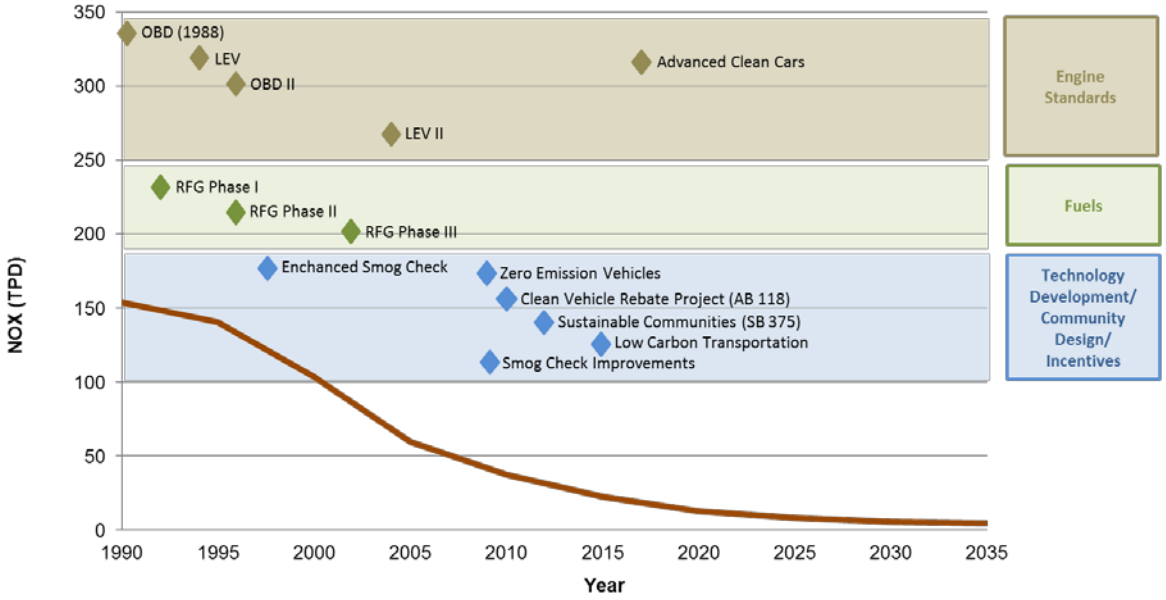
Recently, ARB adopted numerous regulations aimed at reducing exposure to diesel particulate matter and oxides of nitrogen, from freight transport sources like heavy duty diesel trucks, transportation sources like passenger cars and buses, and off-road sources like large construction equipment. Phased implementation of these regulations will produce increasing emission reduction benefits from now until 2031 and beyond, as the regulated fleets are retrofitted, and as older and dirtier portions of the fleets are replaced with newer and cleaner models at an accelerated pace.

Further, ARB and San Joaquin Valley district staff work closely on identifying and distributing incentive funds to accelerate cleanup of engines. Key incentive programs include: the Carl Moyer Program; the Goods Movement Program; the Lower-Emission School Bus Program; and the Air Quality Improvement Program (AQIP). These incentive-based programs work in tandem with regulations to accelerate deployment of cleaner technology.

D.1.1 Light-Duty Vehicles

Figure D-1 illustrates the trend in NOx emissions from light-duty vehicles and key programs contributing to those reductions. As a result of these efforts, light-duty vehicle emissions in the San Joaquin Valley have been reduced significantly since 1990 and will continue to go down through 2031 due to the benefits of ARB's longstanding light-duty mobile source program. From today, light-duty vehicle NOx emissions are reduced by 70 percent in 2031. Key light-duty programs include Advanced Clean Cars, On-Board Diagnostics, Reformulated Gasoline, Incentive Programs, and the Enhanced Smog Check Program.

Figure D - 1 Key Programs to Reduce Light-Duty NOx Emissions



Since setting the nation's first motor vehicle exhaust emission standards in 1966 that led to the first pollution controls, California has dramatically tightened emission standards for light-duty vehicles. Through ARB regulations, today's new cars pollute 99 percent less than their predecessors did thirty years ago. In 1970, ARB required auto manufacturers to meet the first standards to control NOx emissions along with hydrocarbon emissions. The simultaneous control of emissions from motor vehicles and fuels led to the use of cleaner-burning reformulated gasoline (RFG) that has removed the emissions equivalent of 3.5 million vehicles from California's roads. Since ARB first adopted it in 1990, the Low Emission Vehicle Program (LEV and LEV II) and Zero-Emission Vehicle (ZEV) Program have resulted in the production and sales of hundreds of thousands of zero-emission vehicles (ZEVs) in California.

D.1.1.1 Advanced Clean Cars

ARB's groundbreaking Advanced Clean Cars (ACC) program is now providing the next generation of emission reductions in California, and ushering in a new zero emission passenger transportation system. The success of these programs is evident: California is the world's largest market for Zero Emission Vehicles (ZEVs), with over 21 models available today, and a wide variety are now available at lower price points, attracting new consumers. As of January 2015, Californians drive 40 percent of all ZEVs on the road in the United States, while the U.S. makes up about half of the world market. This movement towards commercialization of advanced clean cars has occurred due to ARB's ZEV regulation, part of ACC, which affects passenger cars and light-duty trucks.

ARB's ACC Program, approved in January 2012, is a pioneering approach of a 'package' of regulations that, although separate in construction, are related in terms of the synergy developed to address both ambient air quality needs and climate change.

The ACC program combines the control of smog, soot causing pollutants and greenhouse gas emissions into a single coordinated package of requirements for model years 2015 through 2025. The program assures the development of environmentally superior cars that will continue to deliver the performance**,** utility, and safety vehicle owners have come to expect.

The ACC program approved by ARB in January 2012 also included amendments affecting the current ZEV regulation through the 2017 model year in order to enable manufacturers to successfully meet 2018 and subsequent model year requirements. These ZEV amendments are intended to achieve commercialization through simplifying the regulation and pushing technology to higher volume production in order to achieve cost reductions. The ACC Program benefits will increase over time as new cleaner cars enter the fleet displacing older and dirtier vehicles.

D.1.1.2 On Board Diagnostics

California's first OBD regulation required manufacturers to monitor some of the emission control components on vehicles starting with the 1988 model year. In 1989, ARB adopted OBD II, which required 1996 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles and engines to be equipped with second generation OBD systems. OBD systems are designed to identify when a vehicle's emission control systems or other emission-related computer-controlled components are malfunctioning, causing emissions to be elevated above the vehicle manufacturer's specifications. ARB subsequently strengthened OBD II requirements and added OBD II specific enforcement requirements for 2004 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles and engines.

D.1.1.3 Reformulated Gasoline

Since 1996, ARB has been regulating the formulation of gasoline resulting in California gasoline being the cleanest in the world. California's cleaner-burning gasoline regulation is one of the cornerstones of the State's efforts to reduce air pollution and cancer risk. Reformulated gasoline is fuel that meets specifications and requirements established by ARB. The specifications reduced motor vehicle toxics by about 40 percent and reactive organic gases by about 15 percent. The results from cleaning up fuel can have an immediate impact as soon as it is sold in the State. Vehicle manufacturers design low-emission emission vehicle to take full advantage of cleaner-burning gasoline properties.

D.1.1.4 Incentives

There are a number of different incentive programs focusing on light-duty vehicles that produce extra emission reductions beyond traditional regulations. The incentive programs work in two ways, encouraging the retirement of dirty older cars and encouraging the purchase of a cleaner vehicle.

Voluntary accelerated vehicle retirement or "car scrap" programs provide monetary incentives to vehicle owners to retire older, more polluting vehicles. The purpose of these programs is to reduce fleet emissions by accelerating the turnover of the existing fleet and subsequent replacement with newer, cleaner vehicles. Both State and local vehicle retirement programs are available.

California's voluntary vehicle retirement program is administered by the Bureau of Automotive Repair (BAR) and provides $1,000 per vehicle and $1,500 for low-income consumers for unwanted vehicles that have either failed or passed their last Smog Check Test and that meet certain eligibility guidelines. This program is referred to as the Consumer Assistance Program.

The Enhanced Fleet Modernization Program (EFMP) was approved by the AB 118 legislation to augment the State's existing vehicle retirement program. Approximately $30 million is available annually through 2015 to fund the EFMP via a $1 increase in vehicle registration fees. ARB developed the program in consultation with BAR. The program is jointly administered by both BAR for vehicle retirement, and local air districts for vehicle replacement.

Other programs, in addition to vehicle retirement programs, help to clean up the light-duty fleet. The AQIP, established by AB 118, is an ARB voluntary incentive program to fund clean vehicle and equipment projects. The Clean Vehicle Rebate Project (CVRP) is one of the current projects under AQIP. CVRP, started in 2009, is designed to accelerate widespread commercialization of zero-emission vehicles and plug-in hybrid electric vehicles by providing consumer rebates up to $2,500 to partially offset the higher cost of these advanced technologies. The CVRP is administered statewide by the California Center for Sustainable Energy. In Fiscal Years 2009-2012, $26.1 million, including $2 million provided by the California Energy Commission, funded approximately 8,000 rebates. In June 2012, the ARB allocated up to $15-21 million to the CVRP as outlined in the AQIP FY2012-2013 Funding Plan.

D.1.1.5 California Enhanced Smog Check Program

BAR is the state agency charged with administration and implementation of the Smog Check Program. The Smog Check Program is designed to reduce air pollution from California registered vehicles by requiring periodic inspections for emission-control system problems, and by requiring repairs for any problems found. In 1998, the Enhanced Smog Check program began in which Smog Check stations relied on the BAR-97 Emissions Inspection System (EIS) to test tailpipe emissions with either a Two-Speed Idle (TSI) or Acceleration Simulation Mode (ASM) test depending on where the vehicle was registered. For instance, vehicles registered in urbanized areas received an ASM test, while vehicles in rural areas or received a TSI test.

In 2009, the following requirements were added in to improve and enhance the Smog Check Program, making it more inclusive of motor vehicles and effective on smog reductions:

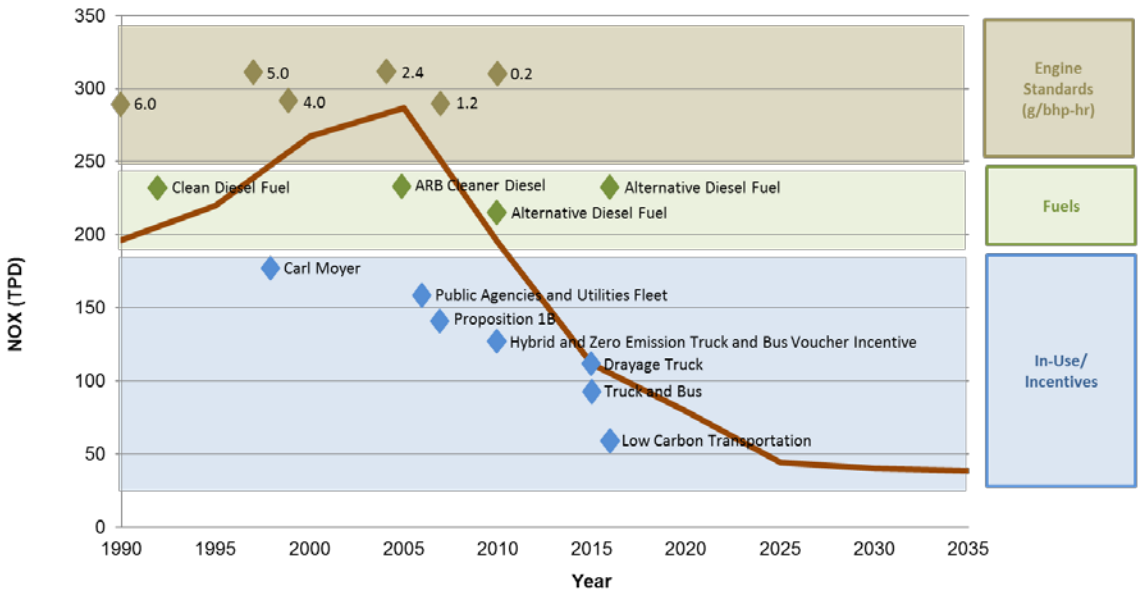
- Low pressure evaporative test;
- More stringent pass/fail cutpoints;
- Visible smoke test; and
- Inspection of light- and medium-duty diesel vehicles.

The next major change was due to AB 2289, adopted in October 2010, a new law restructuring California's Smog Check Program, streamlining and strengthening inspections, increasing penalties for misconduct, and reducing costs to motorists. This new law sponsored by ARB and BAR, promised faster and less expensive Smog Check inspections by talking advantage of OBD software installed on all vehicles since 2000. The new law also directs vehicles without this equipment to high-performing stations, helping to ensure that these cars comply with current emission standards. This program will reduce consumer costs by having stations take advantage of diagnostic software that monitors pollution-reduction components and tailpipe emissions. Beginning mid-2013, testing of passenger vehicles using OBD was required on all vehicles model years 2000 or newer.

D.1.2 Heavy-Duty Trucks

Figure D-2 illustrates the trend in NOx emissions from heavy-duty vehicles and key programs contributing to those reductions. As a result of these efforts, heavy-duty vehicle emissions in the San Joaquin Valley have been reduced significantly since 1990 and will continue to go down through 2031 due to the benefits of ARB's longstanding heavy-duty mobile source program. From today, heavy-duty NOx emissions are reduced by 60 percent in 2031. Key programs include Heavy-Duty Engine Standards, Clean Diesel Fuel, Truck and Bus Regulation and Incentive Programs.

Figure D - 2 Key Programs to Reduce Heavy-Duty Emissions



D.1.2.1 Heavy-Duty Engine Standards

Since 1990, heavy-duty engine NOx emission standards have become dramatically more stringent, dropping from 6 grams per brake horsepower-hour (g/bhp-hr) in 1990 down to the current 0.2 g/bhp-hr standard, which took effect in 2010. In addition to mandatory NOx standards, there have been several generations of optional lower NOx standards put in place over the past 15 years. Most recently in 2015, engine manufacturers can certify to three optional NOx emission standards of 0.1 g/bhp-hr, 0.05 g/bhp-hr, and 0.02 g/bhp-hr (i.e., 50 percent, 75 percent, and 90 percent lower than the current mandatory standard of 0.2 g/bhp-hr). The optional standards allow local air districts and ARB to preferentially provide incentive funding to buyers of cleaner trucks, to encourage the development of cleaner engines.

D.1.2.2 Clean Diesel Fuel

Since 1993, ARB has required that diesel fuel have a limit on the aromatic hydrocarbon content and sulfur content of the fuel. Diesel powered vehicles account for a disproportionate amount of the diesel particulate matter which is considered a toxic air contaminant. In 2006, ARB required a low-sulfur diesel fuel to be used not only by on-road diesel vehicles but also for off-road engines. The diesel fuel regulation allows alternative diesel formulations as long as emission reductions are equivalent to the ARB formulation.

D.1.2.3 Cleaner In-Use Heavy-Duty Trucks (Truck and Bus Regulation)

The Truck and Bus Regulation was first adopted in December 2008. This rule represents a multi-year effort to turn over the legacy fleet of engines and replace them with the cleanest technology available. In December 2010, ARB revised specific provisions of the in-use heavy-duty truck rule, in recognition of the deep economic effects of the recession on businesses and the corresponding decline in emissions.

Starting in 2012, the Truck and Bus Regulation phases in requirements applicable to an increasingly larger percentage of the truck and bus fleet over time, so that by 2023 nearly all older vehicles would need to be upgraded to have exhaust emissions meeting 2010 model year engine emissions levels. The regulation applies to nearly all diesel-fueled trucks and buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds that are privately or federally owned, including on-road and off-road agricultural yard goats, and privately and publicly owned school buses. Moreover, the regulation applies to any person, business, school district, or federal government agency that owns, operates, leases or rents affected vehicles. The regulation also establishes requirements for any in-state or out-of-state motor carrier, California-based broker, or any California resident who directs or dispatches vehicles subject to the regulation. Finally, California sellers of a vehicle subject to the regulation would have to disclose the regulation's potential applicability to buyers of the vehicles. Approximately 170,000 businesses in nearly all industry sectors in California, and almost a million vehicles that operate on California roads each year are affected. Some common industry sectors that operate vehicles subject to the regulation include: for-hire transportation, construction, manufacturing, retail and wholesale trade, vehicle leasing and rental, bus lines, and agriculture.

ARB compliance assistance and outreach activities that are key in support of the Truck and Bus Regulation include:

- The Truck Regulations Upload and Compliance Reporting System, an online reporting tool developed and maintained by ARB staff;
- The Truck and Bus regulation's fleet calculator, a tool designed to assist fleet owners in evaluating various compliance strategies;
- ***Targeted training sessions all over the State; and***
- ***Out-of-state training sessions conducted by a contractor.***

ARB staff also develops regulatory assistance tools, conducts and coordinates compliance assistance and outreach activities, administers incentive programs, and actively enforces the entire suite of regulations. Accordingly, ARB's approach to ensuring compliance is based on a comprehensive outreach and education effort.

D.1.2.4 Incentive Programs

There are a number of different incentive programs focusing on heavy-duty vehicles that produce extra emission reductions beyond traditional regulations. The incentive programs encourage the purchase of a cleaner truck

.
Several State and local incentive funding pools have been used historically -- and remain available -- to fund the accelerated turnover of on-road heavy-duty vehicles. Since 1998, the Carl Moyer Program (Moyer Program) has provided funding for replacement, new purchase, repower and retrofit of trucks. Beginning in 2008, the Goods Movement Emission Reduction Program funded by Proposition 1B has funded cleaner trucks for the region's transportation corridors; the final increment of funds will implement projects in through 2018.

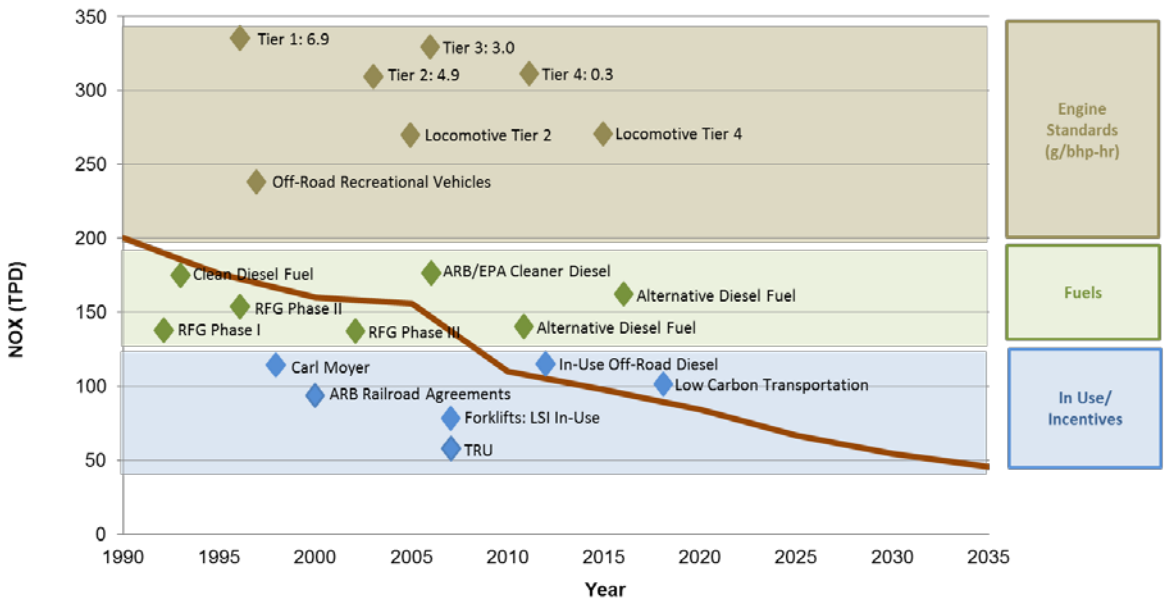
The Air Quality Improvement Program has funded the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) since 2010, and continued San Joaquin Valley participation is expected. ARB has also administered a Truck Loan Assistance Program since 2009.

D.1.3 Off-Road Sources

Off-road sources encompass equipment powered by an engine that does not operate on the road. Sources vary from ships to lawn and garden equipment and for example, include sources like locomotives, aircraft, tractors, harbor craft, off-road recreational vehicles, construction equipment, forklifts, and cargo handling equipment.

Figure D-3 illustrates the trend in NOx emissions from off-road equipment and key programs contributing to those reductions. As a result of these efforts, off-road emissions in the San Joaquin Valley have been reduced significantly since 1990 and will continue to go down through 2031 due to the benefits of ARB's and U.S. EPA longstanding programs. From today, off-road NOx emissions are reduced by 40 percent in 2031. Key programs include Off-Road Engine Standards, Locomotive Engine Standards, Clean Diesel Fuel, Cleaner In-Use Off-Road Regulation and In-Use LSI Fleet Regulation.

Figure D - 3 Key Programs to Reduce Off-Road Emissions



D.1.3.1 Off-Road Engine Standards

The Clean Air Act preempts states, including California, from adopting requirements for new off-road engines less than 175 HP used in farm or construction equipment. California may adopt emission standards for in-use off-road engines pursuant to Section 209(e)(2), but must receive authorization from U.S. EPA before it may enforce the adopted standards.

The Board first approved regulations to control exhaust emissions from small off-road engines (SORE) such as lawn and garden equipment in December 1990 with amendments in 1998 and 2003. These regulations were implemented through three tiers of progressively more stringent exhaust emission standards that were phased in between 1995 and 2008.

Manufacturers of forklift engines are subject to new engine standards for both diesel and Large Spark Ignition (LSI) engines. Off-road diesel engines were first subject to engine standards and durability requirements in 1996 while the most recent Tier 4 Final emission standards were phased in starting in 2013. Tier 4 emission standards are based on the use of advanced after-treatment technologies such as diesel particulate filters and selective catalytic reduction. LSI engines have been subject to new engine standards that include both criteria pollutant and durability requirements since 2001 with the cleanest requirements phased-in starting in 2010.

