

DRAFT 2007 AIR QUALITY MANAGEMENT PLAN - EXECUTIVE SUMMARY

Preface

Introduction

Why Is This Draft Plan Being Prepared?

Is Air Quality Improving?

What are the Major Sources Contributing to Air Quality Problems?

**What is the Overall Control Strategy to Meet the Current Air
Quality Standards?**

What Are the Main Challenges of Attainment?

PREFACE

On behalf of the 16.5 million residents of the South Coast Basin, the 2007 AQMP must rise to meet the following major challenges.

Stiff new Federal standards have been set in place for ozone and PM2.5.

- Slightly longer timeframe for attainment than was allowed under previous standards, but significantly more stringent than old (withdrawn) standards.
- Fast-approaching and very difficult PM2.5 deadline (2014).
- Even more challenging 8-hour ozone deadline by 2020 timeframe.
- Recently revised 24-hour PM2.5 standard more stringent than current standards.

Significant reductions are needed from all sources, but especially Mobile Sources, since the bulk of the remaining air quality problem stems from Mobile Source emissions.

- Need new ultra-low emission standards for both new and existing fleet, including on-road and off-road heavy-duty trucks, industrial & service equipment, locomotives, ships & other watercraft, and aircraft.
- Must dramatically accelerate fleet turnover to achieve benefits of cleaner engines.
- Significant reformulation of consumer products which collectively are a major source of pollutant emissions.
- Stationary sources must continue to do their fair share of the emission reduction effort including expedited equipment modernization and technology advancements.

Even today's improved smog conditions result in known public harm. New and additional health studies indicate urgent public health concerns, especially from fine particulate exposure.

- Impaired lung function in children growing up in Southern California.
- Increased episodes of respiratory disease symptoms.
- Increase in doctor visits for heart disease.
- Increase in death rates.

To have any reasonable expectation of meeting the 2014 PM2.5 deadline, the pace of improvement must intensify for Mobile Sources under state and federal jurisdiction.

- At current pace, South Coast would fail to reach attainment of old standards.
- Given the huge challenge and the public health threat involved, there is no margin for error in the overall Plan strategy, and there is no room for wavering or hesitation in the implementation of its control measures.
- Substantial public and private funding is needed to expedite the retirement of older, higher-polluting engines and vehicles.
- The time for all responsible authorities to expeditiously adopt and aggressively implement effective control strategies is now.

INTRODUCTION

The long-term trend of the quality of air we Southern Californians breathe shows continuous improvement, although recent leveling off in ozone improvement causes marked concern. The remarkable historical improvement in air quality since the 1970's is the direct result of Southern California's comprehensive, multiyear strategy of reducing air pollution from all sources as outlined in its Air Quality Management Plan (AQMP). Yet the air in Southern California is far from meeting all federal and state air quality standards and, in fact, is among the worst in the nation. Although the new federal fine particulates (PM_{2.5}) and 8-hour surface level ozone standards provide a longer compliance schedule, the standards are much more stringent than the previous PM₁₀ and 1-hour surface level ozone standards. To reach clean air goals in the next seven to fifteen years provided by the Clean Air Act deadlines, Southern California must not only continue its diligence but intensify its pollution reduction efforts.

Continuing the Basin's progress toward clean air is a challenging task, not only to recognize and understand complex interactions between emissions and resulting air quality, but also to pursue the most effective possible set of strategies to improve air quality while maintaining a healthy economy. To ensure continued progress toward clean air and comply with state and federal requirements, the South Coast Air Quality Management District (AQMD or District) in conjunction with the California Air Resources Board (CARB), the Southern California Association of Governments (SCAG) and the U.S. Environmental Protection Agency (U.S. EPA) is preparing the Draft 2007 revision to its AQMP (2007 AQMP or 2007 Plan). This Draft 2007 AQMP employs up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources and area sources. While many technical tasks are still underway to complete the Plan revision, there is sufficient information to begin framing policy discussions on clean air strategies. Hence, this Draft Plan has been prepared and is being released for early public review and participation.

The Draft Plan proposes potential attainment demonstration of the federal PM_{2.5} standards through a more focused control of sulfur oxides (SO_x), directly-emitted PM_{2.5}, and nitrogen oxides (NO_x) supplemented with volatile organic compounds (VOC) by 2014. The 8-hour ozone control strategy builds upon the PM_{2.5} strategy, augmented with additional VOC reductions to meet the standard by 2020. An extended attainment date (i.e., additional three years) is allowed under the Clean Air Act if a "bump-up" request is made by the state showing the need for such extension; this topic is discussed further in the Policy Issues section that follows.

The Draft 2007 AQMP proposes policies and measures currently contemplated by responsible agencies to achieve federal standards for healthful air quality in the Basin

and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under District jurisdiction (namely, Coachella Valley).

This Draft Plan also addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. This Draft Plan builds upon the approaches taken in the 2003 AQMP for the South Coast Air Basin for the attainment of the federal ozone air quality standard. However, this Draft Plan highlights the significant amount of reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under federal Clean Air Act.

This Draft Plan as well as other key supporting information are available electronically and can be downloaded from the District's home page on the Internet (<http://www.aqmd.gov>, "Inside AQMD" tab at top, and click on "Clean Air Plans").

WHY IS THIS DRAFT PLAN BEING PREPARED?

The federal Clean Air Act requires an 8-hour ozone non-attainment area to prepare a SIP revision by June 2007 and a PM_{2.5} non-attainment area to submit by April 2008. However, since the attainment date for PM_{2.5} is earlier than that for 8-hour ozone and because of the interplay between precursor emissions, it is prudent to prepare a comprehensive and integrated plan to design the most effective path to attain both standards within the specified timeframe. In addition, U.S. EPA requires that transportation conformity budgets be established based on the most recent planning assumptions (i.e., within the last five years) and approved motor vehicle emission model. The Draft Plan is based on assumptions provided by both CARB and SCAG reflecting their upcoming computer model (EMFAC) for motor vehicle emissions and demographic updates. Additional updates will become available in the upcoming months. The District, however, believes it is critical that the initial findings and current plan approach be shared with the public to solicit input and to initiate public exploration regarding the path to clean air for this region.

IS AIR QUALITY IMPROVING?

Yes. Over the years, the air quality in the Basin has improved significantly, thanks to the comprehensive control strategies implemented to reduce pollution from mobile and stationary sources. For instance, the total number of days on which the Basin exceeds the federal 8-hour standard has decreased dramatically over the last two decades from about 150 days to less than 90 while Basin station-days [detail follows] decreased by approximately 80 percent. However, the Basin still exceeds the federal 8-hour standard

more frequently than any other location in the U.S. Under federal law, the Basin is designated as a "severe-17" nonattainment area for the 8-hour ozone standard. Figure ES-1 shows the long-term trend in ambient ozone counts over the federal standard since 1990. The figure depicts two types of exceedance measurements: the number of Basin-days and Basin-station-days above the federal 8-hour ozone standard, which represent, respectively the number of days the standard was exceeded anywhere in the Basin or by any station. Lack of significant progress in ozone air quality for the last several years has raised some concern regarding the present-day effectiveness of control programs. The District is planning to hold a technical forum in October 2006 on ozone air quality, to examine the issue in detail including accuracy of emissions inventory, effectiveness of control strategies, ambient photochemistry, etc. The discussion outcome may help refine the draft control strategy approach, if necessary.

Relative to the 1-hour ozone standard, which was recently revoked by the U.S. EPA in favor of the new 8-hour ozone standard, the air pollution controls have had an overall positive impact. The number of days where the Basin exceeds the federal 1-hour ozone standard has continually declined over the years. However, while the number of days exceeding the federal 1-hour ozone standard has dropped since the 1990s, the rate of progress has slowed since the beginning of the decade. The Basin currently still experiences ozone levels over the federal standard on more than 20 days per year. By 2010, this plan shows that the Basin will still exceed the federal 1-hour ozone standard by 20 percent despite the implementation of existing air quality programs. The District and a number of environmental organizations have litigated against U.S. EPA's revocation of the 1-hour standard; the case is still pending.

In 2005, the annual PM_{2.5} standard was exceeded at several locations throughout the Basin. However, the 24-hour PM_{2.5} standard (98th percentile greater than 65 ug/m³) was not exceeded during the year¹. In 2005, the Basin did not exceed the standards for carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates or lead. Figure ES-2 shows the annual average PM_{2.5} concentrations in the Basin in 2005.

The Basin has met the PM₁₀ standards at all stations except for western Riverside where the annual PM₁₀ standard has not been met as of 2006. Additional efforts, through localized programs, are under way to ensure compliance with this standard. These efforts are also outlined in the Draft 2007 AQMP.

¹ In September 2006, U.S. EPA issued revised PM_{2.5} NAAQs lowering the 24-hr standard to 35 ug/m³. However, the present Plan is not required to address this standard.

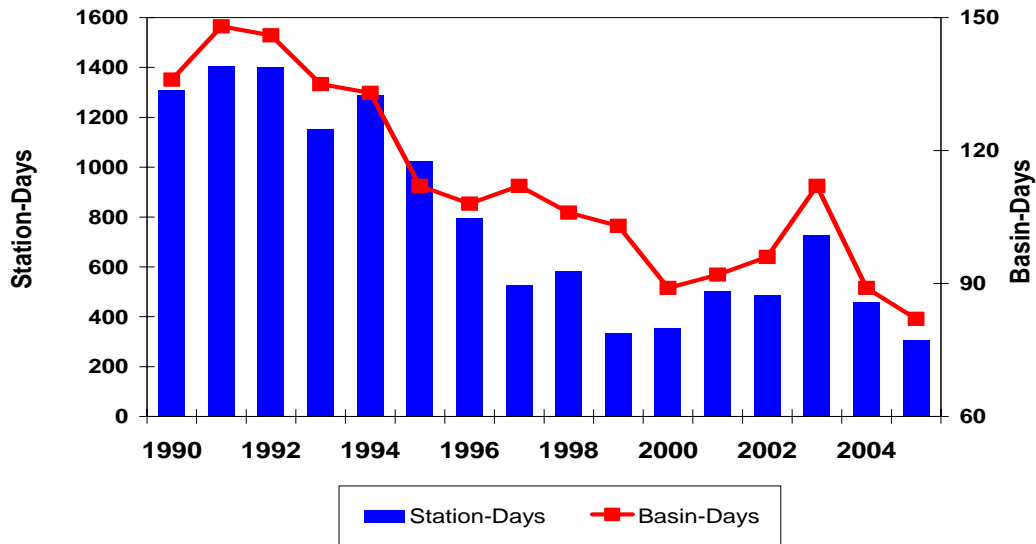
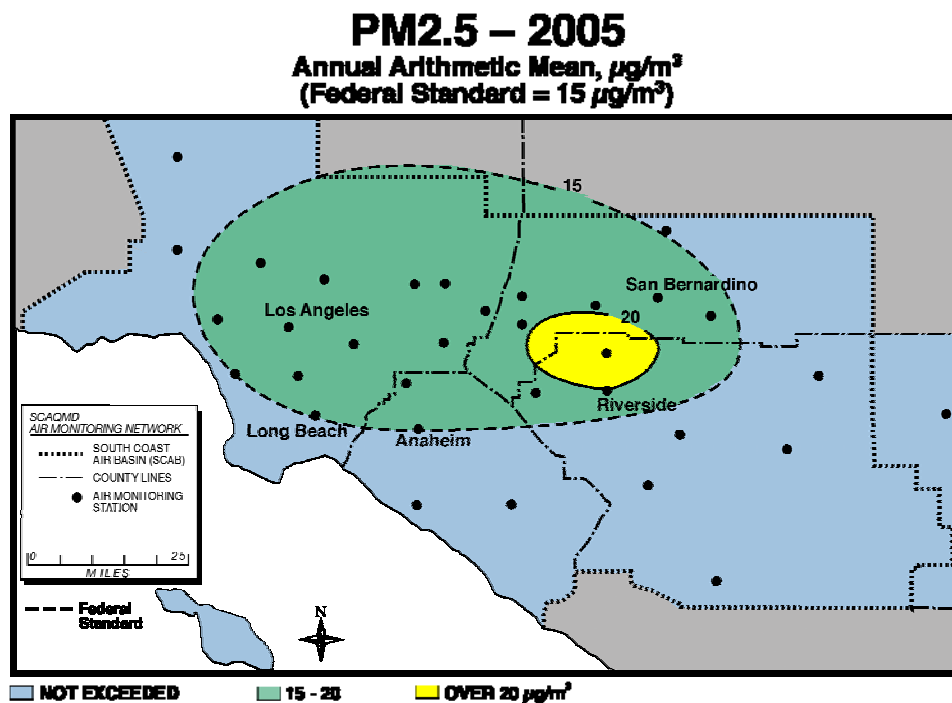


