

**Feather River  
Air Quality Management District**

**Draft Staff Report**

**Implementation of SB656  
Measures to Reduce Particulate Matter**

**Prepared in Compliance with  
State Senate Bill 656**

**July 2005**

**Executive Summary:** Senate Bill 656 (SB 656, Sher) was approved by Governor Gray Davis on October 8, 2003. SB 656 required the California Air Resources Board (ARB), in consultation with local air districts, to identify, develop and adopt a list of the most readily available, feasible and cost-effective control measures to reduce particulate matter (PM). These measures are based on rules, regulations, and programs existing in California as of January 1, 2004, that could be employed by ARB and the air districts to reduce PM10 and PM2.5 (collectively referred to as PM), as defined, from new and existing stationary, mobile, and area sources.

This bill also requires ARB and each air district to adopt an implementation schedule, as defined, for the most cost-effective measures on that list after prioritizing the measures based on specified factors.

The entire FRAQMD is designated as nonattainment for the state PM10 standard. An area is designated nonattainment if there was at least one violation of a State standard for that pollutant. Both PM10 and PM2.5 are of health concern because they can penetrate into the sensitive regions of the respiratory tract. Scientific studies have linked respirable PM (PM10 and PM2.5) to a wide variety of health and environmental impacts. Significant health problems include aggravated asthma, increases in respiratory symptoms like coughing and difficult or painful breathing, chronic bronchitis, decreased lung function, and premature death.

Many control measures recommended by ARB have already been adopted by the District or there are no significant sources in the District. The District's evaluation of each control measure recommended by ARB concludes that the District should emphasize on the following categories for PM emissions control: farming operations, vehicle travel on paved and unpaved roads, waste burning & disposal including agricultural burning, residential fuel combustion, fugitive windblown dust, food & agricultural, construction & demolition, mineral processes, and farm equipment. Based on the District's evaluation, there are several measures recommended by ARB that should be considered by the District to further reduce PM emissions in the District. These control measures include:

- Limit number of wood-burning fireplaces in new residential, non-residential, and addition in existing property;
- Require replacement of non-certified wood-burning fireplace upon sale of property;
- Control wood moisture content;
- Limit outdoor residential open burning;
- Limit NOx emissions from boilers;
- Limit NOx emissions from internal combustion engines;
- Limit VOC content of wood product coatings;
- Reduce VOC emissions from the application of adhesives and sealants;
- Limit construction related fugitive dust;
- Limit PM emissions from agricultural operations;
- Limit PM emissions from vehicle travel on paved roads; and
- Limit PM emissions from vehicle travel on unpaved roads.

The FRAQMD will conduct an evaluation on this schedule between 2009 and 2010 to determine the effectiveness of this schedule and make amendment if necessary.

**Background:** Senate Bill 656 (SB 656, Sher) was approved by Governor Gray Davis on October 8, 2003. SB 656 required the California Air Resources Board (ARB), in consultation with local air districts, to identify, develop and adopt a list of the most readily available, feasible and cost-effective control measures. These measures are based on rules, regulations, and programs existing as of January 1, 2004, that could be employed by ARB and the air districts to reduce PM10 and PM2.5 (collectively referred to as PM), as defined, from new and existing stationary, mobile, and area sources.

This bill also requires ARB and each air district to adopt an implementation schedule, as defined, for the most cost-effective measures on that list after prioritizing the measures based on specified factors.

**Definition:** the following terms are defined in Health and Safety Code (HSC) Section 39614.

- (1) Cost-effective or cost-effectiveness: for an air district a determination using the standards and process described in Section 40922:  
§40922 Cost-Effectiveness of control measures
  - (a) Each plan prepared pursuant to this chapter shall include an assessment of the cost effectiveness of available and proposed control measures and shall contain a list which ranks the control measures from the least cost-effective to the most cost effective.
  - (b) In developing an adoption and implementation schedule for a specific control measure, the district shall consider the relative cost effectiveness of the measure, as determined under subdivision (a), as well as other factors including, but not limited to, technological feasibility, total emission reduction potential, the rate of reduction, public acceptability, and enforceability.
- (2) Implementation schedules: a schedule that specifies dates for final adoption, implementation, and sequencing of control measures pursuant to this section.
- (3) Measures: any of the following:
  - (a) Emission limits, control technologies, or performance standards designed to limit emissions for a source or source category.
  - (b) Examples of adopted state or local district regulations.
  - (c) Examples of programs.
- (4) PM2.5: particulate matter of 2.5 microns and smaller in size.
- (5) PM10: particulate matter of 10 microns and smaller in size.
- (6) Programs: any state or local program that reduce either of the following:
  - (a) Smoke from agricultural or wood burning sources
  - (b) Diesel emissions
    - i. Stationary combustion sources
    - ii. Woodstove and fireplaces
    - iii. Commercial grilling operations
    - iv. Agricultural burning
    - v. Construction and grading operations
    - vi. Diesel-powered engines used in stationary and mobile applications

**FRAQMD's Goal:** To adopt an appropriate schedule that complies with all requirements and achieves attainment of the State PM standards.

**Proposed control measures:** Are to be based on rules, regulations, and programs existing in California as of January 1, 2004 to reduce emissions from new, modified, or existing stationary, area, and mobile sources. Measures should address both directly emitted PM and precursor gases (NO<sub>x</sub>, SO<sub>x</sub>, VOCs, & ammonia.)

**District Schedule Adoption Deadline:** By July 31, 2005, this bill requires the ARB and local districts to adopt implementation schedules for appropriate ARB and districts measures.

**Environmental and Health Effect of PM:**

PM is a mixture of solid particles and liquid droplets found in the air. PM may be produced by natural causes (e.g., pollen, ocean salt spray, and soil erosion) and by human activities (e.g., rock crushing, cement production, agricultural operations, fuel combustion, wood burning, and motor vehicles). The California Environmental Protection Agency (Cal EPA) and the federal EPA regulate "respirable" particulates at the 10-micron level (PM<sub>10</sub>) and "fine" particles at the 2.5-micron level (PM<sub>2.5</sub>) (NSVAB Air Quality Attainment Plan, 2003).