D.1.3.2 Locomotive Engine Standards

The Clean Air Act and the U.S. EPA national locomotive regulations expressly preempt states and local governments from adopting or enforcing "any standard or other requirement relating to the control of emissions from new locomotives and new engines used in locomotives" (U.S. EPA interpreted new engines in locomotives to mean remanufactured engines, as well). U.S. EPA has approved two sets of national locomotive emission regulations (1998 and 2008). In 1998, U.S. EPA approved the initial set of national locomotive emission regulations. These regulations primarily emphasized NOx reductions through Tier 0, 1, and 2 emission standards. Tier 2 NOx emission standards reduced older uncontrolled locomotive NOx emissions by up to 60 percent, from 13.2 to 5.5 g/bhphr.

In 2008, U.S. EPA approved a second set of national locomotive regulations. Older locomotives upon remanufacture are required to meet more stringent particulate matter (PM) emission standards which are about 50 percent cleaner than Tier 0-2 PM emission standards. U.S. EPA refers to the PM locomotive remanufacture emission standards as Tier 0+, Tier 1+, and Tier 2+. The new Tier 3 PM emission standard (0.1 g/bhphr), for model years 2012-2014, is the same as the Tier 2+ remanufacture PM emission standard. The 2008 regulations also included new Tier 4 (2015 and later model years) locomotive NOx and PM emission standards. The U.S. EPA Tier 4 NOx and PM emission standards further reduced emissions by approximately 95 percent from uncontrolled levels.

D.1.3.3 Clean Diesel Fuel

Since 1993, ARB has required that diesel fuel have a limit on the aromatic hydrocarbon content and sulfur content of the fuel. Diesel powered vehicles account for a disproportionate amount of the diesel particulate matter which is considered a toxic air contaminant. In 2006, ARB required a low-sulfur diesel fuel to be used not only by on-road diesel vehicles but also for off-road engines. The diesel fuel regulation allows alternative diesel formulations as long as emission reductions are equivalent to the ARB formulation.

D.1.3.4 Cleaner In-Use Off-Road Equipment (Off-Road Regulation)

The Off-Road Regulation which was first approved in 2007 and subsequently amended in 2010 in light of the impacts of the economic recession. These off-road vehicles are used in construction, manufacturing, the rental industry, road maintenance, airport ground support and landscaping. In December 2011, the Off-Road Regulation was modified to include on-road trucks with two diesel engines.

The Off-Road Regulation will significantly reduce emissions of diesel PM and NOx from the over 150,000 in-use off-road diesel vehicles that operate in California. The regulation affects dozens of vehicle types used in thousands of fleets by requiring owners to modernize their fleets by replacing older engines or vehicles with newer,

cleaner models, retiring older vehicles or using them less often, or by applying retrofit exhaust controls.

The Off-Road Regulation imposes idling limits on off-road diesel vehicles, requires a written idling policy, and requires a disclosure when selling vehicles. The regulation also requires that all vehicles be reported to ARB and labeled, restricts the addition of older vehicles into fleets, and requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing verified exhaust retrofits. The requirements and compliance dates of the Off-Road Regulation vary by fleet size.

Fleets will be subject to increasingly stringent restrictions on adding older vehicles. The regulation also sets performance requirements. While the regulation has many specific provisions, in general by each compliance deadline, a fleet must demonstrate that it has either met the fleet average target for that year, or has completed the Best Available Control Technology requirements. The performance requirements of the Off-Road Regulation are phased in from January 1, 2014 through January 1, 2019.

Compliance assistance and outreach activities in support of the Off-Road Regulation include:

- The Diesel Off-road On-line Reporting System, an online reporting tool developed and maintained by ARB staff.
- The Diesel Hotline (866-6DIESEL), which provides the regulated public with questions about the regulations and access to ARB staff. Staff is able to respond to questions in English, Spanish and Punjabi.
- The Off-road Listserv, providing equipment owners and dealerships with timely announcement of regulatory changes, regulatory assistance documents, and reminders for deadlines.

D.1.3.5 LSI In-Use Fleet Regulation

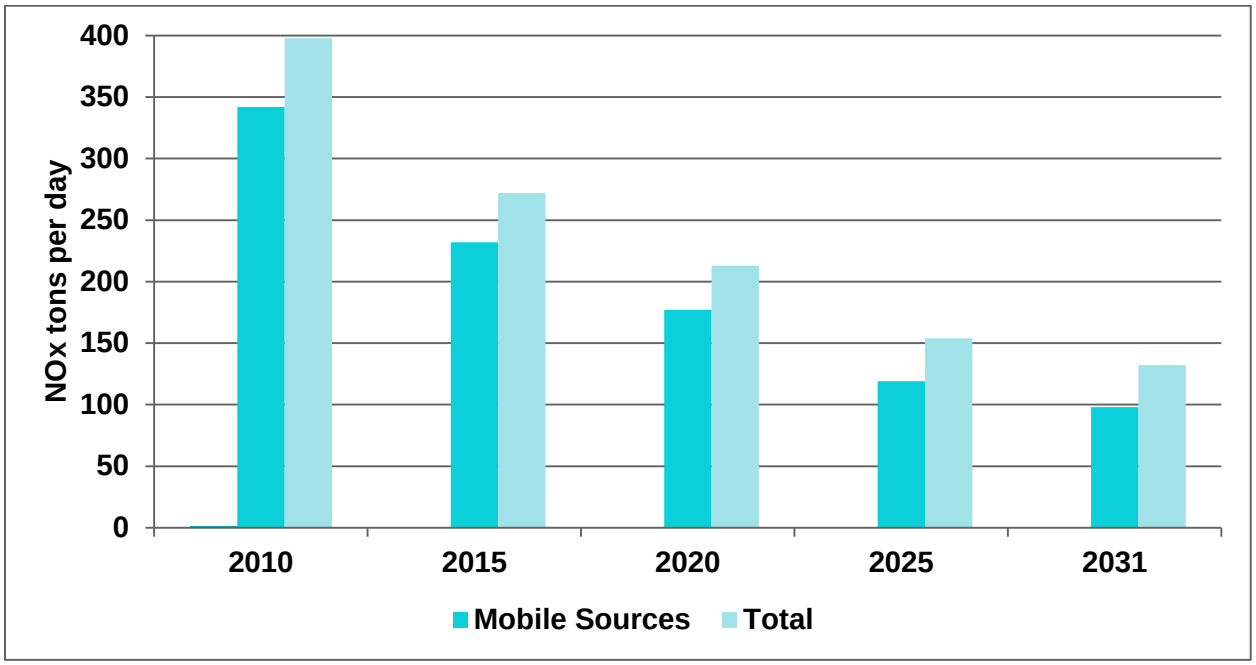
Forklift fleets can be subject to either the LSI fleet regulation, if fueled by gasoline or propane, or the off-road diesel fleet regulation. Both regulations require fleets to retire, repower, or replace higher-emitting equipment in order to maintain fleet average standards. The LSI fleet regulation was originally adopted in 2007 with requirements beginning in 2009. While the LSI fleet regulation applies to forklifts, tow tractors, sweeper/scrubbers, and airport ground support equipment, it maintains a separate fleet average requirement specifically for forklifts. The LSI fleet regulation requires fleets with four or more LSI forklifts to meet fleet average emission standards.

I. Emission Reduction Benefits of Existing Mobile Source Control Program

Air quality modeling has demonstrated that the substantial reductions from implementation of the existing mobile source control program will provide for attainment of both the 80 ppb ozone standard in 2023, and the 75 ppb ozone standard in 2031. As

shown in Figure D-4, these programs will reduce NOx emissions in the Valley by 140 tpd between 2015 and 2031.

Figure D - 4 San Joaquin Valley NOx Emission Reduction Trend



II. Air Resource Board Emission Reductions for the San Joaquin Valley

ARB staff has released the Proposed 2016 State Strategy for the State Implementation Plan (State SIP Strategy) to be considered by the Air Resources Board (Board) in September 2016. While the current control program provides the emission reductions necessary to meet the 75 ppb 8-hour ozone standard by 2031, the State SIP Strategy includes a discussion of the further NOx emission reduction benefits the proposed actions in the strategy would provide in the Valley in 2031. Those benefits include approximately 9 tpd of NOx emission reduction from measures under ARB's direct regulatory authority, which when coupled with strong action at the federal level, could achieve a total of 22 tpd of NOx reductions in 2031. After the State SIP Strategy is considered for approval by the Board later this year, ARB may propose an emissions reduction commitment for the San Joaquin Valley to the Board to be considered for approval for submittal to U.S. EPA.

D.2 TRANSPORTATION CONFORMITY

D.2.1 Transportation Conformity

Section 176(c) of the *Federal Clean Air Act* (CAA) establishes transportation conformity requirements which are intended to ensure that transportation activities do not interfere with air quality progress. The CAA requires that transportation plans, programs, and projects that obtain federal funds or approvals be consistent with, or *conform to* applicable state implementation plans (SIP) before being approved by a Metropolitan Planning Organization (MPO). Conformity to the SIP means that proposed transportation activities must not:

(1) Cause or contribute to any new violation of any standard,
(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.

A SIP analyzes the region's total emissions inventory from all sources necessary to demonstrate reasonable further progress (RFP), attainment, or maintenance of the National Ambient Air Quality Standards (NAAQS). The portion of the total emissions inventory from on-road highway and transit vehicles which provides RFP and attainment of the NAAQS in these analyses becomes the "motor vehicle emissions budget". [1] Motor vehicle emissions budgets are the mechanism for ensuring that transportation planning activities conform to the SIP. Budgets are set for each criteria pollutant or its precursors that the area does not attain and it is set for each RFP milestone year and the attainment year.

D.2.1.1 Requirements for Demonstrating Conformity

The eight metropolitan planning organizations (MPOs) in the Valley each prepare a long range regional transportation plan (RTP) at least every four years and a short range funding program, or regional transportation improvement program (RTIP) every two years. Content of both the RTP and RTIP are specified in federal transportation law found at Titles 23 and 49 of the federal code of regulations and applicable sections of state transportation planning law.

Before adopting the RTP/RTIP, the MPO prepares a regional emissions analysis using the proposed plan and program and compares those emissions to the emission budgets in the SIP. The MPO may determine RTP/RTIP conforms if the emissions from the proposed actions are less than the emissions budgets in the SIP. The conformity

[1] 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.

determination also signifies that the MPO has met other transportation conformity requirements such as interagency consultation and financial constraint.

D.2.1.2 Conformity Budgets

The emissions budgets presented in Attachment B use EMFAC2014 with MPO modeled VMT and speed distributions. The VMT and speed distribution data for each MPO are from the most recently amended 2015 Federal Transportation Improvement Program (FTIP) as of March 22, 2016. Air Resources Board (ARB) staff released a revised emission rate program, EMFAC2014, which updates the emission rates and planning assumptions used in calculating conformity budgets. EMFAC2014 was approved for use in SIPs and transportation conformity by U.S. EPA on December 14, 2015.

Section 93.124(e) of the federal conformity rule provides that nonattainment areas with more than one Metropolitan Planning Organization (MPO) may establish motor vehicle emission budgets for each MPO in the nonattainment area. This plan establishes county-level emission budgets for each MPO for the Rate of Progress (RFP) years of 2018, 2021, 2024, 2027 and 2030, and the attainment year of 2031 in the San Joaquin Valley.

Calculation Methodology

The budgets have been constructed in consultation with the eight Valley MPOs using emissions for a summer average day consistent with the attainment and progress demonstrations in this plan, using the following method:

1) Calculate the on road motor vehicle emissions totals for ROG and NOx from EMFAC2014 for each of the eight Valley MPOs;
2) Round each of the eight county MPO totals up to the nearest tenth ton for ROG and NOx.

The total of the eight Valley MPO budgets for ROG and NOx differ slightly from the total emissions of ROG and NOx in the San Joaquin Valley used in the RFP and attainment demonstrations due to the round up methodology and slight differences in motor vehicle activity in the most recent Valley RTPs. These differences however are less than one half of one percent (0.5%) of the Valley total of ROG and NOx in all progress years and the attainment year.

Table D- 1 San Joaquin Valley Transportation Conformity Budgets[1]

County Subarea	2018		2021		2024		2027		2030		2031	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Fresno	8.0	27.7	6.4	22.2	5.4	14.1	4.9	13.2	4.5	12.6	4.3	12.5
Kern (SJV)	6.6	25.4	5.5	20.4	4.8	12.6	4.5	11.7	4.2	10.9	4.1	10.8
Kings	1.3	5.1	1.1	4.2	0.9	2.6	0.9	2.5	0.8	2.3	0.8	2.3
Madera	1.9	5.1	1.5	4.1	1.2	2.6	1.1	2.3	0.9	2.0	0.9	2.0
Merced	2.5	9.4	2.0	7.8	1.6	4.8	1.5	4.4	1.3	4.2	1.3	4.1
San Joaquin	5.9	13.0	4.9	10.3	4.2	6.9	3.8	6.2	3.5	5.7	3.3	5.5
Stanislaus	3.8	10.5	3.0	8.3	2.6	5.6	2.3	5.1	2.1	4.7	2.0	4.7
Tulare	3.7	9.5	2.9	7.2	2.4	4.7	2.2	4.1	1.9	3.8	1.9	3.7

[1] All emissions are expressed as summer tons/ day and were calculated using EMFAC2014 (December 14, 2015). VMT and speed distribution data for each MPO are from the most recently amended 2015 Federal Transportation Improvement Program (FTIP) as of March 22, 2016.

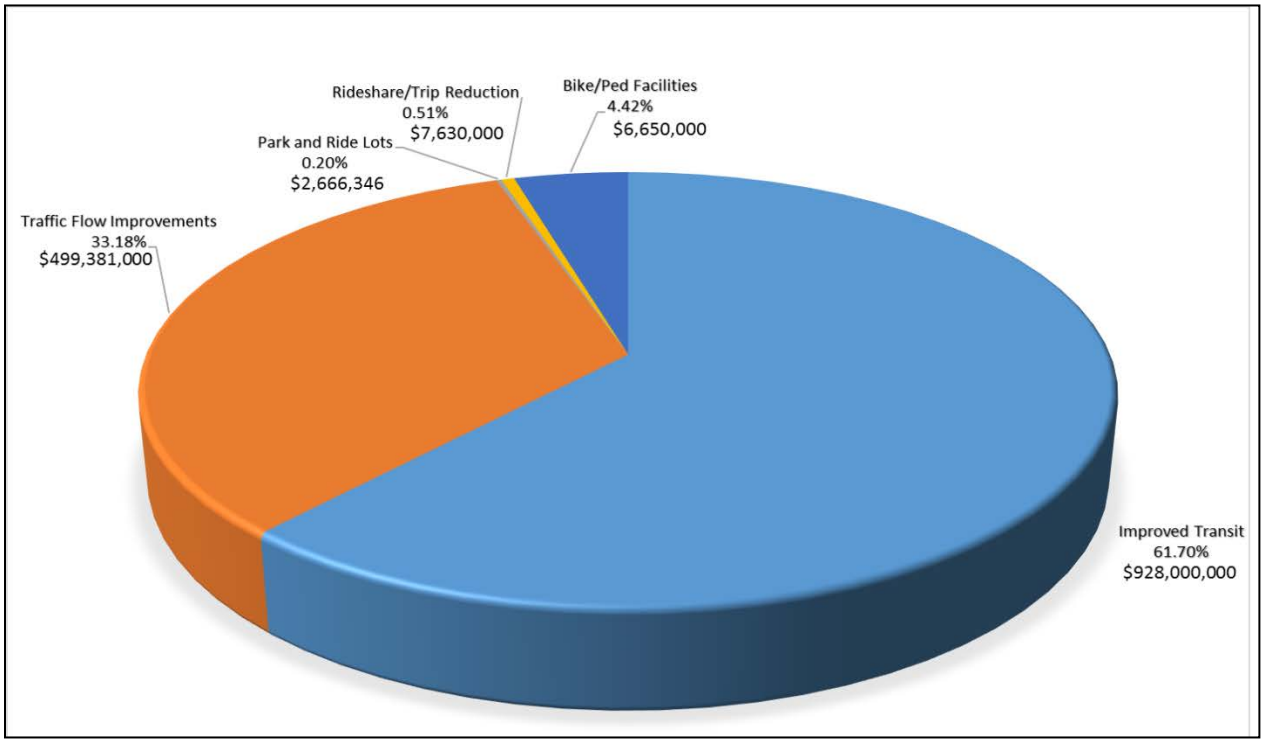
D.2.2 Local Reasonably Available Control Measures (RACM)

Transportation Control Measures (TCMs) in CAA §108(f) are currently being implemented by the Valley MPOs as part of the adopted Congestion Mitigation and Air Quality (CMAQ) cost effectiveness policy and in the development of each Regional Transportation Plan (RTP).

Valley MPOs continue to implement the adopted San Joaquin Valley CMAQ Policy, which was included in the District's *2007 Ozone Plan*, *2008 PM2.5 Plan, 2012 PM2.5 Plan*, *2015 PM2.5 Plan, and 2016 Ozone Plan*. The CMAQ policy includes a standardized process for distributing 20 percent of the CMAQ funds to projects that meet a minimum cost effectiveness beginning in fiscal year 2011. This policy focuses on achieving the most cost effective emissions reductions, while maintaining flexibility to meet local needs. The policy feasibility and minimum cost effectiveness standard was revisited in 2013 as part of the 2013 Federal Transportation Improvement Program (FTIP) development; the minimum cost effectiveness standard was also revisited in 2015 as part of the 2015 FTIP development.

Figure 6-2 provides an illustration of funding allocated valley-wide in the 2015 FTIPs for a sample of TCM categories: improved transit; high occupancy vehicle lanes; traffic flow improvements; park and ride lots; ridesharing/trip reduction programs; bicycle/pedestrian facilities. These tables demonstrate the eight SJV MPOs' commitment to the implementation of TCMs throughout the Valley. As the Valley MPOs implement TCMs through the current policies, all reasonable transportation control measures are being implemented.

Figure D - 5 Illustration of Valley MPO Funding for Sample TCM Categories



Each Valley MPO is required to update its RTP every four years. The RTP is a long-term regional transportation plan that provides a vision for transportation investments throughout the Valley. The 2014 RTPs integrate land use and transportation planning to achieve, where feasible, regional greenhouse gas (GHG) targets set by ARB pursuant to Senate Bill 375 (SB-375).

To further illustrate the eight SJV MPOs commitment to the implementation of TCMs throughout the Valley, the RTPs contains a host of improvements to every component of the regional multimodal transportation system including:

- ***Active transportation (non-motorized transportation, such as biking and walking)***
- ***Transportation demand management (TDM)***
- ***Transportation system management (TSM)***
- ***Transit***
- ***Passenger rail***
- ***Goods movement***
- ***Aviation and airport ground access***
- ***Highways***
- ***Arterials***
- ***Operations and maintenance***

Included within these transportation system improvements are TCM projects that reduce vehicle use or change traffic flow or congestion conditions. TCMs include the following categories of transportation improvement projects and programs:

- ***Improved Transit***
- ***High Occupancy Vehicle Lanes***
- ***Traffic Flow Improvements***
- ***Park and Ride Lots***
- ***Ridesharing/Trip Reduction Programs***
- ***Bicycle/Pedestrian Facilities***

As the San Joaquin Valley MPOs are implementing TCMs through the current policies, all reasonable transportation control measures are being implemented, as expressed in the *2016 Ozone Plan*, *2015 PM2.5 Plan, 2013 Plan for the Revoked 1-hour Ozone Standard,* and the *2012 PM2.5 Plan.* Therefore, there are no emissions reductions associated with unused regulatory control measures.

D.2.3 SB-375

The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities, SB-375) enhances California's strategy to reduce GHG emissions through the coordination of transportation and land-use to reduce vehicle miles traveled per person through the development of a Sustainable Community Strategy. SB-375 identifies specific reduction goals for each of California's MPOs in 2020 and 2035 which the Sustainable Community Strategy must meet, if feasible. For the Valley, the SB-375 target reductions are a 5% per capita GHG emissions reductions from 2005 by 2020 and a 10% per capita GHG emissions reductions from 2005 by 2035. The strategies contained in the RTP/SCS produce benefits for the region far beyond simply reducing GHG emissions. The SCS integrates the transportation network and related strategies with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. As a result, Sustainable Community Strategy development is anticipated to complement the reduction strategies outlined in the *2016 Ozone Plan*.

D.3 VMT OFFSETS

In 1979, U.S. EPA established a primary health-based national ambient air quality standard (NAAQS) for ozone at 0.12 parts per million (ppm) averaged over a 1-hour period. See 44 Fed.Reg. 8220 (February 9, 1979). The *Clean Air Act* (CAA), as amended in 1990, classified areas that had not yet attained the 1-hour standard, based on the severity of their ozone problem, ranging from Marginal to Extreme. Extreme areas were provided the most time to attain, until November 15, 2010, but were also subject to the most stringent requirements. In particular, Severe and Extreme areas were subject to CAA Section 182(d)(1)(A), which requires state implementation plans to adopt "specific enforceable transportation control strategies and transportation control measures to offset any growth in vehicle miles traveled or numbers of vehicle trips in such area…." U.S. EPA designated the San Joaquin Valley Air Basin as "Extreme" for the 1- hour standard on April 16, 2004 (69 Fed Reg 20550). Thus the San Joaquin Valley Air Basin was subject to this requirement under the 1-hour standard.

In 1997, U.S. EPA replaced the 1-hour ozone standard with an 8-hour standard of 0.08 ppm [62 Fed.Reg. 38856 (July 18, 1997)]. The U.S. EPA promulgated rules implementing the 8-hour standard with the "Phase 1" rule being was issued on April 30, 2004 (69 Fed.Reg. 23951), and the "Phase 2" rule, issued on November 29, 2005 (70 Fed. Reg. 71612). These implementation rules required that areas classified as Severe or Extreme under the 1997 8-hour standard would also be subject to the VMT offset requirement. U.S. EPA approved VMT offset demonstrations for the San Joaquin Valley for both the 1-hour and 8-hour ozone standards on April 5, 2015 (81 Fed Reg 19493).

