CHAPTER 2

PROJECT DESCRIPTION

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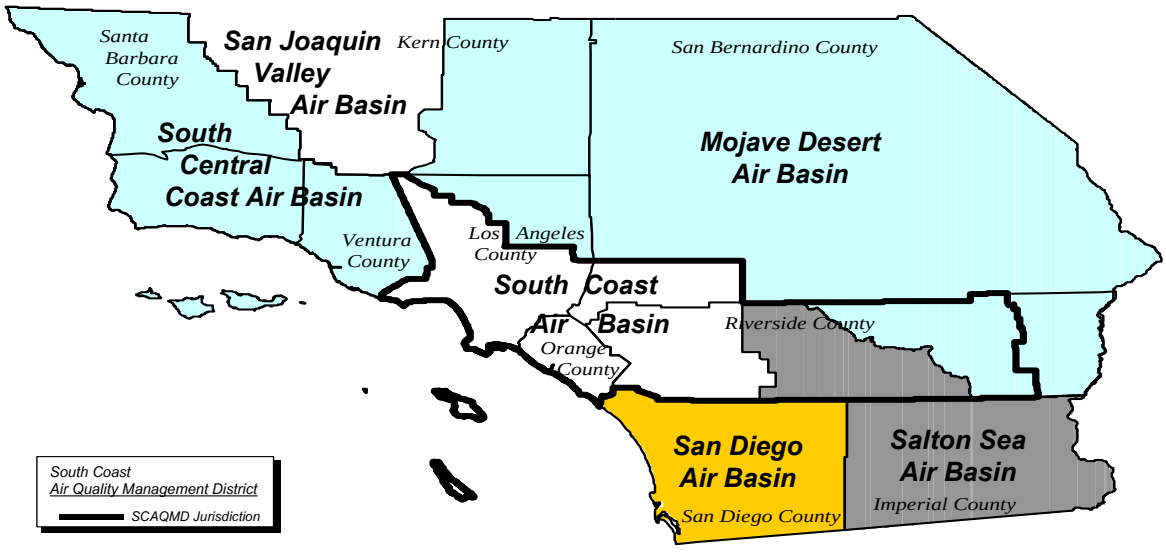
PROJECT LOCATION

The proposed fleet vehicle rules and related amendments would be implemented throughout the areas of the SCAQMD's jurisdiction. The SCAQMD has jurisdiction over an area of approximately 10,743 square miles, consisting of the four-county South Coast Air Basin (Basin), which includes: Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino counties, and the Riverside County portions of the Salton Sea Air Basin (SSAB) and Mojave Desert Air Basin (MDAB). The Basin, which is a subarea of the SCAQMD's jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. It includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Los Angeles County portion of MDAB (known as North county or Antelope Valley) is bounded by the San Gabriel Mountains to the south and west, the Los Angeles/Kern county border to the north, and the Los Angeles/San Bernardino county border to the east. The Riverside County portion of the SSAB is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley. The federal nonattainment area (known as the Coachella Valley Planning Area) is a subregion of the Riverside County and the SSAB that is bounded by the San Jacinto Mountains to the west and the eastern boundary of the Coachella Valley to the east (Figure 2-1).

FIGURE 2-1
South Coast Air Quality Management District



BACKGROUND

In the early 1980's, CARB established one of the nation's first comprehensive state air toxic programs -- the California Air Toxics Program. Its goal is to protect public health by reducing air toxic emissions that pose the highest risk to Californians. The California Air Toxics Program requires two separate steps. During the first step, risk assessment, CARB identifies TACs with the highest risk. In the second step or risk management step, CARB and local air pollution control districts investigate and adopt measures requiring air toxics sources to minimize risk to public health.

There are approximately 200 substances on the TAC list. On August 27, 1998, the TAC list was expanded to include particulate emissions from diesel-fueled engines, culminating a near-decade long scientific investigation into the health effects of exposure to the fine particles and other pollutants in diesel exhaust.

Air Toxics Control Plan

The concept for an Air Toxics Control Plan is an outgrowth of the Environmental Justice (EJ) principles and EJ Initiatives adopted by the Governing Board in October 1997. Extensive air monitoring under EJ Initiative #2 (Multiple Air Toxics Exposure Study, MATES II) and work under EJ Initiatives #7 (create incentives to clean-up or remove diesel engines in the basin) and #10 (related to toxic rules for new and existing sources) highlighted the need for a systematic approach to reducing air toxic emissions.

In particular based on the results from the MATES II study, the SCAQMD concluded that reducing air toxic emissions from stationary sources alone would not be sufficient to address cumulative or localized toxic impacts. As a result, the SCAQMD worked with industry, environmental groups, local government, other agencies, and the public to design and conduct a systematic and integrated approach, similar to that conducted for criteria pollutants (e.g., ozone or particulates) that addresses emissions at multiple levels. The MATES II results indicate that ambient air toxic concentrations in southern California can be further reduced to protect public health.

The Air Toxics Control Plan adopted by the SCAQMD's Governing Board on March 17, 2000 provides guidance for reducing toxic levels in the Basin over the next ten years. The toxics plan reviews the current air toxic levels and key toxic pollutants that contribute to the overall risk levels. It projects the future air toxics levels taking into consideration existing federal, state, local programs that potentially affect future toxic emissions, including implementation of the Air Quality Management Plan (AQMP). The control strategy proposed in the air toxics plan goes beyond the current ongoing toxics reduction efforts and identifies control measures that are currently feasible or will be feasible over the next ten years. The plan, in conjunction with existing emission reduction programs, will result in significant reductions in air toxics risks from both mobile and stationary sources.

Based on the findings of the MATES II program and an evaluation of the source profile of the projected remaining toxic emissions after implementation of the AQMP, the Air Toxics Control Plan concluded that additional control strategies are possible to further reduce toxic contaminants over the next ten years. Air toxics that could be further controlled include diesel particulate, certain criteria pollutants and their related toxic compounds (e.g. benzene, 1,3 butadiene, polyaromatic hydrocarbons, etc.), and specific non-VOCs, such as perchloroethylene and hexavalent chromium. The design criteria employed in developing the control strategies are:

- to integrate and maximize concurrent emission reduction opportunities for both criteria and air toxic pollutants;
- to promote pollution prevention/elimination technologies;
- to address both regional and localized toxic exposures;
- to seek compliance flexibility to the extent feasible, and to streamline compliance requirements among various regulatory agencies; and
- to minimize adverse socioeconomic impacts while protecting public health.

Development of these strategies represents a comprehensive approach designed to further reduce air toxic emissions in the SCAQMD's jurisdiction. This approach consists of early action measures that are currently under development, and mobile and stationary control strategies to be developed and implemented over the next ten years. The following are early action measures that the SCAQMD has identified as implementable based on current technically feasible technologies.