Both PM<sub>10</sub> and Pm<sub>2.5</sub> are of health concern because they can penetrate into the sensitive regions of the respiratory tract. Scientific studies have linked respirable PM (PM<sub>10</sub> and PM<sub>2.5</sub>) to a wide variety of health and environmental impacts. Significant health problems include aggravated asthma, increases in respiratory symptoms like coughing and difficult or painful breathing, chronic bronchitis, decreased lung function, and premature death. PM is also the major cause of reduced visibility (haze) in parts of the United States, including many of our national parks. PM can be carried over long distances by wind and then settle on the ground or water. The effects of this settling include: making lakes and streams acidic, changing the nutrient balance in coastal waters and large river basins, depleting the nutrients in soil, damaging sensitive forests and farm crops, and affecting the diversity of ecosystem. PM could also cause aesthetic damage. Soot, a type of PM that mainly comes from incomplete combustion, stains and damages stone and other materials, including culturally important objects such as monuments and statues. (Source: <http://www.epa.gov/air/urbanair/pm/hlth1.html>)

**FRAQMD's State PM Attainment status and standards:** The entire FRAQMD is designated as nonattainment for the state PM<sub>10</sub> standard. An area is designated nonattainment if there was at least one violation of a State standard for that pollutant. FRAQMD is designated as unclassified for the State PM<sub>2.5</sub> standard. An area is designated unclassifiable if data are incomplete or insufficient to support a designation of attainment or nonattainment. Table 1 lists current state and federal PM ambient standards.

Table 1. Current (as of June 10, 2005) state and federal PM ambient standards

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS		FEDERAL STANDARDS		
		Conc.	Method	Primary	Secondary	Method
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	150 µg/m <sup>3</sup>	Same as primary standard	Inertial separation and gravimetric analysis
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>		50µg/m <sup>3</sup>		
Fine Particulate Matter (PM2.5)	24 Hour	No separate state standard		65 µg/m <sup>3</sup>	Same as primary standard	Inertial separation and gravimetric analysis
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	Gravimetric or Beta Attenuation	15 µg/m <sup>3</sup>		

**FRAQMD Ambient PM 10 Concentration Trend:**

Figure 1 shows measured PM10 annual average concentrations in Yuba City between 1990 and 2004. Between 1990 and 2004, measured PM10 annual average concentrations exceeded the State Annual Average Standard every year but did not exceed National Annual Average Standard in any year. The trend line in Figure 1 also reveals no improvement in measured PM10 annual average concentration in Yuba City between 1990 and 2004.

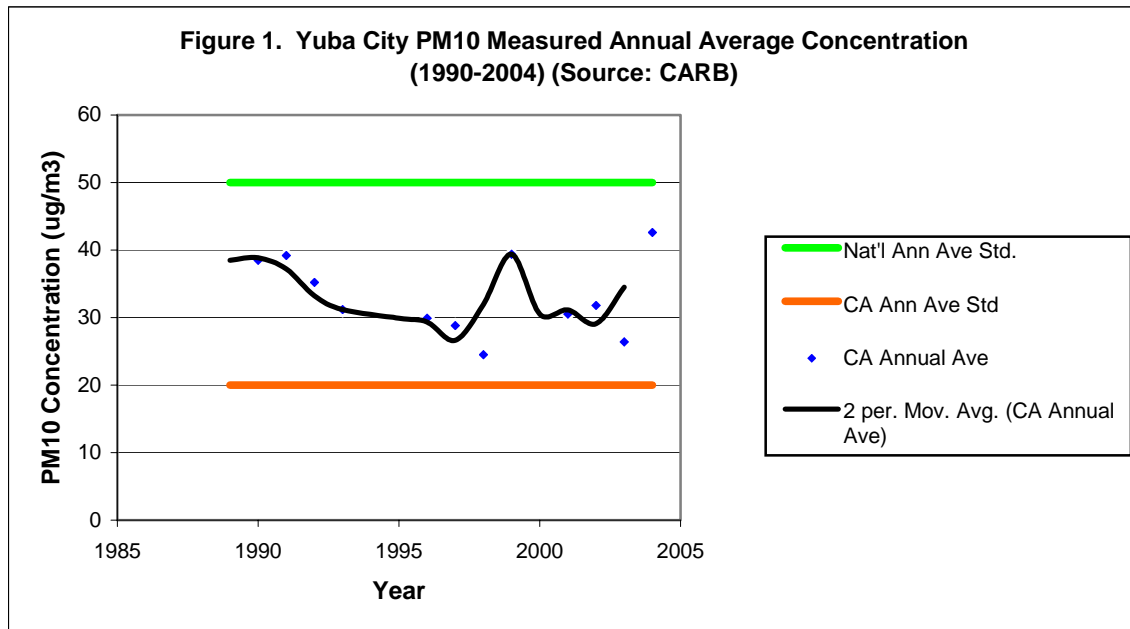
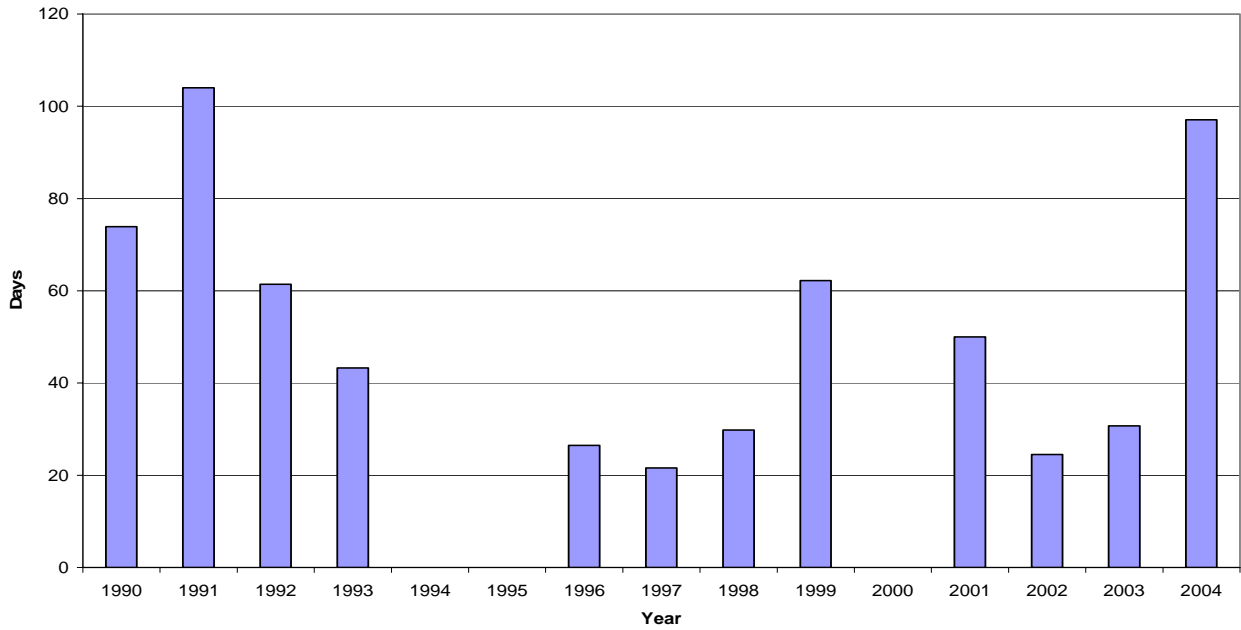


Figure 2 shows the estimated days of each year in Yuba City that PM10 concentrations exceeded the State Annual Average Standard.