D.3.1 2008 Ozone Standard

In 2008, U.S. EPA revised the 8-hour ozone NAAQS to a level of 0.075 parts per million. (73 Fed.Reg 16436, March 27, 2008). The San Joaquin Valley was subsequently designated non-attainment for the 2008 standard on May 21, 2012 and classified as an extreme non-attainment area (77 Fed.Reg 30087), making the San Joaquin Valley subject to the requirements of CAA Section 182(d)(1)(A) for the 2008 8-hour ozone NAAQS.

D.3.2 U.S. EPA Guidance on VMT Offset Requirement

In August 2012, U.S. EPA issued guidance titled "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 subsequent court decisions regarding previous VMT offset demonstrations omitted any reference to "transportation control strategies" (TCS). TCSs, which are not defined in the CAA 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 transportation control measures or strategies would be required. If additional transportation control measures and transportation control strategies 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 used in the demonstration be the base year used in the attainment demonstration for the ozone standard. To address U.S. EPA's guidance, 2012 is used in this demonstration as the base year for the 2008 8-hour standard. Consistent with U.S. EPA guidance, emissions of VOC are used to determine compliance with the VMT offset requirement.

D.3.3 Transportation Control Strategies and Transportation Control Measures

By listing them separately, the *Clean Air Act* [CAA §182(d)(1)(A)] differentiates between transportation control strategies (TCS) and transportation control measures (TCM), and thus provides for a wide range of strategies and measures as options to offset growth in emissions from vehicle miles traveled (VMT) growth. In addition, the example TCMs listed in Section 108(f)(1)(A) of the CAA 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, idling restrictions). TCMs developed by the eight San Joaquin Valley Metropolitan Planning Organizations (MPOs) provide additional reductions. In addition, the eight MPOs report every two years on the implementation status of TCMs in their jurisdiction.

Based on the provisions in Section 182(d)(1)(A) and the clarifications provided in the U.S. EPA guidance, any combination of transportation control strategies 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 more than sufficient enforceable transportation strategies and measures to meet the requirement to offset the growth in emissions from VMT growth. For the 2008 8-hour standard offset demonstration, 2012 controls are used as the base case control level since 2012 is the base year of the SIP

A list of the state's mobile source control program adopted since 1990 is provided in Attachment C. In addition, a list of TCMs implemented in the San Joaquin Valley Air Basin is provided in Attachment D.

D.3.4 Emissions Due To VMT Growth

As discussed above, U.S. EPA guidance does provide a recommended calculation methodology to determine if sufficient transportation control strategies 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 transportation control measures or strategies would be required.

D.3.5 Methodology

The following calculations are based on the U.S. EPA guidance recommended calculation methodology. As shown for the 8-hour ozone standard, 2012 is the base year used for the attainment demonstration and 2031 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. [1]

1 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

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 court's interpretation of CAA section 182(d)(1)(A).

Analysis Using 2012 as the Base Year for the 2008 8-hour Ozone Standard with Attainment Year of 2031.

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

Table D-2 shows the VOC emissions, VMT, starts, and vehicle population for calendar year 2012 from the EMFAC2014 model.

Table D-2 Summary of 2012 Baseline Year

	VMT (thousand miles/day)	Starts (thousands/day)	Vehicle Population (thousands)	VOC Emissions* (tons/day)
2012 Base Year	96,934	16,624	2,655	50

* Does not include diurnal or resting loss emissions.

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 2012 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 transportation control strategies and TCMs had not been implemented after 2012;

(2) Calculate emissions level with the motor vehicle control program frozen at 2012 levels and assuming VMT, starts, and vehicle population do not increase from 2012 levels; and

(3) Calculate an emissions level that represents emissions with full implementation of all transportation control strategies 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 VMT, starts, and vehicle population.***

To perform this calculation, California Air Resources Board (CARB) staff identified the on-road motor vehicle control programs adopted since 2012 and adjusted EMFAC2014 to reflect the VOC emissions levels in 2031 without the benefits of the post-2012 control programs. The projected VOC emissions are 22 tons/day.

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

In this calculation, the VOC emission levels in calendar year 2031 without benefit of the post 2012 control program are calculated. EMFAC2014 allows a user to input different VMT, starts, and vehicle population than default. For this calculation, EMFAC2014 was run without the benefit of the post 2012 control program for calendar year 2031 with the 2012 level of VMT of 96,934,216 miles per day, the 2012 level of starts at 16,623,711 per day, and the 2012 level of population at 2,665,304 vehicles. The VOC emissions associated with 2012 VMT, starts, and vehicle population in calendar year 2031 are 17 tons/day.

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

The VOC emission levels for 2031 assuming the benefits of the post-2012 motor vehicle control program and the projected VMT, starts, and vehicle population in 2031 are calculated using EMFAC2014. The projected VOC emissions level is 14 tons/day. VOC emissions for the three sets of calculations described above are summarized in table D-3.

Table D-3 Summary of 2031 Attainment Year Emissions Levels

	Description	VMT* (miles/day, thousands)	Starts (thousands/day)	Vehicle Population (thousands)	VOC Emissions** (tons/day)
(1)	**Emissions with Motor Vehicle Control Program Frozen at 2012 Levels.** (VMT, starts and vehicle population at 2031 levels.)	131,835	20,572	3,423	22
(2)	**Emissions with Motor Vehicle Control Program Frozen at 2012 Levels.** (VMT, starts, and vehicle population at 2012 levels)	96,934	16,624	2,655	17
(3)	**Emissions with Full Motor Vehicle Control Program in Place** (VMT, starts and vehicle population at 2031 levels)	131,835	20,572	3,423	14

* CY 2031 VMT based on 2015 FTIPs from the 8 San Joaquin Valley MPOs

** Does not include diurnal or resting loss emissions.

As provided in the U.S. EPA guidance, to determine compliance with the provisions of Section 182(d)(1)(A) of the federal *Clean Air Act*, the emissions levels calculated in Calculation 3 should be less than the emissions levels in Calculation 2:

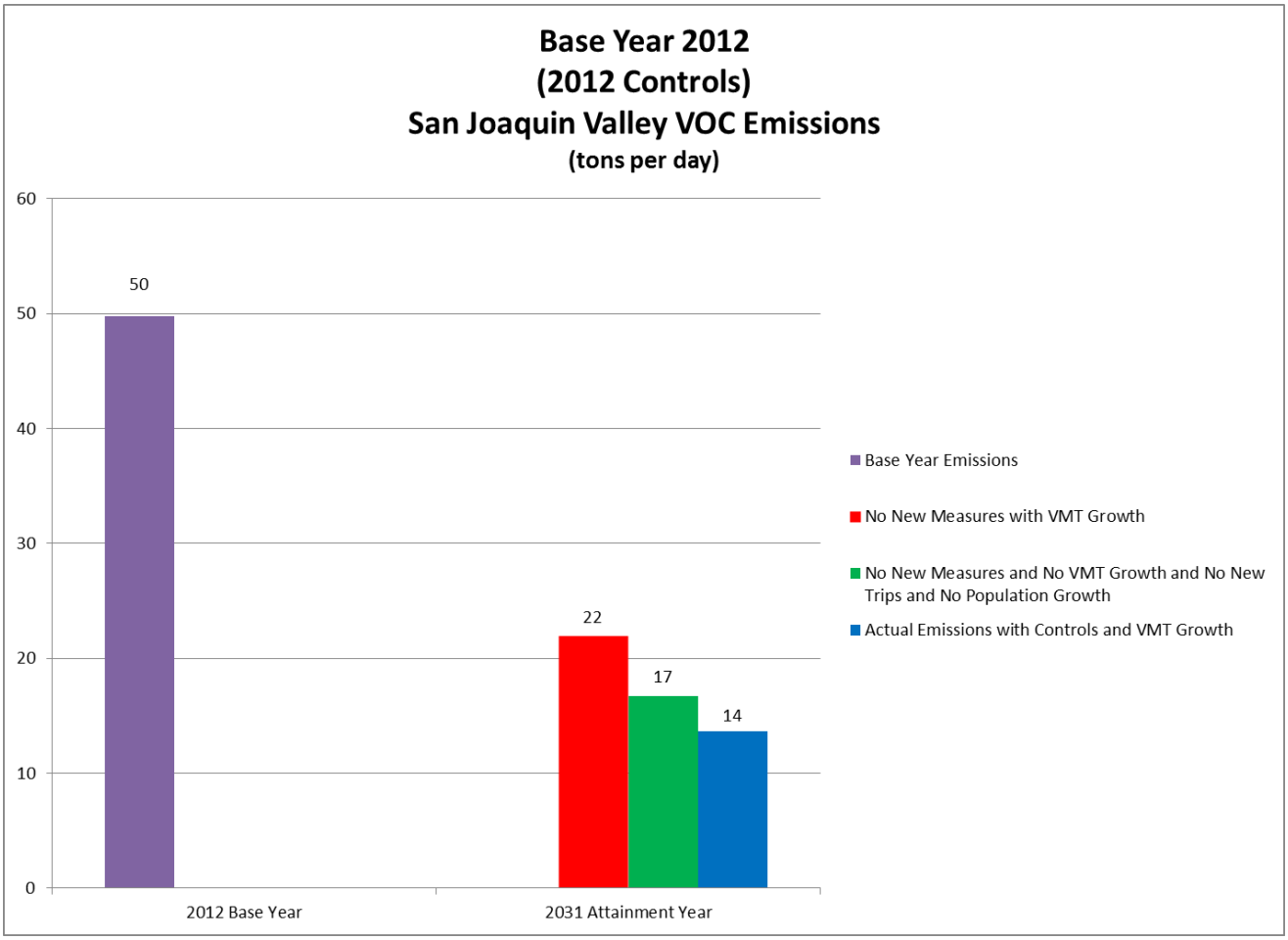
VOC: 14 < 17 tons/day

D.3.6 Summary

The previous sections provide an analysis to demonstrate compliance with the provisions of Section 182(d)(1)(A) of the federal Clean Air Act. To further illustrate the demonstration, Figure 1 below show graphically the emissions benefits of the motor vehicle control programs in offsetting VOC emissions due to increased VMT, starts, and vehicle population in the San Joaquin Valley Air Basin for the 2008 8-hour ozone standard (2012 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 transportation control strategies and TCMs are sufficient to offset the growth in emissions.

Figure D - 6 VOC Emissions* from On-Road Mobile Sources in the San Joaquin Valley Air Basin (2012 Base Year)



* Does not include resting or diurnal loss emissions

ATTACHMENT A: ARB'S MOBILE SOURCE REGULATORY ACTIONS SINCE 1985

Board Action	Hearing Date
Amendments to the Portable Fuel Container Regulation Amendments to the Portable Fuel Container (PFC) regulation, which include requiring certification fuel to contain 10 percent ethanol, harmonizing aspects of the Board's PFC certification and test procedures with those of the U.S. EPA, revising the ARB's certification process, and streamlining, clarifying, and increasing the robustness of ARB's certification and test procedures.	2/18/16
Technical Status and Proposed Revisions to On-Board Diagnostic System Requirements and Associated Enforcement Provisions for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines (OBD II) Amendments to the OBD II regulations that update requirements to account for LEV III applications and monitoring requirements for gasoline and diesel vehicles, and clarify and improve the regulation; also, updates to the associated OBD II enforcement regulation to align it with the proposed amendments to the OBD II regulations and a minor amendment to the definition of "emissions-related part" in title 13, CCR section 1900.	9/25/15
2015 Low Carbon Fuel Standard (LCFS) Amendments (2 of 2) Re-adoption of the Low Carbon Fuel Standard, which includes updates and revisions to the regulation now in effect. The proposed regulation was first presented to the Board at its February 2015 public hearing, at which the Board directed staff to make modifications to the proposal.	9/24/15
Proposed Regulation on the Commercialization of Alternative Diesel Fuels (2 of 2) Regulation governing the introduction of alternative diesel fuels into the California commercial market, including special provisions for biodiesel.	9/24/15
CA Cap on GHG Emissions and Market-Based Compliance Mechanisms (2 of 2) Amendments to the Cap and Trade Regulation to include a new Rice Cultivation Compliance Offset Protocol and an update to the United States Forest Compliance Offset Protocol that would include project eligibility in parts of Alaska.	6/25/15
Intermediate Volume Manufacturer Amendments to the Zero Emission Vehicle Regulation (2 of 2) Amendments regarding intermediate volume manufacturer compliance obligations under the Zero Emission Vehicle regulation.	5/21/15
2015 Amendments to Certification Procedures for Vapor Recovery Systems at Gasoline Dispensing Facilities—Aboveground Storage Tanks and Enhanced Conventional Nozzles Amendments would establish new performance standards and specifications for nozzles used at fleet facilities that exclusively refuel vehicles equipped with onboard vapor recovery systems, would provide regulatory relief for owners of certain existing aboveground storage tanks, and would ensure that mass-produced vapor recovery equipment matches the specifications of equipment evaluated during the ARB certification process.	4/23/15
Proposed Regulation for the Commercialization of Alternative Diesel Fuels (1 of 2) Regulation governing the introduction of alternative diesel fuels into the California commercial market, including special provisions for biodiesel. This is the first of two hearings on the item, and the Board will not take action to approve the proposed regulation.	2/19/15
Evaporative Emission Control Requirements for Spark-Ignition Marine Watercraft Regulation for controlling evaporative emissions from spark-ignition marine watercraft. The proposed regulation will harmonize, to the extent feasible, with similar federal requirements, while adding specific provisions needed to support California's air quality needs.	2/19/15
2015 Low Carbon Fuel Standard (LCFS) Amendments (1 of 2) Regulation for a Low Carbon Fuel Standard that includes re- adoption of the existing Low Carbon Fuel Standard with updates and revisions. This is the first of two hearings on the item, and the Board will not take action to approve the proposed regulation.	2/19/15
CA Cap on GHG Emissions and Market-Based Compliance Mechanisms to Add the Rice Cultivation Projects and Updated U.S. Forest Projects Protocols (1 of 2) Updates to the Cap and Trade Regulation to include a new Rice Cultivation Compliance Offset Protocol and an update to the United States Forest Compliance Offset Protocol that would include project eligibility in parts of Alaska.	12/18/14
2014 Amendments to ZEV Regulation Additional compliance flexibility to ZEV manufacturers working to bring advanced technologies to market.	10/23/14
LEV III Criteria Pollutant Requirements for Light- and Medium-Duty Vehicles the Hybrid Electric Vehicle Test Procedures, and the HD Otto-Cycle and HD Diesel Test Procedures Applies to the 2017 and subsequent model years.	10/23/14
Amendments to Mandatory Reporting Regulation for Greenhouse Gases Further align reporting methods with USEPA methods and factors, and modify reporting requirements to fully support implementation of California's Cap and Trade program.	9/19/14

Board Action	Hearing Date
Amendments to the California Cap on Greenhouse Gas Emissions and Market Based Compliance Mechanisms Technical revisions to Mandatory Reporting of Greenhouse Gas Emissions Regulation to further align reporting methods with U.S.EPA update methods and factors, and modify reporting requirements to fully support implementation of California's Cap and Trade program.	9/18/14
Amendments to the AB 32 Cost of Implementation Fee Regulation Amendments to the regulation to make it consistent with the revised mandatory reporting regulation, to add potential reporting requirements, and to incorporate requirements within the mandatory reporting regulation to streamline reporting.	9/18/14
Low Carbon Fuel Standard 2014 Update As a result of a California Court of Appeal decision, ARB will revisit the LCFS rulemaking process to meet certain procedural requirements of the APA and CEQA. Following incorporation of any modifications to the regulation, the Board will consider the proposed regulation for adoption at a second hearing held in the spring of 2015.	7/24/14
Revisions to the Carl Moyer Memorial Air Quality Standards Attainment Program Guidelines for On-Road Heavy-Duty Trucks Revisions to 1) reduce surplus emission reduction period, 2) reduce minimum CA usage requirement, 3) prioritize on-road funding to small fleets, 4) include light HD vehicles 14000-19500 libs, and 5) clarify program specifications.	7/24/14
Amendments to Enhanced Fleet Modernization (Car Scrap) Program Amendments consistent with SB 459 which requires ARB to increase benefits for low-income California residents, promote cleaner replacement vehicles, and enhance emissions reductions.	6/26/14
Proposed Approval of Amendments to CA Cap on GHG Emissions and Market-Based Compliance Mechanisms Second hearing of two, continued from October 2013.	4/24/14
Truck and Bus Rule Update Amendments to the Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and Other Criteria Pollutants From In-Use On-Road Diesel-Fueled Vehicles: increasing low-use vehicle thresholds, allowing owners to newly opt-in to existing flexibility provisions, adjusting "NOx exempt" vehicle provisions, and granting additional time for fleets in certain areas to meet PM filter requirements.	4/24/14
Heavy-Duty GHG Phase I: On-Road Heavy-Duty GHG Emissions Rule, Tractor-Trailer Rule, Commercial Motor Vehicle Idling Rule, Optional Reduced Emission Standards, Heavy-Duty Hybrid-Electric Vehicles Certification Procedure New GHG standards for MD and HD engines and vehicles identical to those adopted by the USEPA in 2011 for MYs 2014-18.	12/12/13
Agricultural equipment SIP credit rule Incentive-funded projects must be implemented using Carl Moyer Program Guidelines; must be surplus, quantifiable, enforceable, and permanent, and result in emission reductions that are eligible for SIP credit.	10/25/13
Mandatory Report of Greenhouse Gas Emissions Approved a regulation that establishes detailed specifications for emissions calculations, reporting, and verification of GHG emission estimates from significant sources.	10/25/13
CA Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Technical revisions to the Mandatory Reporting of Greenhouse Gas Emissions Regulation to further align reporting methods with U.S.EPA, update factors, and modify definitions to maintain consistency with the Cap and Trade program.	10/25/13
Zero emission vehicle test procedures Existing certification test procedures for plug-in hybrid vehicles need to be updated to reflect technology developments. The ZEV regulation will require minor modifications to address clarity and implementation issues.	10/24/13
Consumer Products: Antiperspirants, Deodorants, Test Method 310, Aerosol Coatings, Proposed Repeal of Hairspray Credit) Amendments to require various consumer products to reformulate to reduce VOC or reactivity content to meet specified limits, and to clarify various regulatory provisions, improve enforcement, and add analytical procedures.	9/26/13
Alternative fuel certification procedures Amendments to current alternative fuel conversion certification procedures for motor vehicles and engines that will allow small volume conversion manufacturers to reduce the upfront demonstration requirements and allow systems to be sold sooner with lower certification costs than with the current process, beginning with MY 2018.	9/26/13

Board Action	Hearing Date
Vapor Recovery for Gasoline Dispensing Facilities Amendments to certification and test procedures for vapor recovery equipment used on cargo tanks and at gasoline dispensing facilities.	7/25/13
Off-highway recreational vehicle evaporative emission control Staff proposes to set evaporative emission standards to control hydrocarbon emissions from Off-Highway Recreational Vehicles. The running loss, hot soak, and diurnal performance standards can be met by using proven automobile type control technology.	7/25/13
Gasoline and diesel fuel test standards Adopted amendments to add test standards for the measurement of prohibited oxygenates at trace levels specified in existing regulations.	1/25/13
LEV III and ZEV Programs for Federal Compliance Option Adopted amendments to deem compliance with national GHG new vehicle standards in 2017-2025 as compliance with California GHG standards for the same model years.	11/15/12 12/6/12 EO
Consumer products (automotive windshield washing fluid) Adopted amendments to add portions of 14 California counties to the list of areas with freezing temperatures where 25% VOC content windshield washing fluid could be sold.	10/18/2012 EO 03/15/13
GHG mandatory reporting, Fee Regulation, and Cap and Trade 2012 Adopted amendments to eliminate emission verification for facilities emitting less than 25,000 MTCO2e and make minor changes in definitions and requirements.	9/20/12 11/2/12 EO
Amendments to Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines Approved amendments to the verification procedure used to evaluate diesel retrofits through emissions, durability, and field testing. Amendments will lower costs associated with required in-use compliance testing, streamline the in-use compliance process, and will extend time allowed to complete verifications.	8/23/2012 EO 07/02/13
Amendments to On-Board Diagnostics (OBD I and II) Regulations Approved amendments to the light- and medium-duty vehicle and heavy-duty engine OBD regulations.	8/23/2012 EO 06/26/13
Cap and Trade: Amendments to CA Cap on GHG Emissions and Market-Based Compliance Mechanisms, and Amendments Allowing Use of Compliance Instruments Issued by Linked Jurisdictions Amends Cap-and-Trade and compliance mechanisms to add security to the market system and to aid staff in implementation. Amendments include first auction rules, offset registry, market monitoring provisions, and information gathering necessary for the financial services operator.	6/28/12 7/31/12 EO
Vapor recovery defect list Adopted amendments to add defects and verification procedures for equipment approved since 2004, and make minor changes to provide clarity	6/11/12 EO
Tractor-Trailer GHG Regulation: Emergency Amendment Adopted emergency amendment to correct a drafting error and delay the registration date for participation in the phased compliance option	2/29/2012 2/29/12 EO
Advanced Clean Cars (ACC) Regulation: Low-Emission Vehicles and GHG Adopted more stringent criteria emission standards for MY 2015-2025 light and medium duty vehicles (LEV III), amended GHG emission standards for model year 2017-2025 light and medium duty vehicles (LEV GHG), amended ZEV Regulation to ensure the successful market penetration of ZEVs in commercial volumes, amended hydrogen fueling infrastructure mandate of the Clean Fuels Outlet regulation, and amended cert fuel for light duty vehicles from an MTBE-containing fuel to an E10 certification fuel.	1/26/12
Zero Emission Vehicle (ZEV) Adopted amendments to increase compliance flexibility, add two new vehicle categories for use in creating credits, increase credits for 300 mile FCVs, increase requirements for ZEVs and TZEVs, eliminate credit for PZEVs and AT PZEVs, expand applicability to smaller manufacturers, base ZEV credits on range, and make other minor changes in credit requirements	1/26/12
Amendments to Low Carbon Fuel Standard Regulation The amendments address several aspects of the regulation, including: reporting requirements, credit trading, regulated parties, opt-in and opt-out provisions, definitions, and other clarifying language.	12/16/11 10/10/12 EO