- Fleet conversion of on-road vehicles (the proposed fleet vehicle rules and amendments to Rule 431.2)
- Amend Rule 1401 for new and modified sources of air toxics
- Amend Rule 1402 for existing sources of air toxics
- Further reductions from gasoline dispensing facilities

Other mobile source reduction strategies identified in the Air Toxics Control Plan to potentially be implemented over the next 10 years include:

- Control of diesel particulates through aftertreatment
- Control of diesel particulate through engine design modifications
- Alternatively fueled engines
- Goods movement
- Emission reductions from diesel engine idling
- Locomotive operations
- Commercial motor boats, ships, and barges
- Mitigation of emissions at airports
- Reduction of TACs from gasoline-powered engines through the use of catalyst

- Mobile source NOx emission reduction credit program

Therefore, based on the SCAQMD's preliminary finding that diesel particulate is the primary toxic air pollutant in the SCAQMD's jurisdiction, coupled with CARB's listing of diesel exhaust as a TAC, the SCAQMD is developing the proposed fleet vehicle rules and related amendments, to clean up diesel exhaust from mobile sources (e.g., fleet vehicles and buses). The proposed project is one of many measures in the SCAQMD's comprehensive Air Toxics Control Plan to reduce toxic air pollution from both mobile and stationary sources. Other programs to reduce diesel emissions include SCAQMD grant programs that cover conversion of diesel equipment to clean fuels.

It should be noted that on September 10, 1999, when the SCAQMD Governing Board originally directed staff to begin the development of the Air Toxics Control Plan as a comprehensive overall strategy to control air toxics in the Basin,- it also directed to staff to investigate the SCAQMD's authority under state and federal law to regulate mobile sources and to develop a rule based on that authority. The proposed fleet vehicle rules and related amendments are being promulgated in response to this Board directive. Therefore, one of the primary objectives of the proposed project, based on the findings of the MATES II study and the TAC reduction strategies in the Air Toxics Control Plan, is to reduce the contribution of overall toxic risk of diesel exhaust emitted by fleets of trucks and buses, and the gaseous air toxic compounds associated with gasoline-fueled vehicles in the region, by accelerating the implementation of currently available clean-fueled vehicle technology.

SCAQMD's Multiple Air Toxics Exposure (MATES II) Study

The objectives of the MATES II study were to monitor and evaluate urban air toxics, as well as update the toxics emission inventories for the Basin and conduct air toxic dispersion modeling to simulate the monitored data. The study represented one of the most comprehensive air toxics programs ever conducted in an urban environment. The scope of the study included the monitoring of more than 30 toxic air pollutants at 24 sites over a one-year period ending last spring. The SCAQMD collected more than 4,500 air samples and together with the ARB performed more than 45,000 separate laboratory analyses of these samples.

In March 2000, the SCAQMD issued a draft Final Report for the MATES II study. The findings of MATES II study indicate that the cancer risk from some air toxics in the SCAQMD's jurisdiction has declined by as much as 75 percent over the last decade. However, it also showed that based upon more extensive monitoring of the variety of toxic compounds in the air, the current cancer risk from toxic air pollution averages about 1,400 in a million in the South Coast Air Basin. The study found that 71 percent of this cancer risk is attributable to diesel particulate. Other important toxic species contributing significantly to this cancer risk, originating from both gasoline- and diesel-powered mobile sources as well as stationary sources, are 1,3 butadiene (8 percent of risk), benzene (7 percent of risk), and

carbonyls which include formaldehyde and acetaldehyde (3 percent of risk)[1]. See Chapter 3 for a more detailed discussion of the MATES II Study results.

STATUTORY AUTHORITY

In general, the USEPA is responsible for establishing new motor vehicle emission standards nationally. Specifically, §209(b) of the CAA (42 U.S.C. §7543(a)) preempts states from adopting or attempting to enforce emission standards for new motor vehicles. However, §209(b) of the CAA (U.S.C. §7543(b) directs USEPA to waive preemption for California, which allows California to establish new motor vehicle standards and enforcement procedures after notice and opportunity for a hearing unless specified findings are made[2]. For over 25 years it has been the consistent practice of CARB to adopt new motor vehicle emission standards and then apply to USEPA for a waiver. For example, USEPA gave notice in January 1993 (see 58 F.R. 4166 (January 13, 1993)), announcing the agency's issuance of a waiver for CARB's original low-emission vehicle regulations, adopted by CARB July 12, 1991, which went into effect September 2, 1991. The U.S. Court of Appeals for the D.C. Circuit has upheld §209(b) waivers of preemption granted by USEPA for California motor vehicle emission standards and accompanying enforcement procedures that CARB had first adopted prior to application for a preemption waiver (*Motor Equipment and Manufacturers' Association v. Nichols*, 142 F.3d 449 (D.C. Cir., 1998)).

Comments were received on the Draft PEA arguing that the proposed fleet vehicle rules are preempted. As stated in responses to comments (Appendix H) the SCAQMD disagrees. However, even if the proposed project would otherwise be preempted, USEPA is directed to waive preemption, except under certain circumstances, for California motor vehicle regulations.

CARB's authority to establish new motor vehicle emission standards and enforcement procedures that differ from corresponding federal regulations administered by the USEPA (based on the §209(b) waiver) are codified in California Health and Safety Code §§43013, 43018, 43101, and 43104. The federal preemption waiver and Health and Safety Code provisions allow CARB to establish new motor vehicle emission standards for both on- and off-road motor vehicles including: passenger cars, motorcycles, trucks, buses, heavy-duty construction equipment, recreational vehicles, marine vessels, lawn and garden equipment, and small utility engines.

Based on its authority to establish new motor vehicle standards, California has delegated limited authority to the SCAQMD to regulate public (and commercial) vehicle fleets

[1] The remaining 11 percent of the risk is attributable to other TACs.

[2] The §209(b) waiver provisions apply to any state that has adopted standards (other than crankcase emission standards) for the control of emissions from new motor vehicles or motor vehicle engines prior to March 30, 1966 (see §209(b)(1)). California is the only state that meets this condition) S. Rep. No. 403, 90th Cong. 1st Sess., 532(1967), *Motor and Equipment Manufacturers Association [MEMA] v. EPA*, 627 F.2d 1095, 1101 fn. 1 (D.C. Cir. 1979)).

pursuant to Health and Safety Code §§40919 and 40447.5. In particular §40447.5 states in pertinent part that,

> "Notwithstanding any other provision of law, the south coast district board may adopt regulations that do all of the following: (a) Require operators of public and commercial fleet vehicles, consisting of 15 or more vehicles under a single owner or lessee and operating substantially in the south coast district, when adding vehicles to or replacing vehicles in an existing fleet or purchasing vehicles to form a new fleet, to purchase vehicles which are capable of operating on methanol or equivalently clean burning fuel and to require that these vehicles be operated, to the maximum extent feasible, on the alternative fuel when operating in the south coast district. Notwithstanding [Health and Safety Code] §39021, as used in this subdivision, the term 'commercial fleet vehicles' is not limited to vehicles that are operated for hire, compensation, or profit. No regulation adopted pursuant to this paragraph shall apply to emergency vehicles operated by local law enforcement agencies, fire departments, or to paramedic and rescue vehicles until the south coast district board finds and determines that the alternative fuel is available at sufficient locations so that the emergency response capabilities of those vehicles is not impaired."

Based upon the authority granted to the SCAQMD in Health and Safety Code §§40919 and 40447.5 and based upon the major contribution of mobile sources to the region-wide cancer risks as demonstrated by the results of the Final MATES II study, the SCAQMD is proposing to implement the proposed fleet vehicle rules and related amendments.