**Figure 2. Estimated Days of PM10 Concentrations Exceeded the State Annual Average Standard (50 ug/m<sup>3</sup>) in Yuba City**

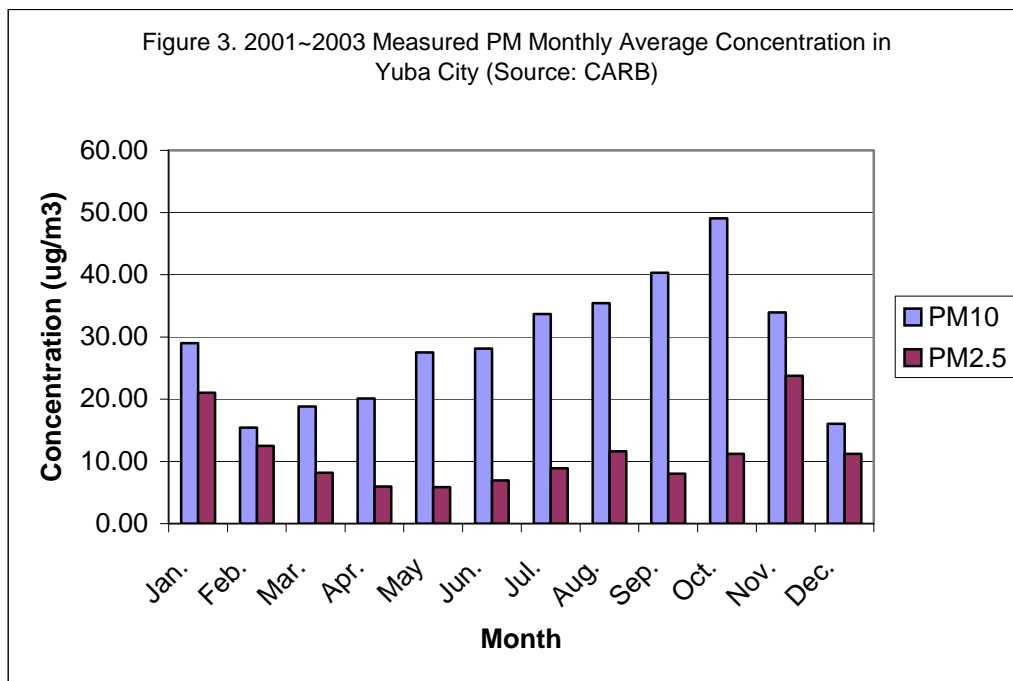


### Area Description:

FRAQMD is located in Northern Sacramento Valley Air Basin which is bounded on the north and west by the Coastal Mountain Range and on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada Mountains. These mountain ranges reach heights in excess of 6000 feet with peaks rising much higher. This provides a substantial physical barrier to locally generated pollution as well as that transport northward on prevailing winds from the Sacramento Metropolitan area (NSVAB Air Quality Attainment Plan, 2003). The vast majority of FRAQMD's population lives and works below 1000 feet sea level, which is often subjected to inversion layers that, coupled with geographic barriers and high summer temperatures, create a high potential for air pollution problem.

### PM Profile in FRAQMD:

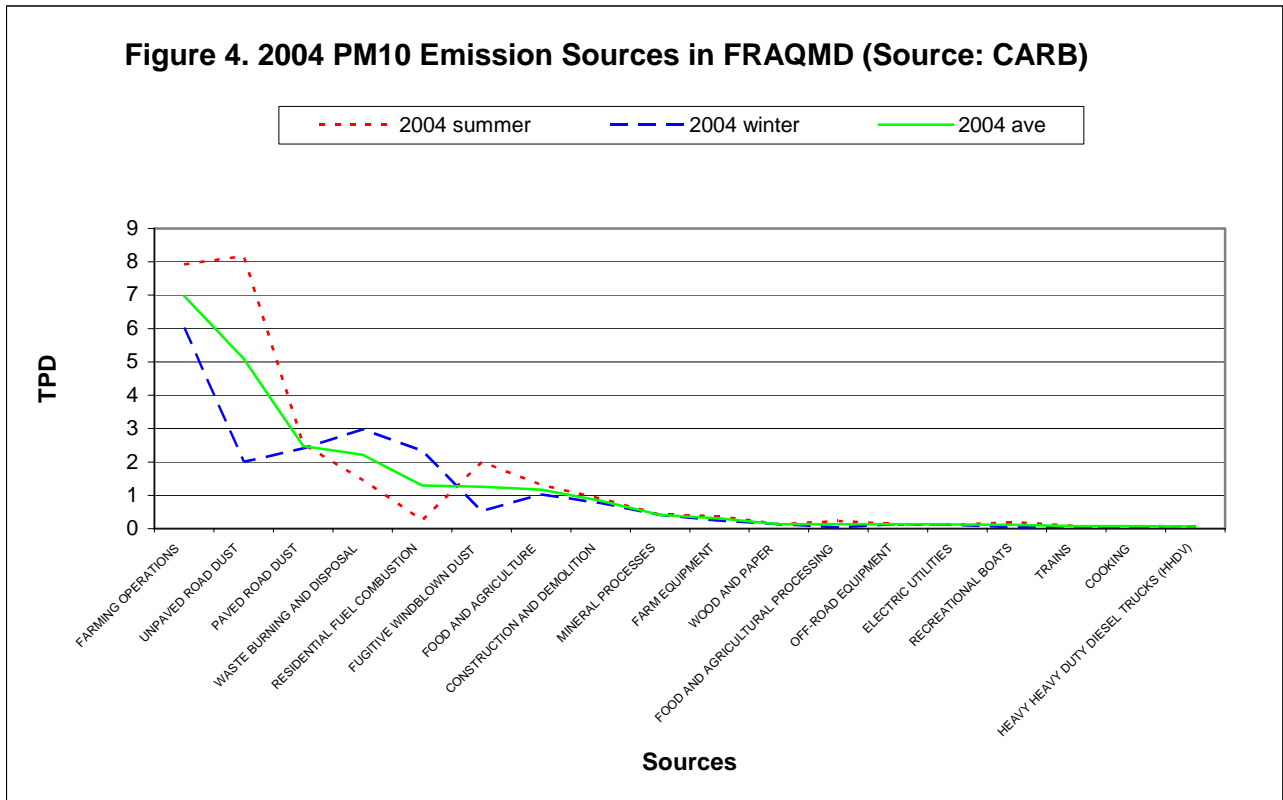
Figure 3 illustrates measured PM monthly average concentrations in Yuba City between 2001 and 2003. Concentrations were averaged over the three years to reduce variance caused by irregular weather patterns. Figure 3 shows: 1) PM emissions vary by month; 2) ratios of PM10 to PM2.5 are not a constant year round; and 3) PM 10 concentration is higher in summer and PM 2.5 concentration is higher in winter. As a result, the FRAQMD should adopt PM control measures based on the PM characteristics and potential sources. The following sections will demonstrate FRAQMD's PM10 and PM2.5 potential sources and proposed control measures.