FIGURE ES-1

Total Basin-Days Above the Federal 8-Hour Ozone Standard from 1990-2005

FIGURE ES-2
PM_{2.5} – 2005

Annual Average Concentration Compared to Federal Standard

WHAT ARE THE MAJOR SOURCES CONTRIBUTING TO AIR QUALITY PROBLEMS?

Figures ES-3 to ES-5 present the top ten categories for NO_x, VOC, and SO_x emissions.

FIGURE ES-3
Top Ten Categories for NO_x Emissions
NO_x Annual Average Emissions - 2002

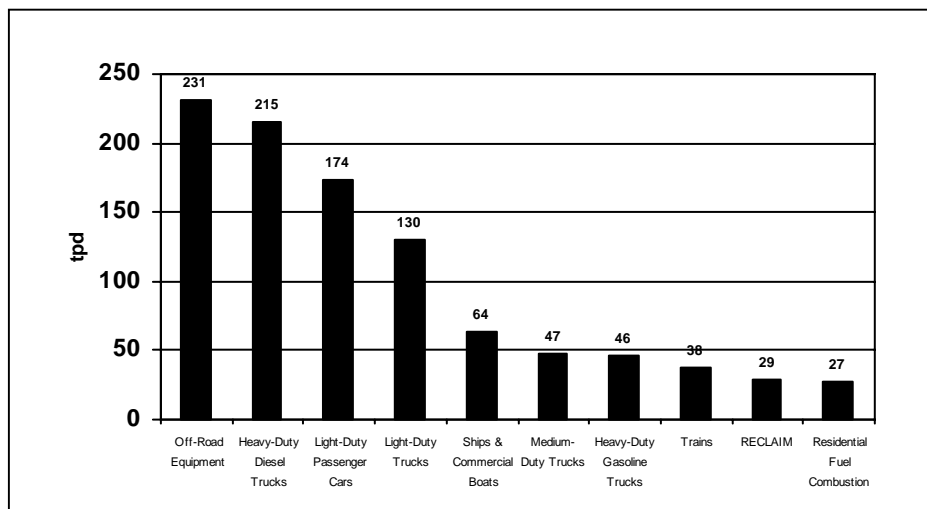


FIGURE ES-4
Top Ten Categories for VOC Emissions
VOC Annual Average Emissions - 2002

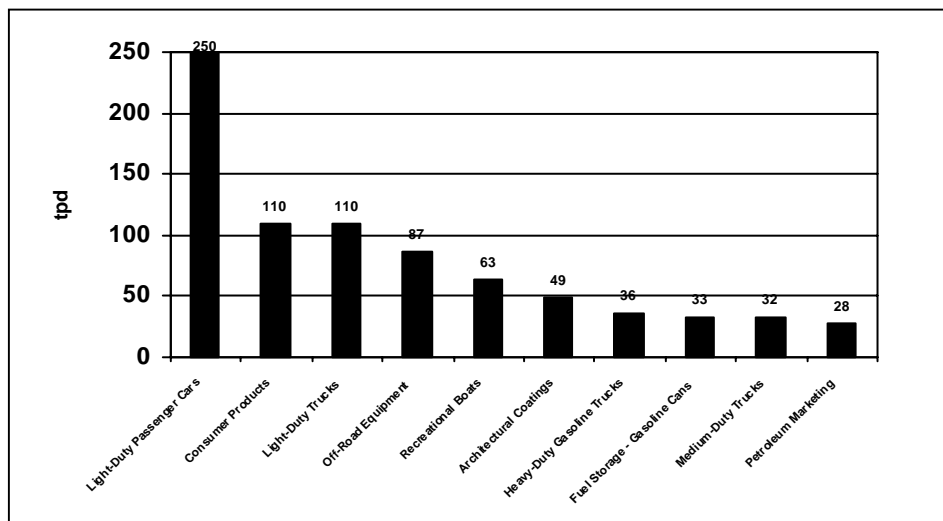
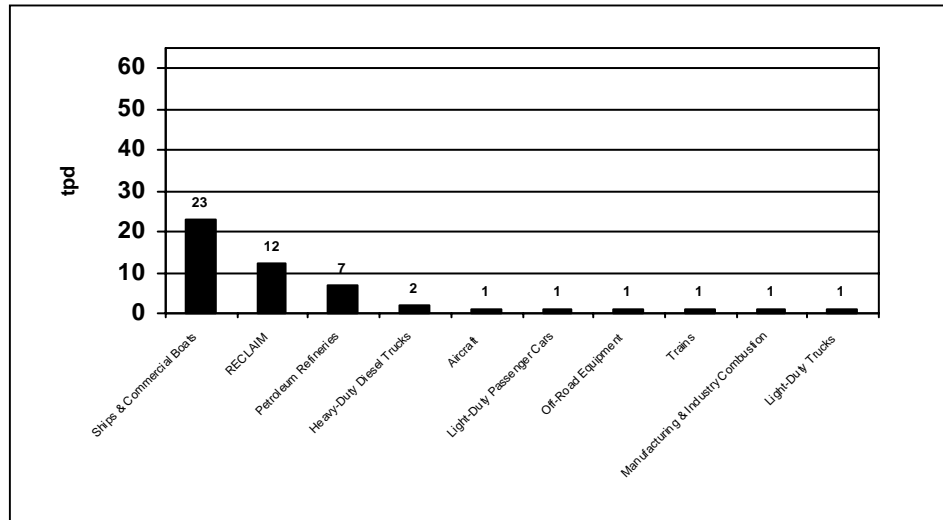


FIGURE ES-5
Top Ten Categories for SO_x Emissions
SO_x Annual Average Emissions - 2002



The combined Ports of Los Angeles and Long Beach including sources such as ocean-going vessels, harbor craft, trains, trucks, and cargo handling equipment represent the largest single source of emissions in the Basin, accounting for 73% of SO_x, 24% of NO_x, and 10% of PM_{2.5} in 2020.

WHAT IS THE OVERALL CONTROL STRATEGY TO MEET THE CURRENT AIR QUALITY STANDARDS?

The Draft 2007 AQMP builds upon improvements accomplished from the previous plans, and aims to incorporate all feasible control measures while balancing costs and socioeconomic impacts. The few years remaining to meet attainment deadlines afford little margin for error in implementing such a comprehensive control strategy. Further, the combined control strategies selected to attain the federal PM_{2.5} and 8-hour ozone standards must complement each other, representing the most effective route to achieve and maintain the standards.

The Draft 2007 AQMP relies on a comprehensive and integrated control approach aimed at achieving the PM_{2.5} standard by 2015 through implementation of short-term and mid-term control measures and achieving the 8-hour ozone standard by 2021/2024 based on implementation of additional long-term measures. Table ES-1 presents the overall reductions necessary for demonstrating attainment of the PM_{2.5} standard by 2015 and the 8-hour ozone standard by 2020. In order to demonstrate attainment by the prescribed deadlines, emission reductions needed for attainment must be in place by 2014 and 2020/2023 timeframe.

Table ES-1
Emission Reduction Targets for
PM_{2.5} and 8-Hour ozone Attainment
(tons per day, % reduction)

	2014	2020
NO_x	239 (36%)	286 (50%)
VOC	142 (24%)	300 (54%)
SO_x	49 (70%)	----
PM_{2.5}	14 (14%)	----

Since PM_{2.5} in the Basin is overwhelmingly formed secondarily, the overall draft control strategy focuses on reducing precursor emission of SO_x, directly-emitted PM_{2.5}, NO_x, and VOC instead of fugitive dust. Based on the District's modeling sensitivity analysis, SO_x reductions, followed by directly-emitted PM_{2.5} and NO_x reductions, provide the greatest benefits in terms of reducing the ambient PM_{2.5} concentrations. While VOC reductions are less critical to overall reductions in PM_{2.5} air quality (compared with equivalent SO_x, directly-emitted PM_{2.5}, and NO_x reductions), they are heavily relied upon for meeting the 8-hour ozone standard. It is further determined that SO_x is the only pollutant that is projected to grow in the future, due to ship emissions at the ports, requiring significant controls. Directly-emitted PM_{2.5} emission reductions from on-going diesel toxic reduction programs and from the short-term and mid-term control measures are also incorporated into the Draft 2007 AQMP. NO_x reductions primarily based on mobile source control strategies (e.g., add-on control devices, alternative fuels, fleet modernization, repowers, retrofits) are also relied upon for attainment. Adequate VOC controls need to be in place in time for achieving significant VOC reductions needed for the 8-hour ozone standard by 2021/2024. Reducing VOC emissions in early years would also ensure continued progress in reducing the ambient ozone concentrations. The 8-hour ozone control strategy relies on the implementation of the PM_{2.5} control strategy augmented with additional long-term VOC and NO_x reductions for meeting the standard by 2020/2023 timeframe. With respect to PM₁₀, since the Basin will not attain the annual standard by 2006 for one station, additional local programs are proposed to address the attainment issue in an expeditious manner.

The Draft 2007 AQMP control measures consist of three components: 1) the District's Stationary and Mobile Source Control Measures; 2) State and Federal Control Measures recommended by CARB and/or District staff; and 3) Regional Transportation Strategy

and Control Measures provided by SCAG. These measures are outlined in Appendices IV-A, IV-B, and IV-C, respectively.