Board Action	Hearing Date
Amendments to Small Off-Road Engine and Tier 4 Off-Road Compression-Ignition Engine Regulations And Test Procedures; also "Recreational Marine" Spark-Ignition Marine Engine Amendments (Recreational Boats) adopted. Aligns California test procedures with U.S. EPA test procedures and requires off-road CI engine manufacturers to conduct in-use testing of their entire product lines to confirm compliance with previously established Not-To-Exceed emission thresholds.	12/16/2011 10/25/12 EO
Regulations and Certification Procedures for Engine Packages used in Light-Duty Specially Constructed Vehicles (Kit Cars) Ensures that certified engine packages, when placed into any Kit Car, would meet new vehicle emission standards, and be able to meet Smog Check requirements.	11/17/11 9/21/12 EO
Amendments to the California Reformulated Gasoline Regulations Corrects drafting errors in the predictive model, deletes outdated regulatory provisions, updates the notification requirements, and changes the restrictions on blending CARBOB with other liquids.	10/21/11 8/24/12 EO
Amendments to the In-Use Diesel Transport Refrigeration Units (TRU) ATCM Mechanisms to improve compliance rates and enforceability.	10/21/11 8/31/12 EO
Amendments to the AB 32 Cost of Implementation Fee Regulation Clarifies requirements and regulatory language, revises definitions.	10/20/11 8/21/12 EO
Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, Including Compliance Offset Protocols Greenhouse Gas Emissions Cap-and-Trade Program, including compliance offset protocols and multiple pathways for compliance.	10/21/11 8/21/12 EO
Amendments to the Regulation for Cargo Handling Equipment (CHE) at Ports and Intermodal Rail Yards (Port Yard Trucks Regulation) Provides additional compliance flexibility, and maintains anticipated emissions reductions. As applicable to yard trucks and two-engine sweepers.	9/22/11 8/2/12 EO
Amendments to the Enhanced Vapor Recovery Regulation for Gasoline Dispensing Facilities New requirement for low permeation hoses at gasoline dispensing facilities.	9/22/11 7/26/12 EO
Amendments to Cleaner Main Ship Engines and Fuel for Ocean-Going Vessels Adjusts the offshore regulatory boundary. Aligns very low sulfur fuel implementation deadlines with new federal requirements.	6/23/11 9/13/12 EO
Particulate Matter Emissions Measurement Allowance For Heavy-Duty Diesel In-Use Compliance Regulation Emission measurement allowances provide for variability associated with the field testing required in the regulation.	6/23/11
Low Carbon Fuel Standard Carbon Intensity Lookup Table Amendments Adds new pathways for vegetation-based fuels	2/24/11
Amendments to Cleaner In-Use Heavy-Duty On-Road Diesel Trucks and LSI Fleets Regulations Amends five regulations to provide relief to fleets adversely affected by the economy, and take into account the fact that emissions are lower than previously predicted.	12/16/10 9/19/11 EO
Tractor-Trailer GHG Regulation Amendment Enacts administrative changes to increase compliance flexibility and reduce costs	12/16/10
Amendments to Cleaner In-Use Off-Road Diesel-Fueled Fleets Regulation Amendments provide relief to fleets adversely affected by the economy, and take into account the fact that emissions are lower than previously predicted.	12/16/10 10/28/11 EO
In-Use On-Road Diesel-Fueled Heavy-Duty Drayage Trucks at Ports and Rail Yard Facilities Amendments add flexibility to fleets' compliance schedules, mitigate the use of noncompliant trucks outside port and rail properties, and provide transition to the Truck and Bus regulation.	12/16/10 9/19/11 EO
Amendments to the Regulation for Mandatory Reporting of Greenhouse Gas Emissions Changes requirements to align with federal greenhouse gas reporting requirements adopted by US EPA.	12/16/10 10/28/11 EO
Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation Establishes framework and requirements for Greenhouse Gas Emissions Cap-and-Trade Program, including compliance offset protocols.	12/16/10 10/26/11 EO
Amendments to the Consumer Products Regulation Amendments set new or lower VOC limits for some categories, prohibit certain toxic air contaminants, high GWP compounds, and surfactants toxic to aquatic species. Also changes Method 310, used to determine aromatic content of certain products.	11/18/10 9/29/11 EO
Amendment of the ATCM for Diesel Transportation Refrigeration Units (TRU) Amendments expand the compliance options and clarify the operational life of various types of TRUs.	11/18/10 2/2/11 EO
Amendments to the ATCM for Stationary Compression Ignition Engines Approved amendments to closely align the emission limits for new emergency standby engines in the ATCM with the emission standards required by the federal Standards of Performance.	10/21/10 3/25/11 EO

Board Action	Hearing Date
Diesel Vehicle Periodic Smoke Inspection Program Adopted amendments to exempt medium duty diesel vehicles from smoke inspection requirements if complying with Smog Check requirements.	10/21/10 8/23/11 EO
Renewable Electricity Standard Regulation Approved a regulation that will require electricity providers to obtain at least 33% of their retail electricity sales from renewable energy resources by 2020.	9/23/10
Energy Efficiency at Industrial Facilities Adopted standards for the reporting of GHG emissions and the feasibility of emissions controls by the largest GHG-emitting stationary sources.	7/22/10 5/9/11 EO
Accelerated Introduction of Cleaner Line-Haul Locomotives Agreement with railroads sets prescribed reductions in diesel risk and target years through 2020 at four major railyards.	6/24/10
Amendments to Commercial Harbor Craft Regulation Approved amendments to require the use of cleaner engines in diesel-fueled crew and supply, barge, and dredge vessels.	6/24/10 4/11/11 EO
Amendments to New Passenger Motor Vehicle Greenhouse Gas Emission Standards Approved amendments deeming compliance with EPA's GHG standards as compliance with California's standards in 2012 through 2016 model years.	2/25/2010 03/29/10
Sulfur Hexafluoride (SF6) Regulation Regulation to reduce emissions of sulfur hexafluoride (SF6), a high-GWP GHG, from high-voltage gas-insulated electrical switchgear.	2/25/10 12/15/10 EO
Amendments to the Statewide Portable Equipment Registration Regulation and Portable Engine ATCM Approved amendments that extend the deadline for removal of certain uncertified portable engines for one year.	1/28/10 8/27/10 EO 12/8/10 EO
Diesel Engine Retrofit Control Verification, Warranty, and Compliance Regulation Amendments Approved amendments to require per-installation compatibility assessment, performance data collection, and reporting of additional information, and enhance enforceability.	1/28/10 12/6/10 EO
Stationary Equipment High-GWP Refrigerant Regulation Approved a regulation to reduce emissions of high-GWP refrigerants from stationary non-residential equipment.	12/1/09 9/14/10 EO
Amendments to Limit Ozone Emissions from Indoor Air Cleaning Devices Adopted amendments to delay the labeling compliance deadlines by one to two years and to make minor changes in testing protocols.	12/9/09
Emission Warranty Information Reporting Regulation Amendments Repealed the 2007 regulation and readopted the 1988 regulation with amendments to implement adverse court decision.	11/19/09 9/27/10 EO
Amendments to Maximum Incremental Reactivity Tables Added many new compounds and modified reactivity values for many existing compounds in the tables to reflect new research data.	11/3/09 7/23/10 EO
AB 32 Cost of Implementation Fee Regulation AB 32 authorizes ARB to adopt by regulation a schedule of fees to be paid by sources of greenhouse gas emissions regulated pursuant to AB 32. ARB staff will propose a fee regulation to support the administrative costs of AB 32 implementation.	9/24/2009 05/06/10 EO
Passenger Motor Vehicle Greenhouse Gas Limits Amendments Approved amendments granting credits to manufacturers for compliant vehicles sold in other states that have adopted California regulations.	9/24/09 2/22/10 EO
Consumer Products Amendments Approved amendments that set new VOC limits for multi-purpose solvent and paint thinner products and lower the existing VOC limit for double phase aerosol air fresheners.	9/24/09 8/6/10 EO
Amendments to In-Use Off-Road Diesel-Fueled Fleets Regulation Approved amendments to implement legislatively directed changes and provide additional incentives for early action.	7/23/09 12/2/09 EO 6/3/10 EO
Methane Emissions from Municipal Solid Waste Landfills Approved a regulation to require smaller and other uncontrolled landfills to install gas collection and control systems, and also requires existing and newly installed systems to operate optimally.	6/25/09 5/5/10 EO
Cool Car Standards Approved a regulation requiring the use of solar management window glass in vehicles up to 10,000 lb GVWR.	6/25/09

Board Action	Hearing Date
Enhanced Fleet Modernization (Car Scrap) Approved guidelines for a program to scrap up to 15,000 light duty vehicles statewide.	6/25/09 7/30/10 EO
Amendments to Heavy-Duty On-Board Diagnostics Regulations Approved amendments to the light and medium-duty vehicle and heavy duty engine OBD regulations.	5/28/2009 4/6/10 EO
Smog Check Improvements BAR adopted amendments to implement changes in state law and SIP commitments adopted by ARB between 1996 and 2007.	5/7/09 by BAR 6/9/09 EO
AB 118 Air Quality Improvement Program Guidelines The Air Quality Improvement Program provides for up to $50 million per year for seven years beginning in 2009-10 for vehicle and equipment projects that reduce criteria pollutants, air quality research, and advanced technology workforce training. The AQIP Guidelines describe minimum administrative, reporting, and oversight requirements for the program, and provide general criteria for how the program shall be implemented.	04/23/09 08/28/09 EO
Pesticide Element Reduce volatile organic compound (VOC) emissions from the application of agricultural field fumigants in the South Coast, Southeast Desert, Ventura County, San Joaquin Valley, and Sacramento Metro federal ozone nonattainment areas.	4/20/09 10/12/09 EO (2) 8/2/11 EO
Low Carbon Fuel Standard Approved new standards to lower the carbon content of fuels.	4/20/09 11/25/09 EO
Pesticide Element for San Joaquin Valley DPR Director approved pesticide ROG emission limit of 18.1 tpd and committed to implement restrictions on non-fumigant pesticide use by 2014 in the San Joaquin Valley.	4/7/09 DPR
Tire Pressure Inflation Regulation Approved a regulation requiring automotive service providers to perform tire pressure checks as part of every service.	3/26/09 2/4/10 EO
Sulfur Hexafluoride from Non-Utility and Non-Semiconductor Applications Approved a regulation to phase out use of Sulfur Hexafluoride over the next several years.	2/26/09 11/12/09 EO
Semiconductor Operations Approved a regulation to set standards to reduce fluorinated gas emissions from the semiconductor and related devices industry.	2/26/09 10/23/09 EO
Plug-In Hybrid Electric Vehicles Test Procedure Amendments Amends test procedures to address plug-in-hybrid electric vehicles.	1/23/09 12/2/09 EO
In-Use Off-Road Diesel-Fueled Fleets Amendments Makes administrative changes to recognize delays in the supply of retrofit control devices.	1/22/09
Small Containers of Automotive Refrigerant Approved a regulation to reduce leakage from small containers, adopt a container deposit and return program, and require additional container labeling and consumer education requirements.	1/22/09 1/5/10 EO
Aftermarket Critical Emission Parts on Highway Motorcycles Allows for the sale of certified critical emission parts by aftermarket manufacturers.	1/22/09 6/19/09 EO
Heavy-Duty Tractor-Trailer Greenhouse Gas (GHG) Reduction Approved a regulation to reduce greenhouse gas emissions by improving long haul tractor and trailer efficiency through use of aerodynamic fairings and low rolling resistance tires.	12/11/08 10/23/09 EO
Cleaner In-Use Heavy-Duty Diesel Trucks (Truck and Bus Regulation) Approved a regulation to reduce diesel particulate matter and oxides of nitrogen through fleet modernization and exhaust retrofits. Makes enforceability changes to public fleet, off-road equipment, and portable equipment regulations.	12/11/08 10/19/09 EO 10/23/09 EO
Large Spark-Ignition Engine Amendments Approved amendments to reduce evaporative, permeation, and exhaust emissions from large spark-ignition (LSI) engines equal to or below 1 liter in displacement.	11/1/08 3/12/09 EO
Small Off-Road Engine (SORE) Amendments Approved amendments to address the excessive accumulation of emission credits.	11/21/08 2/24/10 EO
Proposed AB 118 Air Quality Guidelines for the Air Quality Improvement Program and the Alternative and Renewable Fuel and Vehicle and Technology Program. The California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007 (AB 118) requires ARB to develop guidelines for both the Alternative and Renewable Fuel and Vehicle Technology Program and the Air Quality Improvement Program to ensure that both programs do not adversely impact air quality.	09/25/08 EO 05/20/09

Board Action	Hearing Date
Portable Outboard Marine Tanks and Components (part of Additional Evaporative Emission Standards) Approved a regulation that establishes permeation and emission standards for new portable outboard marine tanks and components.	9/25/08 7/20/09 EO
Cleaner Fuel in Ocean Going Vessels Approved a regulation that requires use of low sulfur fuel in ocean-going ship main engines, and auxiliary engines and boilers.	7/24/08 4/16/09 EO
Spark-Ignition Marine Engine and Boat Amendments Provides optional compliance path for > 500 hp sterndrive/inboard marine engines.	7/24/08 6/5/09 EO
Consumer Products Amendments Approved amendments that add volatile organic compound (VOC) limits for seven additional categories and lower limits for twelve previously regulated categories.	6/26/08 5/5/09 EO
Zero emission vehicles Updated California's ZEV requirements to provide greater flexibility with respect to fuels, technologies, and simplifying compliance pathways. Amendments give manufacturers increased flexibility to comply with ZEV requirements by giving credit to plug-in hybrid electric vehicles and establishing additional ZEV categories in recognition of new developments in fuel cell vehicles and battery electric vehicles.	3/27/08 12/17/08 EO
Amendments to the Verification Procedure, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines Adds verification requirements for control technologies that only reduce NOx emissions, new reduction classifications for NOx reducing technologies, new testing requirements, and conditional extensions for verified technologies.	1/24/08 12/4/08 EO
Mandatory Report of Greenhouse Gas Emissions Approved a regulation that establishes detailed specifications for emissions calculations, reporting, and verification of GHG emission estimates from significant sources.	12/6/07 10/12/08 EO
Gaseous Pollutant Measurement Allowances for In-Use Heavy-Duty Diesel Compliance Measurement accuracy margins are to be determined through an ongoing comprehensive testing program performed by an independent contractor. Amendments include these measurement accuracy margins into the regulation.	12/6/07 10/14/08 EO
Ocean-Going Vessels While at Berth (aka Ship Hoteling) - Auxiliary Engine Cold Ironing and Clean Technology Approved a regulation that reduces emissions from auxiliary engines on ocean-going ships while at-berth.	12/6/07 10/16/08 EO
In-Use On-Road Diesel-Fueled Heavy-Duty Drayage Trucks at Ports and Rail Yard Facilities Approved a regulation that establishes emission standards for in-use, heavy-duty diesel-fueled vehicles that transport cargo to and from California's ports and intermodal rail facilities.	12/6/07 10/12/08 EO
Commercial Harbor Craft Approved a regulation that establishes in-use and new engine emission limits for both auxiliary and propulsion diesel engines on ferries, excursion vessels, tugboats, and towboats.	11/15/07 9/2/08 EO
Suggested Control Measure for Architectural Coatings Amendments Approved amendments to reduce the recommended VOC content of 19 categories of architectural coatings.	10/26/07
Aftermarket Catalytic Converter Requirements Approved amendments that establish more stringent emission performance and durability requirements for used and new aftermarket catalytic converters offered for sale in California.	10/25/07 2/21/08 NOD
Limiting Ozone Emissions from Indoor Air Cleaning Devices Approved ozone emission limit of 0.050 ppm for portable indoor air cleaning devices in response to requirements of AB 2276 (2006).	9/27/07 8/7/08 EO
Pesticide Commitment for Ventura County in 1994 SIP Approved substitution of excess ROG emission reductions from state motor vehicle program for 1994 SIP reduction commitment from pesticide application in Ventura County.	9/27/07 11/30/07 EO
In-Use Off-Road Diesel Equipment Approved a regulation that requires off-road diesel fleet owners to modernize their fleets and install exhaust retrofits.	7/26/07 4/4/08 EO
Emission Control and Environmental Performance Label Regulations Approved amendments to add a Global Index Label and modify the formal of the Smog Index Label on new cars.	6/21/07 5/2/08 EO
Vapor Recovery from Aboveground Storage Tanks Approved a regulation to establish new performance standards and specifications for the vapor recovery systems and components used with aboveground storage tanks.	6/21/07 5/2/08 EO

Board Action	Hearing Date
CaRFG Phase 3 amendments Approved amendments to mitigate the increases in evaporative emissions from on-road motor vehicles resulting from the addition of ethanol to gasoline.	6/14/07 4/25/08 EO 8/7/08 EO
Formaldehyde from Composite Wood Products Approved an ATCM to limit formaldehyde emissions from hardwood plywood, particleboard, and medium density fiberboard to the maximum amount feasible.	4/26/07 3/5/08 EO
Portable equipment registration program (PERP) and airborne toxic control measure for diesel-fueled portable engines Approved amendments to allow permitting of Tier 0 portable equipment engines used in emergency or low use duty and to extend permitting of certain Tier 1 and 2 "resident" engines to 1/1/10.	3/22/07 7/31/07 EO
Perchloroethylene Control Measure Amendments Approved amendments to the Perchloroethylene ATCM to prohibit new Perc dry cleaning machines beginning 2008 and phase out all Perc machines by 2023.	1/25/07 11/7/07 EO
Amendments to Emission Warranty Information Reporting & Recall Regulations Approved amendments that tighten the provisions for recalling vehicles for emissions-related failures, helping ensure that corrective action is taken to vehicles with defective emission control devices or systems.	12/7/06 3/22/07 10/17/07 EO
Voluntary accelerated vehicle retirement regulations Approved amendments that authorize the use of remote sensing to identify light-duty high emitters and that establish protocols for quantifying emissions reductions from high emitters proposed for retirement.	12/7/06
Emergency regulation for portable equipment registration program (PERP), airborne toxic control measures for portable and stationary diesel-fueled engines	12/7/06
Amendments to the Hexavalent Chromium ATCM Approved amendments that require use of best available control technology on all chrome plating and anodizing facilities.	12/7/06
Consumer Products Regulation Amendments Approved amendments that set lower emission limits in 15 product categories.	11/17/06 9/25/07 EO
Requirements for Stationary Diesel In-Use Agricultural Engines Approved amendments to the stationary diesel engine ATCM which set emissions standards for in-use diesel agricultural engines.	11/16/06 7/3/07 NOD
Ships - Onboard Incineration Approved amendments to cruise ship incineration ATCM to include all oceangoing ships of 300 gross registered tons or more.	11/16/06 9/11/07 EO
Zero Emission Bus Approved amendments postponing the 15 percent purchase requirement three years for transit agencies in the diesel path and one to two years for transit agencies in the alternative fuel path, in order to keep pace with developments in zero emission bus technology, and adding an Advanced Demonstration requirement to offset emission losses.	10/19/06 8/27/07 EO
Distributed generation certification Approved amendments improving the emissions durability and testing requirements, adding waste gas emission standards, and eliminating a redundant PM standard in the current 2007 emission standards.	10/19/06 5/17/07 NOD
Heavy-Duty Diesel In-Use Compliance Regulation Approved amendments to the heavy-duty diesel engine regulations and test procedures to create a new in-use compliance program conducted by engine manufacturers. The amendments would help ensure compliance with applicable certification standards throughout an engine's useful life.	9/28/06 7/19/07 NOD
Revisions to OBD II and the Emission Warranty Regulations Approved amendments to the OBD II regulation to provide for improved emission control monitoring including air-fuel cylinder imbalance monitoring, oxygen sensor monitoring, catalyst monitoring, permanent fault codes for gasoline vehicles and new thresholds for diesel vehicles.	9/28/06 8/9/07 EO
Off-Highway Recreational Vehicle Amendments Approved amendments to the Off-Highway Recreational Vehicle Regulations including harmonizing evaporative emission standards with federal regulations, expanding the definition of ATVs, modifying labeling requirements, and adjusting riding seasons.	7/20/06 6/1/07 EO
Portable Equipment Registration Program (PERP) Amendments Approved amendments to the Statewide Portable Equipment Registration program that include installation of hour meters on equipment, and revisions to recordkeeping, reporting, and fees.	6/22/06 11/13/06 NOD
Heavy Duty Vehicle Service Information Approved amendments to the Service Information Rule to require manufacturers to make available diagnostic equipment and information for sale to the aftermarket.	6/22/06 5/3/07 EO