### PM10 Emission Sources:

Figure 4 shows potential PM10 emissions sources in FRAQMD. During summer, farming operations, vehicle travel on unpaved roads, and vehicle travel on paved roads are the top three potential sources for PM 10. During winter, farming operations, waste burning and disposal (including agricultural burning), and residential fuel combustion are the top three potential sources for PM10. Even though the top three sources for PM 10 are different seasonally, Figure

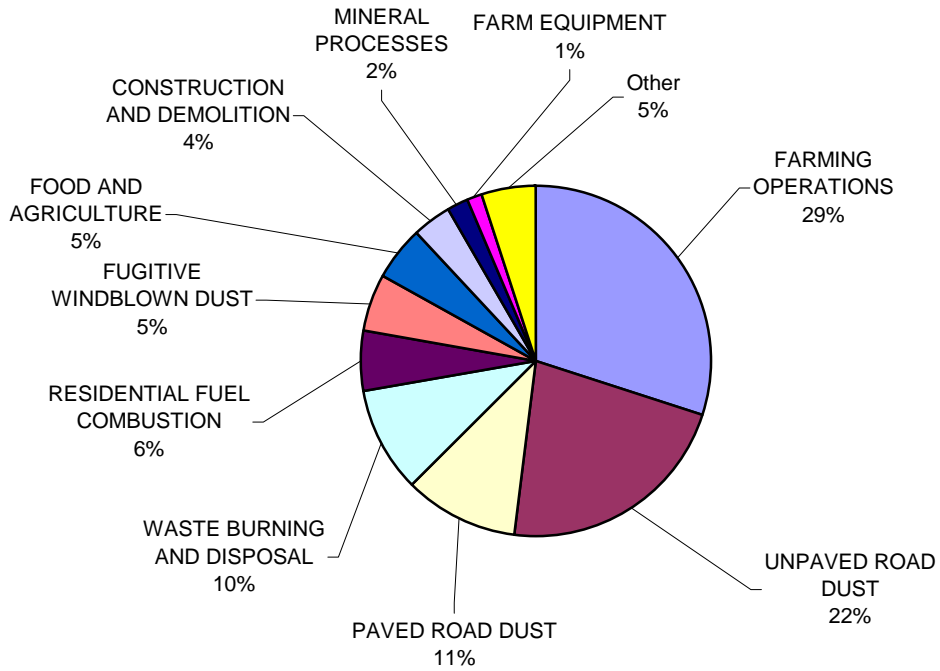
4 reveals that the annual average is representative for the top ten potential PM10 sources. Figure 5 shows the annual average percentage for each PM10 source.



According to Figure 5, the top ten PM 10 sources in FRAQMD are:

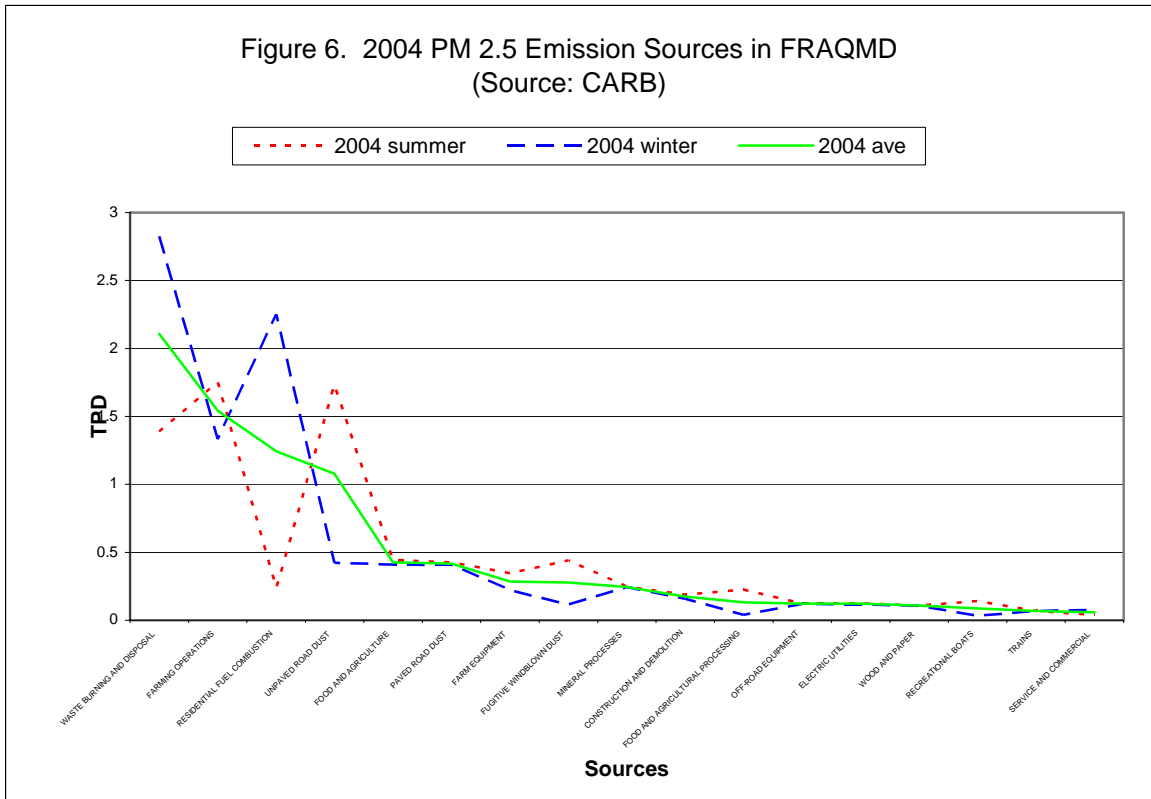
Farming operations	29%
Vehicle travels on unpaved roads	22%
Vehicle travels on paved roads	11%
Waste burning & disposal (including agricultural burning)	10%
Residential fuel combustion	6%
Fugitive windblown dust	5%
Food & agricultural	5%
Construction & demolition	4%
Mineral processes	2%
Farm equipment	1%
Others	5%

Figure 5. 2004 Average PM10 Emission Sources in FRAQMD  
(Source: CARB)