PRs 1191 and 1194, for example, requires the acquisition of lower emitting vehicles by government agencies and commercial airports (e.g., taxi and passenger shuttles) when purchasing new or replacing existing vehicles. Under California Health and Safety Code §40919, serious and above nonattainment areas can adopt measures requiring fleets to use a significant number of low-emission LEVs. Furthermore, California Health and Safety Code §39037.05 defines a LEV as "a motor vehicle which has been certified by the state board [CARB] to meet all applicable emission standards and which meets at least one of the following additional requirements:

- Is capable of operating on methanol, as determined by the state board, and will have an adverse impact on ambient ozone air quality not greater than a vehicle which meets the requirements of subdivision (c). [California Health and Safety Code §39037.05 (a)].

- Is capable of operating on any available fuel other than gasoline or diesel and, in the determination of the state board, will have an adverse impact on ambient ozone air quality not greater than a vehicle operating on methanol. [California Health and Safety Code §39037.05 (b)].

- Operates exclusively on gasoline and is certified to meet a hydrocarbon exhaust emission standard which is at least twice as stringent as otherwise applicable to gasoline vehicles of the same year and class. [California Health and Safety Code §39037.05 (c)]."

For HDVs in general, the proposed fleet vehicle rules (e.g., PRs 1192, 1193, 1194, 1195, 1196, and 1186.1) would require fleet operators to purchase vehicles with engines certified to the PM and NOx exhaust emission standards as a methanol-fueled engine or better. Methanol is used because Health and Safety Code §40447.5 specifies "vehicles, which are capable of operation on methanol or other equivalently clean burning alternative fuels and to require that these vehicles be operated, to the maximum extent feasible, on the alternative fuel when operating in the south coast district." Based on SCAQMD evaluation, staff has included engine families powered by natural gas and electricity (powered by batteries or fuel cells) certified by CARB to be equivalent to or better than methanol for rule compliance purposes.

PROJECT OBJECTIVES

CEQA Guidelines §15124(b) requires a CEQA document to include a statement of objectives, which describes the underlying purpose of a proposed project. The purpose of the statement of objectives is to aid the decision-makers in preparing findings or a statement of overriding considerations, if necessary. The objectives of the proposed fleet vehicle rules and the proposed amendments to Rule 431.2 include the following:

- ✓ Reducing TAC emissions from government and certain specific private fleet vehicles;
- ✓ Reducing criteria pollutant emissions from government and certain specific private fleet vehicles in surplus of other state and federal mobile source regulations;
- ✓ Increasing the penetration rate of alternative clean-fueled vehicles in the SCAQMD's jurisdiction;
- ✓ Fostering the development of alternative clean-fueled vehicle technology and infrastructure;
- ✓ Increasing the availability of funding for alternative clean-fueled vehicle technology and infrastructure projects;
- ✓ Contributing to the implementation of EJ Initiatives #2 and #7; and
- ✓ Implementing the control strategies in the Air Toxics Control Plan.

PROJECT DESCRIPTION

It should be noted that the original version of PR 1190 in the NOP/IS released in November 1999, required affected fleet operators to acquire an alternative clean-fueled vehicle when purchasing or replacing **any** fleet vehicle. No allowance was made for gasoline-fueled or diesel-fueled vehicles. However, based on the comments received during the NOP/IS comment period as well as comments received at the Public Workshop/CEQA Scoping

Meeting on December 21, 1999, and Public Workshops held on January 21, 2000, and February 16, 2000, the SCAQMD has modified the original comprehensive PR 1190 proposal into a number of new rules by vehicle category type. Also incorporated into the overall proposed project or proposed amendments to Rule 431.2 – Sulfur Content of Liquid Fuels. The main components that are common to each of the proposed fleet vehicle rules and related amendments are described in the following section. Components specific to each proposed rule or amendment are discussed below in the specific subsection for that proposed rule or amendment.

Main Components of the Proposed Fleet Vehicle Rules and Related Amendments

The main components of the proposed fleet vehicle rules are summarized in the following bullet points. The following components apply to all the proposed fleet vehicle rules and related amendments unless explicitly excluded from the provision.

- The proposed fleet vehicle rules would apply to fleet operators of 15 or more vehicles, and specifically applies to all government agencies located in the SCAQMD's jurisdiction, including federal, state, county, and city departments or agencies, etc.

- Vehicle categories affected by the proposed fleet vehicle rules and related amendments include passenger cars, light-duty trucks, medium-duty vehicles, and heavy-duty vehicles, including urban transit buses and school buses[3].

- The proposed fleet vehicle rules would require government agency and certain specific private fleet operators of vehicle fleets with 15 or more vehicles operating in the SCAQMD's jurisdiction to acquire clean burning vehicles when adding or replacing fleet vehicles, according to the following compliance schedule:

  - For public transit fleet operators of public transit urban bus fleets of 100 or more transit vehicles (including urban buses) would be subject to the rule upon adoption; fleets with 15 to 99 transit vehicles would be subject to the rule beginning July 1, 2001 (see PR 1192); and

  - Other government agency fleets greater than or equal to 15 vehicles, including private commercial airport ground access fleet vehicles, would be subject to the applicable proposed rules beginning July 1, 2001

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[3] The reader is referred to Chapter 4 of this Final PEA for the number of fleet vehicles affected by the proposed fleet vehicle rules and related amendments.

- Generally, the provisions of the proposed fleet vehicle rules would not apply to the following types of fleets:

  - Fleets consisting of evaluation/test vehicles, operated by a vehicle manufacturer for testing or evaluation exclusively;

  - Fleet vehicles used by emergency service providers such as police and fire departments, ambulances, hospital or paramedical fleets, etc.; and

  - Non-passenger military vehicles.

- The proposed fleet vehicle rules will also contain recordkeeping requirements to demonstrate compliance with the rule provisions.

Based upon the general rule provisions described above that are applicable to all fleet vehicle rules and related amendments, and the additional information provided for each proposed rule in the following subsections, the SCAQMD has a complete description of the currently proposed fleet vehicle rules and sufficient information on the future proposed rules and related amendments to comprehensively evaluate the potential adverse environmental impacts identified in Chapter 4 of this Final PEA. For a complete version of PRs 1191, 1192, – 1193, 1194, and 1186.1 the reader is referred to Appendix A. The following subsections provide a brief synopsis for all of the currently proposed fleet vehicle rules and related amendments.

Regarding the availability of compliant engines, it is the SCAQMD's intent to apply the proposed fleet vehicle rules and related amendments where it is technically and economically feasible. The SCAQMD has received comments that the proposed rule language should provide for some relief if the situation should arise that there are no available compliant engines. The relief could be a full exemption or time extension until such time CARB-certified engines become available; in the meantime, the operator could purchase a conventionally fueled engine. The SCAQMD is sensitive to this issue and is continuing to solicit comments from various affected fleet operators to resolve this issue in the most technically feasible and cost-effective manner. Some of the proposed fleet vehicle rules contain exemption language for alternative clean-fueled engine model unavailability.