Board Action	Hearing Date
LEV II technical amendments Approved amendments to evaporative emission test procedures, four-wheel drive dynamometer provisions, and vehicle label requirements.	6/22/06 9/27/06 NOD
Dry Cleaning ATCM Amendments Approved amendments to the Dry Cleaning ATCM to limit siting of new dry cleaners, phase out use of Perc at co-residential facilities, phase out higher emitting Perc sources at other facilities, and require enhanced ventilation at existing and new Perc facilities.	5/25/06
Forklifts and other Large Spark Ignition (LSI) Equipment Adopted a regulation to reduce emissions from forklifts and other off-road spark-ignition equipment by establishing more stringent standards for new equipment, and requiring retrofits or engine replacement on existing equipment. Adopts EPA's standards for 2007; adopts more stringent standards for 2010.	5/25/06 3/2/07 EO
Enhanced Vapor Recovery Amendments Approved amendments to the vapor recovery system regulation and adopted revised test procedures.	5/25/06
Diesel Retrofit Technology Verification Procedure Approved amendments to the Diesel Emission In-use Control Strategy Verification Procedure to substitute a 30% increase limit in NOx concentration for an 80% reduction requirement from PM retrofit devices.	3/23/06 12/21/06 NOD
Heavy duty vehicle smoke inspection program amendments Approved amendments to impose a fine on trucks not displaying a current compliance certification sticker.	1/26/06 12/4/06 EO
Ocean-going Ship Auxiliary Engine Fuel Approved a regulation to require ships to use cleaner marine gas oil or diesel to power auxiliary engines within 24 nautical miles of the California coast.	12/8/05 10/20/06 EO
Diesel Cargo Handling Equipment Approved a regulation to require new and in-use cargo handling equipment at ports and intermodal rail yards to reduce emissions by utilizing best available control technology.	12/8/05 6/2/06 EO
Public and Utility Diesel Truck Fleets Approved a regulation to reduce diesel particulate matter emissions from heavy duty diesel trucks in government and private utility fleets.	12/8/05 10/4/06 EO
Cruise ships – Onboard Incineration Adopted an Air Toxic Control Measure to prohibit cruise ships from conducting onboard incineration within three nautical miles of the California coast.	11/17/05 2/1/06 NOD
Inboard Marine Engine Rule Amendments Approved amendments to the 2001 regulation to include additional compliance options for manufacturers.	11/17/05 9/26/06 EO
Heavy-Duty Diesel Truck Idling Technology Approved a regulation to limit sleeper truck idling to 5 minutes. Allows alternate technologies to provide cab heating/cooling and power.	10/20/05 9/1/06 EO
Automotive Coating Suggested Control Measure Approved an SCM for automotive coatings for adoption by air districts. The measure will reduce the VOC content of 11 categories of surface protective coatings.	10/20/05
2007-09 Model-year heavy duty urban bus engines and the fleet rule for transit agencies Adopted amendments to align urban bus emission limits with on-road heavy duty truck emission limits and allow for the purchase of non- complying buses under the condition that bus turnover increase to offset NOx increases.	10/20/05 10/27/05 7/28/06 EO
Portable fuel containers (part 2 of 2) Approved amendments to revise spout and automatic shutoff design.	9/15/05 7/28/06 EO
Portable Fuel Containers (part 1 of 2) Approved amendments to include kerosene containers in the definition of portable fuel containers.	9/15/05 11/9/05 NOD
2007-09 Model-year heavy duty urban bus engines and the fleet rule for transit agencies Adopted amendments to require all transit agencies in SCAQMD to purchase only alternate fuel versions of new buses.	9/15/05 Superceded by 10/20/05
Reid vapor pressure limit emergency rule Approved amendments to relax Reid vapor pressure limit to accelerate fuel production for Hurricane Katrina victims.	9/8/05 Operative for September and October 2005 only

Board Action	Hearing Date
Heavy-Duty Truck OBD Approved a regulation to require on-board diagnostic (OBD) systems for new gas and diesel trucks, similar to the systems on passenger cars.	7/21/05 12/28/05 EO
Definition of Large Confined Animal Facility Adopted a regulation to define the size of a large CAF for the purposes of air quality permitting and reduction of ROG emissions to the extent feasible.	6/23/05 4/13/06 EO
ATCM for stationary compression ignition engines Approved emergency amendments (3/17/05) and permanent amendments (5/26/05) to relax the diesel PM emission limits on new stationary diesel engines to current off-road engine standards to respond to the lack of availability of engines meeting the original ATCM standard.	3/17/05 5/26/05 7/29/05 EO
Transit Fleet Rule Approved amendments to add emission limits for non-urban bus transit agency vehicles, require lower bus and truck fleet-average NOx and PM emission limits, and clarify emission limits for CO, NMHC, and formaldehyde.	2/24/05 10/19/05 NOD
Thermal Spraying ATCM Approved a regulation to reduce emissions of hexavalent chromium and nickel from thermal spraying operations.	12/9/04 7/20/05 EO
Tier 4 Standards for Small Off-Road Diesel Engines (SORE) Approved new emission standards for off-road diesel engines to be phased in between 2008 and 2015.	12/9/04 10/21/05 EO
Emergency Regulatory Amendment Delaying the January 1, 2005 Implementation Date for the Diesel Fuel Lubricity Standard Adopted an emergency regulation delaying the lubricity standard compliance deadline by five months to respond to fuel pipeline contamination problems.	11/24/04 12/10/04 EO
Enhanced vapor recovery compliance extension Approved amendments to the EVR regulation to extend the compliance date for onboard refueling vapor recovery compatibility to the date of EVR compliance.	11/18/04 2/11/05 EO
CaRFG Phase 3 amendments Approved amendments correcting errors and streamlining requirements for compliance and enforcement of CaRFG Phase 3 regulations adopted in 1999.	11/18/04
Clean diesel fuel for harborcraft and intrastate locomotives Approved a regulation that required harborcraft and locomotives operating solely within California to use clean diesel fuel.	11/18/04 3/16/05 EO
Nonvehicular Source, Consumer Product, and Architectural Coating Fee Regulation Amendment Approved amendments to fee regulations to collect supplemental fees when authorized by the Legislature.	11/18/04
Greenhouse gas limits for motor vehicles Approved a regulation that sets the first ever greenhouse gas emission standards on light and medium duty vehicles starting with the 2009 model year.	9/24/04 8/4/05 EO
Gasoline vapor recovery system equipment defects list Approved the addition of defects to the VRED list for use by compliance inspectors.	8/24/04 6/22/05 EO
Unihose gasoline vapor recovery systems Approved an emergency regulation and an amendment to delay the compliance date for unihose installation to the date of dispenser replacement.	7/22/04 11/24/04 EO
General Idling Limits for Diesel Trucks Approved a regulation that limits idling of heavy-duty diesel trucks operating in California to five minutes, with exceptions for sleeper cabs.	7/22/04
Consumer Products Approved a regulation to reduce ROG emissions from 15 consumer products categories, prohibit the use of 3 toxic compounds in consumer products, ban the use of PDCB in certain products, allow for the use of Alternative Control Plans, and revise Test Method 310.	6/24/04 5/6/05 EO
Urban bus engines/fleet rule for transit agencies Approved amendments to allow for the purchase of hybrid diesel buses and revise the zero emission bus demonstration and purchase timelines.	6/24/04
Engine Manufacturer Diagnostics Approved a regulation that would require model year 2007 and later heavy duty truck engines to be equipped with engine diagnostic systems to detect malfunctions of the emission control system.	5/20/04

Board Action	Hearing Date
Chip Reflash Approved a voluntary program and a backstop regulation to reduce heavy duty truck NOx emissions through the installation of new software in the engine's electronic control module.	3/25/04 3/21/05 EO
Portable equipment registration program (PERP) Approved amendments to allow uncertified engines to be registered until December 31, 2005, to increase fees, and to modify administrative requirements.	2/26/04 1/7/05 EO 6/21/05 EO
Portable Diesel Engine ATCM Adopted a regulation to reduce diesel PM emissions from portable engines through a series of emission standards that increase in stringency through 2020.	2/26/04 1/4/05 EO
California motor vehicle service information rule Adopted amendments to allow for the purchase of heavy duty engine emission-related service information and diagnostic tools by independent service facilities and aftermarket parts manufacturers.	1/22/04 5/20/04
Transportation Refrigeration Unit ATCM Adopted a regulation to reduce diesel PM emissions from transport refrigeration units by establishing emission standards and facility reporting requirements to streamline inspections.	12/11/03 2/26/04 11/10/04 EO
Diesel engine verification procedures Approved amendments that reduced warranty coverage to the engine only, delayed the NOx reduction compliance date to 2007, added requirements for proof-of-concept testing for new technology, and harmonized durability requirements with those of U.S. EPA.	12/11/03 2/26/04 10/17/04
Chip Reflash Approved a voluntary program and a backstop regulation to reduce heavy duty truck NOx emissions through the installation of new software in the engine's electronic control module.	12/11/03 3/27/04 3/21/05 EO
Revised tables of maximum incremental reactivity values Approved the addition of 102 more chemicals with associated maximum incremental reactivity values to existing regulation allowing these chemicals to be used in aerosol coating formulations.	12/3/03
Stationary Diesel Engines ATCM Adopted a regulation to reduce diesel PM emissions from stationary diesel engines through the use of clean fuel, lower emission standards, operational practices.	11/20/03 12/11/03 2/26/2004 9/27/04 EO
Solid waste collection vehicles Adopted a regulation to reduce toxic diesel particulate emissions from solid waste collection vehicles by over 80 percent by 2010. This measure is part of ARB's plan to reduce the risk from a wide range of diesel engines throughout California.	9/25/03 5/17/04 EO
Small off-road engines (SORE) Adopted more stringent emission standards for the engines used in lawn and garden and industrial equipment, such as string trimmers, leaf blowers, walk-behind lawn mowers, generators, and lawn tractors.	9/25/03 7/26/04 EO
Off-highway recreational vehicles Changes to riding season restrictions.	7/24/03
Clean diesel fuel Adopted a regulation to reduce sulfur levels and set a minimum lubricity standard in diesel fuel used in vehicles and off-road equipment in California, beginning in 2006.	7/24/03 5/28/04 EO
Ozone Transport Mitigation Amendments Adopted amendments to require upwind districts to (1) have the same no-net-increase permitting thresholds as downwind districts, and (2) Adopt "all feasible measures."	5/22/03 10/2/03 NOD
Zero emission vehicles Updated California's ZEV requirements to support the fuel cell car development and expand sales of advanced technology partial ZEVs (like gasoline-electric hybrids) in the near-term, while retaining a role for battery electric vehicles.	3/27/03 12/19/03 EO
Heavy duty gasoline truck standards Aligned its existing rules with new, lower federal emission standards for gasoline-powered heavy-duty vehicles starting in 2008.	12/12/02 9/23/03 EO
Low emission vehicles II Minor administrative changes.	12/12/02 9/24/03 EO
Gasoline vapor recovery systems test procedures Approved amendments to add advanced vapor recovery technology certification and testing standards.	12/12/02 7/1/03 EO 10/21/03 EO
CaRFG Phase 3 amendments Approved amendments to allow for small residual levels of MTBE in gasoline while MTBE is being phased out and replaced by ethanol.	12/12/02 3/20/03 EO

Board Action	Hearing Date
School bus Idling Adopted a measure requiring school bus drivers to turn off the bus or vehicle engine upon arriving at a school and restart it no more than 30 seconds before departure in order to limit children's exposure to toxic diesel particulate exhaust.	12/12/02 5/15/03 EO
California Interim Certification Procedures for 2004 and Subsequent Model Year Hybrid-Electric Vehicles in the Urban Transit Bus and Heavy-Duty Vehicle Classes Regulation Amendment Adopted amendments to allow diesel-path transit agencies to purchase alternate fuel buses with higher NOx limits, establish certification procedures for hybrid buses, and require lower fleet-average PM emission limits.	10/24/02 9/2/03 EO
CaRFG Phase 3 amendments Approved amendments delaying removal of MTBE from gasoline by one year to 12/31/03.	7/25/02 11/8/02 EO
Diesel retrofit verification procedures, warranty, and in-use compliance requirements Adopted regulations to specify test procedures, warranty, and in-use compliance of diesel engine PM retrofit control devices.	5/16/02 3/28/03 EO
On-board diagnostics for cars Adopted changes to the On-Board Diagnostic Systems (OBD II) regulation to improve the effectiveness of OBD II systems in detecting motor vehicle emission-related problems.	4/25/02 3/7/03 EO
Voluntary accelerated light duty vehicle retirement regulations Establishes standards for a voluntary accelerated retirement program.	2/21/02 11/18/02 EO
Residential burning Adopted a measure to reduce emissions of toxic air contaminants from outdoor residential waste burning by eliminating the use of burn barrels and the outdoor burning of residential waste materials other than natural vegetation.	2/21/02 12/18/02 EO
California motor vehicle service information rule Adopted regulations to require light- and medium-duty vehicle manufacturers to offer for sale emission-related service information and diagnostic tools to independent service facilities and aftermarket parts manufacturers.	12/13/01 7/31/02 EO
Vapor recovery regulation amendments Adopted amendments to expand the list of specified defects requiring equipment to be removed from service.	11/15/01 9/27/02 EO
Distributed generation guidelines and regulations Adopted regulations requiring the permitting by ARB of distributed generation sources that are exempt from air district permitting and approved guidelines for use by air districts in permitting non-exempt units.	11/15/01 7/23/02 EO
Low emission vehicle regulations (LEV II) Approved amendments to apply PM emission limits to all new gasoline vehicles, extend gasoline PZEV emission limits to all fuel types, and streamline the manufacturer certification process.	11/15/01 8/6/02 EO
Gasoline vapor recovery systems test methods and compliance procedures Adopted amendments to add test methods for new technology components, streamline test methods for liquid removal equipment, and***.	10/25/01 7/9/02 EO
Heavy-duty diesel trucks Adopted amendments to emissions standards to harmonize with EPA regulations for 2007 and subsequent model year new heavy-duty diesel engines.	10/25/01
Automotive coatings Adopted Air Toxic Control Measure which prohibits the sale and use in California of automotive coatings that contain hexavalent chromium or cadmium.	9/20/01 9/2/02 EO
Inboard and sterndrive marine engines Lower emission standards for 2003 and subsequent model year inboard and sterndrive gasoline-powered engines in recreational marine vessels.	7/26/01 6/6/02 EO
Asbestos from construction, grading, quarrying, and surface mining Adopted an Airborne Toxic Control Measure for construction, grading, quarrying, and surface mining operations requiring dust mitigation for construction and grading operations, road construction and maintenance activities, and quarries and surface mines to minimize emissions of asbestos-laden dust.	7/26/01 6/7/02 EO
Zero emission vehicle infrastructure and standardization of electric vehicle charging equipment Adopted amendments to the ZEV regulation to alter the method of quantifying production volumes at joint-owned facilities and to add specifications for standardized charging equipment.	6/28/01 5/10/02 EO

Board Action	Hearing Date
Enhanced vapor recovery emergency regulation Adopted a four-year term for equipment certifications.	5/22/01 EO
Pollutant transport designation Adopted amendments to add two transport couples to the list of air basins in which upwind areas are required to adopt permitting thresholds no less stringent than those adopted in downwind areas.	4/26/01
Zero emission vehicle regulation amendments Adopted amendments to reduce the numbers of ZEVs required in future years, add a PZEV category and grant partial ZEV credit, modify the ZEV range credit, allow hybrid-electric vehicles partial ZEV credit, grant ZEV credit to advanced technology vehicles, and grant partial ZEV credit for several other minor new programs.	1/25/01 12/7/01 EO 4/12/02 EO
Heavy duty diesel engines supplemental test procedures Approved amendments to extend "Not-To-Exceed" and EURO III supplemental test procedure requirements through 2007 when federal requirements will include these tests.	12/7/00
Light and medium duty low emission vehicle alignment with federal standards Approved amendments that require light and medium duty vehicles sold in California to meet the more restrictive of state or federal emission standards.	12/7/00 12/27/00 EO
Exhaust emission standards for heavy duty gas engines Adopted amendments that establish 2005 emission limits for heavy duty gas engines that are equivalent to federal limits.	12/7/00 12/27/00 EO
CaRFG Phase 3 amendments Approved amendments to regulate the replacement of MTBE in gasoline with ethanol.	11/16/00 4/25/01 EO
CaRFG Phase 3 test methods Approved amendments to gasoline test procedures to quantify the olefin content and gasoline distillation temperatures.	11/16/00 7/11/01 EO 8/28/01 EO
Antiperspirant and deodorant regulations Adopted amendments to relax a 0% VOC limit to 40% VOC limit for aerosol antiperspirants.	10/26/00
Diesel risk reduction plan Adopted plan to reduce toxic particulate from diesel engines through retrofits on existing engines, tighter standards for new engines, and cleaner diesel fuel.	9/28/00
Conditional rice straw burning regulations Adopted regulations to limit rice straw burning to fields with demonstrated disease rates reducing production by more than 5 percent.	9/28/00
Asbestos from unpaved roads Tightened an existing Air Toxic Control Measure to prohibit the use of rock containing more than 0.25% asbestos on unsurfaced roads.	7/20/00
Aerosol Coatings Approved amendments to replace mass-based VOC limits with reactivity-based limits, add a table of Maximum Incremental Reactivity values, add limits for polyolefin adhesion promoters, prohibit use of certain toxic solvents, and make other minor changes.	6/22/00 5/1/01 EO
Consumer products aerosol adhesives Adopted amendments to delete a 25% VOC limit by 2002, add new VOC limits for six categories of adhesives, prohibit the use of toxic solvents, and add new labeling and reporting requirements.	5/25/00 3/14/01 EO
Automotive care products Approved an Air Toxic Control Measure to eliminate use of perchloroethylene, methylene chloride, and trichloroethylene in automotive products such as brake cleaners and degreasers.	4/27/00 2/28/01 EO
Enhanced vapor recovery Adopted amendments to require the addition of components to reduce spills and leakage, adapt to onboard vapor recovery systems, and continuously monitor system operation and report equipment leaks immediately.	3/23/00 7/25/01 EO
Agricultural burning smoke management Adopted amendments to add marginal burn day designations, require day-specific burn authorizations by districts, and smoke management plans for larger prescribed burn projects.	3/23/00 1/22/01 EO
Urban transit buses Adopted a public transit bus fleet rule and emissions standards for new urban buses that mandates a lower fleet-average NOx emission limit, PM retrofits, lower sulfur fuel use, and purchase of specified percentages of zero emission buses in future years.	1/27/00 2/24/00 11/22/00 EO 5/29/01 EO

Board Action	Hearing Date
Small Off-Road (diesel) Equipment (SORE) Adopted amendments to conform with new federal requirements for lower and engine power-specific emission limits, and for the averaging, banking, and trading of emissions among SORE manufacturers.	1/28/00
CaRFG Phase 3 MTBE phase out Adopted regulations to enable refiners to produce gasoline without MTBE while preserving the emissions benefits of Phase 2 cleaner burning gasoline.	12/9/99 6/16/00 EO
Consumer products – mid-term measures II Adopted a regulation which adds emission limits for 2 new categories and tightens emission limits for 15 categories of consumer products.	10/28/99
Portable fuel cans Adopted a regulation requiring that new portable fuel containers, used to refuel lawn and garden equipment, motorcycles, and watercraft, be spill-proof beginning in 2001.	9/23/99 7/6/00 EO
Clean fuels at service stations Adopted amendments rescinding requirements applicable to SCAB in 1994-1995, modifying the formula for triggering requirements, and allowing the Executive Officer to make adjustments to the numbers of service stations required to provide clean fuels.	7/22/99
Gasoline vapor recovery Adopted amendments to certification and test methods.	6/24/99
Reformulated gasoline oxygenate Adopted amendments rescinding the requirement for wintertime oxygenate in gasoline sold in the Lake Tahoe Air Basin and requiring the statewide labeling of pumps dispensing gasoline containing MTBE.	6/24/99
Marine pleasurecraft Adopted regulations to control emissions from spark-ignition marine engines, specifically, outboard marine engines and personal watercraft.	12/11/98 2/17/00 EO 6/14/00 EO
Voluntary accelerated light duty vehicle retirement Adopted regulation setting standards for voluntary accelerated retirement program.	12/10/98 10/22/99 EO
Off-highway recreational vehicles and engines Approved amendments to allow non-complying vehicles to operate in certain seasons and in certain ORV-designated areas.	12/10/98 10/22/99 EO
On-road motorcycles Amended on-road motorcycle regulations, to lower the tailpipe emission standards for ROG and NOx.	12/10/98
Portable equipment registration program (PERP) Approved amendments to exclude non-dredging equipment operating in OCS areas and equipment emitting hazardous pollutants, include NSPS Part OOO rock crushers, require SCR emission limits and onshore emission offsets from dredging equipment operating in OCS areas, set catalyst emission limits for gasoline engines, and relieve certain retrofitted engines from periodic source testing.	12/10/98
Liquid petroleum gas motor fuel specifications Approved amendment rescinding 5% propene limit and extending 10% limit indefinitely.	12/11/98
Reformulated gasoline Approved amendments to rescind the RVP exemption for fuel with 10% ethanol and allow for oxygen contents up to 3.7% if the Predictive Model weighted emissions to not exceed original standards.	12/11/98
Consumer products Adopted amendments to add new VOC test methods, to modify Method 310 to quantify low vapor pressure VOC (LVP-VOC) constituents, and to exempt LVP-VOC from VOC content limits	11/19/98
Consumer products Approved amendments to extend the 1999 VOC compliance deadline for several aerosol coatings, antiperspirants and deodorants, and other consumer products categories to 2002, to exempt methyl acetate from the VOC definition, and make other minor changes.	11/19/98
Low-emission vehicle program (LEV II) Adopted regulations adding exhaust emission standards for most sport utility vehicles, pick-up trucks and mini-vans, lowering tailpipe standards for cars, further reducing evaporative emission standards, and providing additional means for generating zero-emission vehicle credits.	11/5/98 9/17/99 EO
Off-road engine aftermarket parts Approved implementation of a new program to test and certify aftermarket parts in gasoline and diesel, light-duty through heavy duty, engines used in off-road vehicles and equipment.	11/19/98 10/1/99 EO 7/18/00 EO