**PM2.5 Emission Sources:**

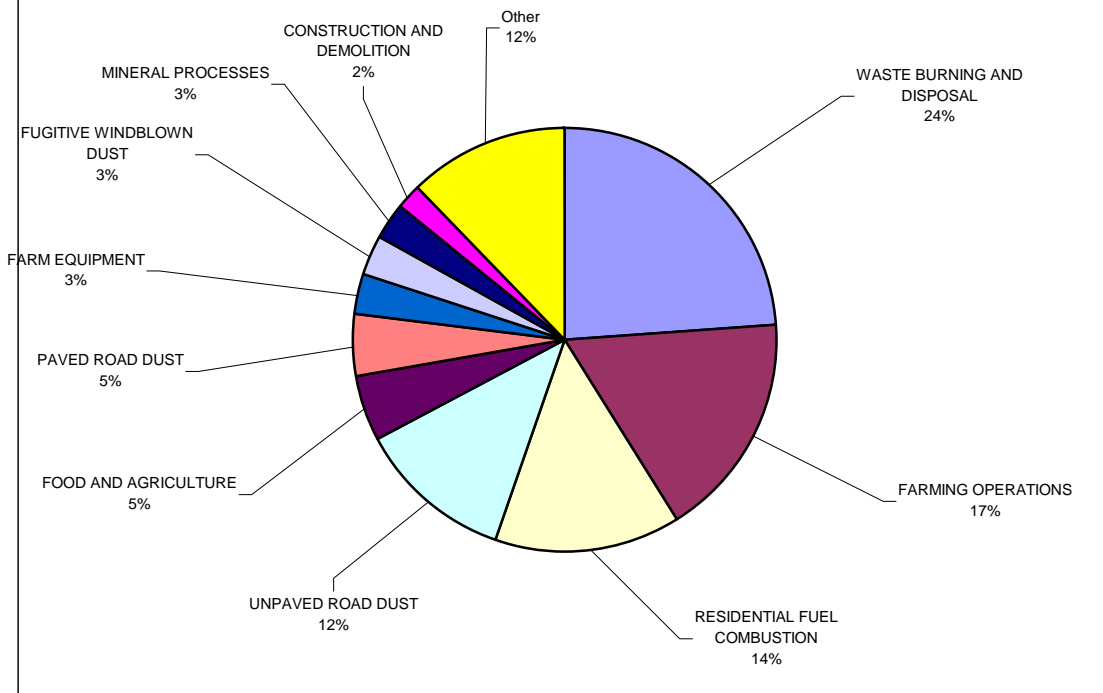
Figure 6 shows PM2.5 average potential emissions sources in FRAQMD in 2004 by season. In summer, farming operations, vehicles traveled on unpaved roads, and waste burning (including agricultural burning) & disposal are the top three potential sources for PM 2.5. In winter, waste burning (including agricultural burning) and disposal, residential fuel combustion, and farming operations are the top three potential sources for PM2.5. Even though the top three sources for PM 2.5 are different seasonally, Figure 6 reveals that the annual average is representative for the top ten potential Pm10 sources. Figure 7 shows the annual average percentage for each PM2.5 source.



According to Figure 7, the top ten PM 2.5 sources in FRAQMD are:

Waste burning & disposal (including agricultural burning)	24%
Farming operations	17%
Residential fuel combustion	14%
Vehicle travels on unpaved roads	12%
Vehicle travels on paved roads	5%
Food & agricultural	5%
Farm equipment	3%
Fugitive windblown dust	3%
Mineral processes	3%
Construction & demolition	2%
Others	12%

Figure 7. 2004 Average PM2.5 Emission Sources in FRAQMD  
(Source: CARB)



### **FRAQMD Approaches and Existing FRAQMD Control Measures:**

Based on the discussion above, FRAQMD should target the following categories to control PM emissions and achieve attainment:

- Farming operations
- Vehicle travel on unpaved roads
- Vehicle travel on paved roads
- Waste burning & disposal including agricultural burning
- Residential fuel combustion
- Fugitive windblown dust
- Food & agricultural
- Construction & demolition
- Mineral processes
- Farm equipment

The FRAQMD currently has following rules in place to control PM emissions:

- Waste burning & disposal (**Rule 2.0**)
- Storage and transfer of gasoline (**Rule 3.8**)
- Storage of petroleum products (**Rule 3.9**)
- Architectural coating (**Rule 3.15**)
- Residential fuel combustion (**Rule 3.17**)
- Fugitive windblown dust (**Rule 3.16**)

The District currently runs incentive programs including DMV Fund, Lower Emission School Bus Program, and Carl Moyer Program to reduce PM emissions from vehicles and agricultural irrigation diesel engine. The District also funds public outreach programs, such as Yuba Sutter Ride Share Program and Youth Summer Pass Program, to reduce vehicle travel miles and advocate air pollution control in youth education.

The FRAQMD also has exemptions on:

- Agricultural operations (**Rule 3.16 D.1**) (*soon to be removed under the requirement of SB 700*)
- Currently unworked land designated as reclaimed for agriculture (**Rule 3.16 D.2**)
- Unpaved roads open to public travel (this inclusion shall not apply to industrial or commercial facilities) (**Rule 3.16 D.4**)

The FRAQMD has reviewed the list of control measures approved by CARB and determined necessary measures to pursue. Appendix A lists control measures approved by CARB, their cost-effectiveness, and the District's comments. Appendix B lists the control measures that the District has determined to pursue based on the current FRAQMD PM concentration status and emission sources. Appendix B also provides a time frame for the FRAQMD to conduct an evaluation on each propose rule, public review process, and Board adoption and implementation.

### **Program Evaluation**

The FRAQMD will conduct a program evaluation on this implementation schedule between 2009 and 2010 in order to evaluate the effectiveness of this program and make amendment if necessary.

## Appendix A. SB656 List of Air District Measures that Reduce Particulate Matter and District Evaluation

Strategy	Description	Estimated Cost-Effectiveness (\$/ton)	District Comments
<b>A. Wood-Burning Fireplace and Wood Burning Heaters</b> (wood-burning heaters include woodstoves and fireplace inserts) Measures reduce directly emitted PM10 and PM2.5, and as an added benefit reduce NOx, VOC, CO, and air toxic emissions.			
Public Awareness Program	Inform the public about potential health hazards of wood smoke and encourage better wood burning practices or use of heating devices	Not available	The District reviewed and determined not to pursue at this time.
Curtailment During Period with Predicted High PM Levels	May be mandatory or voluntary	Not available	The District reviewed and determined not to pursue at this time.
Require All Specified Wood-Burning Devices installed be U.S. EPA-Certified, Phase II or Equivalent	Prohibit the installation of non-EPA certified wood-burning appliances and wood-burning fireplaces	\$3,095 ~ \$5,216	Current FRAQMD rule in place (Rule 3.17)
Number of Units	Limits the number of wood-burning fireplaces and wood-burning heaters that can be installed in new residential developments and nonresidential properties. Could also limit the number of additional units in existing properties	Not available	FRAQMD is considering to adopt rules regarding: 1. New residential Development 2. New non-residential 3. Addition in existing property
Replacement of Non-Certified Appliances Upon Sale of Property	Non-certified units need to be removed and scrapped	\$8,680 ~ \$12,060	The District reviewed and determined not to pursue at this time.
Control of Wood Moisture Content	Set moisture standard for “seasoned wood” offered for sale, since burning dry wood increases heating performance	Not available	The District reviewed and determined not to pursue at this time.
Prohibit Fuel Types	Prohibit the burning of material not intended for use in wood-burning fireplaces and heaters	Not available	The District reviewed and determined not to pursue at this time.
<b>B. Non-Agricultural Open Burning</b> Measures reduce directly emitted PM10 and PM2.5, and as an added benefit reduce NOx, VOC, CO, and air toxic emissions.			
Prohibition of Residential Open	Prohibit outdoor residential open	Not available	FRAQMD has a rule in place (Rule