PR 1191 – Clean On-Road Light- and Medium-Duty Public Fleet Vehicles

PR 1191 specifically applies to all government agencies located in the SCAQMD's jurisdiction, including federal; state; regional; county; city government departments and agencies; and any special districts such as water, sanitation, transit, and school districts. PR 1191 is intended to apply when public fleets both purchase or lease new vehicles.

Pursuant to PR 1191, public fleet owners or operators of 15 or more vehicles beginning July 1, 2001, shall procure from the list published by the Executive Officer low-emitting gasoline

or alternative clean-fuel vehicles that meet the emissions standards contained in Title 13 of the California Code of Regulations when adding or replacing vehicles to their vehicle fleet. Upon the date of adoption of PR 1191, any LDV or MDV that has been certified by CARB that meets the LEV, ULEV, SULEV, or ZEV emission standards shall be included in the list. Upon determination by the Executive Officer that at least 50 percent of new LDV or MDV sales in California consist of sales of ULEVs or cleaner vehicles, the list shall consist of any LDV or MDV that has been certified by CARB to meet the ULEV, SULEV, or ZEV emission standards.

PR 1191 does not apply to emergency vehicles operated by local, state, or federal law enforcement agencies, fire departments, or to paramedic and rescue vehicles. PR 1191 also exempts privately owned or operated fleet vehicles that provide services to public agencies.

PR 1192 - Clean On-Road Transit Buses

PR 1192 will apply to fleet operators of public and private transit urban bus fleets of 15 or more operating in the SCAQMD's jurisdiction. In particular, PR 1192 will require that new bus acquisitions by transit fleet operators must be alternative clean-fueled vehicles. The alternative clean-fuel buses would be required to meet the emission requirements set forth in Title 13 of the California Code of Regulations. Exemptions are proposed for certain types of transit vehicles such as paratransit and long-distance, out-of-basin passenger transportation vehicles (e.g., over-the-road-motorcoaches). In addition, PR 1192 would exempt a transit fleet operator from the PR 1192 requirement of acquiring a new alternative clean-fueled transit bus when purchasing a new or replacing an existing bus provided the fleet operator can demonstrate to the Executive Officer that an alternative-fuel engine and chassis configuration is not commercially available.

PR 1192 would apply immediately upon adoption to public transit operators with 100 or more transit vehicles. For transit operators with 15 to 99 transit vehicles, PR 1192 would be implemented beginning July 1, 2001.

PR 1192 will apply to all public entities that provide public transit services and private entities that contract with public entities to provide such services. Currently, several transit agencies and many local jurisdictions have already or are in the process of purchasing alternative clean-fueled buses. Based on the SCAQMD's survey of transit fleets it appears that for most of transit bus operations, an equivalent bus equipped with an CARB-certified alternative clean-fueled engine is commercially available.

PR 1193 - Clean On-Road Residential and Commercial Refuse Collection Vehicles

PR 1193 will apply to public and private fleet operators who provide refuse collection from residential and commercial locations and those HDVs used to transport waste to landfills.

PR 1193 would require fleets with 15 or more vehicles to purchase alternative clean-fueled refuse collection vehicles or dual-fuel vehicles. PR 1193 would apply to fleet operators with 50 or more refuse collection vehicles beginning July 1, 2001. For fleet operators with 15 to 49 vehicles, PR 1193 implementation would begin July 1, 2002.

PR 1193 would also allow the purchase of dual-fuel vehicles if the dual-fuel engine has been certified by CARB to meet optional nitrogen oxide exhaust emission standards and that have been fitted with particulate trap devises.

It should be noted that several refuse collection operators have begun or in the process of purchasing alternative clean-fueled refuse trucks. Based on the SCAQMD's investigation into these purchases, these vehicles would meet the requirements of PR 1193.

PR 1194 - Commercial Airport Ground Access

PR 1194 will apply to public and certain private entities that provide passenger transportation to and from commercial airports. PR 1194 will apply to all LDVs, MDVs, and HDVs that are used to provide passenger transportation to and from commercial airports with in the SCAQMD's jurisdiction. PR 1194 will require that affected fleet operators purchase ultra low emission light- or medium-duty vehicles or alternative clean-fueled heavy-duty vehicles when purchasing or replacing existing fleet vehicles.

PR 1194's application is limited to ground transportation services such as taxi and limousine services; van services; and shuttle bus services such as airport terminal shuttles, rental car shuttles, and hotel shuttle services. PR 1194 will not apply to cargo transportation services or other non-road transportation.

PR 1195 - Clean On-Road School Buses

PR 1195 will apply to school districts and those private fleet operators who provide home-to-school transportation services. PR 1195 will require the purchase of alternative clean-fueled school buses when these fleet operators add new or replace existing buses. Based on comments received by affected school bus fleet operators relative to school district revenues and school transportation services, PR 1195 will provide a provision that would exempt a school bus fleet operator from the requirement of acquiring a new alternative clean-fueled school bus when purchasing a new or replacing an existing bus provided the fleet operator can demonstrate to the Executive Officer that there is a lack of funding, infrastructure, or model availability to support the acquisition or operation of the alternative clean-fueled bus. The affected fleet owner or operator would have to make this demonstration that compliant engine classes are not available each time a fleet vehicle is purchased or replaced to qualify for this exemption.

PR 1196 - Clean On-Road Heavy-Duty Public Fleet Vehicles

PR 1196 will apply to all HDVs in public fleets with 15 or more vehicles. HDVs affected by PR 1196 will be those not specifically identified in other proposed fleet vehicle rules or related amendments. These vehicles include specialty vehicles (e.g., aerial trucks, paint stripers, repavers, utility trucks, specialty cranes, etc.) produced to specified configurations. Many of these vehicles may be one-of-a-kind and an alternative clean-fueled engine may not be available for the type of chassis design required and specified by the fleet operator. PR 1196 will provide fleet operators with an exemption from the PR 1196 requirement of acquiring a new alternative clean-fueled HDV when purchasing a new or replacing an existing HDV provided the fleet operator can demonstrate to the Executive Officer that there is a lack of model availability for a specific HDV application. The affected fleet owner or operator would have to make this demonstration that compliant HDV engine classes are not available each time a fleet vehicle is purchased or replaced to qualify for this exemption.

PR 1186.1 – Alternative Fuel Sweepers

PR 1186.1 will require affected fleet operators to acquire alternative clean-fueled sweepers when purchasing new or replacing existing sweepers. There are currently six manufacturers of PM10 efficient streetsweepers that meet the current PM10 requirements of Rule 1186. Based on current information acquired by the SCAQMD, at least two manufacturers offer alternative clean-fueled sweepers as part of their product line. The proposed implementation date when fleet operators must begin acquiring alternative clean-fueled vehicles is July 1, 2002. In addition, if it is technically infeasible to procure an alternative-fuel sweeper, PR 1186.1 provides specific alternative compliance approaches (e.g. a Rule 1186-certified sweeper, powered by low-sulfur diesel and outfitted with an ARB-approved control device) to minimize any possible environmental and economic impacts or duplication with Rule 1186 – PM10 Emissions from Paved and Unpaved Roads, and Livestock Operations.

