



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105-3901

OFFICE OF THE  
REGIONAL ADMINISTRATOR

August 21, 2008

James Ramos  
Chairman  
San Manuel General Council  
26569 Community Center Drive  
Highland, CA 92346

Dear Chairman Ramos:

This letter provides information on the status of fine particle (PM<sub>2.5</sub>) air pollution in the area where your reservation is located. PM<sub>2.5</sub> pollution represents one of the most significant barriers to clean air facing us today. Health studies link these tiny particles – about 1/30<sup>th</sup> the diameter of a human hair – to serious human health problems including aggravated asthma, increased respiratory symptoms such as coughing and difficult or painful breathing, chronic bronchitis, decreased lung function, and even premature death in people with heart and lung disease. PM<sub>2.5</sub> pollution can remain suspended in the air for long periods of time and create public health problems far away from emission sources. Reducing levels of PM<sub>2.5</sub> pollution is an important part of our commitment to clean, healthy air.

Your reservation is located in an area that EPA is proposing to designate as nonattainment for the 2006 PM<sub>2.5</sub> air quality standard. Consistent with section 107(d) (1) of the Clean Air Act, this letter is to inform you that EPA intends to designate your reservation as nonattainment for the 2006 PM<sub>2.5</sub> health standard. We also intend to provide copies of this letter to Tribal Environmental Directors along with a copy of our supporting analysis for your reference. This analysis describes EPA's review of the air quality data, emissions data, and other related information for the area surrounding your reservation. If you would like to provide additional information about the PM<sub>2.5</sub> status of your reservation or adjoining areas for our consideration, please send it to us by October 20, 2008.

EPA has taken steps to reduce fine particle pollution across the country, such as implementing the Clean Diesel Program, which has reduced emissions from highway, non-road and stationary diesel engines. In addition, implementation plans developed by the state to attain the 1997 PM<sub>2.5</sub> standards will also help reduce unhealthy levels of fine particle pollution.

We intend to make final designation decisions for the 2006 24-hour PM<sub>2.5</sub> standards by December 18, 2008. If you have any questions, please do not hesitate to have your staff contact Colleen McKaughan at 520-498-0118. We look forward to a continued dialogue with you as we work together to implement the PM<sub>2.5</sub> standards.

Sincerely,

A handwritten signature in black ink, appearing to read "Wayne Natri". The signature is fluid and cursive, with a large initial "W" and a long horizontal stroke at the end.

Wayne Natri  
Regional Administrator

Enclosure

cc: Becky Ross, Environmental Manager

## Attachment 1

### CALIFORNIA Area Designations For the 24-Hour Fine Particle National Ambient Air Quality Standard

The table below identifies the counties in California that EPA intends to designate as not attaining the 2006 24-hour fine particle (PM<sub>2.5</sub>) standard.<sup>1</sup> A county will be designated as nonattainment if it has an air quality monitor that is violating the standard or if the county is determined to be contributing to the violation of the standard.

Area	California Recommended Nonattainment Counties	EPA's Intended Nonattainment Counties
Butte County	Butte County - Partial	Butte County
Imperial County	Imperial County - Partial	Imperial County
Sacramento County	Sacramento County	Sacramento County Yolo County Placer County – Partial El Dorado County – Partial Solano County - Partial
San Francisco Bay Area	Sonoma County – Partial Napa County Marin County San Francisco County Contra Costa County Alameda County Santa Clara County San Mateo County Solano County - Partial	Sonoma County – Partial Napa County Marin County San Francisco County Contra Costa County Alameda County Santa Clara County San Mateo County Solano County - Partial
San Joaquin Valley Air Basin	San Joaquin County Stanislaus County Merced County Madera County Fresno County Kings County Tulare County Kern County - Partial	San Joaquin County Stanislaus County Merced County Madera County Fresno County Kings County Tulare County Kern County - Partial
South Coast Air Basin	Los Angeles County – Partial San Bernardino County Partial Riverside County – Partial Orange County	Los Angeles County – Partial San Bernardino County Partial Riverside County – Partial Orange County
Yuba County Sutter County	Yuba County – Partial Sutter County - Partial	Yuba County Sutter County

EPA intends to designate the remaining counties in the state as attainment/unclassifiable.

<sup>1</sup> EPA designated nonattainment areas for the 1997 fine particle standards in 2005. In 2006, the 24-hour PM<sub>2.5</sub> standard was revised from 65 micrograms per cubic meter (average of 98<sup>th</sup> percentile values for 3 consecutive years) to 35 micrograms per cubic meter; the level of the annual standard for PM<sub>2.5</sub> remained unchanged at 15 micrograms per cubic meter (average of annual averages for 3 consecutive years).

## **EPA Technical Analysis for the South Coast Air Basin**

Pursuant to section 107(d) of the Clean Air Act, EPA must designate as nonattainment those areas that violate the NAAQS and those areas that contribute to violations. This technical analysis for South Coast Air Basin identifies the counties with monitors that violate the 24-hour PM<sub>2.5</sub> standard and evaluates the counties that potentially contribute to fine particle concentrations in the area. EPA has evaluated these counties based on the weight of evidence of the following nine factors recommended in EPA guidance and any other relevant information:

- pollutant emissions
- air quality data
- population density and degree of urbanization
- traffic and commuting patterns
- growth
- meteorology
- geography and topography
- jurisdictional boundaries
- level of control of emissions sources

Figure 1 is a map of the counties in the area and other relevant information such as the locations and design values of air quality monitors, the metropolitan area boundary, and counties recommended as nonattainment by the State.