The District's control strategy for stationary and mobile sources is based on the following approaches: 1) facility modernization; 2) energy efficiency and conservation; 3) good management practices; 4) market incentives/compliance flexibility; 5) area source programs; 6) emission growth management; and 7) mobile source programs.

The Draft AQMP also includes District staff's recommended State and federal stationary and mobile source control measures since the California Air Resources Board (CARB) has only developed an overview of a possible control strategy for PM_{2.5} (see Chapter 4). The measures, prepared by District staff and recommended for CARB's consideration for inclusion into the final AQMP, include strategies such as Smog Check Program enhancements, extensive fleet modernization of on-road heavy-duty diesel vehicles and off-road diesel equipment, accelerated penetration of advanced technology vehicles, low-sulfur fuel for marine engines, accelerated turn-over of high-emitting off-road engines, and gasoline and diesel fuel reformulations.

Finally, the emission benefits associated with the 2004 Regional Transportation Plan and the 2006 Regional Transportation Improvement Program are also reflected in the Draft 2007 AQMP.

WHAT ARE THE MAIN CHALLENGES OF ATTAINMENT?

Attainment of the new federal PM_{2.5} and 8-hour ozone standards poses yet another tremendous challenge for the South Coast Air Basin. The latest emissions inventory and air quality modeling analysis employed in the Draft 2007 AQMP indicate that significant reductions above and beyond those already achieved are still needed for meeting these standards. In order to determine the optimal path to clean air and the overall design of the final Plan, the following issues are presented for soliciting input from all stakeholders, technical experts, and the general public.

- Uncertainties in Mobile Source Emissions Inventory

Although the emissions inventory and projections in the Draft 2007 AQMP represent the latest available methodologies, emission factors, and growth projections, there are uncertainties in the mobile source emissions inventory which need to be addressed in the final AQMP or, if necessary, immediately following the AQMP adoption. The mobile source inventory for this Draft AQMP represents an increase over the previous AQMP primarily because of ethanol permeation, heavy-duty vehicle in-use emissions, increased evaporative emissions for pleasure craft, and other adjustments. Furthermore, there are some concerns over the projected emissions in the off-road model because of the equipment life and turn-over rate assumptions which may result in under-estimation of

future emissions. While the technical work to improve the inventory is on-going, the past plan revisions have shown continuous upward adjustment of the mobile source inventory. The control strategy for attainment demonstration should provide a certain level of safety margin to address this potential underestimation of emissions with only seven years remaining for PM2.5 attainment.

- Adequacy of Reductions for PM2.5 Attainment

Attainment of the federal health-based PM2.5 standard would demand significant emission reductions in PM2.5 components within the next seven years. Based on the District's air quality modeling analysis, these reductions are on the order of 239 tons per day of NOx, 49 tons per day of SOx, 14 tons per day of PM2.5, and 142 tons per day of VOC emissions. Although the District will continue to refine its modeling analysis over the next few months for inclusion into the Final Plan, this range of reductions identifies the overall path to clean air and policy direction in designing the attainment strategy.

In 2014, emission sources under the District's jurisdiction will account for 11% of NOx and 24% of VOC and SOx emissions in the Basin. Although these stationary sources are currently subject to some of the most rigorous regulations known, in view of the magnitude of reductions for PM2.5 attainment, the District is proposing thirty short-term and mid-term control measures in the Draft AQMP. The estimated reductions from measures that have been quantified are 7.7 t/d of NOx, 3 t/d of SOx, 7.2 t/d of VOC, and 1.4 t/d of PM2.5 by 2014. Since emission reductions for many of the measures are to be better quantified at a later date, the total reductions will likely be higher.

However, in order to meet the federal PM2.5 standard by 2014, significant additional reductions are required from sources under state and federal jurisdictions. CARB has the overall responsibility of developing the State Element of the SIP outlining the state's specific short-term and long-term strategies for reducing emissions from mobile sources and consumer products. Traditionally, the District has incorporated CARB's proposed strategies in the Draft AQMP in developing the overall attainment strategy. However, for this Draft AQMP, CARB has not yet developed its Draft State Element and has only released its proposed concepts for reducing emissions from major mobile source categories and consumer products (Table 4-5).

Since CARB's proposed concepts appear to fall significantly short of the required reductions for PM2.5 attainment, the District staff is recommending a number of specific control measures with defined strategies and necessary reductions for mobile sources and consumer products for CARB's consideration (Table 4-6). Although CARB plans to release its Draft State Element in January 2007, the District staff believes that greater opportunity for public debate and review of the potentially alternative strategies for inclusion into the Final Plan is warranted. It is envisioned that the proposed measures in

this Draft Plan will undergo further agency and public review and reflect any adjustments to emissions inventory and modeling before inclusion into the Final Plan.

- 8-Hour Ozone Non-Attainment Classification – Bump-Up Request

The South Coast Air Basin is classified as a “severe-17” non-attainment area for the federal 8-hour ozone standard with an attainment date of 2021. Such classification precludes the Basin from relying on undefined reductions (i.e., “black box”) which are based on the anticipated development of new control technologies or improvement of existing technologies (Section 182(e)(5) of the federal Clean Air Act) for attainment demonstration. However, the federal regulation allows regions such as the Basin to request for a bump-up to an “extreme” classification in order to be able to rely on 182(e)(5) measures for attainment. The District is considering exercising this option for the Draft 2007 AQMP because of the significant level of additional reductions required for attainment which are not likely to be achieved from existing technologies.

Although the “extreme” classification for the Basin would allow the use of long-term measures and possibly extend the attainment date by three years to 2024, there are concerns associated with the resulting increased stringency of requirements for stationary sources (i.e., higher offset ratio, lower major source definition for Title V facilities) under an “extreme” classification. Unless adequate defined control measures are identified for meeting the ozone reduction target by 2021, the District will have no choice but to request for this re-classification. During the public review process, the District will solicit additional control ideas to determine if existing technologies can be more aggressively implemented such that 182(e)(5) measures are not needed for the 8-hour attainment demonstration.

- Fair Share Agency Responsibility

In order to achieve necessary reductions for meeting air quality standards, all four agencies (i.e., AQMD, CARB, U.S. EPA, and SCAG) would have to aggressively develop and implement control strategies through their respective plans, regulations, and alternative approaches for pollution sources within their primary jurisdiction. Even though SCAG does not have direct authority over mobile source emissions, it will commit to the emission reductions associated with implementation of the 2004 Regional Transportation Plan and 2006 Regional Transportation Improvement Program which are imbedded in the emission projections. Similarly, the Ports of Los Angeles and Long Beach have authority they must utilize to assist in the implementation of various strategies if the region is to attain clean air by federal deadlines.

The following figures represent the projected emission contributions by agency primary authority for major pollutants in 2014 and 2020.

FIGURE ES-6

Emissions Contribution by Agency
(2014, Annual Average Inventory)

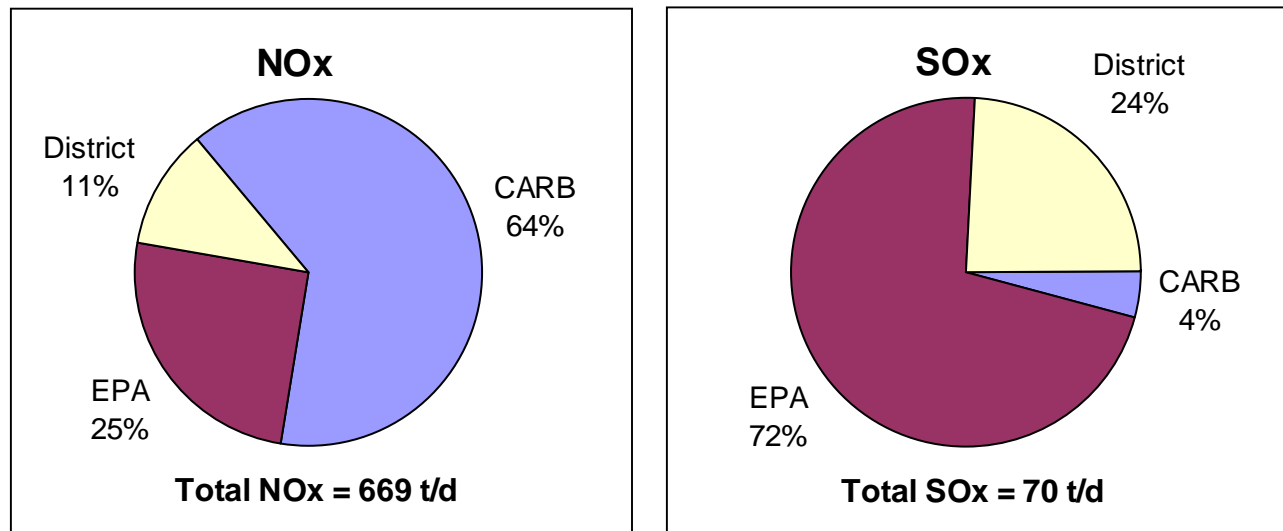
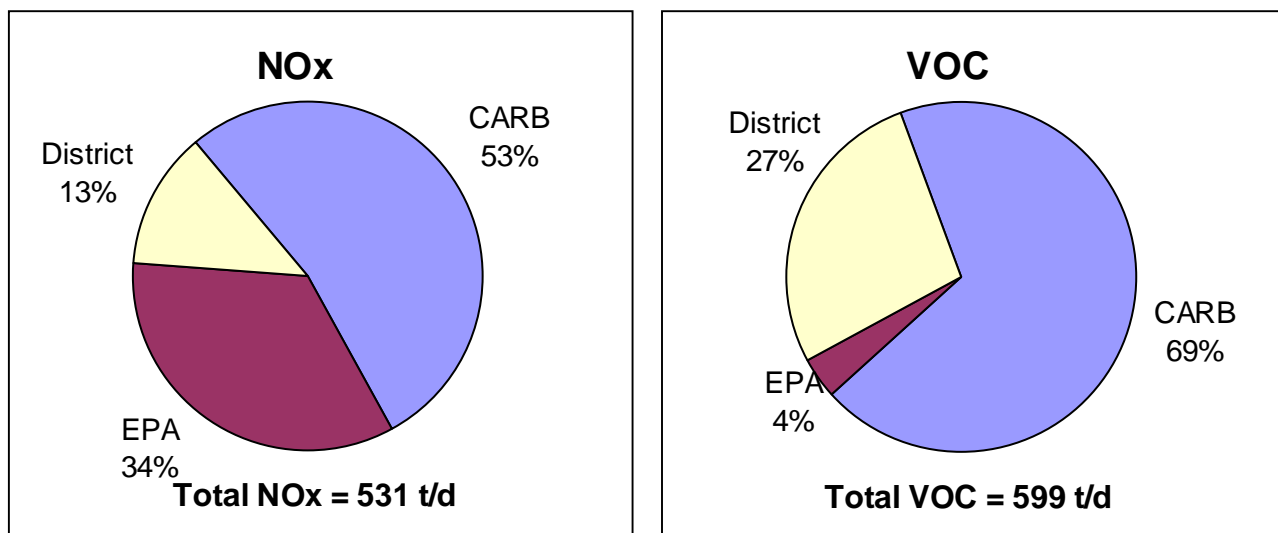


FIGURE ES-7

Emissions Contribution by Agency
(2020, Planning Inventory)



Although the District has completely met its obligations under the 2003 AQMP and stationary sources subject to the District's jurisdiction account for only 11% of NO_x and 24% of SO_x emissions in the Basin in 2014, the Draft 2007 AQMP contains several short-term and mid-term control measures aimed at achieving further NO_x and SO_x reductions (as well as VOC and PM_{2.5} reductions) from these already regulated sources. These strategies are based on facility modernization, energy conservation measures and more stringent requirements for existing equipment (e.g., space heaters, ovens, dryers, furnaces). In addition to short-term and mid-term control measures, the District is also committing to long-term VOC reductions of 32 t/d by 2020 for the 8-hour ozone attainment.