Burning	burning. Limit open burning to permitted activities		2.0).
Mandatory Curtailment of Non-Agricultural Open Burning	Prohibit non-agricultural open burning during the period with predicted high PM or ozone levels	Not available	FRAQMD already has a burn program in place.
Control Smoke Production	Limit burn days in smoke sensitive areas and emissions for mechanized burners	Not available	The District reviewed and determined not to pursue at this time.
Performance Standards for Allowed Burns	Set up drying times, burn duration, preparation of fuels and management of burns, and permits requirement	Not available	FRAQMD has a rule in place (Rule 2.0)
<b>C. Fugitive Dust</b> Measures reduce directly emitted PM10.			
Construction: Earthmoving	Dust suppressants, prohibit visible dust emissions (VDE) beyond property line	\$304	FRAQMD has a rule in place (Rule3.16).
Construction Demolition	Dust suppressants, prohibit visible dust emissions (VDE) beyond property line, track out limits	\$197	FRAQMD is proposing to adopt a Construction Phase Fugitive Dust Control Plan that is currently required by FRAQMD planning staff when reviewing county and city development projects.
Construction Grading Operations	Pre-watering, phasing of work, water application	Not available	
Inactive Disturbed Land	Restricts vehicle access, water/dust suppressants, prohibit beyond property line	Not available	
Bulk Materials Handling/Storage	Wind barriers, watering, prohibit VDE beyond property line	\$1,151 ~ \$28,293	The District reviewed and determined not to pursue at this time.
Storage, Handling, and Transport of Petroleum Coke, Coal, and Sulfur	Require enclosure of all coke piles, street-sweeping, paving and maintenance of roads, and covers or slot-tops for transport trucks	\$10,000	The District reviewed and determined not to pursue at this time.
Carryout and Track-out	Track out removal, require manual sweeping	< \$100	The District reviewed and determined not to pursue at this time.
Disturbed Open Area	Water/dust suppressants to unvegetated area to limit VDE	Not available	The District reviewed and determined not to pursue at this time.
Paved Road Dust New/Modified Public and Private Roads	Paved shoulder/medians	\$5,577	FRAQMD is considering adopting a rule to control paved road dust on new/modified public and private

			roads.
Paved Road Dust Street Sweeping	Use of certified PM10 efficient street sweepers by governmental agencies	\$1,119	FRAQMD is considering adopting a rule that controls paved road dust by regulating street sweeping.
Unpaved Parking Lots/Staging Areas	Limit VDE. Require water, gravel, dust suppressant, vegetative materials or paving or fugitive PM10 management Plan with requirements	\$344 ~ \$12,293	FRAQMD is considering adopting a rule to control unpaved parking lots/staging areas based on daily vehicles trips. Control measures may include watering, applying a uniform layer of washed gravel, using vegetable materials, and paving.
Unpaved Road	Limit VDE. Require water, gravel, dust suppressant, vegetative materials or paving	\$344 ~ \$12,293	FRAQMD is considering adopting a rule to control unpaved roads based on the daily vehicles trips. Control measures may include watering, applying a uniform layer of washed gravel, using vegetable materials, and paving. FRAQMD needs to remove the exemptions first.
Weed Abatement Activities	Pre-watering, phasing work, stabilization requirements, restricting vehicle access	Not available	FRAQMD has a rule in place. (Rule 2.0)
Windblown Dust	Define windblown dust as any visible emission	Not available	The District reviewed and determined not to pursue at this time.
Windblown Dust –Construction / Earth Moving	For earthmoving, cease all operations, apply chemical stabilizers, stopping vehicle traffic	Not available	FRAQMD has a rule in place (Rule3.16). FRAQMD is proposing to adopt a Construction Phase Fugitive Dust Control Plan that is currently required by FRAQMD planning staff when reviewing county and city development projects.
Windblown Dust – Disturbed Area	Water application/chemical stabilization	Not available	
Windblown Dust – Bulk Materials / Storage Piles	Water application or temporary coverings	\$325 ~ \$462	
Windblown Dust – Open Area	50% vegetation cover or 75% of land area must be covered by water, or 4 inches gravel to areas that cause or contribute to federal PM10 exceedance	\$697	
Agricultural Operations	Fugitive dust control from off-field	Not available	FRAQMD needs to do more study

	agricultural sources		before remove exemptions (Rule 3.16) and adopt new rules.
<b>D. Combustion Sources</b>			
Measures reduce NOx, VOC, CO, or PM10 and PM2.5.			
Boilers, Steam Generators, and Process Heaters (NOx)	Limit NOx emissions from gaseous fuel or liquid fuel fired boilers, steam generators, or process heaters	\$2,807 ~ 21,060	FRAQMD is going to adopt a new boiler rule.
IC Engines (NOx, VOC)	Limit NOx and VOC emissions from gaseous and liquid fueled stationary and portable engines over 50 bhp	\$2,093 ~ \$50,494	FRAQMD is going to adopt a new IC engine rule.
Lime Kilns (NOx)	Limit NOx emissions from lime kilns	\$423	The District reviewed and determined not to pursue at this time.
Cement Kilns (NOx, PM)	Limit NOx and PM emissions from cement kilns	\$830 ~ \$1,330	The District reviewed and determined not to pursue at this time.
Petroleum Coke Calcining Operations (SOx)	Limit SOx emissions from operations of petroleum coke calcining equipment	\$590	The District reviewed and determined not to pursue at this time.
Turbines (NOx)	Limit NOx emissions to the atmosphere from the operations of stationary gas turbines	\$3,600 ~ \$20,000	The District reviewed and determined not to pursue at this time.
Furnaces (NOx)	Set NOx emission limitation for glass melting furnaces and central furnaces	From minimal cost to \$6,800	The District reviewed and determined not to pursue at this time.
Residential Water Heaters (NOx)	Limit NOx emissions from water heaters with heat input rates	\$4,400 ~ \$16,000	The District reviewed and determined not to pursue at this time.
Commercial Charbroiling Operations (VOC, PM)	Require new and existing chain driven charbroilers to be equipped with a catalytic oxidizer control device	\$3,017	The District reviewed and determined not to pursue at this time.
<b>E. Composting and Related Operations</b>			
Measures reduce ammonia and VOC.			
General Administrative Requirements	Require composting, chipping, and grinding facilities to register and provide facility and throughput information	\$8700 ~ \$10,000	The District reviewed and determined not to pursue at this time.
Chipping and Grinding Operations	Prevent inadvertent decomposition associated with stockpiling of green and/or food waste	\$8700 ~ \$10,000	The District reviewed and determined not to pursue at this time.
Composting	Require co-composting operations to	\$8700 ~ \$10,000	The District reviewed and determined