# Los Angeles-South Coast Air Basin, CA

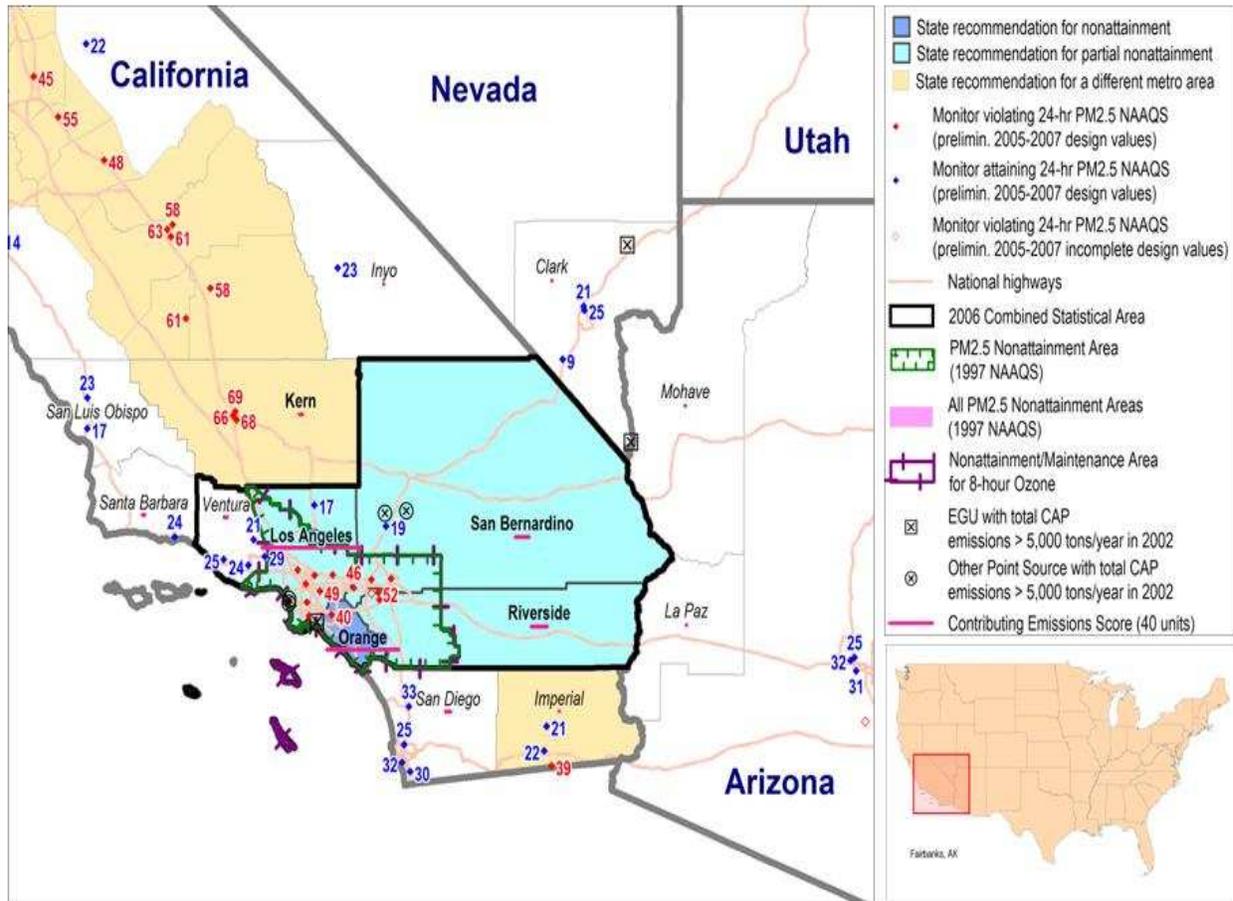


Figure 1

Counties labeled in bold reflect NAAs under 1997 NAAQS

For this area, EPA previously established PM<sub>2.5</sub> nonattainment boundaries for the 1997 PM<sub>2.5</sub> NAAQS that included one full and three partial counties. Orange County is included in its entirety. Parts of Los Angeles, San Bernardino and Riverside Counties are included. This area is consistent with the jurisdiction of the South Coast Air Quality Management District which oversees air quality in the Los Angeles metropolitan area. This area does not include the more rural eastern portions of Los Angeles, San Bernardino and Riverside Counties, which are separated from the western portion of these counties by the San Gabriel and San Bernardino mountain ranges that crest at over 10,000 feet. In addition, the rural parts of these counties are located large distances away from the Los Angeles metropolitan area.

The California Air Resources Board (CARB) sent a letter to EPA, dated December 17, 2007, recommending that the same counties be designated as “nonattainment” for the 2006 24-hour PM<sub>2.5</sub> standard based on air quality data from 2004-2006. These data are from Federal Reference Method (FRM) and Federal Equivalent Method (FEM) monitors located in the state.

Air quality monitoring data on the composition of fine particle mass are available from the EPA Chemical Speciation Network and the IMPROVE monitoring network. Analysis of these data indicates that the days with the highest fine particle concentrations occur both in the warm season and cold seasons. In the warm season, the average chemical composition of the highest days is nitrate (44%), carbon (28%) and sulfate (26%). In the cold season, the average chemical composition of the highest days is nitrate (60%), carbon (23%) and sulfate (15%).

Based on EPA's 9-factor analysis described below, EPA believes that Los Angeles, Riverside, San Bernardino and Orange counties in California, the same counties as previously designated for PM<sub>2.5</sub> should be designated nonattainment for the 24-hour PM<sub>2.5</sub> air-quality standard as part of the Los Angeles South Coast Air Basin nonattainment area, based upon currently available information. This recommendation is consistent with CARB's recommendation. These counties are listed in the table below.

Area	State-Recommended Nonattainment Counties	EPA-Recommended Nonattainment Counties
South Coast Air Basin	Riverside (P), San Bernardino (P), Los Angeles (P) and Orange Counties.	Riverside (P), San Bernardino (P), Los Angeles (P) and Orange Counties
P = partial		

The following is a summary of the 9-factor analysis for the South Coast Air Basin.