Proposed Amended Rule (PAR) 431.2 - Sulfur Content of Liquid Fuels

While not specifically focused on reductions in mobile source emissions, proposed amendments to Rule 431.2 will lower the sulfur content limits for petroleum-based liquid fuels (specifically, diesel) burned, purchased, or offered for sale in the SCAQMD's jurisdiction. The availability of low-sulfur diesel fuel is a critical component in lowering fine particulate emissions from diesel-fueled engines that have advanced aftertreatment control devices. The SCAQMD has the statutory authority to regulate sulfur content in diesel motor fuels pursuant to Health and Safety Code §40447.6. PAR 431.2 would mandate a low sulfur content limit for diesel fuel used in all on-road, off-road and stationary sources. Under consideration is the same 15 ppm limit as a currently proposed by USEPA regulation, but the SCAQMD proposal would have a more ambitious compliance schedule.

Rule Adoption Schedule

The SCAQMD plans to bring the aforementioned proposed rules and amendments to its Governing Board for adoption at various times. The exact schedule by which the various proposed fleet vehicle rules and related amendments will be heard by the SCAQMD's Governing Board is tentative at this time. However, the PRs 1191, 1192 and 1193 are currently scheduled to be heard by the Governing Board at the June 2000 Public Hearing. Depending on the resolution of various issues such as funding, infrastructure, model availability, contract services, exemptions, etc., the SCAQMD will in subsequent months bring other proposed fleet vehicle rules individually or in groups to its Governing Board for consideration and adoption.

AIR QUALITY BENEFITS ESTIMATE

There are several reasons why the SCAQMD at this time has decided to undertake the proposed fleet vehicle rules and related amendments to reduce TACs and criteria pollutants from public and certain private fleets. Some of the reasons are briefly summarized in the following bullet points.

- In order for the SCAQMD to meet federal and state ambient standards in a timely manner as well as reduce the level of toxic exposure in the South Coast Air Basin, mobile source emissions must be significantly reduced.

- Over 25 percent of fleet vehicles in the Basin are owned or operated by local governments and special districts. The SCAQMD believes that government agencies have an opportunity to take a leadership role to protect public health by lowering harmful emissions from motor vehicles and expanding the clean fuel market.

- Many government agencies have developed policies to acquire lower emitting gasoline or alternative clean-fueled vehicles. For example, since 1992, the Los Angeles Metropolitan Transportation Authority has had an alternative fuel implementation policy, which has resulted in the procurement and operation of alternative-fueled transit buses (e.g., methanol, ethanol, and CNG). Other transit districts and government agencies in the district having significant expertise or experience with alternative-fuels including Orange County Transportation Authority, Riverside Transit Authority, OMNITRANS, Sunline Transit, City of Santa Monica, Culver City, City of Cypress, etc. The SCAQMD's vehicle universe survey indicates that currently alternative clean-fueled vehicles account for three to four percent of the total vehicle population affected by the proposed fleet vehicle rules.

- Many government agencies have already taken advantage of funding programs to offset the additional costs of alternative fueled vehicles. This trend is expected to increase with the adoption and implementation of the proposed fleet vehicle rules and related amendments.

- Many government fleets have centralized fueling stations and could implement the proposed fleet vehicle rules sooner. The use of centralized fueling, which could help accelerate alternative-clean fueling infrastructure, could help increase the potential air quality benefits anticipated from the adoption and implementation of the proposed fleet vehicle rules and related amendments

- The early penetration of alternative clean-fuels will allow an easier transition between existing technology and future technology. For example in the case of transit buses the building of natural gas infrastructure today, will allow transit agencies to more smoothly transition to fuel cell technology in the future, which will be necessary to meet CARB's zero emission transit bus standards.

- Developing clean-diesel technology (e.g., exhaust gas recirculation, particulate traps/filters, exhaust catalyst, selective catalytic reduction, etc.), which must be used in conjunction with low sulfur diesel, can also be used with alternative clean-fuels to further reduce TACs and criteria pollutants. It should be noted that some of the developing clean-diesel technologies may not be easily applied to older dirty vehicles.

- In many respects, alternative clean-fuels are "fail safe" in that they have inherently lower emissions (e.g., NOx) associated with them under heavy loads do not substantially increase compared to emissions at lower loads. Additionally, alternative clean-fueled engines do not necessarily have to rely on aftertreatment technology to achieve low emission levels. Conversely, , the same cannot be said for engines fueled with conventional-fuels.

- Recent emissions testing of LDVs, MDVs, and HDVs reveals that exhaust emissions from these sources have been dramatically underestimated. In the case of HDVs, 124 tons per day of NOx emissions have been added to the statewide mobile source inventory due to engine controls not performing properly. For LDVs, CARB has recently indicated that VOC emissions from these sources are potentially two to three times higher than previous estimates.

Based on the foregoing, the SCAQMD has attempted to quantify the potential air quality benefits of the proposed fleet vehicle rules. However, the air quality benefits associated with some of the items discussed above are unquantifiable. In order to provide a conservative estimate of the potential air quality benefits associated with the proposed fleet vehicle rules and related amendments, the SCAQMD used an unscaled vehicle population (e.g., raw vehicle population estimates). As explained in Chapter 4, this is a different approach than is used to estimate the environmental impacts of the proposed project. For the impacts analyses in Chapter 4, the SCAQMD scaled up the raw vehicle population estimates, with the exception of transit buses, by a factor of 1.2. This scaling factor provides a more conservative analysis of adverse impacts than would be the case with the raw data. Accordingly, the revised air quality benefit estimates shown on a rule-specific basis in Tables 2-1 through 2-7 may underestimate the overall actual air quality benefits from the proposed

fleet vehicle rules and related amendments by at least 20 percent since the raw vehicle universe is not scaled. The reader is referred to Chapter 4 of this Final PEA and Appendix E1 for a more thorough discussion of how the emission reductions were determined for the proposed fleet vehicle rules and related amendments. Also included in Chapter 4, is a discussion of the potential toxic exposure reduction associated with the implementation of the proposed fleet vehicle rules and related amendments.

TABLE 2-1

Emission Benefits Estimates
For PR 1191 (tons/yr)

Year	HC[a]	CO	NOx
2001	~[b]	~	~
2002	~	~	~
2003	~	~	~
2004	1	47	0
2005	3	92	1
2006	3	131	1
2007	4	167	1
2008	5	200	1
2009	6	228	1
2010	6	252	1

[a] HC = Hydrocarbon

[b] ~ = Small unquantified emission benefit due to restriction on the purchase of Tier I vehicles and TLEVs by fleets in years 2001 through 2003.