	reduce VOC and ammonia emission by 80%		not to pursue at this time.
<b>F. Storage, Transfer, and Dispensing Operations</b> Measures reduce VOC.			
Gasoline Transfer and Dispensing Facilities	Limit emissions of VOC from gasoline dispensing facilities through equipment and operational requirements	Not available	FRAQMD has a rule in place (Rule 3.8, and 11.1 Benzene ATCM)
Organic Liquid Storage	Limit VOC emissions from storage tanks with a capacity of 264 gallons and greater through operation and equipment requirements	\$13,000 ~ \$15,700	FRAQMD has a rule in place (Rule 3.9)
<b>G. Leaks and Releases</b> Measures reduce VOC.			
Equipment Leaks	Limit VOC and methane emissions from leaking equipment at petroleum refineries, chemical plants; bulk plants, and bulk terminals.	\$48 ~ \$10,712	The District reviewed and determined not to pursue at this time.
<b>H. Product Manufacturing</b> Measures reduce VOC.			
Coating and Ink Manufacturing	Set forth operational and “housekeeping” requirements for coatings and ink manufacturing	Not available	The District reviewed and determined not to pursue at this time.
Fiberboard Manufacturing	Limit VOC emissions from fiberboard manufacturing	\$4,000 ~ \$6,000	The District reviewed and determined not to pursue at this time.
Food Product Manufacturing and Processing	Limit VOC emissions from solvents used in food product manufacturing and processing operations	\$4,732	The District reviewed and determined not to pursue at this time.
Pharmaceuticals and Cosmetics Manufacturing Operations	Set forth equipment and operational requirements for pharmaceutical and cosmetic manufacturing	Not available	The District reviewed and determined not to pursue at this time.
Polyester Resin Operations	Limit VOC emissions from all polyester resin operations	\$719	The District reviewed and determined not to pursue at this time.
Polymeric Cellular Products	Set forth emission limits for polymeric cellular products manufacturing operations	\$8,000 ~ \$11,000	The District reviewed and determined not to pursue at this time.
Surfactant Manufacturing	Require to reduce the total emissions of	Not available	The District reviewed and determined

	VOC from surfactant manufacturing equipment		not to pursue at this time.
<b>I. Coating Operations</b> Measures reduce VOC.			
Adhesives and Sealants	Reduce VOC emissions from the application of adhesives, adhesive primers, sealants, sealant primers, or any other primers through operational control	\$1060	The District reviewed and determined not to pursue at this time.
Architectural Coatings	Limit the content of VOC in architectural coatings to between 100~730 g/l	\$5,400 ~ \$7,800	FRAQMD has a rule in place (Rule 3.15)
Glass Coating	Limit VOC emissions from the coating of glass products	\$1,050 ~ \$2,900	The District reviewed and determined not to pursue at this time.
Graphic Arts	Limit VOC emissions from graphic arts operations	\$8,600	The District reviewed and determined not to pursue at this time.
Magnet Wire Coating Operations	Limit VOC emissions to all coating operations on magnet wire, where the wire is continuously drawn through a coating applicator	Not available	The District reviewed and determined not to pursue at this time.
Marine Coating Operations	Limit the content of VOC in coating operations of marine and fresh water vessels, oil drilling platforms, navigational aids and component parts, and structures intended for exposure to a marine environment	Not available	The District reviewed and determined not to pursue at this time.
Metal Container, Closure, and Coil Coating Operations	Limit VOC emissions from metal container, metal closure and metal coil coating through operational controls and the VOC content of products	Not available	The District reviewed and determined not to pursue at this time.
Metal parts and products Coatings	Limit VOC emissions from the coating of metal parts	Not available	The District reviewed and determined not to pursue at this time.
Motor Vehicle Assembly Line Coating Operations	Set forth VOC emission limits and VOC content of motor vehicle coatings	Not available	The District reviewed and determined not to pursue at this time.
Paper, Fabric, and Film Coating Operations	Limit the VOC content of applicable coatings, application method and	Not available	The District reviewed and determined not to pursue at this time.

	cleaning requirements		
Plastic, Rubber, and Glass Coatings	Limit the VOC content of coating used on plastic, rubber, and glass	Not available	The District reviewed and determined not to pursue at this time.
Screen printing Operations	Limit VOC content of screen printing materials	Not available	The District reviewed and determined not to pursue at this time.
Spray Booth Facilities	Further reduce VOC emissions from spray coating or laminating operations in high VOC emitting facilities	\$5,484	FRAQMD has a rule in place (Rule 3.19)
Vehicle Refinishing	Limit VOC emissions from coating applied on Group 1 and Group II vehicles	Not available	FRAQMD has a rule in place (Rule 3.19)
Wood Flat Stock Coatings	Limit VOC content of coatings, inks, and adhesives	\$1,800	The District reviewed and determined not to pursue at this time.
Wood Product Coatings	Limit VOC content of wood products coatings	\$1,933 ~ \$2,972	The District reviewed and determined not to pursue at this time.
<b>J. Solvent Cleaning and Degreasing</b>			
Measures reduce VOC.			
Cleaning Operations	Limit VOC emissions from solvent cleaning operations and activities	\$264, ~ \$2,570	FRAQMD has a rule in place (Rule 3.14)
Degreasing Operations	Limit VOC emissions from cold cleaners and vapor degreasers	\$3,320 ~ \$12,940	The District reviewed and determined not to pursue at this time.
Use of Solvents	Limit VOC emissions from VOC containing materials or equipment not subject to VOC limits in any other, specific district regulation	\$7,050	The District reviewed and determined not to pursue at this time.
<b>K. Miscellaneous</b>			
Measures reduce VOC, SOx, ammonia, or PM10 and PM2.5.			
Soil Decontamination	Limit the emissions of organic compounds from soil been contaminated by organic chemical or petroleum chemical leaks or spills	\$7,100 ~ \$86,900	The District reviewed and determined not to pursue at this time.
Solid Waste Landfills	Limit VOC emission from municipal solid waste landfills through installation of gas collection and control systems	Not available	FRAQMD has a rule in place (Rule 3.18)
Wood working Operations	Require any woodworking facility to	\$3,200	The District reviewed and determined