Board Action	Hearing Date
Off-road spark ignition engines Adopted new emission standards for small and large spark ignition engines for off-road equipment, a new engine certification program, an in-use compliance testing program, and a three-year phase-in for large LSI.	10/22/98
Gasoline deposit control additives Adopted amendments to decertify pre-RFG additives, tighten the inlet valve deposit limits, add a combustion chamber deposit limit, and modify the test procedures to align with the characteristics of reformulated gasoline formulations.	9/24/98 4/5/99 EO
Stationary source test methods Adopted amendments to stationary source test methods to align better with federal methods.	8/27/98 7/2/99 EO
Locomotive MOA for South Coast Memorandum of agreement (MOA) signed by ARB, U.S. EPA and major railroads to concentrate cleaner locomotives in the South Coast by 2010 and fulfill 1994 ozone SIP commitment.	7/2/98
Reformulated gasoline Approved amendments to rescind the wintertime oxygenate requirement, allow for sulfur content averaging, and make other minor technical amendments.	8/27/98
Gasoline vapor recovery Adopted amendments to certification and test methods to add methods for onboard refueling vapor recovery, airport refuelers, and underground tank interconnections, and make minor changes to existing methods.	5/21/98 8/27/98
Ethylene oxide sterilizers Adopted amendments to the ATCM to streamline source testing requirements, add EtO limits in water effluent from control devices, and make other minor changes.	5/21/98
Chrome platers Adopted amendments to ATCM to harmonize with requirements of federal NESHAP standards for chrome plating and chromic acid anodizing facilities.	5/21/98
On-road heavy-duty vehicles Approved amendments to align on-road heavy duty vehicle engine emission standards with EPA's 2004 standards and align certification, testing, maintenance, and durability requirements with those of U.S. EPA.	4/23/98 2/26/99 EO
Small off-road engines (SORE) Approved amendments to grant a one-year delay in implementation, relaxation of emissions standards for non-handheld engines, emissions durability requirements, averaging/banking/trading, harmonization with the federal diesel engine regulation, and modifications to the production line testing requirements.	3/26/98
Heavy duty vehicle smoke inspection program Adopted amendments to require annual smoke testing, set opacity limits, and exempt new vehicles from testing for the first four years.	12/11/97 3/2/98 EO
Consumer products (hairspray credit program) Adopted standards for the granting of tradable emission reduction credits achieved by sales of hairspray products having VOC contents less than required limits.	11/13/97
Light-duty vehicle off-cycle emissions Adopted standards to control excess emissions from aggressive driving and air conditioner use in light duty vehicles and added two light duty vehicle test methods for certification of new vehicles under these standards.	7/24/97 3/19/98 EO
Consumer products Adopted amendments to add VOC limits to 18 categories of consumer products used in residential and industrial cleaning, automobile maintenance, and commercial poisons.	7/24/97
Enhanced evaporative emissions standards Adopted amendments extending the compliance date for ultra-small volume vehicle manufacturers by one year.	5/22/97
Emission reduction credit program Adopted standards for District establishment of ERC programs including certification, banking, use limitation, and reporting requirements.	5/22/97
Lead as a toxic air contaminant Adopted an amendment to designate inorganic lead as a toxic air contaminant.	4/24/97
Consumer products (hair spray) Adopted amendments to (1) delay a January 1, 1998, compliance deadline to June 1, 1999, (2) require progress plans from manufacturers, and (3) authorize the Executive Officer to require VOC mitigation when granting variances from the June 1, 1999 deadline.	3/27/97

Board Action	Hearing Date
Portable engine registration program (PERP) Adopted standards for (1) the permitting of portable engines by ARB and (2) District recognition and enforcement of permits.	3/27/97
Liquefied petroleum gas Adopted amendments to extend the compliance deadline from January 1, 1997, to January 1, 1999, for the 5% propene limit in liquefied petroleum gas used in motor vehicles.	3/27/97
Onboard diagnostics, phase II Adopted amendments to extend the phase-in of enhanced catalyst monitoring, modify misfire detection requirements, add PVC system and thermostat monitoring requirements, and require manufacturers to sell diagnostic tools and service information to repair shops.	12/12/96
Consumer products Adopted amendments to delay 25% VOC compliance date for aerosol adhesives, clarify portions of the regulation, exempt perchloroethylene from VOC definition, extend the sell-through time to three years, and add perchloroethylene reporting requirements.	11/21/96
Consumer products (test method) Adopted an amendment to add Method 310 for the testing of VOC content in consumer products.	11/21/96
Pollutant transport designation Adopted amendments to modify transport couples from the Broader Sacramento area and add couples to the newly formed Mojave Desert and Salton Sea Air Basins.	11/21/96
Diesel fuel certification test methods Approved amendments specifying the test methods used for quantifying the constituents of diesel fuel.	10/24/96 6/4/97 EO
Wintertime requirements for utility engines & off-highway vehicles Optional hydrocarbon and NOx standards for snow throwers and ice augers, raising CO standard for specialty vehicles under 25hp.	9/26/96
Large off-road diesel Statement of Principles National agreement between ARB, U.S. EPA, and engine manufacturers to reduce emissions from heavy-duty off-road diesel equipment four years earlier than expected in the 1994 SIP for ozone.	9/13/96
Regulatory improvement initiative Rescinded two regulations relating to fuel testing in response to Executive Order W-127-95.	5/30/96
Zero emission vehicles Adopted amendments to eliminate zero emission vehicle quotas between 1998 and 2002, and approved MOUs with seven automobile manufacturers to accelerate release of lower emission "49 state" vehicles.	3/28/96 7/24/96 EO
CaRFG variance requirements Approved amendments to add a per gallon fee on non-compliant gasoline covered by a variance and to made administrative changes in variance processing and extension.	1/25/96 2/5/96 EO 4/2/96 EO
Utility and lawn and garden equipment engines Adopted an amendment to relax the CO standard from 300 to 350 ppm for Class I and II utility engines.	1/25/96
National security exemption of military tactical vehicles Such vehicles would not be required to adhere to exhaust emission standards.	12/14/95
CaRFG regulation amendments Approved amendments to allow for downstream addition of oxygenates and expansion of compliance options for gasoline formulation.	12/14/95
Required additives in gasoline (deposit control additives) Terms, definitions, reporting requirements, and test procedures for compliance are to be clarified.	11/16/95
CaRFG test method amendments Approved amendments to designate new test methods for benzene, aromatic hydrocarbon, olefin, and sulfur content of gasoline.	10/26/95
Motor vehicle inspection and maintenance program Handled by BAR.	10/19/95 by BAR
Antiperspirants and deodorants, consumer products, and aerosol coating products Ethanol exemption for all products, modifications to aerosol special requirements, modifications for regulatory language consistency, modifications to VOC definition.	9/28/95
Low emission vehicle (LEV III) standards Reactivity adjustment factors, introduction of medium-duty ULEVs, window labels, and certification requirements and test procedures for LEVs.	9/28/95

Board Action	Hearing Date
Medium- and heavy-duty gasoline trucks Expedited introduction of ultra-low emission medium-duty vehicles and lower NOx emission standards for heavy-duty gasoline trucks to fulfill a 1994 ozone SIP commitment.	9/1/95
Retrofit emission standards: all vehicle classes to be included in the alternate durability test plan, kit manufacturers to be allowed two years to validate deterioration factors under the test plan, update retrofit procedures allowing manufacturers to disable specific OBDs if justified by law.	7/27/95
Gasoline vapor recovery systems Adopts revised certification and test procedures.	6/29/95
Onboard refueling vapor recovery standards 1998 and subsequent MY engine cars, LD trucks, and MD trucks less than 8500 GVWR.	6/29/1995 4/24/96 EO
Heavy duty vehicle exhaust emission standards for NOx Amendments to standards and test procedures for 1985 and subsequent MY HD engines, amendments to emission control labels, amendments to Useful Life definition and HD engines and in-use vehicle recalls.	6/29/95
Aerosol coatings regulation Adopted regulation to meet California Clean Air Act requirements and a 1994 ozone SIP commitment.	3/23/95
Periodic smoke inspection program Delays start of PSIP from 1995 to 1996.	12/8/94
Onboard diagnostics phase II Amendments to clarify regulation language, ensure maximum effectiveness, and address manufacturer concerns regarding implementation.	12/8/94
Alternative control plan (ACP) for consumer products A voluntary, market-based VOC emissions cap upon a grouping of consumer products, flexible by manufacturer that will minimize overall costs of emission reduction methods and programs.	9/22/94
Diesel fuel certification: new specifications for diesel engine certification fuel, amended oxygen specification for CNG certification fuel, and amended commercial motor vehicle liquefied petroleum gas regulations.	9/22/94
Utility and lawn and garden equipment (UGLE) engines Modification to emission test procedures, ECLs, defects warranty, quality-audit testing, and new engine compliance testing.	7/28/94
Evaporative emissions standards and test procedures Adopted evaporative emissions standards for medium-duty vehicles.	2/10/94
Off-road recreational vehicles Adopted emission control regulations for off-road motorcycles, all-terrain vehicles, go-karts, golf carts, and specialty vehicles.	1/1/94
Perchloroethylene from dry cleaners Adopted measure to control perchloroethylene emissions from dry cleaning operations.	10/1/93
Wintertime oxygenate program Amendments to the control time period for San Luis Obispo County, exemption for small retailers bordering Nevada, flexibility in gasoline delivery time, calibration of ethanol blending equipment, gasoline oxygen content test method.	9/9/93
Onboard diagnostic phase II	7/9/93
Urban transit buses Amended regulation to tighten state NOx and particulate matter (PM) standards for urban transit buses beyond federal standards beginning in 1996.	6/10/93
1-year implementation delay in emission standards for utility engines	4/8/93
Non-ferrous metal melting Adopted Air Toxic Control Measure for emissions of cadmium, arsenic, and nickel from non-ferrous metal melting operations.	1/1/93
Certifications requirements for low emission passenger cars, light-duty trucks & medium duty vehicles	1/14/93
Airborne toxic control measure for emissions of toxic metals from non-ferrous metal melting	12/10/92
Periodic self-inspection program Implemented state law establishing a periodic smoke self-inspection program for fleets operating heavy-duty diesel-powered vehicles.	12/10/92
Notice of general public interest for consumer products	11/30/92
Substitute fuel or clean fuel incorporated test procedures	11/12/92

Board Action	Hearing Date
New vehicle testing using CaRFG Phase 2 gasoline Approved amendments to require the use of CaRFG Phase 2 gasoline in the certification of exhaust emissions in new vehicle testing.	8/13/92
Standards and test procedures for alternative fuel retrofit systems	5/14/92
Alternative motor vehicle fuel certification fuel specification	3/12/92
Heavy-duty off-road diesel engines Adopted the first exhaust emission standards and test procedures for heavy-duty off-road diesel engines beginning in 1996.	1/9/92
Consumer Products - Tier II Adopted Tier II of regulations to reduce emissions from consumer products.	1/9/92
Wintertime oxygen content of gasoline Adopted regulation requiring the addition of oxygenates to gasoline during winter to satisfy federal Clean Air Act mandates for CO nonattainment areas.	12/1/91
CaRFG Phase 2 Adopted CaRFG phase 2 specifications including lowering vapor pressure, reducing the sulfur, olefin, aromatic, and benzene content, and requiring the year-round addition of oxygenates to achieve reductions in ROG, NOx, CO, oxides of sulfur (SOx) and toxics.	11/1/91
Low emissions vehicles amendments revising reactivity adjust factor (RAF) provisions and adopting a RAF for M85 transitional low emission vehicles	11/14/91
Onboard diagnostic, phase II	11/12/91
Onboard diagnostics for light-duty trucks and light & medium-duty motor vehicles	9/12/91
Utility and lawn & garden equipment Adopted first off-road mobile source controls under the California Clean Air Act regulating utility, lawn and garden equipment.	12/1/90
Control for abrasive blasting	11/8/90
Roadside smoke inspections of heavy-duty vehicles Adopted regulations implementing state law requiring a roadside smoke inspection program for heavy-duty vehicles.	11/8/90
Consumer Products Tier I Adopted Tier I of standards to reduce emissions from consumer products.	10/11/90
CaRFG Phase I Adopted CaRFG Phase I reformulated gasoline regulations to phase-out leaded gasoline, reduce vapor pressure, and require deposit control additives.	9/1/90
Low-emission vehicle (LEV) and clean fuels Adopted the landmark LEV/clean fuel regulations which called for the gradual introduction of cleaner cars in California. The regulations also provided a mechanism to ensure the availability of alternative fuels when a certain number of alternative fuel vehicles are sold.	9/1/90
Evaporative emissions from vehicles Modified test procedure to include high temperatures (up to 105 F) and ensure that evaporative emission control systems function properly on hot days.	8/9/90
Dioxins from medical waste incinerators Adopted Airborne Toxic Control Measure to reduce dioxin emissions from medical waste incinerators.	7/1/90
CA Clean Air Act guidance for permitting Approved California Clean Air Act permitting program guidance for new and modified stationary sources in nonattainment areas.	7/1/90
Consumer products BAAQMD	6/14/90
Medium duty vehicle emission standards Adopted three new categories of low emission MDVs, required minimum percentages of production, and established production credit and trading.	6/14/90
Medium-duty vehicles Amended test procedures for medium-duty vehicles to require whole-vehicle testing instead of engine testing. This modification allowed enforcement of medium-duty vehicle standards through testing and recall.	6/14/90
Ethylene oxide sterilizers Adopted Airborne Toxic Control Measure to reduce ethylene oxide emissions from sterilizers and aerators.	5/10/90
Asbestos in serpentine rock Adopted Airborne Toxic Control Measure for asbestos-containing serpentine rock in surfacing applications.	4/1/90

Board Action	Hearing Date
Certification procedure for aftermarket parts	2/8/90
Antiperspirants and deodorants Adopted first consumer products regulation, setting standards for antiperspirants and deodorants.	11/1/89
Residential woodstoves Approved suggested control measure for the control of emissions from residential wood combustion.	11/1/89
On-Board Diagnostic Systems II Adopted regulations to implement the second phase of on-board diagnostic requirements which alert drivers of cars, light-trucks and medium-duty vehicles when the emission control system is not functioning properly.	9/1/89
Cars and light-duty trucks Adopted regulations to reduce ROG and CO emissions from cars and light trucks by 35 percent.	6/1/89
Architectural coatings Approved a suggested control measure to reduce ROG emissions from architectural coatings.	5/1/89
Chrome from cooling towers Adopted Airborne Toxic Control Measure to reduce hexavalent chromium emissions from cooling towers.	3/1/89
Reformulated Diesel Fuel Adopted regulations requiring the use of clean diesel fuel with lower sulfur and aromatic hydrocarbons beginning in 1993.	11/1/88
Vehicle Recall Adopted regulations implementing a recall program which requires auto manufacturers to recall and fix vehicles with inadequate emission control systems (Vehicles are identified through in-use testing conducted by the ARB).	9/1/88
Suggested control measure for oil sumps Approved a suggested control measure to reduce emissions from sumps used in oil production operations.	8/1/88
Chrome platers Adopted Airborne Toxic Control Measure to reduce emissions of hexavalent chromium emissions from chrome plating and chromic acid anodizing facilities.	2/1/88
Suggested control measure for boilers Approved suggested control measure to reduce NOx emissions from industrial, institutional, and commercial boilers, steam generators and process heaters.	9/1/87
Benzene from service stations Adopted Airborne Toxic Control Measure to reduce benzene emissions from retail gasoline service stations (Also known as Phase II vapor recovery).	7/1/87
Agricultural burning guidelines Amended existing guidelines to add provisions addressing wildland vegetation management.	11/1/86
Heavy-duty vehicle certification Amended certification of heavy-duty diesel and gasoline-powered engines and vehicles to align with federal standards.	4/1/86
Cars and light-duty trucks Adopted regulations reducing NOx emissions from passenger cars and light-duty trucks by 40 percent.	4/1/86
Sulfur in diesel fuel Removed exemption for small volume diesel fuel refiners.	6/1/85
On-Board Diagnostics I Adopted regulations requiring the use of on-board diagnostic systems on gasoline-powered vehicles to alert the driver when the emission control system is not functioning properly.	4/1/85
Suggested control measure for wood coatings Approved a suggested control measure to reduce emissions from wood furniture and cabinet coating operations.	3/1/85
Suggested control measure for resin manufacturing Approved a suggested control measure to reduce ROG emissions from resin manufacturing.	1/1/85

ATTACHMENT B: SAN JOAQUIN VALLEY 8-HR OZONE MOTOR VEHICLE EMISSIONS BUDGETS

(Tons per summer average day, *established by conventional rounding)
Activity is the most recently amended 2015 FSTIP for each MPO as of March 22, 2016.

Table D- 4 2018 Motor Vehicle Emissions Budget

County	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare		Valley Air Basin	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
EMFAC2014 V1.0.7	7.95	27.64	6.50	25.39	1.29	5.09	1.80	5.08	2.42	9.35	5.87	12.97	3.76	10.49	3.67	9.40		
Total	7.95	27.64	6.50	25.39	1.29	5.09	1.80	5.08	2.42	9.35	5.87	12.97	3.76	10.49	3.67	9.40	33.26	105.42
Rounded Total	8.000	27.700	6.600	25.400	1.300	5.100	1.900	5.100	2.500	9.400	5.900	13.000	3.800	10.500	3.700	9.500		
Budget*	8.0	27.7	6.6	25.4	1.3	5.1	1.9	5.1	2.5	9.4	5.9	13.0	3.8	10.5	3.7	9.5	33.7	105.7

Table D- 5 2021 Motor Vehicle Emissions Budgets

County	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare		Valley Air Basin	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
EMFAC2014 V1.0.7	6.38	22.13	5.41	20.33	1.06	4.19	1.44	4.06	1.94	7.70	4.80	10.22	2.98	8.23	2.86	7.20		
Total	6.38	22.13	5.41	20.33	1.06	4.19	1.44	4.06	1.94	7.70	4.80	10.22	2.98	8.23	2.86	7.20	26.88	84.06
Rounded Total	6.400	22.200	5.500	20.400	1.100	4.200	1.500	4.100	2.000	7.800	4.900	10.300	3.000	8.300	2.900	7.200		
Budget*	6.4	22.2	5.5	20.4	1.1	4.2	1.5	4.1	2.0	7.8	4.9	10.3	3.0	8.3	2.9	7.2	27.3	84.5

Table D- 6 2024 Motor Vehicle Emissions Budgets

County	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare		Valley Air Basin	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
EMFAC2014 V1.0.7	5.34	14.06	4.75	12.54	0.90	2.59	1.17	2.53	1.58	4.79	4.12	6.88	2.50	5.51	2.37	4.65		
Total	5.34	14.06	4.75	12.54	0.90	2.59	1.17	2.53	1.58	4.79	4.12	6.88	2.50	5.51	2.37	4.65	22.73	53.55
Rounded Total	5.400	14.100	4.800	12.600	0.900	2.600	1.200	2.600	1.600	4.800	4.200	6.900	2.600	5.600	2.400	4.700		
Budget*	**5.4**	**14.1**	**4.8**	**12.6**	**0.9**	**2.6**	**1.2**	**2.6**	**1.6**	**4.8**	**4.2**	**6.9**	**2.6**	**5.6**	**2.4**	**4.7**	**23.1**	**53.9**

Table D- 7 2027 Motor Vehicle Emissions Budgets

County	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare		Valley Air Basin	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
EMFAC2014 V1.0.7	4.84	13.12	4.47	11.61	0.83	2.41	1.03	2.22	1.41	4.37	3.73	6.12	2.26	5.05	2.10	4.09		
Total	4.84	13.12	4.47	11.61	0.83	2.41	1.03	2.22	1.41	4.37	3.73	6.12	2.26	5.05	2.10	4.09	20.67	48.98
Rounded Total	4.900	13.200	4.500	11.700	0.900	2.500	1.100	2.300	1.500	4.400	3.800	6.200	2.300	5.100	2.200	4.100		
Budget*	**4.9**	**13.2**	**4.5**	**11.7**	**0.9**	**2.5**	**1.1**	**2.3**	**1.5**	**4.4**	**3.8**	**6.2**	**2.3**	**5.1**	**2.2**	**4.1**	**21.2**	**49.5**

Table D- 8 2030 Motor Vehicle Emissions Budgets

County	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare		Valley Air Basin	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
EMFAC2014 V1.0.7	4.42	12.52	4.18	10.89	0.76	2.28	0.89	1.98	1.27	4.11	3.40	5.60	2.03	4.68	1.90	3.73		
Total	4.42	12.52	4.18	10.89	0.76	2.28	0.89	1.98	1.27	4.11	3.40	5.60	2.03	4.68	1.90	3.73	18.85	45.78
Rounded Total	**4.500**	**12.600**	**4.200**	**10.900**	**0.800**	**2.300**	**0.900**	**2.000**	**1.300**	**4.200**	**3.500**	**5.700**	**2.100**	**4.700**	**1.900**	**3.800**		
Budget*	**4.5**	**12.6**	**4.2**	**10.9**	**0.8**	**2.3**	**0.9**	**2.0**	**1.3**	**4.2**	**3.5**	**5.7**	**2.1**	**4.7**	**1.9**	**3.8**	**19.2**	**46.2**

Table D- 9 2031 Motor Vehicle Emissions Budgets

County	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare		Valley Air Basin	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
EMFAC2014 V1.0.7	4.28	12.40	4.10	10.76	0.73	2.24	0.85	1.92	1.22	4.05	3.29	5.47	1.95	4.60	1.82	3.62		
Total	4.28	12.40	4.10	10.76	0.73	2.24	0.85	1.92	1.22	4.05	3.29	5.47	1.95	4.60	1.82	3.62	18.24	45.07
Rounded Total	**4.300**	**12.500**	**4.100**	**10.800**	**0.800**	**2.300**	**0.900**	**2.000**	**1.300**	**4.100**	**3.300**	**5.500**	**2.000**	**4.700**	**1.900**	**3.700**		
Budget*	**4.3**	**12.5**	**4.1**	**10.8**	**0.8**	**2.3**	**0.9**	**2.0**	**1.3**	**4.1**	**3.3**	**5.5**	**2.0**	**4.7**	**1.9**	**3.7**	**18.6**	**45.6**

ATTACHMENT C: STATE OF CALIFORNIA MOTOR VEHICLE CONTROL PROGRAM (1990-PRESENT) 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, 1956.8(d)	08/13/92	On-road
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

Measure	Hearing Date	Category
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
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

Measure	Hearing Date	Category
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) 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	11/05/98	On-road
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

Measure	Hearing Date	Category
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 2007 and Later. T 13, CCR, 1956.8 and incorporated test procedures	10/25/01	On-road
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

Measure	Hearing Date	Category
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, 1971	05/20/04	On-road
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 section1956.8 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