Clean air for this region requires CARB to aggressively pursue reductions and strategies for on-road and off-road mobile sources and consumer products. In addition, considering the significant contribution of federal sources such as marine vessels, locomotives, and aircraft in the Basin (i.e., 72% of SO_x and 34% of NO_x), it is imperative that the U.S. EPA pursue and develop regulations for new and existing federal sources to ensure that these sources contribute their fair share of reductions toward attainment of the federal standards. Unfortunately, regulation of these emission sources has not kept pace with other source categories and as a result, these sources are projected to represent a significant and growing portion of emissions in the Basin. Without a collaborative and serious effort among all agencies, attainment of the federal standards would be seriously jeopardized.

- Funding Availability

The overall costs of implementing the control measures proposed in the Draft 2007 AQMP are expected to be in the billions of dollars. In-use mobile source fleet modernizations, accelerated retirement of high-emitting vehicles and equipment, alternative fuels and their infrastructure, advanced retrofits, facility modernization, and product reformulations and replacements are among strategies which require significant levels of funding. For illustration purposes, the estimated costs associated with the recently released San Pedro Bay Port's Draft Clean Air Action Plan and CARB's Goods Movement Plan targeting ports and goods movement sectors alone are approximately \$2 billion dollars and \$10 billion dollars, respectively. The costs of implementing the AQMP control measures affecting virtually all source categories in the Basin will add to these estimates. However, the economic values of avoiding adverse health effects are projected to be many times higher than the implementation cost of clean air strategies.

In order to meet the federal PM_{2.5} and 8-hour ozone ambient air quality standards, a significant amount of public and private funding will be required to implement some measures. A close collaboration among all stakeholders, government agencies, businesses, and residents would be critical to identify and secure adequate funding sources for implementing the AQMP control measures.

In addition to public funding for mobile sources, financial assistance to stationary sources should be explored in light of the need to further reduce emissions from local businesses. The draft plan discussed the desire to seek tax incentives for early deployment of clean air technologies as part of plant modernization or to establish “Carl Moyer” type programs for stationary sources for pollution prevention, such as process changes to apply near-zero pollution technologies.

DRAFT

2007
Air Quality Management Plan



South Coast Air Quality Management District
Cleaning the air that we breathe...



Draft 2007 AQMP

Press Briefing
October 10, 2006

Los Angeles Times

Victory Over Smog to Take Time, McCabe Tells Council

L.A. TIMES 11/27/48
Noticeable Improvement Expected in 18 Months, Director Declares

BY ED AINSWORTH

Step by step, and industry by industry, Director Louis C. McCabe of the County Air Pollution Control District yesterday explained to City Council the progress of smog control in Los Angeles County.

He set a "timetable" of 18 months for noticeable improvement in conditions, "because this is an engineering problem just like building a bridge, and it simply will take that long."

William M. Jeffers, resigned chairman of the Citizens' Smog Committee, who was invited by the Council to come to the meeting, did not appear. He had demanded that the meeting be held where "thousands" could attend, and had said he would not go to the Council chamber.

Small Audience

The audience in the Council chamber consisted of 106 persons, plus some Boy Scouts on tour. Members of the grand jury, who have been investigating smog, sat with the Council.

Two members of the Citizens Smog Committee, Chairman Herbert V. Walker of the Smog Hearing Board and Carl Hoffman, Los Angeles business leader, spoke in behalf of Dr. McCabe's accomplishments in smog control during the seven months he has had a staff with which to work.

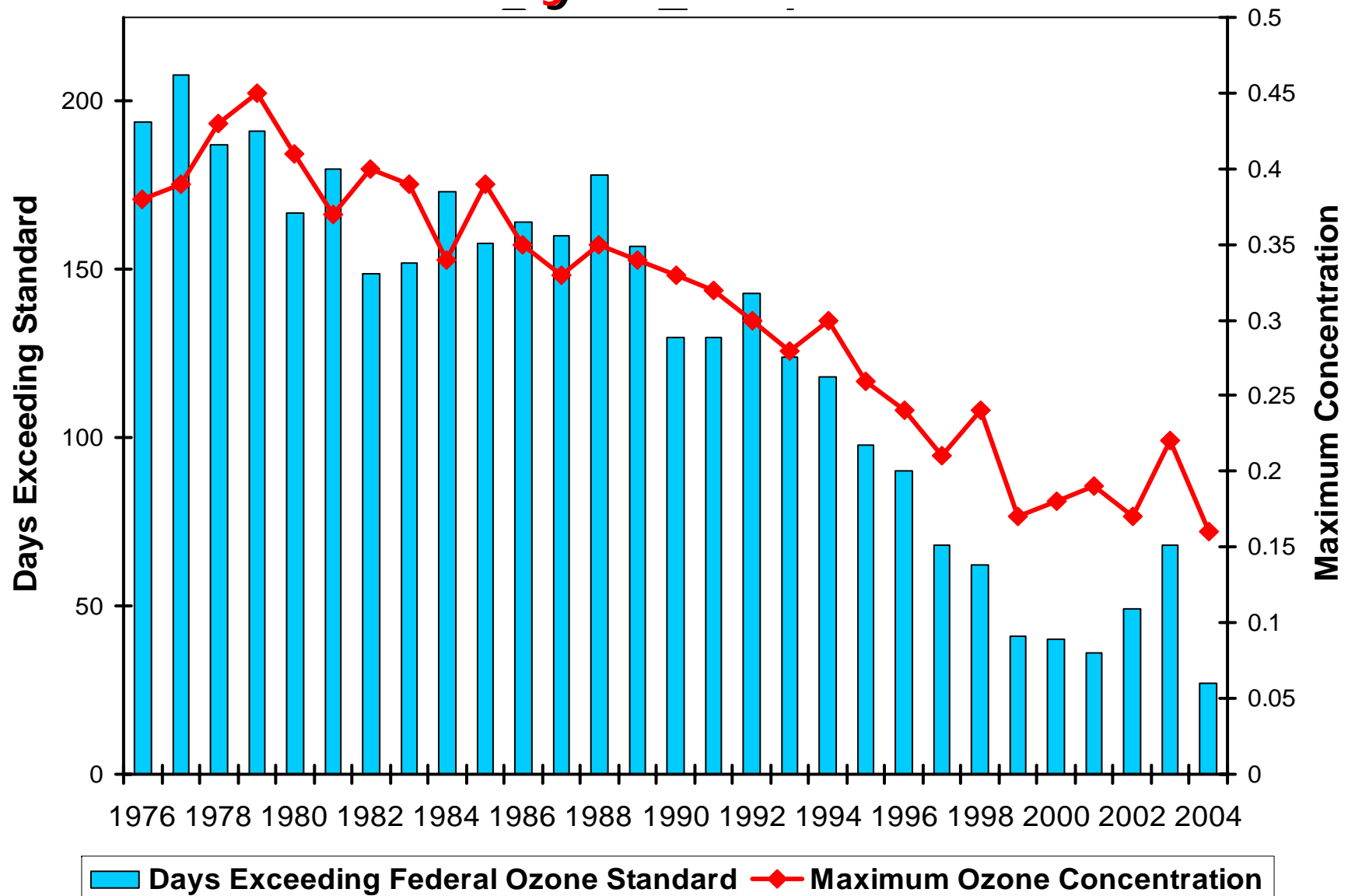


STEP BY STEP—Dr. Louis C. McCabe, county air pollution director, tells plans.
Times photo

rels of oil daily "contribute to smog." He said, "Our hope is that during the next year the in- completed to