	use PM10 emission control devices		not to pursue at this time.
<b>L. General Rules to Reduce Directly Emitted PM from Stationary and Area Sources</b>			
These rules are generic and apply to sources that may not be regulated through a specific rule or permit requirement. The rules are intended to reduce directly emitted PM10 and PM2.5.			
Visible Emission Limits	Prohibit discharges into the air from any single source of emissions for a period more than 3 minutes in any 1 hour as dark or darker than No.1 on the Ringelmann Chart	Not available	The District reviewed and determined not to pursue at this time.
Combustion Contaminants	Prohibit discharges into the air from the burning of fuel of combustion contaminants exceeding 0.23 g/m <sup>3</sup>	Not available	The District reviewed and determined not to pursue at this time.
Grain Loading	Prohibit release or discharge into the atmosphere from any single source or single processing unit PM emissions in excess of 0.1 grains/ft <sup>3</sup> of dry exhaust gas at standard conditions	Not available	The District reviewed and determined not to pursue at this time.
<b>M. Programs that Reduce PM Emissions from Mobile Sources</b>			
Measures primarily reduce directly emitted PM10, PM2.5, NOx, and VOC.			
Incentive Programs	Use incentive programs including DMV funds, heavy-duty engine incentive program, lower emission school bus program, Moyer program, SECAT program, light and medium duty vehicle program, lawn mower buy back program to encourage rebuilding, retrofitting, replacing, trading old engines for emission reduction	Not available	The District currently runs DMV Funds, Lower Emission School Bus Program, and Moyer Program.
Transportation Related Programs	Include on-road motor vehicle mitigation options, transportation outreach program, Spare the Air program, and public awareness programs to reduce vehicle VMT for emission reduction	Not available	The District has funded Yuba Sutter Ride Share Program and Youth Summer Pass Program.

## Appendix B. FRAQMD's Proposed Rule and Adoption Schedule

Proposed Control Measures	Staff Evaluation on Proposed Rules	Public Review Process If Proposed by The Staff	Board Adoption and Implementation
<b>Wood Burning Fireplaces and Wood Burning Heaters</b>			
<p>The District proposes to:</p> <ol style="list-style-type: none"> <li>1. Limit number of fireplaces in               <ol style="list-style-type: none"> <li>a. New residential: limits the number of wood-burning fireplaces and wood-burning heaters that may be installed in new residential developments in valley floor. <i>(Rule example: SJVAPCD Rule 4901, adopted 07/17/03)</i></li> <li>b. New non-residential: limits the number of wood burning appliances that may be installed in new nonresidential properties in valley floor. <i>(Rule example: GBUAPCD for the Town of mammoth Lakes, Rule 431, adopted 12/07/90)</i></li> <li>c. Addition in existing property: limits the number of additional wood-burning appliances that may be installed in existing residential and nonresidential properties. <i>(Rule example: GBUAPCD for the Town of mammoth Lakes, Rule 431, adopted 12/07/90)</i></li> </ol> </li> <li>2. Require replacement of Non-certified units upon sale of property: assures that each wood-burning heater included in real property upon sale or transfer is U.S. EPA Phase II certified or equivalent. Non-complying devices must be removed or rendered inoperable. <i>(Rule example: SJVAPCD Rule 4901, 07/17/03)</i></li> <li>3. Control wood moisture content: set moisture standard for "seasoned wood: offered for sale, since burning dry wood increases heating</li> </ol>	2007	2008	2009

performance. (Rule example: SJVAPCD Rule 4901, 07/17/03)			
<b>Residential Open Burning</b>			
Prohibit outdoor residential open burning on valley floor from the premises on lot smaller than once acre in size, where the burn pile is less than 100 feet from neighboring residence, or where greenwaste collection is offered by a franchise hauler. (Rule example: LCAQMD Rule 433, 10/15/02)	2008	2009	2010
<b>Combustion</b>			
Boiler Rule: Limits NOx (secondary PM precursor) from gaseous, liquid, or solid fossil fuel fired boilers with a total rated heat input starting at 2 million BTU/hr up to 5 million BTU/hr used in any industrial, institutional, or commercial operation to 30 ppmv or 0.037 pounds per million BTU of heat input. (Rule example: SCAQMD Rule 1146.1, 05/13/94)	2005	2006	2006
Internal Combustion Engine Rule: Limits NOx emissions from spark ignited internal combustion engines over 50 bhp from 25-125 ppmv depending on engine type and size and NMHC to 250-750 ppmv depending on engine size. (Rule example: SMAQMD Rule 412, 06/01/95)	2005	2006	2006
<b>Coating Operation</b>			
Wood product coating rule: Specifies VOC content of wood products coatings between 275-760 gm/liter depending on product. Requires wood strippers to have a maximum VOC content of 350 gm/liter or a maximum vapor pressure of 2 mmHg. The rule allows for use of an approved emission control system in lieu of VOC content limits and also includes an averaging provision. Exempts facilities that use less than one gallon of coatings per day.	2005	2005	2005

<i>(Rule example: SCAQMD Rule 1136, 06/1/96)</i>			
Adhesives and Sealants rule: Reduce VOC emissions from the application of adhesives, adhesive primers, sealants, sealant primers, or any other primers through operational controls and by limiting the VOC content of products to between 30-850 gm/liter depending on product type. Emission control equipment can be used in lieu of meeting VOC limits. <i>(Rule example: SCAQMD Rule 1168, 10/23/03)</i>	2005	2005	2005
<b>Fugitive Dust/Agricultural Operations</b>			
Construction related fugitive dust: e.g., earthmoving, demolition, grading, and dirt pile.	2006	2007	2007
Limit PM emissions from agricultural sources that occur when tilling or mulching is performed in high winds (for example, if forecast wind is over 25 mph) <i>(Rule example: SCAQMD Rule 403, 01/05/93 in Coachella Valley)</i>	2016	2018	2020
Limit PM emissions from vehicle travel on paved roads by: 1. Requiring use of PM10 efficient street sweepers by governmental agencies or their contractors <i>(Rule example: SCAQMD Rule 1186, 02/14/97)</i>  2. Requiring paved shoulders for all roads with average daily vehicle trips (ADVT) of 500 or more. <i>(Rule example: SJVAPCD Rule 8061, 11/15/01, SCAQMD Rule 1186, 02/14/97)</i>	2010	2013	2015
Limit PM emission from vehicle travel on heavily used unpaved roads : Requires, for days with 75 or more vehicle trips, limiting visible dust emissions (VDE) to 20% opacity and implementing at least one of the following control measures: 1. applying water; 2. applying a uniform layer of washed gravel; 3. applying chemical/organic dust suppressant; 4. using vegetative materials; 5. paving; or use any other method to limit VDE to 20% opacity <i>(Rule example: SJVAPCD Rule 8061, 11/15/01)</i>	2012	2014	2016