**Factor 1: Emissions data**

For this factor, EPA evaluated county level emission data for the following PM<sub>2.5</sub> components and precursor pollutants: “PM<sub>2.5</sub> emissions total,” “PM<sub>2.5</sub> emissions carbon,” “PM<sub>2.5</sub> emissions other,” “SO<sub>2</sub>,” “NO<sub>x</sub>,” “VOCs,” and “NH<sub>3</sub>.” “PM<sub>2.5</sub> emissions total” represents direct emissions of PM<sub>2.5</sub> and includes: “PM<sub>2.5</sub> emissions carbon,” “PM<sub>2.5</sub> emissions other”, primary sulfate (SO<sub>4</sub>), and primary nitrate. (Although primary sulfate and primary nitrate, which are emitted

directly from stacks rather than forming in atmospheric reactions with SO<sub>2</sub> and NO<sub>x</sub>, are part of “PM<sub>2.5</sub> emissions total,” they are not shown on Table 1 as separate items). “PM<sub>2.5</sub> emissions carbon” represents the sum of organic carbon (OC) and elemental carbon (EC) emissions, and “PM<sub>2.5</sub> emissions other” represents other inorganic particles (crustal). Emissions of SO<sub>2</sub> and NO<sub>x</sub>, which are precursors of the secondary PM<sub>2.5</sub> components sulfate and nitrate, are also considered. VOCs (volatile organic compounds) and NH<sub>3</sub> (ammonia) are also potential PM<sub>2.5</sub> precursors and are included for consideration.

Emissions data were derived from the 2005 National Emissions Inventory (NEI), version 1. See [http://www.epa.gov/ttn/naaqs/pm/pm25\\_2006\\_techinfo.html](http://www.epa.gov/ttn/naaqs/pm/pm25_2006_techinfo.html).

EPA also considered the Contributing Emissions Score (CES) for each county. The CES is a metric that takes into consideration emissions data, meteorological data, and air quality monitoring information to provide a relative ranking of counties in and near an area. Note that this metric is not the exclusive way for consideration of data for these factors. A summary of the CES is included in attachment 2, and a more detailed description can be found at [http://www.epa.gov/ttn/naaqs/pm/pm25\\_2006\\_techinfo.html#C](http://www.epa.gov/ttn/naaqs/pm/pm25_2006_techinfo.html#C).

Table 1 shows emissions of PM<sub>2.5</sub> and precursor pollutants components (given in tons per year) and the CES for violating and potentially contributing counties in the Los Angeles/South Coast Air Basin. Counties are listed in descending order by CES.

Table 1. PM <sub>2.5</sub> Related Emissions (tons per year) and Contributing Emissions Score									
County	State Recommended Nontainment?	CES	PM <sub>2.5</sub> Emission Total	PM <sub>2.5</sub> emissions carbon	PM <sub>2.5</sub> emissions other	SO <sub>2</sub>	NO <sub>x</sub>	VOCs	NH <sub>3</sub>
Los Angeles	Yes (P)	100	16,764	10,780	5,984	31,620	272,971	191,280	12,156
Orange County	Yes	73	4,960	3,265	1,694	9,149	63,417	64,446	3,444
Riverside	Yes (P)	16	5,314	2,899	2,415	4,451	58,229	38,262	4,733
San Bernardino	Yes (P)	14	12,043	5,055	6,988	3,792	96,578	51,873	3,592
P = partial. Data given is for entire County									

Los Angeles has the highest CES value and the highest PM<sub>2.5</sub> emissions, and precursor emissions, by far. Orange County has a CES of 73 which argues for it being included as a candidate for a PM<sub>2.5</sub> nonattainment designation. San Bernardino and Riverside Counties, while having lower CES, have significant PM<sub>2.5</sub> emissions. Based on both emissions levels and CES values, parts of Los Angeles, Riverside, San Bernardino Counties and all of Orange County in California are candidates for a 24-hour PM<sub>2.5</sub> nonattainment designation and, therefore, require further analysis.

Table 1 indicates that there is a significant emissions of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) in these counties. These pollutants are precursors to the formation of PM<sub>2.5</sub>. On-road vehicles, combined with the amount of Vehicle Miles Traveled (VMT) are the largest emission sources of these two pollutants. Data included in the “2006 Estimated Annual

Average Emissions Inventories”, available from the California Air Resources Board, indicate that for all the counties in the South Coast Air Basin, mobile sources constitute a major portion of the PM<sub>2.5</sub> emissions total.

Based on emission levels and CES values, Riverside, San Bernardino, Los Angeles and Orange Counties are candidates for a 24-hour PM<sub>2.5</sub> nonattainment designation.

**Factor 2: Air quality data**

This factor considers the 24-hour PM<sub>2.5</sub> design values in micrograms per cubic meter (µg/m<sup>3</sup>) for air quality monitors in counties in the Los Angeles South Coast Air Basin based on data for the 2005-2007 period. A monitor’s design value indicates whether that monitor attains a specified air quality standard. The 24-hour PM<sub>2.5</sub> standards are met when the 3-year average of a monitor’s 98<sup>th</sup> percentile values are 35 µg/m<sup>3</sup> or less. A design value is only valid if minimum data completeness criteria are met.

The PM<sub>2.5</sub> violating monitors in the South Coast Air Basin are shown in Figure 2. Los Angeles has four violating monitors, Orange County has one, San Bernardino County has two and Riverside County has three. The 24-hour PM<sub>2.5</sub> design values for counties in the South Coast Air Basin are shown in Table 2.

County	State Recommended Nonattainment?	24-hr PM <sub>2.5</sub> Design Values 2004-06 (µg/m <sup>3</sup> )	24-hr PM <sub>2.5</sub> Design Values 2005-07 (µg/m <sup>3</sup> )
Los Angeles	Yes (P)	50	49
Orange	Yes	44	40
Riverside	Yes (P)	57	52
San Bernardino	Yes (P)	55	46
P = partial			

Parts of Los Angeles, Riverside, San Bernardino and all of Orange County show a violation of the 24-hour PM<sub>2.5</sub> standard. Although the design values of all four of these counties decreased from the 2004 – 2006 to 2005 – 2007 periods, they are still above the PM<sub>2.5</sub> standard. Based on the data, these counties have the worst air quality for PM<sub>2.5</sub> in the country. Therefore, these counties are candidates for inclusion in the South Coast Air Basin nonattainment area. EPA considered each County’s CES as well as other factors and circumstances when determining which counties to include in the South Coast Air Basin nonattainment area.