L.A. Times 1948

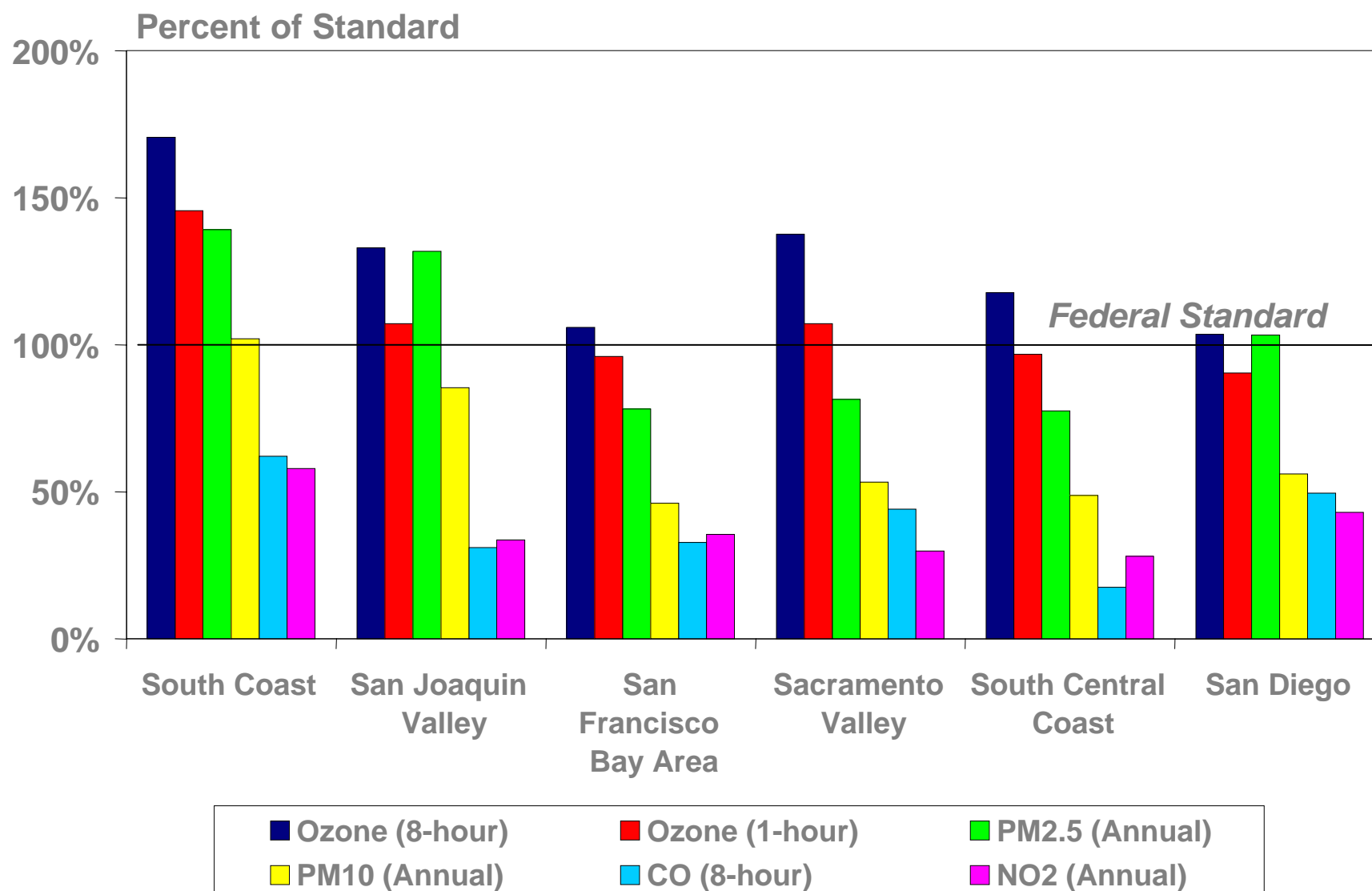
Air Quality Trends - Ozone



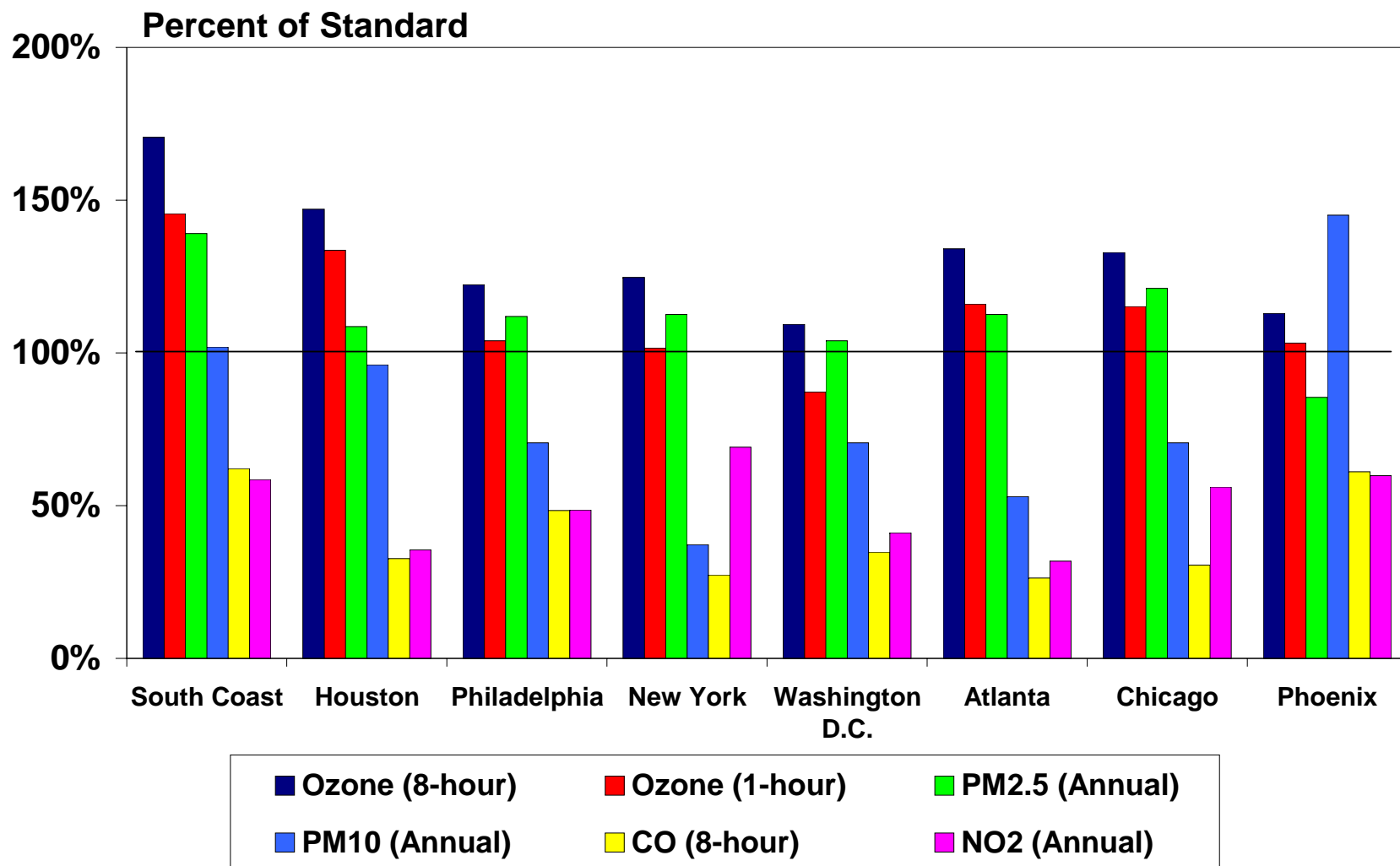
Air Quality – This Summer

2004 - 2006 Ozone Air Quality Comparison												
Location	Days Exceeding 1-Hour			Days Exceeding 8-Hour			1-Hour Peak (ppm)			8-Hour Peak (ppm)		
	2004	2005	2006	2004	2005	2006	2004	2005	2006	2004	2005	2006
South Coast Air Basin	27	31	35	88	83	86	0.163	0.182	0.175	0.145	0.145	0.143
Salton Sea Air Basin (AQMD)	1	4	2	37	39	26	0.125	0.139	0.126	0.106	0.116	0.109
San Joaquin Valley	9	8	18	109	72	85	0.155	0.134	0.141	0.126	0.114	0.122
Houston	37	34	20	52	54	35	0.192	0.167	0.165	0.135	0.125	0.126

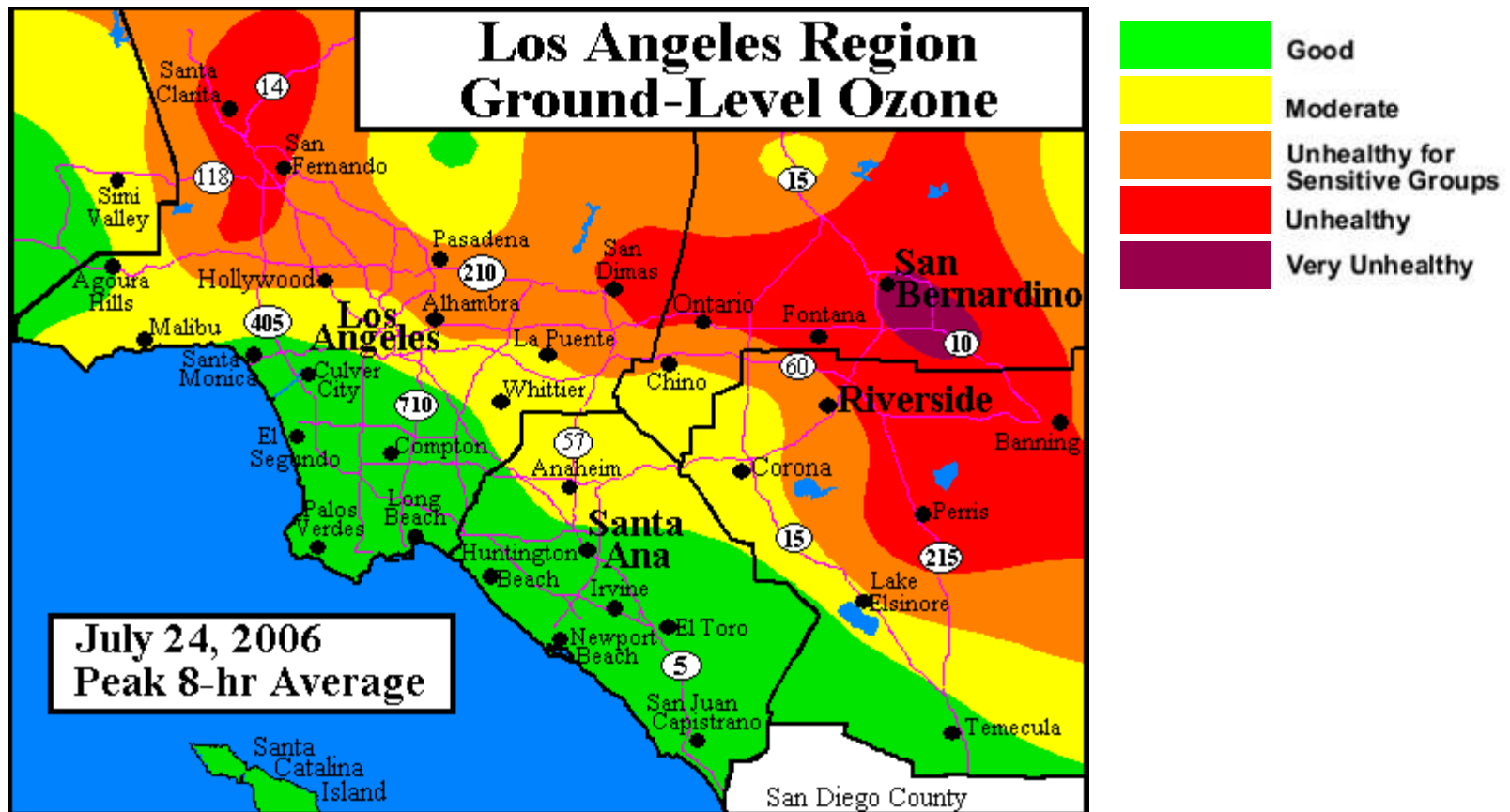
2005 South Coast Air Basin Quality Compared to Other California Air Basins