Measure	Hearing Date	Category
Technical Amendments to Evaporative Exhaust and Evaporative Emissions Test Procedures. T 13, CCR, 1961,1976 and 1978.	05/25/06	On-road
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
Vapor Recovery Equipment Defects List T 17, CCR, 94006	06/15/11	Vapor Recovery
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	01/26/12	On-road
Zero Emission Vehicle Standards for 2009 through 2017 T 13, CCR, 1962.1, 1962.2, 1962.3	01/26/12	On-road
Emergency Regulatory Amendments to the Tractor-Trailer Greenhouse Gas Regulation T 17, CCR, 95307	02/29/12	On-Road
Amendments to On-Board Diagnostics (OBD I and II) Regulations T 13, CCR, 1968.2, 1971.1	08/23/12	On-road
Amendments to Verification Procedures, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines T13, CCR, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711	08/23/12	On-road
Low Emission Vehicle III Greenhouse Gas and Zero Emission Vehicle Regulation Amendments for Federal Compliance Option T 13, CCR, 1900, 1956.8, 1960.1, 1961, 1961.2, 1961.3, 1962.1, 1962.2, 1976	11/15/12	On-road
Gasoline and Diesel Fuel Test Methods T13, CCR, 2262.9, 2263, 2282	01/25/13	Fuel
Off-Highway Recreational Vehicle Evaporative Emission Control T 13, CCR 2416, 2417, 2418, 2419, 2419.1, 2419.2, 2419.3, 2419.4	07/25/13	Vapor Recovery

Measure	Hearing Date	Category
Amendments to Vapor Recovery for Gasoline Dispensing Facilities T 17, CCR, 94014, 94016	07/25/13	Vapor Recovery
Alternative Fuel Certification Procedures T13, CCR, 2030, 2031	09/26/13	Fuel
Minor Modifications to the Zero Emission Vehicle Regulation T 13, CCR, 1962.1, 1962.2	10/24/13	On-road
Heavy-Duty Greenhouse Gas Phase 1: On-Road Heavy Duty Greenhouse Gas Emissions Rule, Tractor-Trailer Rule, Commercial Motor Vehicle Idling Rule, Optional Emission Standards, Heavy-Duty Hybrid-Electric Vehicle Certification Procedure T 13, CCR, 1900, 1956.8, 2036, 2037, 2112, 2139, 2140, 2147, 2485, T 17, CCR, 95300, 95301, 95302, 95303, 95305, 95660, 95661, 95662, 95663, 95664	12/12/13	On-road
Truck and Bus Rule Update T 13, CCR, 2025	04/24/14 11/20/14	On-road
Amendments to the Enhanced Fleet Modernization Program Regulation T13, CCR, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629	06/26/14	On-road
2014 Amendments to Zero Emission Vehicle Regulation T 13, CCR, 1962.1, 1962.2	10/23/14 05/21/15	On-road
Amendments to Low Emission Vehicle III Criteria Pollutant Requirements for Light-and Medium-Duty Vehicles the Hybrid Electric Vehicle Test Procedures, and the Heavy-Duty Otto-Cycle and Heavy-Duty Diesel Test Procedures T 13, CCR, 1900, 1956.8, 1961.2, 1962.2, 1965, 1976, 1978	10/23/14	On-road
2015 Low Carbon Fuel Standard Amendments T 17, CCR, 95480, 95481, 95482, 95483, 95483.1, 95483.2, 95484, 95485, 95486, 95487, 95488, 95489, 95491, 95492, 95493, 95494, 95495, 95496, 95497	02/19/15 09/24/15	Fuel
Evaporative Emission Control Requirements for Spark-Ignition Marine Watercraft T13, CCR, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869	02/19/15	Vapor Recovery
Commercialization of Alternative Diesel Fuels Regulation T13, CCR, 2290, 2291, 2293, 2293.1, 2293.2, 2293.3, 2293.4, 2293.5, 2293.6, 2293.7, 2293.8, 2293.9	02/19/15 09/24/15	Fuel
Amendments to Certification Procedures for Vapor Recovery Systems at Gasoline Dispensing Facilities: Aboveground Storage Tanks and Enhanced Conventional Nozzles T 17, CCR, 94010, 94011, 94016, 94017	04/23/15	Vapor Recovery
Revisions to On-Board Diagnostics System Requirements T 13, CCR, 1968.2, 1968.5, 1900	09/24/15	On-Road
Amendments to the Portable Fuel Container Regulation T 13, CCR, 2467, 2467.1, 2467.2, 2467.3, 2467.4, 2467.5, 2467.6,2467.7, 2467.8, 2467.9,	02/18/16	Vapor Recovery

ATTACHMENT D: ADOPTED TRANSPORTATION CONTROL MEASURES

The following tables represent each county's RACM commitment to implement TCMs as submitted for the *2002 Severe Area Ozone Plan* and approved by EPA.

Table D- 10 San Joaquin Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	SJCOG	Escalon	Lathrop	Lodi	Manteca	Ripon	Stockton	Tracy	County of San Joaquin	San Joaquin Regional Transit District
	Resolution Adopting Local Government Control Measures for the Severe Area Ozone Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
											✓
SJC1.1	Regional Express Bus Program										✓
SJC1.2	Transit Access to Airports										✓
SJC1.3	Study Benefits of Bus Retrofit Program								✓		✓
SJC1.4	Mass Transit Alternatives										✓
SJC1.5	Expansion of Public Transportation Systems								✓		✓
SJC1.6	Transit Service Improvements in Combination with Park-and-Ride Lots and Parking Management								✓		✓
SJC1.7	Free (to the public) transit during special events								✓		✓
SJC1.9	Increase parking at transit centers or stops								✓		
SJC3.1	Commute Solutions	✓									
SJC3.2	Parking Cash-Out	✓									
SJC3.3	Employer Rideshare Program Incentives	✓									
SJC3.5	Preferential Parking for Carpools and Vanpools	✓									
SJC3.8	Purchase vans for vanpools	✓									
SJC3.9	Encourage merchants and employers to subsidize the cost of transit for employees	✓			✓				✓		
SJC13.16	Telecommuting	✓									
SJC5.1	Develop Intelligent Transportation Systems	✓							✓		
SJC5.2	Coordinate Traffic Signal Systems		✓	✓	✓	✓		✓	✓	✓	
SJC5.3	Reduce Traffic Congestion at Major Intersections		✓	✓	✓	✓		✓	✓	✓	

Table D- 10 San Joaquin Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	SJCOG	Escalon	Lathrop	Lodi	Manteca	Ripon	Stockton	Tracy	County of San Joaquin	San Joaquin Regional Transit District
SJC5.4	Site-Specific Transportation Control Measures		✓	✓	✓	✓		✓	✓	✓	
SJC5.6	Reversible Lanes				✓						
SJC5.7	One-Way Streets							✓	✓		
SJC5.8	On-Street Parking Restrictions			✓		✓		✓	✓	✓	
SJC5.9	Bus Pullouts in Curbs for Passenger Loading			✓				✓	✓		
SJC5.10	Additional Freeway Service Patrol										
SJC5.16	Adaptive traffic signals and signal timing		✓	✓	✓			✓	✓		
SJC5.17	Freeway bottleneck improvements (add lanes, construct shoulders, etc.)	✓									
SJC6.1	Park and Ride Lots	✓	✓						✓		
SJC6.2	Park and Ride lots serving perimeter counties	✓									
SJC7.3	Involve school districts to encourage walking/bicycling to school								✓		
SJC7.4	Adjust school hours so they do not coincide with peak traffic periods and Ozone seasons										
SJC7.11	Auto restricted zones								✓		
SJC8.1	Financial Incentives	✓									
SJC8.2	Internet ridematching services	✓									
SJC8.3	Preferential parking for carpoolers	✓									
SJC8.4	Credits and incentives for carpoolers	✓									
SJC8.5	Encourage employers to provide vehicles to carpoolers for running errands or emergencies	✓									
SJC8.6	Subscription Services										✓
SJC9.1	Establish Auto Free Zones and Pedestrian Malls		✓		✓			✓			
SJC9.2	Encouragement of Pedestrian Travel		✓	✓		✓		✓	✓	✓	
SJC9.3	Bicycle/Pedestrian Program		✓	✓	✓	✓		✓	✓	✓	
SJC9.4	Close certain roads for use by non-motorized traffic		✓	✓	✓	✓		✓	✓	✓	
SJC9.5	Encouragement of Bicycle Travel	✓	✓	✓					✓		

Table D- 10 San Joaquin Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	SJCOG	Escalon	Lathrop	Lodi	Manteca	Ripon	Stockton	Tracy	County of San Joaquin	San Joaquin Regional Transit District
SJC9.8	Close streets for special events for use by bikes and pedestrians when/where appropriate		✓	✓	✓	✓		✓	✓	✓	
SJC10.2	Bike Racks on Buses	✓							✓		✓
SJC10.4	Development of Bicycle Travel Facilities	✓	✓	✓	✓	✓		✓	✓	✓	
SJC13.1	Alternative Work Schedules	✓							✓		
SJC13.2	Modifications of Work Schedules	✓							✓		
SJC13.3	Telecommunications-Telecommuting	✓									
SJC13.4	Telecommunications-Teleconferencing	✓									
SJC14.3	Land Use/Development Alternatives		✓	✓	✓	✓		✓		✓	
SJC14.6	Transportation for Livable Communities (TLC)/Housing Incentive Program	✓							✓		
SJC15.1	Encouragement of Pedestrian Travel	✓							✓		
SJC15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates		✓	✓	✓	✓		✓			
SJC17.1	Enforcement of Traffic, Parking, and Air Pollution Regulations		✓			✓		✓			
SJC17.6	Satellite campuses										
TCM1	Traffic Flow Improvements				✓	✓		✓	✓	✓	
TCM2	Public Transit								✓		✓
TCM3	Rideshare Programs	✓									
TCM4	Bicycle Programs	✓	✓	✓	✓	✓		✓	✓	✓	
TCM5	Alternative Fuels Program				✓			✓	✓	✓	
EPA	Commute Benefits	✓									
District	Heavy Duty Engine Emission Reduction Incentive Program										

Table D- 11 Stanislaus Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	StanCOG	Ceres	Hughson	Modesto	Newman	Oakdale	Patterson	Riverbank	Turlock	Waterford	Stanislaus County
	Resolution Adopting Local Government Control Measures for the Severe Area Ozone Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ST1.1	Regional Express Bus Program				✓							
ST1.2	Transit Access to Airports				✓							
ST1.4	Mass Transit Alternatives		✓				✓		✓	✓		
ST1.5	Expansion of Public Transportation Systems		✓		✓					✓		✓
ST1.7	Free transit during special events		✓		✓			✓				✓
ST3.1	Commute Solutions	✓										
ST3.5	Preferential Parking for Carpools and Vanpools				✓					✓		
ST3.9	Encourage merchants and employers to subsidize the cost of transit for employees						✓					
ST13.16	Telecommuting										✓	
ST5.1	Develop Intelligent Transportation Systems		✓		✓				✓			
ST5.2	Coordinate Traffic Signal Systems		✓		✓			✓		✓		
ST5.3	Reduce Traffic Congestion at Major Intersections		✓		✓		✓	✓		✓		✓
ST5.4	Site-Specific Transportation Control Measures		✓		✓					✓		
ST5.9	Bus Pullouts in Curbs for Passenger Loading		✓		✓		✓	✓	✓	✓		✓
ST5.13	Fewer stop signs		✓		✓			✓		✓		
ST5.15	Changeable lane assignments											
ST5.16	Adaptive traffic signals and signal timing											✓
ST7.14	Incentives for cities with good development practices											
ST7.15	Cash incentives to foster jobs/housing balance						✓	✓		✓		
ST7.16	Trip reduction oriented development				✓		✓			✓		
ST7.17	Transit oriented development						✓			✓		
ST7.18	Sustainable development				✓		✓			✓		
ST7.19	Establishment of Urban Growth Boundaries									✓		
ST8.1	Financial Incentives, Including Zero Bus Fares				✓							✓

Table D- 11 Stanislaus Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	StanCOG	Ceres	Hughson	Modesto	Newman	Oakdale	Patterson	Riverbank	Turlock	Waterford	Stanislaus County
ST8.2	Internet ride-matching services											
ST8.3	Preferential parking for carpoolers				✓					✓		
ST8.4	Credits and incentives for carpoolers				✓					✓		
ST9.2	Encouragement of Pedestrian Travel			✓			✓	✓		✓	✓	
ST9.3	Bicycle/Pedestrian Program	✓		✓			✓	✓	✓	✓	✓	✓
ST9.5	Encouragement of Bicycle Travel				✓	✓	✓	✓	✓	✓	✓	
ST9.11	Safe Routes to School		✓	✓	✓		✓	✓		✓		
ST10.2	Bike Racks on Buses				✓		✓		✓	✓		✓
ST11.8	Ban cruising during Ozone Alert Days				✓							
ST11.9	Discourage drive-thrus in new development				✓							
ST13.1	Alternative Work Schedules							✓	✓			
ST13.5	Internet commerce and education	✓		✓	✓	✓	✓	✓	✓	✓		✓
ST14.3	Land Use/Development Alternatives		✓		✓							
ST14.7	Incentives to increase density around transit centers											
ST14.8	Incentives for cities with good development practices											
ST15.1	Encouragement of Pedestrian Travel			✓			✓	✓			✓	
ST15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates				✓		✓		✓	✓		
ST17.15	Encourage the purchase and use of alternative, cleaner vehicles								✓	✓		
STTCM1	Traffic Flow Improvements											
STTCM2	Public Transit											
STTCM3	Rideshare Programs											
STTCM4	Bicycle Programs											
STTCM5	Alternative Fuels Program											
ARB	Parking Cash-Out											

Table D- 11 Stanislaus Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	StanCOG	Ceres	Hughson	Modesto	Newman	Oakdale	Patterson	Riverbank	Turlock	Waterford	Stanislaus County
EPA	Commute Benefits											
District	Heavy Duty Engine Emission Reduction Incentive Program											
	ADDITIONAL COMMITMENTS FOR MEASURES NOT ON THE SUGGESTED LIST											
10.1	Region-wide Mandatory Bile Racks at Work Sites		✓									

Table D-12 Merced County Association of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	MCAG	Atwater	Dos Palos	Gustine	Livingston	Los Banos	Merced	County of Merced	Transit Joint Powers Authority for Merced County
	Resolution Adopting Local Government Control Measures for the Severe Area Ozone Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓
ME1.5	Expansion of Public Transportation Systems									✓
ME1.10	Particulate Trap Retrofit									
ME3.1	Commute Solutions	✓								
ME3.3	Employer Rideshare Program Incentives									
ME3.9	Encourage merchants and employers to subsidize the cost of transit for employees									✓
ME5.3	Reduce Traffic Congestion at Major Intersections		✓	✓	✓	✓	✓	✓	✓	
ME5.7	One-Way Streets							✓		
ME5.9	Bus Pullouts in Curbs for Passenger Loading									✓
ME5.19	Internet provided road and route information									
ME8.2	Internet ride-matching services	✓								
ME9.2	Encouragement of Pedestrian Travel									
ME9.3	Bicycle/Pedestrian Program									
ME9.4	Close certain roads for use by non-motorized traffic		✓	✓	✓	✓	✓	✓	✓	
ME9.5	Encouragement of Bicycle Travel									
ME10.2	Bike Racks on Buses									
ME14.3	Land Use/Development Alternatives		✓	✓	✓	✓	✓	✓	✓	
ME14.5	Evaluation of the Air Quality Impacts of New development and Mitigation of Adverse Impacts		✓	✓	✓	✓	✓	✓	✓	
ME15.1	Encouragement of Pedestrian Travel									

Table D-12 Merced County Association of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	MCAG	Atwater	Dos Palos	Gustine	Livingston	Los Banos	Merced	County of Merced	Transit Joint Powers Authority for Merced County
ME17.12	Use scout troops, churches, public figures to carry message of air pollution problems									
TCM1	Traffic Flow Improvements		✓	✓	✓	✓	✓		✓	
TCM2	Public Transit							✓		
TCM3	Rideshare Programs	✓								
TCM4	Bicycle Programs									

Table D-13 Madera County Transportation Commission Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	MCTC	Chowchilla	Madera County	Madera
	Resolution Adopting Local Government Control Measures for the Sever Area Ozone Plan	✓	✓	✓	✓
MA1.5	Expansion of Public Transportation Systems		✓	✓	✓
MA1.7	Free transit during special events				✓
MA3.1	Commute Solutions	✓			
MA3.5	Preferential Parking for Carpools and Vanpools	✓			
MA3.9	Encourage merchants and employers to subsidize the cost of transit for employees	✓			
MA5.1	Develop Intelligent Transportation Systems		✓	✓	✓
MA5.2	Coordinate Traffic Signal Systems				✓
MA5.3	Reduce Traffic Congestion at Major Intersections			✓	✓
MA5.5	Removal of On-Street Parking				
MA5.9	Bus Pullouts in Curbs for Passenger Loading				✓
MA5.19	Internet provided road and route information		✓	✓	✓
MA7.3	Involve school districts to encourage walking to school				
MA9.2	Encouragement of Pedestrian Travel				
MA9.3	Bicycle/Pedestrian Program		✓	✓	✓
MA9.5	Encouragement of Bicycle Travel				
MA9.8	Close streets for special events for use by bikes and pedestrians			✓	✓
MA10.2	Bike Racks on Buses				
MA11.2	Encourage Limitations on Vehicle Idling	✓			
MA11.6	Promote use of Pony engines	✓			
MA13.3	Telecommunications-Telecommuting	✓			
MA13.4	Telecommunications-Teleconferencing	✓	✓	✓	✓
MA14.1	Area wide Public Awareness Programs	✓			

Table D-13 Madera County Transportation Commission Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	MCTC	Chowchilla	Madera County	Madera
MA14.5	Evaluation of the Air Quality Impacts of New development and Mitigation of Adverse Impacts		✓	✓	✓
MA15.1	Encouragement of Pedestrian Travel				
MA17.12	Use scout troops, churches, public figures to carry message of air pollution problems				
TCM1	Traffic Flow Improvements		✓	✓	✓
TCM2	Public Transit		✓	✓	✓
TCM3	Rideshare Programs	✓			
TCM4	Bicycle Programs				
TCM5	Alternative Fuels Program			✓	✓
EPA	Commute Benefits	*			
* MCTC has indicated that implementation of this measure is included in Measure 3.1 Commute Solutions, but was inadvertently omitted from the resolution package.					

Table D-14 Fresno Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	Fresno COG	Clovis/Clovis Transit	Coa-linga	Fire-baugh	Fowler	Fresno/Fresno Area Express	Huron	Kerman	Kings-burg	Men-dota	Orange Cove	Parlier	Reedley	Sanger	San Joaquin	Selma	Fresno County	Fresno County Rural Transit Agency
	Resolution Adopting Local Government Control Measures for the Severe Area Ozone Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
FR1.1	Regional Express Bus Program		✓				✓												✓
FR1.2	Transit Access to Airports		✓				✓												
FR1.3	Study Benefits of Bus Retrofit Program		✓				✓												
FR1.4	Mass Transit Alternatives		✓				✓												✓
FR1.5	Expansion of Public Transportation Systems		✓				✓												✓
FR1.6	Transit Service Improvements in Combination with Park-and-Ride Lots and Parking Management																		
FR1.7	Free transit during special events		✓				✓												
FR1.9	Increase parking at transit centers or stops						✓												
FR2.3	Fixed Lanes for Buses and Carpools on Arterials																		
FR3.1	Commute Solutions	✓																	
FR3.2	Parking Cash-Out	✓																	
FR3.3	Employer Rideshare Program Incentives																		
FR3.5	Preferential Parking for Carpools and Vanpools	✓																	
FR3.6	Employee Parking Fees	✓																	
FR3.8	Purchase vans for vanpools																		
FR3.9	Encourage merchants and employers to subsidize the cost of transit for employees	✓																	
FR13.16	Telecommuting																		
FR5.1	Develop Intelligent Transportation Systems		✓				✓												
FR5.2	Coordinate Traffic Signal Systems		✓				✓	✓	✓				✓	✓	✓		✓	✓	
FR5.3	Reduce Traffic Congestion at Major Intersections		✓	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	
FR5.4	Site-Specific Transportation Control Measures		✓	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	

Table D-14 Fresno Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	Fresno COG	Clovis/Clovis Transit	Coa-linga	Fire-baugh	Fowler	Fresno/Fresno Area Express	Huron	Kerman	Kings-burg	Men-dota	Orange Cove	Parlier	Reedley	Sanger	San Joaquin	Selma	Fresno County	Fresno County Rural Transit Agency
FR5.5	Removal of On-Street Parking		✓	✓			✓	✓		✓		✓		✓	✓		✓	✓	
FR5.6	Reversible Lanes																		
FR5.7	One-Way Streets																✓		
FR5.8	On-Street Parking Restrictions		✓				✓											✓	
FR5.9	Bus Pullouts in Curbs for Passenger Loading		✓				✓											✓	
FR5.10	Additional Freeway Service Patrol	✓																	
FR5.11	Consider coordinating scheduling of arterial and highway maintenance to exclude ozone action days if the maintenance activities require lane reductions on heavily utilized arterials and highways		✓				✓											✓	
FR5.13	Fewer stop signs, remove unwarranted and "political" stop signs and signals		✓		✓		✓			✓				✓			✓	✓	
FR5.14	Ban left turns		✓				✓												
FR5.15	Changeable lane assignments																		
FR5.16	Adaptive traffic signals and signal timing		✓				✓											✓	
FR5.18	Minimize impact of construction on traveling public. Have contractors pay when lanes are closed as an incentive to keep lanes open		✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
FR6.1	Park and Ride Lots					✓		✓	✓	✓			✓	✓		✓	✓		
FR6.2	Park and Ride lots serving perimeter counties					✓		✓	✓	✓			✓	✓		✓	✓		
FR7.12	Incentives to increase density around transit centers		✓				✓												
FR8.1	Financial Incentives, Including Zero Bus Fares																		
FR8.2	Internet ride-matching services	✓																	
FR8.3	Preferential parking for carpoolers	✓																	
FR8.4	Credits and incentives for carpoolers	✓																	
FR8.5	Employers provide vehicles to carpoolers for running errands or emergencies	✓																	
FR8.6	Subscription Services																		✓