TABLE 2-2

Emission Benefits Estimates
For PR 1192 (tons/yr)

Year		PM10	NOx
2001		0	0
2002		4	68
2003		5	101
2004		6	133
2005		7	165
2006		8	197
2007		9	197
2008		9	197
2009		10	197
2010		11	197

[a] Particulate Matter less than 10 microns

TABLE 2-3

Emission Benefits Estimates For PR 1193 (tons/yr)

Year	PM10	NOx
2001	4	76
2002	11	206
2003	18	267
2004	25	329
2005	32	390
2006	39	451
2007	46	512
2008	53	573
2009	61	634
2010	68	695

TABLE 2-4

Emission Benefits Estimates For PR 1194 (tons/yr)

Year	HC	CO	PM10	NOx
2001	0	0	< 1	1
2002	0	0	< 1	3
2003	0	0	< 1	3
2004	< 1	3	< 1	3

TABLE 2-4 (CONTINUED)

Emission Benefits Estimates For PR 1194 (tons/yr)

Year	HC	CO	PM10	NOx
2005	< 1	6	< 1	3
2006	< 1	8	< 1	3
2007	< 1	10	1	4
2008	< 1	12	1	4
2009	< 1	13	1	4
2010	< 1	14	1	4

TABLE 2-5

Emission Benefits Estimates For PR 1195 (tons/yr)

Year	Max PM10	NOx
2001	2	28
2002	3	51
2003	5	55
2004	7	58
2005	8	62
2006	10	66
2007	12	69
2008	14	73
2009	15	77
2010	17	80

TABLE 2-6

Emission Benefits Estimates For PR 1196 (tons/yr)

Year	PM10	NOx
2001	2	27
2002	3	50
2003	5	54
2004	7	57
2005	8	61
2006	10	65
2007	11	68
2008	13	72
2009	15	75
2010	16	79

TABLE 2-7

Emission Benefits Estimates For PR 1186.1 (tons/yr)

Year	PM10	NOx
2001	0	0
2002	0	0
2003	1	9
2004	2	18
2005	3	28
2006	4	37
2007	5	46
2008	6	55
2009	7	64
2010	7	64

MOBILE SOURCE REGULATIONS

The development of the proposed fleet vehicle rules and related amendments are also affected by recent state and federal rulemaking efforts and actions that are intended or have resulted in lowering on-road mobile source emissions by either reducing tailpipe emissions from conventional petroleum fuels and/or requiring the sale or purchase of alternative-fuel vehicles. Some of these more important rulemaking activities as well as their significance to the proposed fleet vehicle rules will be described in the following subsections, including the Clean Air Act Amendments (CAAA) of 1990, the U.S. Energy Policy Act (EPAct) requirements, CARB's Low Emission Vehicle (LEV I) / LEV II Regulations, and CARB's proposed Urban Bus Rule.

CAAA

The CAAA of 1990 (Public Law 101-549) was passed by Congress to amend the original Clean Air Act passed 20 years earlier. The CAAA includes provisions that require gasoline refiners to reformulate their gasolines to meet more stringent emission standards. In cities that do not meet federal air quality requirements set forth in the CAAA, gasolines must be reformulated during certain months, when carbon monoxide and ozone pollution are most serious. The regulations also require certain fleet operators to use clean fuel vehicles in 22 metropolitan areas nationwide. The clean fuels included reformulated gasoline and many alternative fuels.

The CAAA also established the California Pilot Program requiring 150,000 clean fuel vehicles a year for California by 1996, increasing to 300,000 a year by 1999. Vehicles can use reformulated gasoline (one of the federally designated clean-fuels). The law allowed other states to adopt California's Low Emission Vehicle standards. Prior to the CAAA, Congress passed the Alternative Motor Fuels Act of 1988 - AMFA (Public Law 100-494), which encouraged the development, production and demonstration of alternative motor fuels

and alternative fuel vehicles. That law, however, did not affect fleets. It did establish Corporate Average Fuel Economy CAFE credits for auto companies producing AFVs.

Energy Policy Act (EPAct)

The EPAct Energy Policy Act of 1992 (EPACT), Title III, Code of Federal Regulations, is administered by the U.S. Department of Energy (DOE) and is designed to reduce dependence on foreign oil supplies and increase the use of AFVs. By passing this legislation, Congress recognized that fleets are uniquely suited for introducing and accommodating new fuel and vehicle technologies. According to U.S. DOE, fleet vehicles typically accumulate higher mileage than private vehicles and are replaced more frequently. Beginning in 1997, EPAct required federal, state, and alternative fuel provider fleet operators to acquire new alternative-fueled vehicles as a percentage of new vehicle acquisitions. This percentage starts out at 10 to 33 percent depending on fleet type, and gradually increases over time. By the year 2002, when the proposed fleet rule is specified for full implementation, EPAct alternative-fueled vehicle purchase requirements are 75 percent for federal and state fleets, respectively, and 90 percent for fuel provider fleets. Municipal and private fleet operator participation in EPAct is currently in question; U.S. DOE may rule on this issue early next year. If these fleets are ultimately included in EPAct, alternative-fueled vehicle purchase requirements for these fleet operators will probably begin in 2002.

Basically, EPAct requirements are limited to fleets with 50 or more light-and medium-duty vehicles (up to 8,500 pounds gross vehicle weight (GVW)), operating at least 20 of these vehicles in cities that had a population of at least 250,000 at the time of the 1980 U.S. census. In general, urbanized areas in the SCAQMD's jurisdiction meet these criteria and are therefore subject to EPAct requirements. Examples of alternative fuels that can be used to power fleet vehicles under EPAct include methanol, ethanol, natural gas, liquefied petroleum gas, hydrogen, and electricity.

EPAct set a regulatory precedent by requiring large-scale purchases of alternative-fueled vehicles by government and certain private fleets. The regulations have been in place since 1992, and thus affected fleets, which constitute a significant proportion of vehicle fleets within the scope of the SCAQMD's proposed fleet vehicle rules, have been preparing for and have been gaining significant experience in the operation of light- and heavy-duty alternative-fueled vehicles. In essence, the District's proposed fleet rule builds upon federally mandated alternative-fueled fleet requirements, which have been in place for nearly a decade.

CARB's Low Emission Vehicle (LEV) I / LEV II Regulations

In September 1988, Governor George Deukmejian signed the California Clean Air Act, (CCAA) Assembly Bill (AB) 2595, authored by Assemblyman Byron Sher. The CCAA defined a framework for air quality planning and regulations, establishing a new means for reaching California's air quality goals

In adopting the LEV I regulations in 1990-91, the CARB established the most stringent exhaust regulations ever for light- and medium-duty vehicles. The regulations include three primary elements: (1) tiers of exhaust emission standards for increasingly more stringent categories of low-emission vehicles; (2) a mechanism requiring each manufacturer to phase-in a progressively cleaner mix of vehicles from year to year with the option of credit trading; and (3) a requirement that a specified percentage of passenger cars and lighter light-duty trucks be ZEVs, vehicles with no emissions.

There are four low-emission vehicle categories to which a passenger car or lighter light-duty truck may be certified: Transitional Low-Emission Vehicle (TLEV), Low-Emission Vehicle (LEV), Ultra Low-Emission Vehicle (ULEV) and ZEV. For medium-duty vehicles, there are four categories: LEV, ULEV, Super Ultra Low-Emission Vehicle (SULEV) and ZEV. Each low-emission vehicle category has a progressively more stringent standard for exhaust emissions of non-methane organic gas (NMOG), a precursor of ozone pollution in the lower atmosphere. For example, a passenger car TLEV must meet an NMOG emission standard that is about one-half of the corresponding basic standard for 1994 model vehicles. Passenger car LEVs and ULEVs must meet standards for NMOG that are respectively about one-third and one-sixth of the corresponding 1994 standard. The identical LEV and ULEV standard for NOx represents a 50 percent reduction from the basic NOx standard for 1994 passenger cars, and the ULEV standard for carbon monoxide (CO) also represents a reduction of about 50 percent from the basic 1994 CO standard.