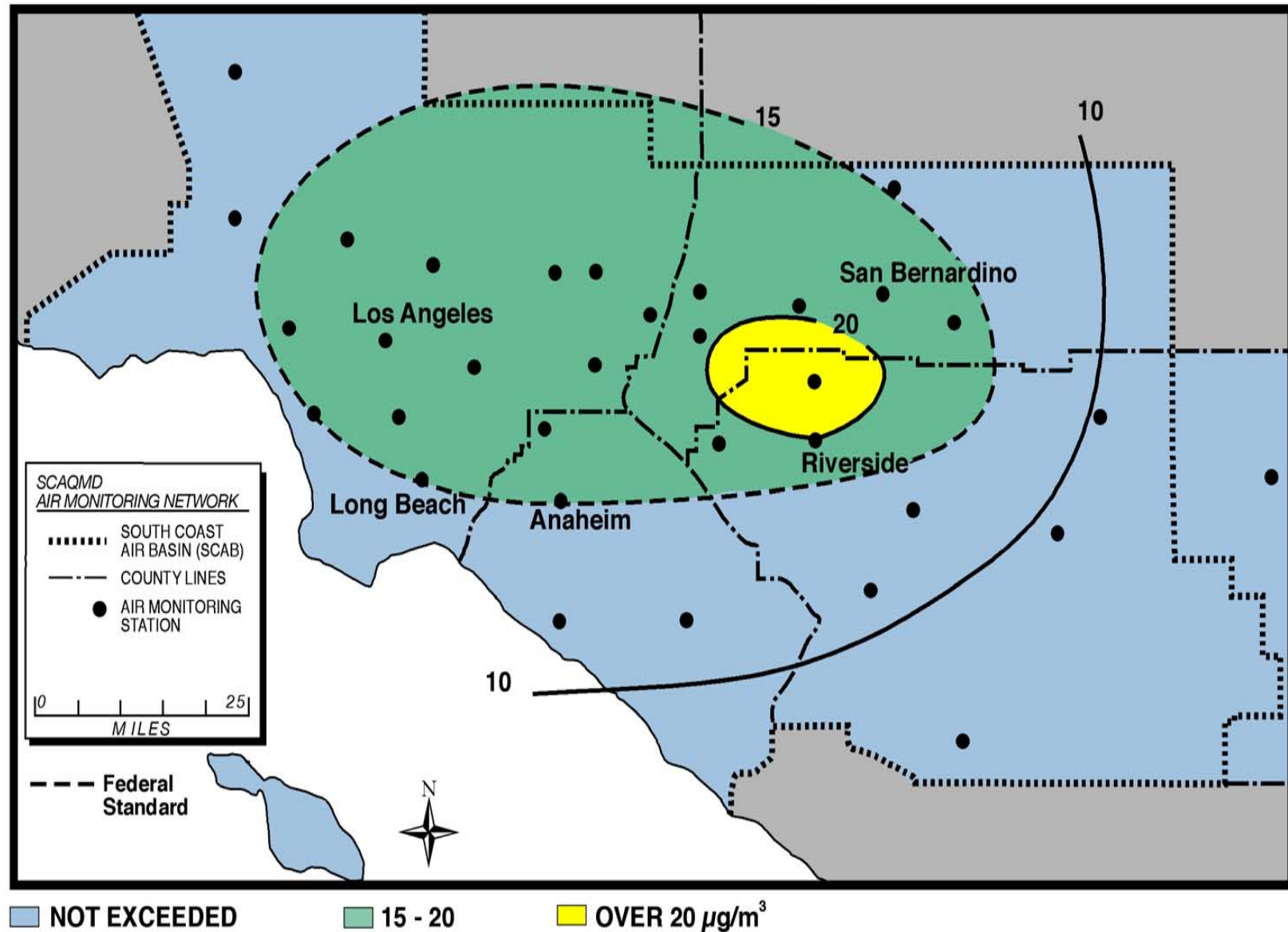
2005 South Coast Air Basin Quality Compared to Other U.S. Cities



Severe Air Quality Problem



2005 Annual Average PM_{2.5} Concentration



USC Children's Health Study

New England Journal of Medicine, Sept 2004

- Lower lung-function growth rate associated with PM_{10} , $PM_{2.5}$, NO_2 and acid vapor
- "By age 18, lungs of many children growing up in smoggy areas are underdeveloped and will likely never recover"
- Pollutants of harm "derive from vehicle-related emissions and combustion of fossil fuels"



"When we began the study 10 years ago, we had no idea we would find effects on the lung this serious."

— John Peters, M.D., study's senior author

AQ-Related Health Studies

PUBLISHED 2005

- Mortality and Air Pollution in SoCal
 - USC School of Medicine (Jerrett)
- Coronary Heart Disease and Particulates
 - Loma Linda School of Public Health (Chen)
- Atherosclerosis and Air Pollution in SoCal Residents
 - USC School of Medicine (Künzli)
- Atherosclerosis and Particulates, laboratory animal study
 - NYU School of Medicine (Sun)

What Are the Health Consequences Today?

- 6,500 premature deaths / year
- 9,000 hospitalizations / year
- 1.7 million cases respiratory illness / yr
- 1.3 million school absences
- 2.8 million lost workdays / year

Source: CARB January 2004

Process for New/Revised Air Quality Standards

(by U.S. EPA)

- Review Health Studies
- New/Revised Standards
- Area Designation
- SIP Submittal
- Track Progress/Attain Standards

AQMP Revisions

2003 AQMP

- 1-Hour Ozone Standard by 2010
 - Standard revoked June 2006
- PM10 Annual Standard by 2006
 - Standard revoked September 2006

Draft 2007 AQMP

- 8-Hour Ozone Standard by 2021/2024
- PM2.5 Annual Standard by 2015
- PM2.5 24-Hour Standard by 2015
 - Standard revised in September 2006

Latest Federal Action

(September 21, 2006)

OLD

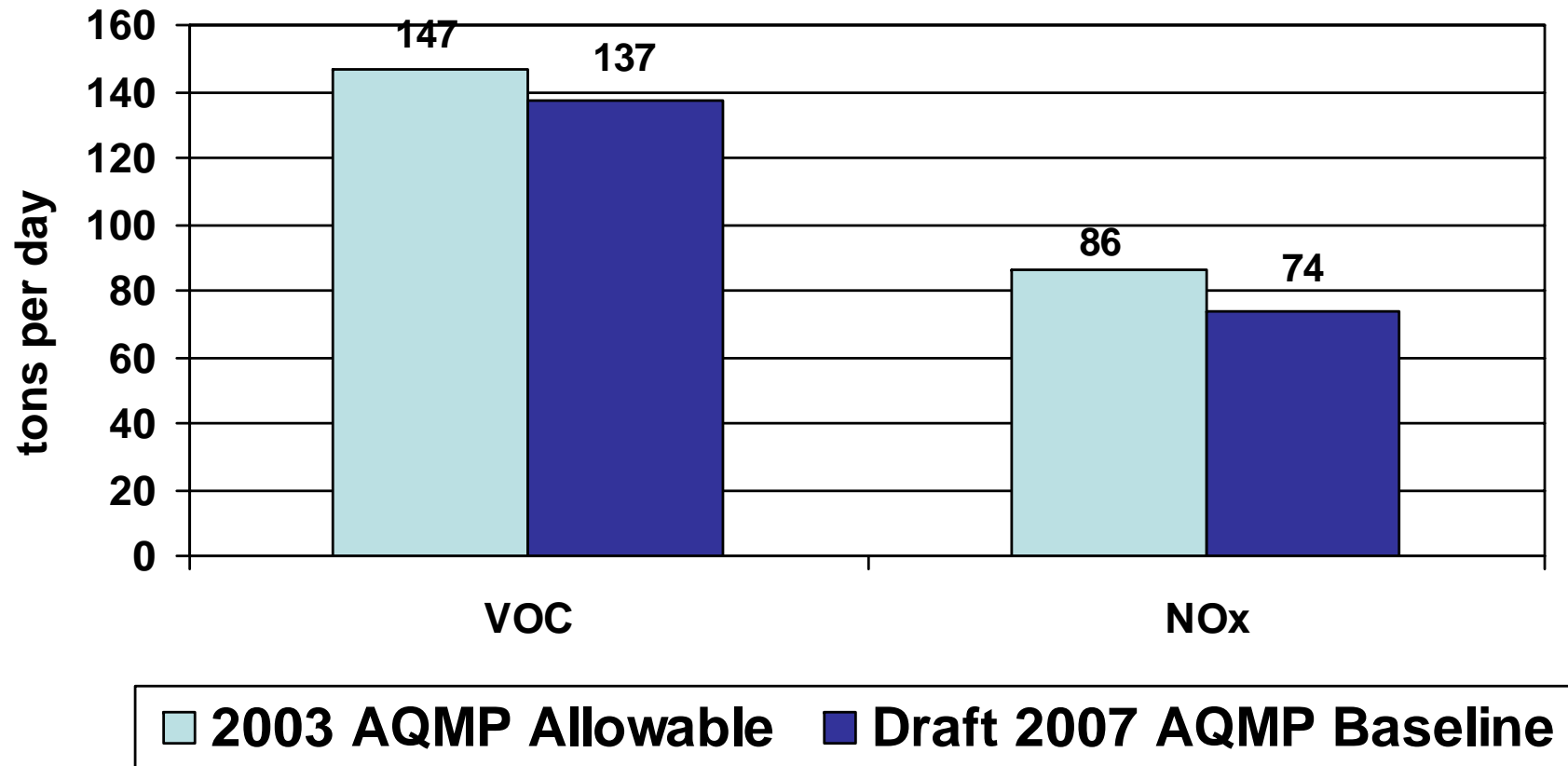
NEW

PM2.5 - 24hr = $65\mu\text{g}/\text{m}^3 \longrightarrow 35\mu\text{g}/\text{m}^3$