Eligible monitors for providing design value data generally include State and Local Air Monitoring Stations (SLAMS) at population-oriented locations with a FRM or FEM monitor. All data from Special Purpose Monitors (SPM) using an FRM, FEM, or Alternative Reference Method (ARM) which has operated for more than 24 months is eligible for comparison to the relevant NAAQS, subject to the requirements given in the October 17, 2006 Revision to Ambient

Air Monitoring Regulations (71 FR 61236). All monitors used to provide data must meet the monitor siting and eligibility requirements given in 71 FR 61236 to 61328 in order to be acceptable for comparison to the 24-hr PM<sub>2.5</sub> NAAQS for designation purposes.

**Factor 3:**

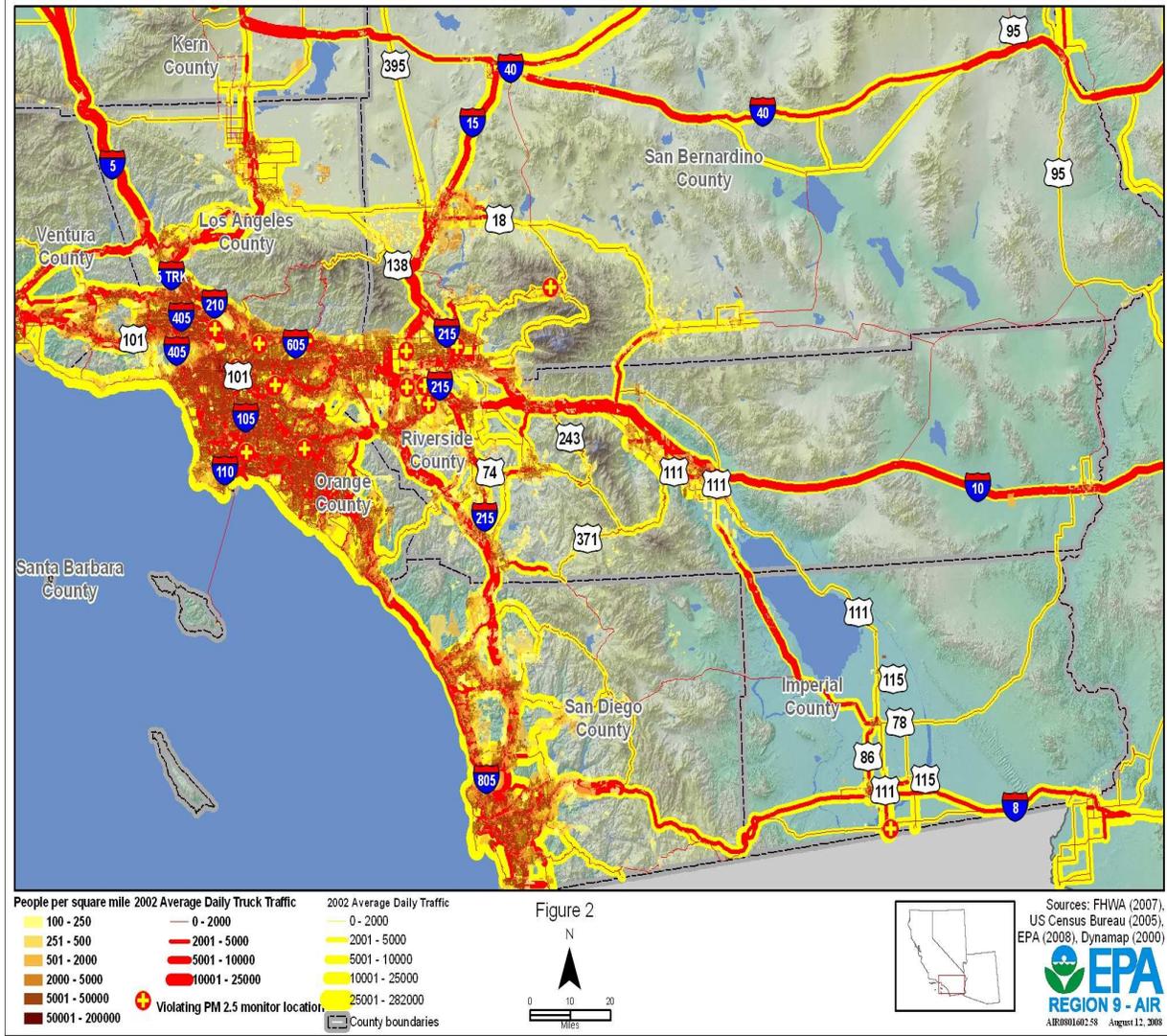
Table 3 shows the 2005 population for each county in the area being evaluated, as well as the population density for each county in that area. Population data gives an indication of whether it is likely that population-based emissions might contribute to violations of the 24-hour PM<sub>2.5</sub> standards. See Figure 2.

Table 3. Population			
County	State Recommended Nonattainment?	2005 Population	2005 Population Density (pop/sq mi)
Los Angeles	Yes (P)	9,941,197	2,429
Orange	Yes	2,992,642	3,738
Riverside	Yes (P)	1,945,392	266
San Bernardino	Yes (P)	1,964,511	98
P = partial. Data given is for entire County			

As shown on the attached map, this area is one of the most densely populated areas in the western United States. The 2005 population is extremely high for all four counties. Los Angeles County is densely populated with 2,429 people per square mile. Orange County has even more people, with 3,738 people per square mile. Southwestern San Bernardino County and western Riverside Counties are densely populated near the metropolitan area, but due to large rural areas show less population density.

Western Los Angeles, Orange County, Southwestern San Bernardino County and Western Riverside County are high-ranking counties for a nonattainment designation based on this factor and are also high-ranking counties based on Factors 1 and 2 and the CES.

# South Coast Air Basin - Population Density and Commuting Traffic



#### Factor 4: Traffic and commuting patterns

This factor considers the number of commuters in each county who drive to another county within the Los Angeles/South Coast Air Basin, the percent of total commuters in each county who commute to other counties within the Los Angeles/South Coast Air Basin, as well as the total Vehicle Miles Traveled (VMT) for each county in thousands of miles (see Table 5). A county with numerous commuters is generally an integral part of an urban area and is likely contributing to fine particle concentrations in the area.