All passenger cars are subject to the same low-emission vehicle standards, regardless of weight. However, for light-duty trucks and medium-duty vehicles, the numerical standards for each low-emission vehicle category depend on the weight classification of the vehicle.

For each model year, a manufacturer may choose the standards to which each passenger car and light-duty truck is certified, provided that the manufacturer's entire fleet of these vehicles meets a specified fleet average NMOG emissions level. The permitted fleet average NMOG emission level for passenger cars and the lightest light-duty trucks gradually falls every year from 0.250 gram per mile (g/mile) in 1994 to 0.062 g/mile in the 2003 and subsequent model years. The 2003 model-year level is derived from a potential vehicle mix of 75 percent LEVs, 15 percent ULEVs and 10 percent ZEVs. The heavier light-duty trucks are subject to numerically higher fleet average NMOG emissions requirements reflecting the numerically higher TLEV, LEV and ULEV standards and the absence of the ZEV requirements described below. Medium-duty vehicles have separate requirements based on a percent phase-in schedule, because the numerous vehicle weight classifications make a fleet average requirement difficult to implement. The low-emission vehicle standards for chassis-certified medium-duty vehicles are phased in between the 1998 and the 2004 model years, at which time a manufacturer must certify at least 60 percent LEVs and 40 percent ULEVs. The regulations also establish a system for earning marketable credits for use in complying with the phase-in requirements.

As originally adopted, the regulations required that specified percentages of the passenger cars and lightest light-duty trucks produced by each of the seven largest manufacturers be ZEVs, starting in 1998. The percentages were two percent for the 1998-2000 model years and five percent for the 2001-2002 model years. A requirement of 10 percent ZEVs applied to all but small-volume manufacturers starting in model-year 2003. In 1996, the CARB Board eliminated the regulatory ZEV requirements applicable prior to the 2003 model year. The ZEV element also includes a marketable credits system.

The regulation was upheld by CARB in May 1994, when CARB's Board reaffirmed its timetable for implementation and noted that technical advances were on track. In December 1995, however, CARB's chairman directed agency staff to draft a new proposal to change the timetable for ZEVs. On March 28, 1996, the board members adopted this new timetable.

CARB modified the phase-in requirements from the 1998 model year through the year 2003. Instead, auto companies could voluntarily sell their ZEVs. Beginning in 2003, however, the mandate that 10 percent of vehicles must be ZEVs was unchanged.

It should also be noted that in August 1994, Governor Pete Wilson issued an Executive Order to increase the number of alternative fueled vehicles (AFVs) purchased for California's state fleet use. The order increased the percentage of vehicles as much as 25 percent more than what the EPAct required.

The LEV II and CAP 2000 regulations were approved by OAL on October 28, 1999, and were filed with the Secretary of State on the same date. They became effective on November 27, 1999.

The primary impetus for the new LEV II and CAP 2000 amendments comes from CARB's obligations under the State Implementation Plan (SIP) for ozone adopted by CARB's Board in 1994. The LEV II amendments include three major interrelated elements designed to reduce to exhaust emissions: (1) restructuring the light-duty truck category so that most SUVs, mini-vans and pick-up trucks are subject to the same low-emission vehicle standards as passenger cars; (2) strengthening the NOx standard for passenger car and light-duty truck LEVs and ULEVs, and changing other emission standards; and (3) establishing more stringent 2004 and subsequent model year phase-in requirements for passenger cars, light-duty trucks and medium-duty vehicles. They also contain various other changes, including elimination of the TLEV standard after the 2003 model year.

Under the restructuring of vehicle weight classifications, all current light-duty trucks, and all current medium-duty vehicles having a gross vehicle weight (GVW) of less than 8,500 pounds. would generally be subject to the same LEV and ULEV standards as passenger cars. Only the very heaviest SUVs and pick-up trucks would remain subject to separate medium-duty vehicle standards

The CARB amendments establish new LEV II standards for the current LEV, ULEV, and SULEV categories; the preexisting standards are being referred to as the LEV I standards. The new LEV II standards will be phased in from the 2004 to 2007 model years. During these four years a manufacturer must certify its vehicles to the LEV II standards at a rate of at least 25/50/75/100 percent, respectively, although the LEV I TLEV standard will be eliminated after the 2003 model year.

The LEV II standards are more stringent than the corresponding LEV I standards in several respects. First, the LEV II NOx standard for passenger cars and light-duty trucks certified to the LEV and ULEV standards has been reduced to 0.05 g/mile from the current 0.2 g/mile level. The LEV II particulate emission standard is 0.01 g/mile for diesel LEVs, ULEVs and SULEVs. There is no LEV II TLEV standard. Second, the overall LEV II emission standards for medium-duty vehicles have been reduced to be substantially equivalent in stringency to the light-truck (LDT) standards (although numerically higher). Third, the useful life for LEV II passenger cars and light-duty trucks has been increased from the current 100,000 miles to 120,000 miles. Manufacturers must show compliance with the full useful life standards over this mileage. Fourth, a new light-duty SULEV category has been created with an NMOG standard less than one-fourth of the level for ULEVs; recent technology developments indicate that gasoline, alternative fuel and hybrid electric vehicles could potentially reach these emission levels. Fifth, manufacturers will have the option of certifying any LEV, ULEV or SULEV to a 150,000-mile certification standard, in which case the vehicle will generate greater NMOG credits for the fleet average NMOG determination. A manufacturer electing this option will have to provide an eight-year/100,000-mile warranty for high cost parts rather than for the normal seven-years/70,000 miles. Sixth, manufacturers can receive credit for the early introduction of larger trucks and SUVs meeting a 0.2 g/mile NOx emission level and certified to the LEV I LEV and ULEV standards; this credit can be used in the 2004-2008 model years on like vehicles certifying to the LEV and ULEV 0.05 g/mile NOx standards. A similar option is available for medium-duty vehicles. There are also various other technical amendments.

The current fleet average NMOG requirements will continue to apply through the 2003 model year. The CARB amendments provide for continuing yearly reductions from the 2004 through 2010 model years, when the fleet average NMOG requirement for passenger cars will be 0.035 g/mile. Although each manufacturer can select its own vehicle mix, one approach in meeting the 2010 requirement would be a fleet made up of 18 percent LEVs, 47 percent ULEVs, 25 percent SULEVs and 10 percent ZEVs. There is a separate phase-in schedule for the heavier light-duty trucks in the new LDT2 class. The fleet average for these vehicles starts at 0.085 g/mile in 2004 and declines to 0.043 g/mile in 2010 — the levels are somewhat higher because no ZEVs in this class are projected and a longer phase-in period for ULEVs and SULEVs is provided. For MDVs, the requirement of a 60/40 mix of LEVs and ULEVs in 2004 and subsequent model years has been changed to 40/60.