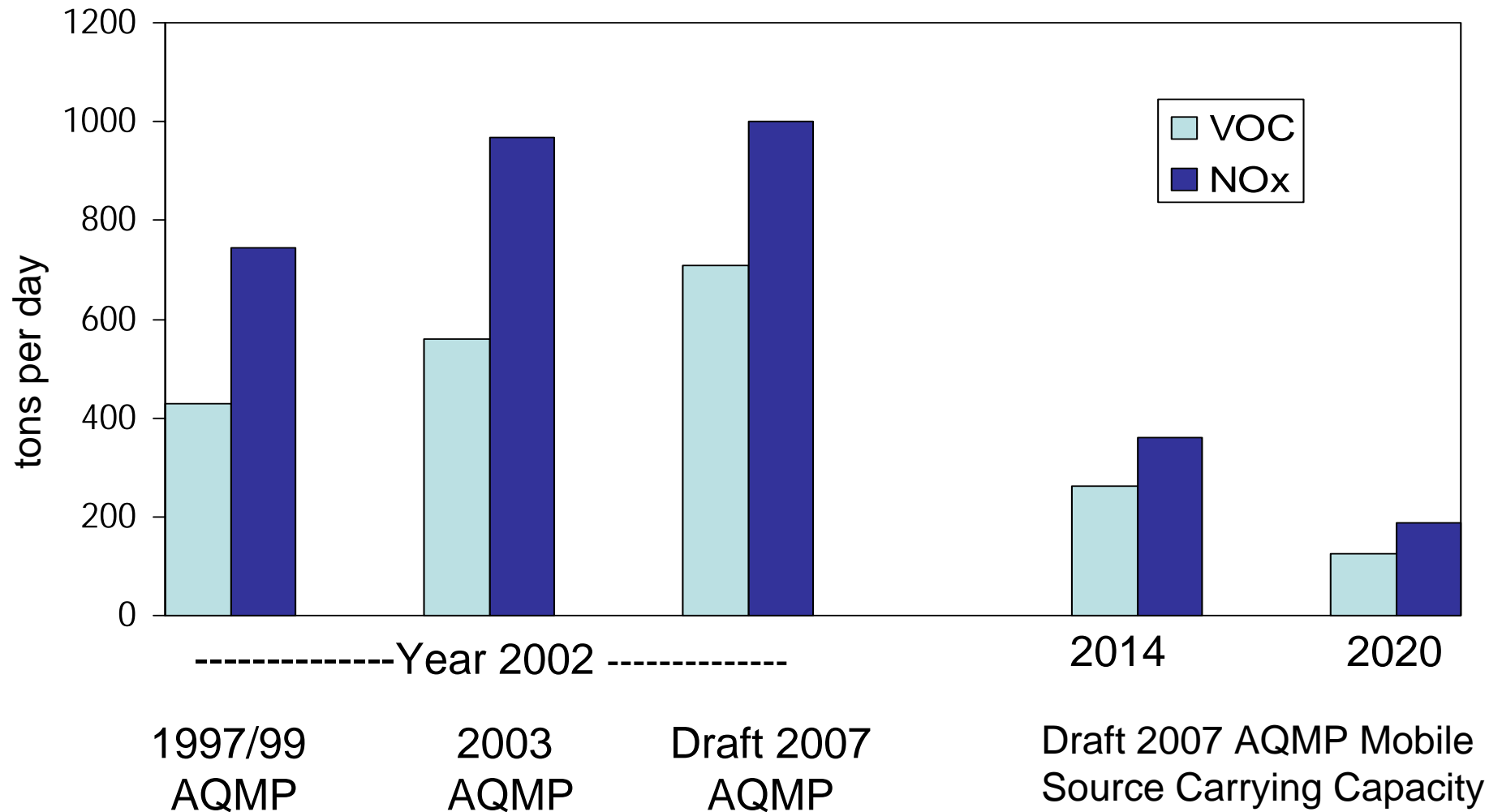
The Challenge

- Delayed mobile source controls from 1-hr ozone attainment strategy
- Continued underestimation of mobile source inventories
- Goods movement growth
- Only 7 years for PM_{2.5} attainment; no margin of error
- Incentive/Grant funding
- Actions needed now

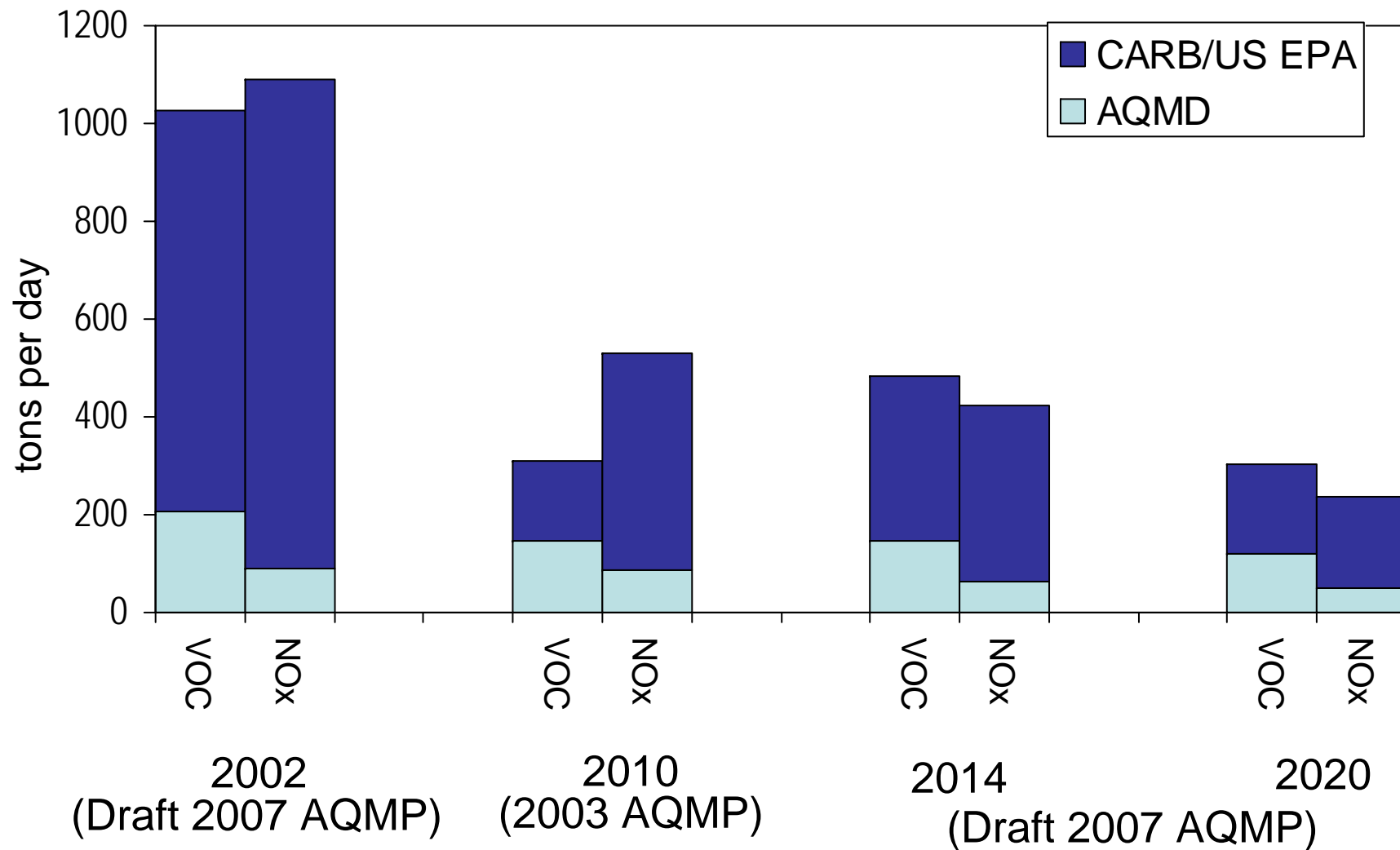
AQMD Stationary Source Commitment Under the 2003 AQMP for Year 2010



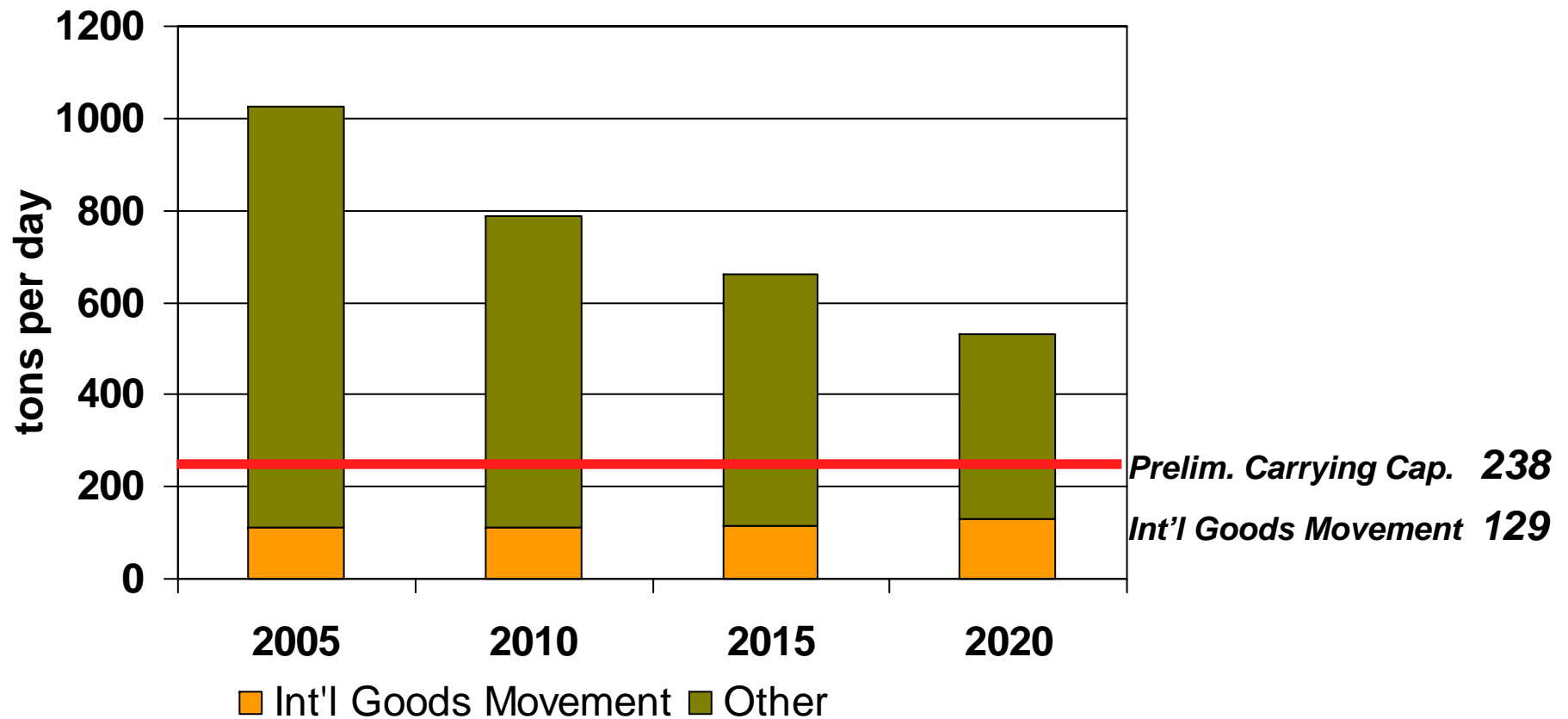
Mobile Source Inventory Revisions



Baseline and Carrying Capacity by Agency



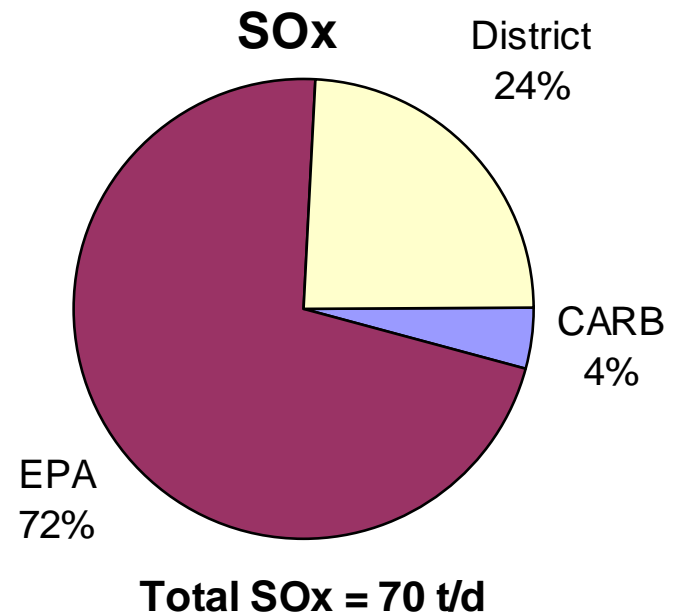
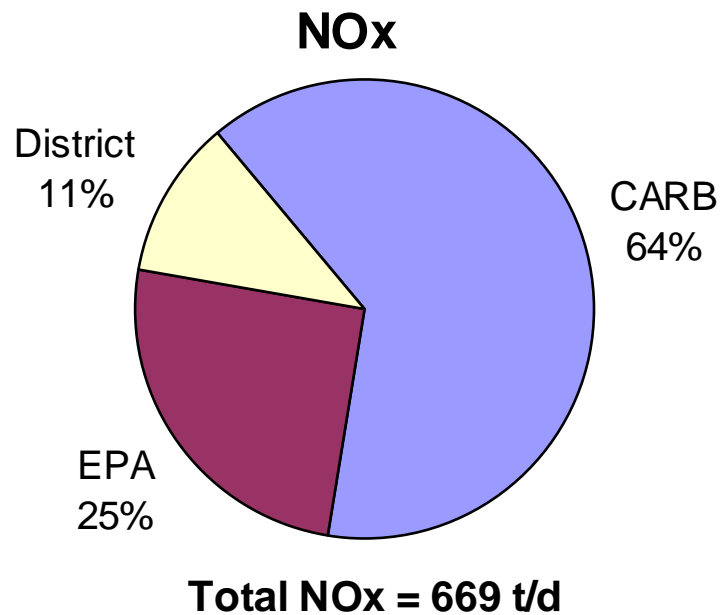
NOx Baseline Emissions and 8-Hour Ozone Carrying Capacity (tons per day)