County	State Recommended Non-attainment?	2005 VMT (1,000s mi)	Number Commuting to any violating counties	Percent Commuting to any violating counties
<b>Los Angeles</b>	Yes (P)	69,539	3,793,620	98%
<b>Orange</b>	Yes	23,466	1,297,190	99%
<b>Riverside</b>	Yes (P)	19,731	566,630	96%
<b>San Bernardino</b>	Yes (P)	17,810	650,210	99%

The listing of counties on Table 4 reflects a ranking based on the number of people commuting to other counties. The counties that are in the nonattainment area for the 1997 PM<sub>2.5</sub> NAAQS are shown in boldface.

All four counties have heavy commuter traffic constituting between 96% and 99% commuting to violating counties. The VMT numbers are extremely large for the entire area. As shown on the attached map, average daily truck traffic is also heavy, from 25,000 to 55,000 trucks on the highways in all four counties.

Based on this Factor and Factors 1, 2 and 3, the counties in the South Coast Air Basin are candidates for a PM<sub>2.5</sub> designation.

The 2005 VMT data used for Table 5 and 6 of the 9-factor analysis has been derived using methodology similar to that described in "Documentation for the final 2002 Mobile National Emissions Inventory, Version 3, September 2007, prepared for the Emission Inventory Group, U.S. EPA. This document may be found at:  
[atftp://ftp.epa.gov/EmisInventory/2002finalnei/documentation/mobile/2002\\_mobile\\_nei\\_version\\_3\\_report\\_092807.pdf](atftp://ftp.epa.gov/EmisInventory/2002finalnei/documentation/mobile/2002_mobile_nei_version_3_report_092807.pdf).

The 2005 VMT data were taken from documentation which is still draft, but which should be released in 2008.

#### Factor 5: Growth rates and patterns

This factor considers population growth for 2000-2005 and vehicle miles traveled for 1996-2005 for counties in the Los Angeles/South Coast Air Basin, as well as patterns of population and

VMT growth. A county with rapid population or VMT growth is generally an integral part of an urban area and likely to be contributing to fine particle concentrations in the area.

Table 5 below shows population, population growth, VMT and VMT growth for counties that are included in the South Coast Air Basin area.

Table 5. Population and VMT Growth and Percent Change					
County	Population (2005)	Population Density (2005)	Population % change (2000 - 2005)	2005 VMT (millions mi)	VMT % change 1996 to 2005
Los Angeles (P)	9,941,197	2,429	4%	69,539	(8)
Orange	2,992,642	3,738	5%	23,466	15%
Riverside (P)	1,945,392	266	25%	19,731	49%
San Bernardino (P)	1,964,511	98	14%	17,810	7%
P = partial. Data given for entire County					

Based on the data in Table 5, Riverside County had a high percentage of population change from 2000 to 2005, and an extremely high percentage of VMT change from 1996-2005. San Bernardino County had a significant increase in population from 2000-2005 with an increase in VMT for 1996-2005. While Los Angeles and Orange Counties had a small population increase during the 2000 – 2005 period, Orange County had a significant increase in VMT while Los Angeles had a decrease for the period 1996-2005.

The South Coast Air Basin has a heavy concentration of industrial facilities, several airports, two major international ports, and a dense freeway and surface street network. Approximately 43% of all Californians live in this area, and drive 40% of all the vehicle miles traveled in the state. Overall, the area is experiencing increasing population growth and traffic volumes, so all counties in the South Coast Air Basin are candidates for a PM<sub>2.5</sub> nonattainment designation for this factor.

**Factor 6: Meteorology (weather/transport patterns)**

For this factor, EPA considered data from National Weather Service instruments in the area. Wind direction and wind speed data for 2004-2006 were analyzed, with an emphasis on “high PM<sub>2.5</sub> days” for each of two seasons (an October-April “cold” season and a May-September “warm” season). These high days are defined as days where any FRM or FEM air quality monitors had 24-hour PM<sub>2.5</sub> concentrations above 95% on a frequency distribution curve of PM<sub>2.5</sub> 24-hour values, or where 24-hour values exceeded 35.1 µg/m<sup>3</sup>. See Figure 3.

For each air quality monitoring site, EPA developed a “pollution rose” to understand the prevailing wind direction and wind speed on the days with highest fine particle concentrations. The figure identifies 24-hour PM<sub>2.5</sub> values by color; days exceeding 35 µg/m<sup>3</sup> are denoted with a red or black icon. A dot indicates the day occurred in the warm season; a triangle indicates the day occurred in the cool season. The center of the figure indicates the location of the air quality monitoring site, and the location of the icon in relation to the center indicates the direction from

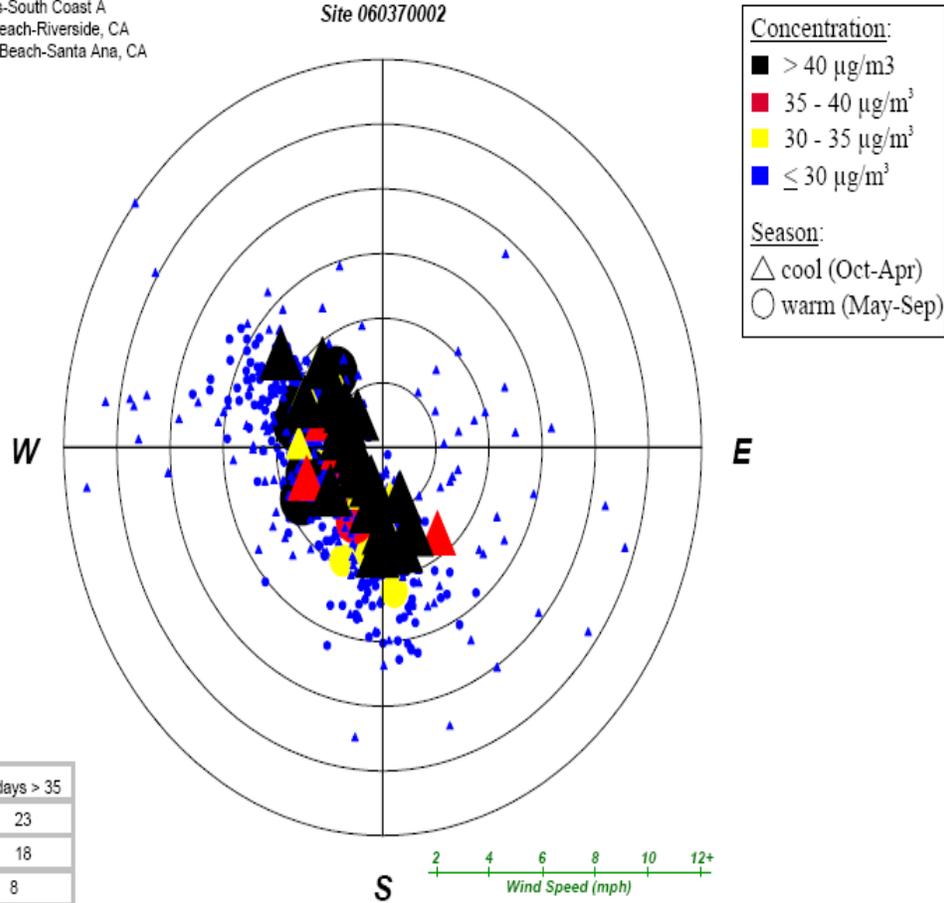
which the wind was blowing on that day. An icon that is close to the center indicates a low average wind speed on that day. Higher wind speeds are indicated when the icon is farther away from the center.