CARB's Transit Bus Rule

CARB's Board on February 24, 2000, adopted a regulation that will further reduce air pollution from the state's transit buses, and require some fleet operators to start using zero-emission buses (ZEBs) in three years. CARB staff estimate that the new transit bus rules, combined with normal fleet turnover, will bring statewide reductions of seven tons per day of NOx and 12 tons per year of PM by 2020.

In summary, CARB's Transit Bus Rule requires: (1) reduction of PM and NOx fleet emissions by urban bus operators and (2) more stringent exhaust emission standards applicable to engine manufacturers. To implement this regulation, urban transit bus fleet operators are required to choose between two different compliance paths – diesel or alternative clean-fuels. Fleet operators must decide which path they will pursue and notify CARB of their decision by January 31, 2001

The Rule, which in 2002 starts its phase-in, affects about 8,500 buses at approximately 75 California transit agencies. The Rule moves forward in several steps over the next ten years, requiring cleaner engines, cleaner diesel fuel, retrofit to reduce exhaust PM emissions from older diesel buses, use of ZEBs, and reduced exhaust PM and NOx emissions from new diesel engines.

According to CARB, the Rule is structured to allow transit agencies the flexibility of choosing between either a diesel or alternative fuel "path" to lower air emissions. Agencies may choose to use low-emission alternative fuels such as CNG or LNG, propane, methanol, electricity, fuel cells, or other advanced technology. Continued use of diesel brings with it a requirement to use low-sulfur (15 parts per million) diesel fuel beginning July 1, 2002, and cut emissions from new diesel buses by another 75 percent beginning in 2004. An even lower NOx standard applies to both diesel and alternative fuel bus engines sold to California transit agencies starting in 2007.

In addition, for both diesel and alternative fuel paths, a NOx fleet average of 4.8 begins in 2002, which will require some transit agencies to retire their oldest, highest polluting buses. A requirement to retrofit existing buses with traps or other devices to reduce PM starts in 2003. According to CARB, when the requirements are fully implemented, all transit buses will be smoke-free and will emit less smog forming emissions.

Large transit agencies with 200 or more buses that continue to purchase primarily diesel vehicles are required to begin demonstrating the use of at least three ZEBs by 2003. ZEBs powered by electricity or hydrogen fuel cells are already being used by some transit agencies. From model year 2008 through 2015, large transit agencies using diesel will be required to make ZEBs 15 percent of their new bus purchases/leases. For large transit agencies using

primarily alternative fuels, the 15 percent ZEB rule runs from model year 2010 through 2015. Table 2-8 summarizes the requirements and emission standards of CARB's Transit Bus Rule.

TABLE 2-8
CARB's Transit Bus Fleet Rule Requirements And Emission Standards

Model Year	"Diesel" Path		"Alternative Fuel" Path	
	NOx (g/bhp-hr)	PM (g/bhp-hr)	NOx (g/bhp-hr)	PM (g/bhp-hr)
2000	4.0	0.05	2.5 optional[a]	0.05
10/2002	2.5 NOx + NMHC	0.01	1.8 NOx + NMHC optional[a]	0.03
7/2002	Low sulfur diesel fuel		Low sulfur diesel fuel[b]	
10/2002	4.8 NOx fleet average		4.8 NOx fleet average	
2003-07	PM Retrofit requirements		PM Retrofit Requirements	
7/2003	3 bus demonstrations of ZEBs for large fleets (>200)		--	
2004	0.5[c]	0.01	--	--
2007	0.2	0.01	0.2	0.01
2008	15% of new purchases are ZEBs for large fleets (>200)		--	
2010	--		15% of new purchases are ZEBs for large fleets (>200)	

Notes: Lightly shaded area shows existing requirements and existing optional emission standards. It should be noted that CARB has recently intimated that the above transit bus standards could be subsequently adopted to apply to all other heavy-duty vehicles as earlier as 2007.

[a] Although transit agencies on the alternative-fuel path are not required to purchase engines certified to these optional standards, CARB expects that they will do so in order to qualify for incentive funding. At present, the only alternative-fuel engines available are certified to optional, lower-emission NOx standards.

[b] Applicable to up to 15 percent of purchases that may be diesel powered urban buses under the alternative-fuel path.

[c] Optional emission standard. Transit bus fleets must attain "greater" emission reductions through implementation of alternative strategies if 2004 model year buses are not equipped with 0.5 g/bhp-hr NOx certified engines. Engine manufacturers do not expect NOx control technology to available in 2004.

The reader is referred to the PR 1192 Staff Report for a more detail discussion of this regulation.

USEPA's Proposed Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements

On May 17, 2000, after the release of the Draft PEA, the USEPA announced a proposal to establish new emission standards for heavy-duty highway engines (HDEs) and HDVs operated on any fuel. The requirements of this proposal are summarized below.

Heavy-Duty Engines

In particular, the USEPA is proposing a PM emissions standard for new HDE of 0.01 grams per brake-horsepower-hour (g/bhp-hr), to take full effect in the 2007 HDE model year. Additionally, USEPA is proposing standards for oxides of nitrogen (NOx) and nonmethane

hydrocarbons (NMHC) of 0.20 g/bhp-hr and 0.14 g/bhp-hr, respectively. These NOx and NMHC standards would be phased in together between 2007 and 2010, for diesel engines. The phase-in would be on a percent-of-sales basis: 25 percent in 2007, 50 percent in 2008, 75 percent in 2009, and 100 percent in 2010.

Heavy-Duty Vehicles

Under USEPA's proposal, standards for complete HDVs would be implemented on the same schedule as for engine standards. For certification of complete vehicles between 8500 and 10,000 pounds gross vehicle weight rating (GVWR), the proposed standards are 0.20 grams per mile (g/mi) for NOx, 0.02 g/mi for PM, and 0.195 g/mi for NMHC. For vehicles between 10,000 and 14,000 pounds, the proposed standards are 0.4 g/mi for NOx, 0.02 g/mi for PM, and 0.230 g/mi for NMHC. According to USEPA, these proposed standards levels are roughly comparable to the proposed engine-based standards in these size ranges.

Evaporative Emissions

USEPA's proposal also consists of revising the current evaporative emissions standards for HDEs and HDVs, effective in the 2007 model year. The proposed standards for 8500 to 14,000 pound vehicles are 1.4 and 1.75 grams per test for the 3-day diurnal and supplemental 2-day diurnal tests, respectively. Slightly higher standards levels of 1.9 and 2.3 grams per test would apply for vehicles over 14,000 pounds.

Proposed Standards for Diesel Fuel

Finally, USEPA is proposing that diesel fuel sold to consumers for use in highway vehicles have a sulfur content no greater than 15 parts per million (ppm), beginning June 1, 2006. This proposed sulfur cap is based on USEPA's assessment of how sulfur-intolerant advanced aftertreatment technologies will be, and a corresponding assessment of the feasibility of low-sulfur fuel production and distribution.

For more information on the USEPA's the proposed rule and related documents, the reader is referred to Office of Transportation and Air Quality Web site at:

http://www.epa.gov/otaq/diesel.htm.

The USEPA's as well as CARB's proposed future HDV similar emission standards and their effects on the proposed fleet vehicle rules have been accounted for in Project Alternative B. The reader is referred to Chapter 5 for the analysis and description of Alternative B.