Table D-14 Fresno Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	Fresno COG	Clovis/Clovis Transit	Coa-linga	Fire-baugh	Fowler	Fresno/Fresno Area Express	Huron	Kerman	Kings-burg	Men-dota	Orange Cove	Parlier	Reedley	Sanger	San Joaquin	Selma	Fresno County	Fresno County Rural Transit Agency
FR9.1	Establish Auto Free Zones and Pedestrian Malls			✓			✓			✓									
FR9.2	Encouragement of Pedestrian Travel		✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			
FR9.3	Bicycle/Pedestrian Program		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	
FR9.4	Close certain roads for use by non-motorized traffic		✓	✓			✓			✓		✓		✓	✓		✓	✓	
FR9.5	Encouragement of Bicycle Travel		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FR9.7	Cash Rebates for Bikes																		
FR9.8	Close streets for special events for use by bikes and pedestrians		✓	✓			✓			✓		✓		✓	✓		✓	✓	
FR9.10	Provide funding so volunteers do not have to pay the cost of trail creation and maintenance		✓		✓		✓							✓				✓	
FR10.2	Bike Racks on Buses		✓				✓												
FR10.4	Development of Bicycle Travel Facilities		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FR10.5	Expedite Bicycle Projects from RTP		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
FR10.6	Provide Bike/Pedestrian facilities safety patrols		✓		✓		✓	✓			✓			✓			✓		
FR10.7	Require inclusion of bicycle lanes on state or federally funded thoroughfare projects.		✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		
FR11.3	Turn off engines while stalled in traffic																		
FR13.1	Alternative Work Schedules	✓																	
FR13.2	Modifications of Work Schedules	✓																	
FR13.3	Telecommunications-Telecommuting	✓																	
FR13.4	Telecommunications-Teleconferencing	✓																	
FR14.3	Land Use/Development Alternatives		✓			✓	✓		✓			✓	✓	✓	✓	✓	✓	✓	
FR14.5	Evaluation of the Air Quality Impacts of New Development and Mitigation of Adverse Impacts		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FR14.7	Incentives to increase density around transit centers		✓				✓												
FR15.1	Encouragement of Pedestrian Travel	✓																	
FR15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates		✓				✓											✓	

Table D-14 Fresno Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	Fresno COG	Clovis/Clovis Transit	Coa-linga	Fire-baugh	Fowler	Fresno/Fresno Area Express	Huron	Kerman	Kings-burg	Men-dota	Orange Cove	Parlier	Reedley	Sanger	San Joaquin	Selma	Fresno County	Fresno County Rural Transit Agency
FR17.1	Enforcement of Traffic, Parking, and Air Pollution Regulations		✓	✓	✓		✓	✓		✓					✓		✓		
FR17.6	Satellite campuses																		
FR-TCM1	Traffic Flow Improvements		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FR-TCM2	Improved Public Transit						✓						✓						✓
FR-TCM3	Voluntary Rideshare Program and Employer Incentive Program	✓																	
FR-TCM4	Bicycle Lanes and Facilities		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
FR-TCM5	Alternative Fuels Program		✓		✓	✓	✓				✓			✓				✓	
FR-TCM6	Park and Ride Fringe Parking					✓		✓	✓	✓			✓	✓		✓	✓		
ARB	Parking Cash-Out	✓																	
EPA	Commute Benefits	✓																	
District	Heavy Duty Engine Emission Reduction Incentive Program																		
FR19.1	Regional Express Bus Program		✓				✓												✓
FR19.2	Expansion of Public Transportation Systems		✓				✓												✓
FR19.3	Consolidation of Public Transit Operators						✓												
FR19.4	Increase Parking at Transit Centers or Stops						✓			✓				✓					
FR19.5	Transit Stop Improvements		✓				✓												✓
FR19.6	Productivity Improvements		✓				✓												✓
FR19.7	Ridership Targets						✓												
FR19.18	Pedestrian facilities		✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
FR19.25	Optimize traffic signal timing		✓				✓	✓	✓				✓	✓	✓		✓	✓	
FR19.26	Encourage employers to provide money to employees for home computer purchase so employees can work from home.	✓																	

Table D-14 Fresno Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	Fresno COG	Clovis/Clovis Transit	Coa-linga	Fire-baugh	Fowler	Fresno/Fresno Area Express	Huron	Kerman	Kings-burg	Men-dota	Orange Cove	Parlier	Reedley	Sanger	San Joaquin	Selma	Fresno County	Fresno County Rural Transit Agency
	ADDITIONAL COMMITMENTS FOR MEASURES NOT ON THE SUGGESTED LIST																		
10.7A	Require Inclusion of Paved Shoulders Adequate for Bicycle Use on State or Federally Funded Reconstruction or Widening of Federal Major Collectors or Greater																	✓	

Table D-15 Tulare County Association of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	TCAG	Dinuba	Exeter	Farmersville	Lindsay	Porterville	Tulare	Woodlake	Visalia	County of Tulare
	Resolution Adopting Local Government Control Measures for the Severe Area Ozone Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TU1.1	Regional Express Bus Program							✓			✓
TU1.2	Transit Access to Airports						✓	✓		✓	
TU1.5	Expansion of Public Transportation Systems		✓	✓	✓	✓		✓	✓	✓	✓
TU1.6	Transit Service Improvements in Combination with Park-and-Ride Lots and Parking Management					✓	✓	✓			
TU1.7	Free transit during special events					✓	✓	✓		✓	
TU1.9	Increase parking at transit centers or stops						✓	✓			
											✓
TU3.1	Commute Solutions			✓	✓		✓	✓	✓		
TU3.2	Parking Cash-Out			✓			✓	✓	✓		✓
TU3.3	Employer Rideshare Program Incentives	✓					✓	✓		✓	
TU3.5	Preferential Parking for Carpools and Vanpools			✓	✓	✓	✓	✓	✓	✓	✓
TU3.8	Purchase vans for vanpools	✓									
TU3.9	Encourage merchants and employers to subsidize the cost of transit for employees	✓					✓	✓		✓	
TU5.1	Develop Intelligent Transportation Systems	✓				✓	✓	✓		✓	
TU5.2	Coordinate Traffic Signal Systems	✓					✓	✓		✓	
TU5.3	Reduce Traffic Congestion at Major Intersections	✓				✓	✓	✓		✓	
TU5.4	Site-Specific Transportation Control Measures	✓		✓	✓	✓	✓	✓	✓	✓	
TU5.5	Removal of On-Street Parking				✓	✓	✓	✓	✓	✓	✓
TU5.8	On-Street Parking Restrictions				✓	✓		✓	✓	✓	
TU5.9	Bus Pullouts in Curbs for Passenger Loading				✓		✓	✓	✓	✓	
TU5.16	Adaptive traffic signals and signal timing			✓	✓		✓	✓		✓	
TU5.19	Internet provided road and route information		✓	✓		✓		✓	✓	✓	
TU5.20	Regional route marking systems to encourage underutilized capacity	✓				✓		✓		✓	
TU6.1	Park and Ride Lots					✓	✓	✓			

Table D-15 Tulare County Association of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	TCAG	Dinuba	Exeter	Farmersville	Lindsay	Porterville	Tulare	Woodlake	Visalia	County of Tulare
TU7.3	Involve school districts to encourage walking to school		✓	✓	✓	✓	✓	✓	✓	✓	
TU7.12	Incentives to increase density around transit centers	✓					✓	✓			
TU7.13	Land use/air quality guidelines		✓	✓	✓	✓	✓	✓	✓	✓	
TU7.14	Incentives for cities with good development practices			✓	✓	✓	✓		✓		
TU7.17	Transit oriented development						✓	✓			
TU8.1	Financial Incentives, Including Zero Bus Fares										
TU8.2	Internet ride matching services										
TU8.3	Preferential parking for carpoolers		✓	✓	✓				✓	✓	✓
TU8.4	Credits and incentives for carpoolers		✓							✓	
TU8.5	Employers provide vehicles to carpoolers for running errands or emergencies	✓				✓					
TU8.6	Subscription Services										
TU9.1	Establish Auto Free Zones and Pedestrian Malls					✓		✓			
TU9.2	Encouragement of Pedestrian Travel					✓	✓	✓			
TU9.3	Bicycle/Pedestrian Program	✓				✓	✓	✓		✓	
TU9.4	Close certain roads for use by non-motorized traffic							✓			
TU9.5	Encouragement of Bicycle Travel	✓		✓		✓	✓	✓		✓	
TU9.8	Close streets for special events for use by bikes and pedestrians					✓	✓	✓			
TU9.9	Use condemned dirt roads for bike trails							✓			
TU10.1	Region-wide mandatory bike racks at work sites	✓						✓		✓	
TU10.2	Bike Racks on Buses						✓	✓	✓	✓	✓
TU11.6	Promote use of Pony engines	✓						✓			
TU13.1	Alternative Work Schedules	✓						✓			
TU13.2	Modifications of Work Schedules	✓						✓			
TU13.3	Telecommunications-Telecommuting	✓				✓					
TU13.4	Telecommunications-Teleconferencing	✓				✓		✓		✓	

Table D-15 Tulare County Association of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	TCAG	Dinuba	Exeter	Farmersville	Lindsay	Porterville	Tulare	Woodlake	Visalia	County of Tulare
TU14.1	Area-wide Public Awareness Programs		✓					✓			
TU14.2	Special Event Controls			✓	✓		✓		✓		
TU14.3	Land Use/Development Alternatives		✓	✓	✓	✓	✓	✓	✓	✓	✓
TU14.4	Voluntary No Drive Day Programs		✓					✓			
TU14.5	Evaluation of the Air Quality Impacts of New development and Mitigation of Adverse Impacts		✓	✓	✓	✓	✓	✓	✓	✓	✓
TU14.6	Transportation for Livable Communities (TLC)/Housing Incentive Program		✓	✓	✓	✓			✓		
TU14.7	Incentives to increase density around transit centers						✓	✓			
TU14.8	Incentives for cities with good development practices			✓	✓		✓		✓		
TU15.1	Encouragement of Pedestrian Travel									✓	
TU15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates							✓			
TU17.6	Satellite campuses					✓					
TU17.12	Use scout troops, churches, public figures to carry message of air pollution problems	✓	✓	✓	✓		✓	✓	✓	✓	✓
TU17.14	Cool cities approach to reduce heat build-up					✓	✓	✓			
TCM1	Traffic Flow Improvements			✓	✓		✓		✓	✓	✓
TCM2	Public Transit		✓	✓	✓		✓			✓	✓
TCM3	Rideshare Programs						✓				
TCM4	Bicycle Programs	✓				✓		✓	✓	✓	
TCM5	Alternative Fuels Program	✓	✓				✓	✓		✓	✓
ARB	Parking Cash-Out										
EPA	Commute Benefits										
District	Heavy Duty Engine Emission Reduction Incentive Program										
	ADDITIONAL COMMITMENTS FOR MEASURES NOT ON THE SUGGESTED LIST										
TU1.8	Require that government employees use transit for home to work trips, expand transit, and encourage large businesses to promote transit use							✓			
TU3.14	Mandatory compressed work weeks					✓					
TU5.6	Reversible Lanes					☐		✓			
TU5.7	One-Way Streets					☐		✓		✓	

Table D-15 Tulare County Association of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	TCAG	Dinuba	Exeter	Farmersville	Lindsay	Porterville	Tulare	Woodlake	Visalia	County of Tulare
TU5.13	Fewer Stop Signs						✓	✓			
TU7.15	Cash incentives to foster jobs/housing balance					✓					
TU7.16	Trip reduction oriented development					✓		✓			
TU7.18	Sustainable development					✓		✓			
TU11.2	Encourage Limitations on Vehicle Idling					☐		✓			
TU17.1	Enforcement of Traffic, Parking, and Air Pollution Regulations					✓					
	Promote Use of Cleaner Lawn and Garden Equipment such as Lower-Emission Four-Stroke and Electric-Powered Equipment							✓			
	Defer Emissions Associated with Governmental Activities							✓			

Table D-16 Kings County Association of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	KCAG	Avenal	Corcoran	Hanford	Lemoore	County of Kings	Kings County Area Public Transit Agency
	Resolution Adopting Local Government Control measures for the Severe Area Ozone Plan	✓	✓	✓	✓	✓	✓	✓
KI1.5	Expansion of Public Transportation Systems		✓	✓				✓
KI1.6	Transit Service Improvements in Combination with Park-and-Ride Lots and Parking Management		✓	✓	✓			✓
KI1.7	Free transit during special events		✓	✓	✓			✓
KI3.1	Commute Solutions							
KI3.3	Employer Rideshare Program Incentives					✓		
KI3.5	Preferential Parking for Carpools and Vanpools						✓	
KI3.8	Purchase vans for vanpools		✓					✓
KI3.9	Encourage merchants and employers to subsidize the cost of transit for employees		✓	✓		✓		
KI6.1	Park and Ride Lots		✓		✓			
KI6.2	Park and Ride lots serving perimeter counties		✓		✓			
KI8.2	Internet ride-matching services							
KI8.3	Preferential parking for carpoolers						✓	
KI8.5	Employers provide vehicles to carpoolers for running errands or emergencies							
KI8.6	Subscription Services							
KI9.2	Encouragement of Pedestrian Travel		✓	✓	✓	✓	✓	
KI9.3	Bicycle/Pedestrian Program				✓			
KI9.4	Close certain roads for use by non-motorized traffic		✓	✓	✓	✓	✓	
KI9.5	Encouragement of Bicycle Travel		✓	✓	✓			
KI9.8	Close streets for special events for use by bikes and pedestrians		✓	✓	✓	✓	✓	
KI10.1	Region-wide mandatory bike racks at work sites				✓			
KI10.2	Bike Racks on Buses		✓	✓				✓
KI11.6	Promote use of Pony engines							

Table D-16 Kings County Association of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	KCAG	Avenal	Corcoran	Hanford	Lemoore	County of Kings	Kings County Area Public Transit Agency
KI13.1	Alternative Work Schedules				✓		✓	
KI13.2	Modifications of Work Schedules				✓	✓	✓	
KI13.4	Telecommunications-Teleconferencing		✓	✓	✓	✓	✓	
KI14.1	Area-wide Public Awareness Programs				✓			
KI14.3	Land Use/Development Alternatives				✓	✓	✓	
KI14.4	Voluntary No Drive Day Programs							
KI15.1	Encouragement of Pedestrian Travel		✓	✓	✓	✓	✓	
TCM1	Traffic Flow Improvements		✓	✓	✓		✓	
TCM2	Public Transit		✓	✓				✓
TCM3	Rideshare Programs	✓						
TCM4	Bicycle Programs		✓	✓	✓			
TCM5	Alternative Fuels Program				✓		✓	
EPA	Commute Benefits		✓	✓				
	ADDITIONAL COMMITMENTS FOR MEASURES NOT ON THE SUGGESTED LIST							
5.1	Develop Intelligent Transportation Systems				✓			
5.3	Reduce Traffic Congestion at Major Intersections		✓	✓	✓	✓	✓	
5.4	Site-Specific Transportation Control Measures		✓	✓	✓	✓	✓	
5.5	Removal of On-Street Parking		✓	✓	✓	✓	✓	
5.8	On-Street Parking Restrictions				✓		✓	
5.9	Bus Pullouts In Curbs for Passenger Loading				✓		✓	
5.22	Use Dynamic Message Signs to Direct/Smooth Speeds During Incidents						✓	
7.3	Involve School Districts to Encourage Walking to School				✓			
7.13	Land Use/Air Quality Guidelines				✓			
7.14	Incentives for Cities with Good Development Practices				✓			
17.6	Satellite Campuses				✓			

Table D-17 Kern Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	KCOG	Arvin	Bakersfield	California City*	County of Kern	Delano	Golden Empire Transit	Maricopa	McFarland	Ridgecrest*	Shafter	Taft	Tehachapi*	Wasco
	Resolution Adopting Local Government Control Measures for the Severe Area Ozone Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
KE1.1	Regional Express Bus Program		✓			✓									
KE1.2	Transit Access to Airports														
KE1.4	Mass Transit Alternatives														
KE1.5	Expansion of Public Transportation Systems		✓			✓	✓					✓	✓	☐	
KE1.7	Free transit during special events					✓	✓					✓			✓
KE1.11	Make small dial-a-ride systems free														
KE1.12	Regional Express across county lines														
KE3.1	Commute Solutions														
KE3.2	Parking Cash-Out														
KE3.5	Preferential Parking for Carpools and Vanpools	✓													
KE3.9	Encourage merchants and employers to subsidize the cost of transit for employees						✓					✓			✓
KE3.15	Extend parking cash-out rule to more employers	**													
KE3.17	Promote Employer Rideshare Program Incentives														
KE3.18	Promote compressed work weeks														
KE3.19	Promote voluntary business closures on ozone action days														
KE5.1	Develop Intelligent Transportation Systems			✓									✓	☐	
KE5.2	Coordinate Traffic Signal Systems			✓		✓									
KE5.3	Reduce Traffic Congestion at Major Intersections			✓		✓								✓	✓
KE5.4	Site-Specific Transportation Control Measures			✓		✓									
KE5.5	Removal of On-Street Parking			✓	✓	✓					✓				✓
KE5.8	On-Street Parking Restrictions				✓										
KE5.9	Bus Pullouts in Curbs for Passenger Loading														
KE5.11	Consider coordinating scheduling of arterial and highway maintenance to exclude ozone			✓		✓									

Table D-17 Kern Council of Governments Summary of Commitments - 2002 Severe Area Ozone Plan

Number	Measure Title	KCOG	Arvin	Bakersfield	California City*	County of Kern	Delano	Golden Empire Transit	Maricopa	McFarland	Ridgecrest*	Shafter	Taft	Tehachapi*	Wasco
	action days if the maintenance activities require lane reductions on heavily utilized arterials and highways														
KE5.16	Adaptive traffic signals and signal timing			✓											
KE5.18	Minimize impact of construction on traveling public. Have contractors pay when lanes are closed as an incentive to keep lanes open			✓		✓									
KE5.19	Internet provided road and route information			✓		✓	✓					✓			
KE5.20	Regional route marking systems to encourage underutilized capacity			✓		✓	✓					✓			
KE5.22	Use dynamic message signs to direct/smooth speeds during incidents			✓											
KE5.27	Place vehicle sensors further away from intersections														
KE6.1	Park and Ride Lots														
KE7.3	Involve school districts to encourage walking to school														
KE7.4	Adjust school hours so they do not coincide with peak traffic periods and Ozone seasons														
KE7.12	Incentives to increase density around transit centers	✓		✓		✓									
KE7.13	Land use/air quality guidelines			✓		✓									
KE7.14	Incentives for cities with good development practices														
KE7.16	Trip reduction oriented development			✓		✓									
KE7.17	Transit oriented development		✓	✓		✓									✓
KE7.18	Sustainable development			✓		✓									
KE7.19	Shortened government work days during ozone alerts														
KE7.20	Distribute special parking passes for carpoolers														
KE7.21	Outreach program encouraging reduced trips during warmest part of the day														
KE8.2	Internet ride-matching services														
KE9.1	Establish Auto Free Zones and Pedestrian			✓		✓									✓

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	Malls														
KE9.2	Encouragement of Pedestrian Travel	✓				✓	✓					✓	✓	✓	
KE9.3	Bicycle/Pedestrian Program		✓			✓	✓				✓	✓	✓	☐	✓
KE9.5	Encouragement of Bicycle Travel	✓		✓	✓	✓	✓					✓	✓	✓	✓
KE9.8	Close streets for special events for use by bikes and pedestrians			✓			✓					✓			✓
KE9.10	Provide funding so volunteers do not have to pay the cost of trail creation and maintenance														
KE10.1	Region-wide mandatory bike racks at work sites			✓		✓	✓					✓			
KE10.2	Bike Racks on Buses		✓			✓	✓								
KE10.3	Regional Bike Parking Ordinance for all new construction			✓		✓							✓	☐	
KE13.2	Modifications of Work Schedules														
KE14.1	Area-wide Public Awareness Programs	✓													
KE14.2	Special Event Controls			✓		✓									
KE14.3	Land Use/Development Alternatives			✓		✓								✓	
KE14.4	Voluntary No Drive Day Programs	✓				✓									
KE14.5	Evaluation of the Air Quality Impacts of New development and Mitigation of Adverse Impacts						✓					✓		✓	✓
KE14.7	Incentives to increase density around transit centers	✓													
KE14.11	COG comments on land use planning decisions that affect transportation and air quality issues														
	Promote Telecommunications-Telecommuting														
	Promote Telecommunications-Teleconferencing														
	Promote voluntary business closures on ozone action days														
KE15.1	Encouragement of Pedestrian Travel	✓													

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KE15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates			✓		✓									
KE17.6	Satellite campuses														
KE17.7	Charge more for higher emission fuels														
KE17.12	Use scout troops, churches, public figures to carry message of air pollution problems	✓													
KE17.14	Cool cities approach to reduce heat build-up														
KE17.16	Contact other areas that have been subject to EPA sanctions to determine best ways to implement new air quality measures														
KE17.17	Alternative fuel outreach program														
TCM1	Traffic Flow Improvements														
TCM2	Public Transit														
TCM3	Rideshare Programs														
TCM4	Bicycle Programs														
TCM5	Alternative Fuels Program	✓				✓									✓
ARB	Parking Cash-Out														
EPA	Commute Benefits	***													
District	Heavy Duty Engine Emission Reduction Incentive Program														
	ADDITIONAL COMMITMENTS FOR MEASURES NOT ON THE SUGGESTED LIST														
8.5	Shared LEV Vehicles at Work Sites			✓	✓										
14.9	Business, Industry and Governmental Outreach Program	✓													
14.1	Public Education Program	✓													
Local	Develop Programs that Encourage Good Movements by Rail											✓			
Local	Purchase Low Emission Vehicles (LEV) for Government Fleet Purposes													✓	

* These jurisdictions are located in the Mohave air basin, not the San Joaquin Valley air basin.
** KCOG has indicated that this measure is financially infeasible, but was inadvertently omitted from the reasoned justification documentation.
*** KCOG has indicated that implementation of this measure is included in Measure 14.9, but was inadvertently omitted from the resolution package.

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