The pollution rose for Los Angeles County, site 060370002, shown below in Figure 3, indicates that elevated levels of particulate matter occur predominately during the cool season, during time periods when the winds are light. The additional pollution roses for the South Coast Air Basin, included in Attachment 3 show similar results.

Los Angeles County, CA  
Pollution Rose, 2004-2006

Existing NAA: Los Angeles-South Coast A  
CSA: Los Angeles-Long Beach-Riverside, CA  
CBSA: Los Angeles-Long Beach-Santa Ana, CA

Site 060370002



Year	98th %-ile	# days > 35
2004	53.8	23
2005	53.2	18
2006	38.4	8
Design Value	48-NA	

15 exceedance(s) not plotted  
(due to missing or variable wind data)

Meteorological data from 25.6 miles away  
LONG\_BEACH\_DAUGHERTY\_FLD (ID=23129)

located in/near San Joaquin Valley, CA

The meteorology indicates that all four counties should be included in the South Coast Air Basin nonattainment area. Consideration of this factor supports the recommended nonattainment area for the South Coast area.

The meteorology factor is also considered in each county's Contributing Emissions Score (CES) because the method for deriving this metric included an analysis of trajectories of air masses for high  $\text{PM}_{2.5}$  days.

**Factor 7: Geography/topography (mountain ranges or other air basin boundaries)**

The geography/topography analysis looks at physical features of the land that might have an effect on the air shed and, therefore, on the distribution of PM<sub>2.5</sub> over the South Coast Air Basin.

The South Coast Air Basin forms a low plain, bordered on the west by the Pacific Ocean, and surrounded on the other sides by mountains which channel and confine the airflow. The San Gabriel Mountains lie to the north; the San Bernardino Mountains lie to the north and east, the San Jacinto Mountains to the southeast and the Santa Ana Mountains to the south. In addition to the mountain ranges, sunny warm weather and stagnant winds trap smog in the South Coast Air Basin area.

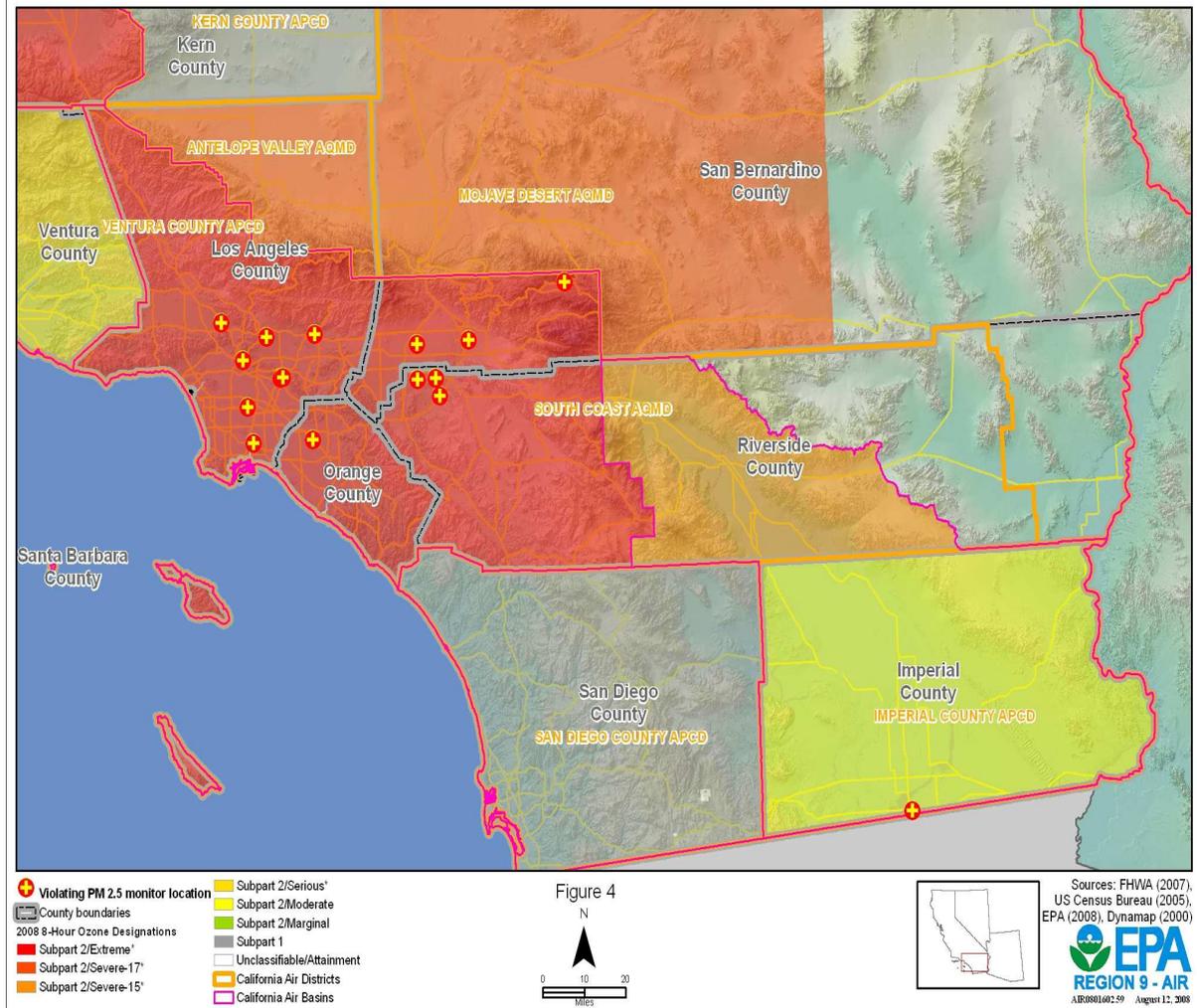
Consideration of this factor supports the recommended nonattainment area for the South Coast area.

**Factor 8: Jurisdictional boundaries (e.g., existing PM and ozone areas)**

In evaluating the jurisdictional boundary factor, consideration should be given to existing boundaries and organizations that may facilitate air quality planning and the implementation of control measures to attain the standard. Areas designated as nonattainment (e.g., for PM<sub>2.5</sub> or 8-hour ozone standard) represent important boundaries for state air quality planning. See Figure 4.

A goal in designating PM<sub>2.5</sub> nonattainment areas is to achieve a degree of consistency with existing PM<sub>2.5</sub> and ozone nonattainment areas. The major jurisdictional boundary in the South Coast Air Basin, which is currently nonattainment for both the 1997 PM<sub>2.5</sub> and 8-hour ozone standards, is the South Coast Air Quality Management District (SCAQMD). SCAQMD includes Orange County, and parts of Los Angeles, Riverside and San Bernardino Counties. Since SCAQMD will be the responsible planning agency for all three standards, this argues for making the 2006 PM<sub>2.5</sub> nonattainment area consistent with the existing nonattainment boundaries for SCAQMD. (See Figure 4)

# South Coast Air Basin - Air Districts, Air Basins, Ozone Nonattainment Areas



## Factor 9: Level of control of emission sources

This factor considers emission controls currently implemented for major sources in the Los Angeles/South Coast Air Basin area.

The emission estimates on Table 1 (under Factor 1) include any control strategies implemented by the SCAQMD in the South Coast Air Basin before 2005 that may influence emissions of any component of PM<sub>2.5</sub> emissions (i.e., total carbon, SO<sub>2</sub>, NO<sub>x</sub>, and crustal PM<sub>2.5</sub>).

## Attachment 2

### Description of the Contributing Emissions Score

The CES is a metric that takes into consideration emissions data, meteorological data, and air quality monitoring information to provide a relative ranking of counties in and near an area. Using this methodology, scores were developed for each county in and around the relevant metro area. The county with the highest contribution potential was assigned a score of 100, and other county scores were adjusted in relation to the highest county. The CES represents the relative maximum influence that emissions in that county have on a violating county. The CES, which reflects consideration of multiple factors, should be considered in evaluating the weight of evidence supporting designation decisions for each area.

The CES for each county was derived by incorporating the following significant information and variables that impact PM<sub>2.5</sub> transport:

- Major PM<sub>2.5</sub> components: total carbon (organic carbon (OC) and elemental carbon (EC)), SO<sub>2</sub>, NO<sub>x</sub>, and inorganic particles (crustal).
- PM<sub>2.5</sub> emissions for the highest (generally top 5%) PM<sub>2.5</sub> emission days (herein called “high days”) for each of two seasons, cold (Oct-Apr) and warm (May-Sept)
- Meteorology on high days using the NOAA HYSPLIT model for determining trajectories of air masses for specified days
- The “urban increment” of a violating monitor, which is the urban PM<sub>2.5</sub> concentration that is in addition to a regional background PM<sub>2.5</sub> concentration, determined for each PM<sub>2.5</sub> component
- Distance from each potentially contributing county to a violating county or counties

A more detailed description of the CES can be found at [http://www.epa.gov/ttn/naaqs/pm/pm25\\_2006\\_techinfo.html#C](http://www.epa.gov/ttn/naaqs/pm/pm25_2006_techinfo.html#C).

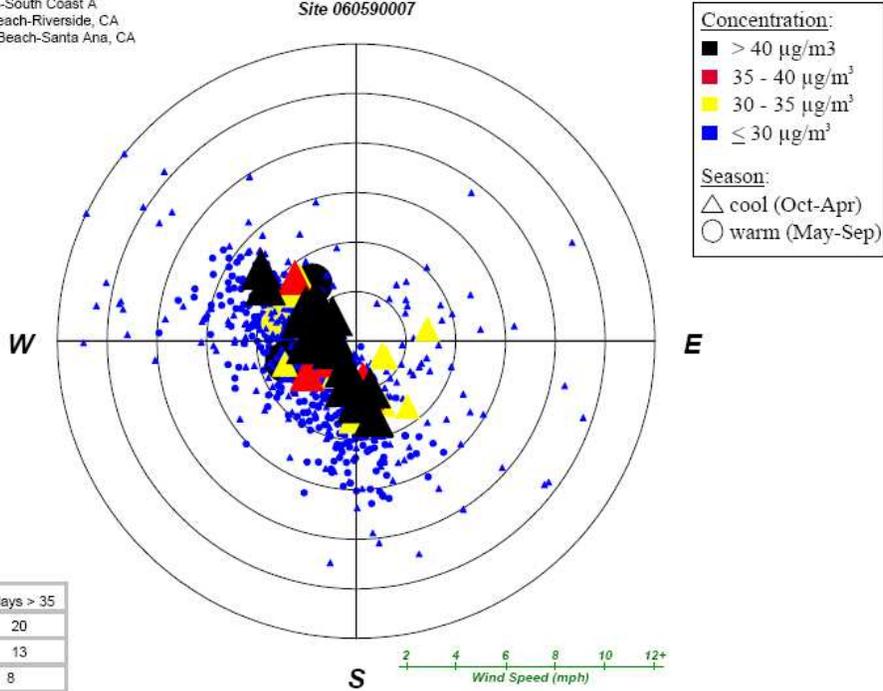
# ATTACMMENT 3

## POLLUTION ROSES FOR SOUTH COAST AIR BASIN

Orange County, CA  
Pollution Rose, 2004-2006

Existing NAA: Los Angeles-South Coast A  
2SA: Los Angeles-Long Beach-Riverside, CA  
2BSA: Los Angeles-Long Beach-Santa Ana, CA

Site 060590007



Year	98th %-ile	# days > 35
2004	48.2	20
2005	41.8	13
2006	40.5	8
Design Value	44-NA	

8 exceedance(s) not plotted  
(due to missing or variable wind data)

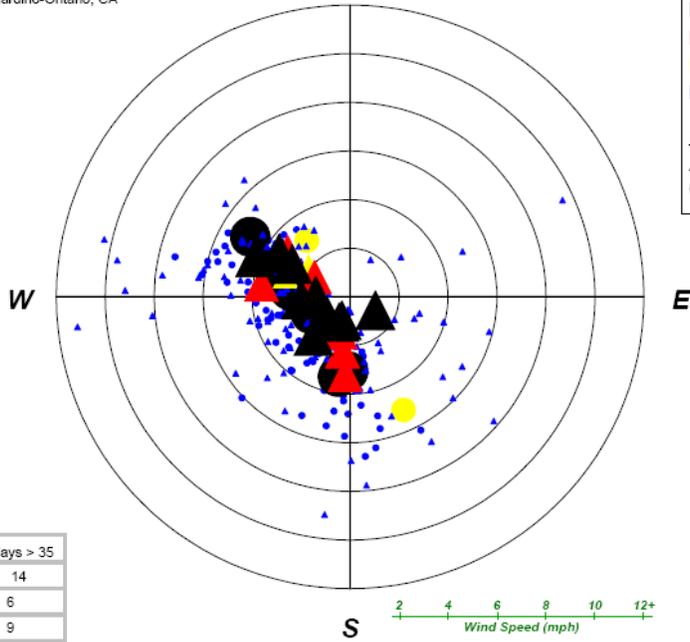
Meteorological data from 12.2 miles away  
LONG\_BEACH\_DAUGHERTY\_FLD (ID=23129)

located in/near Los Angeles-South Coast A

Riverside County, CA  
Pollution Rose, 2004-2006

Existing NAA: Los Angeles-South Coast A  
CSA: Los Angeles-Long Beach-Riverside, CA  
CBSA: Riverside-San Bernardino-Ontario, CA

Site 060651003



**Concentration:**

- > 40  $\mu\text{g}/\text{m}^3$
- 35 - 40  $\mu\text{g}/\text{m}^3$
- 30 - 35  $\mu\text{g}/\text{m}^3$
- $\leq 30 \mu\text{g}/\text{m}^3$

**Season:**

- △ cool (Oct-Apr)
- warm (May-Sep)

Year	98th %-ile	# days > 35
2004	53.7	14
2005	41.0	6
2006	47.7	9
Design Value	47-NA	

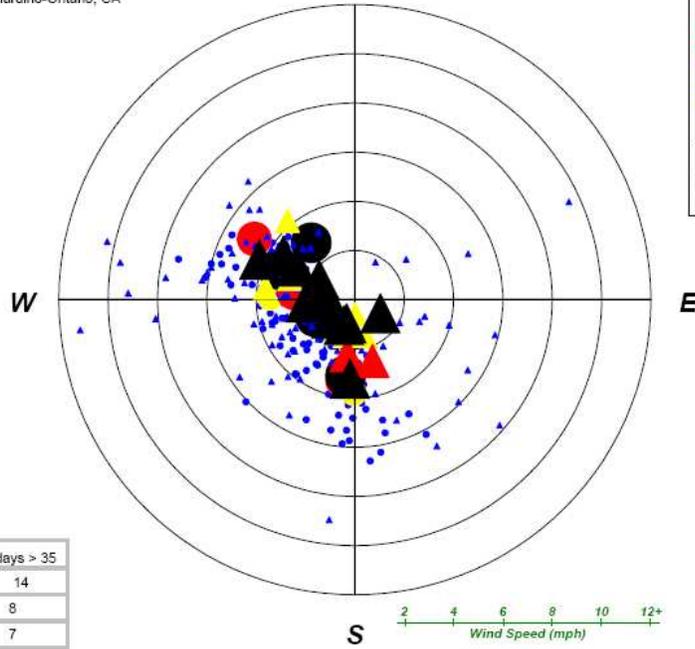
6 exceedance(s) not plotted  
(due to missing or variable wind data)

Meteorological data from 43.9 miles away  
LONG\_BEACH\_DAUGHERTY\_FLD (ID=23129)  
located in/in near Los Angeles-South Coast A/

San Bernardino County, CA  
Pollution Rose, 2004-2006

Existing NAA: Los Angeles-South Coast A  
CSA: Los Angeles-Long Beach-Riverside, CA  
CBSA: Riverside-San Bernardino-Ontario, CA

Site 060710025



**Concentration:**  
 ■  $> 40 \mu\text{g}/\text{m}^3$   
 ■  $35 - 40 \mu\text{g}/\text{m}^3$   
 ■  $30 - 35 \mu\text{g}/\text{m}^3$   
 ■  $\leq 30 \mu\text{g}/\text{m}^3$

**Season:**  
 △ cool (Oct-Apr)  
 ○ warm (May-Sep)

Year	98th %-ile	# days > 35
2004	59.9	14
2005	49.5	8
2006	41.5	7
Design Value	50-NA	

5 exceedance(s) not plotted  
(due to missing or variable wind data)

Meteorological data from 30.5 miles away  
LONG\_BEACH\_DAUGHERTY\_FLD (ID=23129)

located in/near Los Angeles-South Coast A1