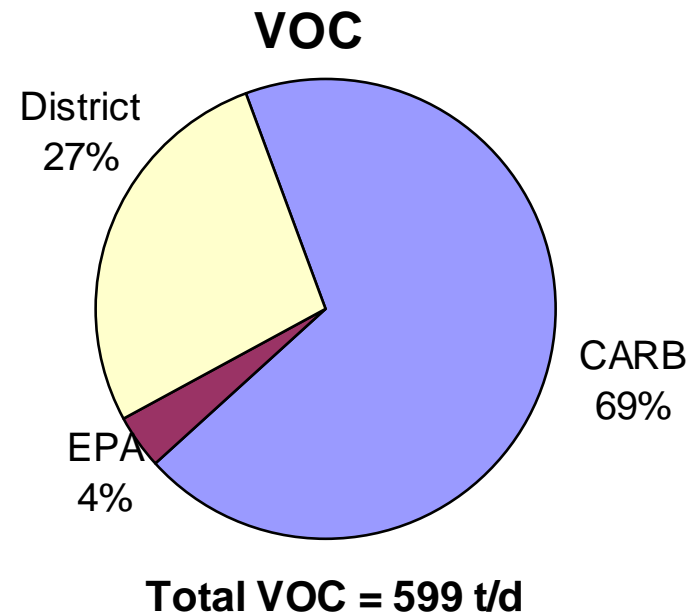
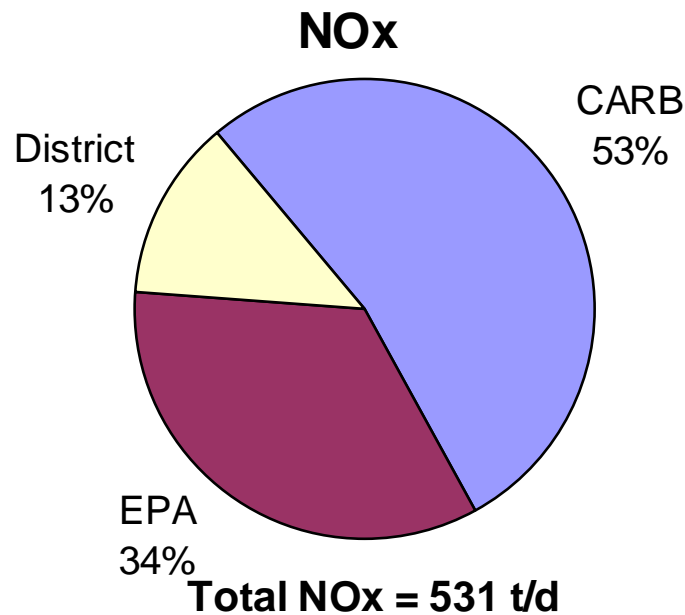
Findings

- VOC controls needed relatively the same between 1-hr & 8-hr ozone standards
- Greater NO_x controls needed
- SO_x controls most effective in reducing PM_{2.5}
 - Ships account for >70% of total inventory
- Directly emitted PM_{2.5} controls critical at sub-regional areas to meet PM_{2.5} standards

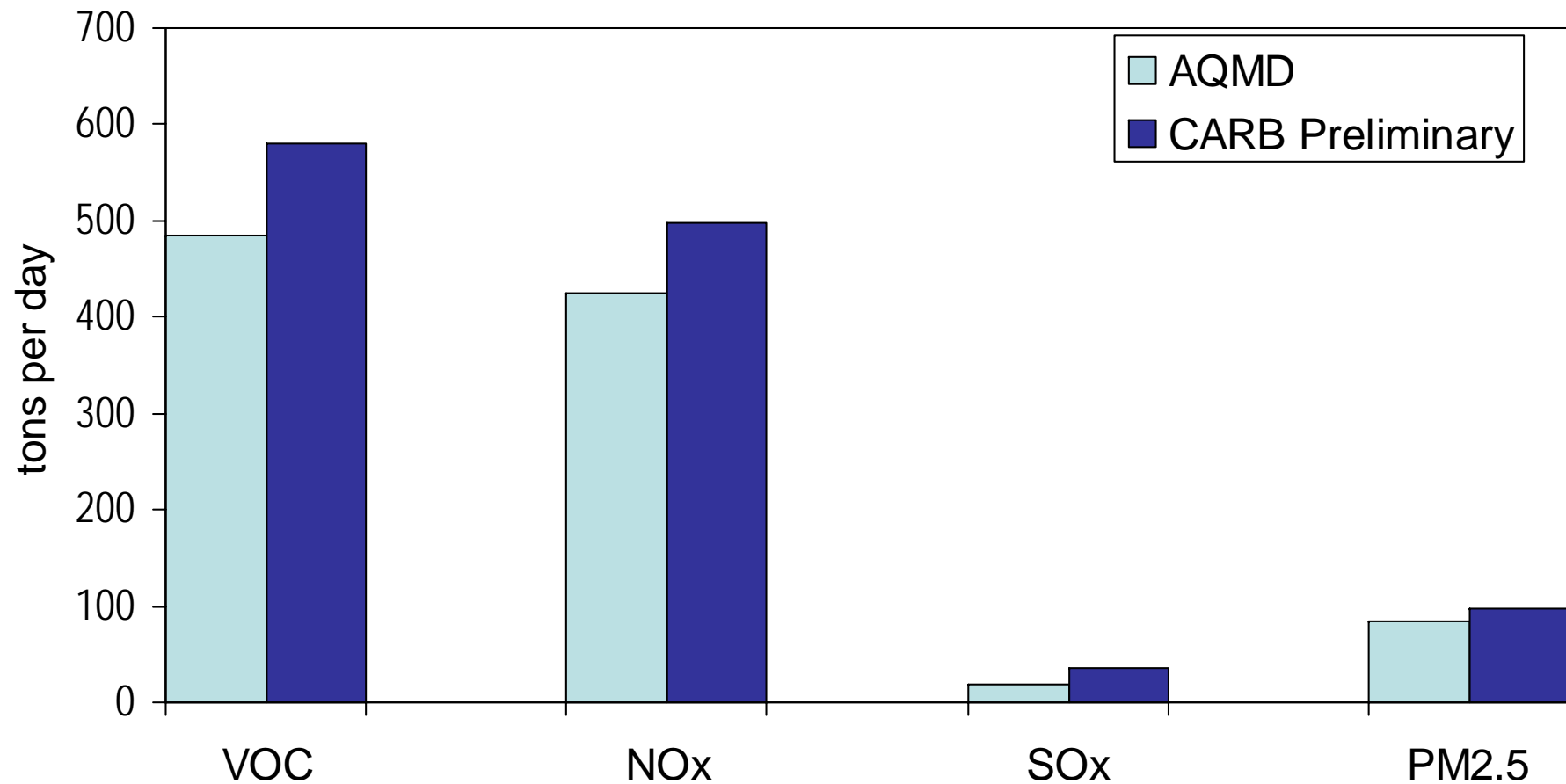
Emissions Responsibility by Agency (2014, Annual Average Inventory)



Emissions Responsibility by Agency (2020, Planning Inventory)



PM2.5 Carrying Capacity Estimates (2014)



Control Strategy Design

- Step I
 - Maximum controls of SO_x and directly emitted PM_{2.5}
 - Necessary NO_x controls
 - Modest VOC controls to ensure progress toward ozone attainment
- Step II
 - Continue NO_x control programs
 - Necessary VOC reductions

Highlights of Control Strategy

- Stationary Sources
 - Facility Modernization
 - Consumer Product Labeling and Use Restriction for Commercial/Institutional Users
 - Energy Efficiency/Energy Conservation
 - Good Management Practices
 - Emission Growth Management
 - Economic Incentive Program

Highlights of Control Strategy (cont)

- CARB Initial Control Concepts by Source Category
- AQMD Staff Recommended Mobile Source Measures
 - Consistent with CARB concepts
 - More aggressive implementation schedule and reduction targets

Example of Mobile Controls

- Goods movement measures at ports
- Accelerate fleet turnover
 - Passenger vehicles
 - HHDT
 - Pleasure craft
 - Lawn & garden equipment
- Fuel reformulation and fuel alternatives
- Evaporative standards for recreational vehicles
- PM trap retrofit

Key Issues

- Carrying Capacity
 - Modeling uncertainty
 - Weight-of-evidence
- “Bump-up” Request
 - Impact on local businesses
 - Extended attainment deadline
- Fair Share Agency Responsibility

Priorities

- Public/Private Funding
 - Container fees for ports
 - Moyer program for stationary sources
 - Tax incentives for early equipment/engine replacement
- Agency Collaboration and Accountability
 - Federal, state, local agencies
- Public engagement



***Cleaning the air that we
breathe.***

South Coast AQMD Port-Community Air Monitoring Program



South Coast Air Quality Management District

Overview

- Element of the AQMD Clean Port Initiative
- Technical Working Group Consisting of Ports, CARB, U.S. EPA, Community Representatives, Labor, Industry, and Academia
- Preparing Air Monitoring Protocol
- I-710 Air Monitoring
- 18-Month Air Monitoring Program Beginning Late-2006



Pollutants To Be Measured

Gas-Phase Air Toxics

Benzene	Carbon Tetrachloride	Chloroform
1,3-Butadiene	Propylene Dichloride	Trichloroethylene, TCE
Methylene Chloride	Tetrachloroethylene & Perc	Acetaldehyde
Vinyl Chloride	Formaldehyde	Methyl Bromide

Particle-Phase Species

PM2.5 (24-hour)	PM10 (24-hour)	PM2.5 (1-hour)
Total Carbon	Organic Carbon	Elemental Carbon
Nitrate	Sulfate	Ammonium
Vanadium	Other Metals	Ultrafine Particles

Criteria Pollutants

Ozone	VOC	NOx
SOx	CO	

Schedule

- 1-in-3 day, 24-hour sampling for non-continuous instruments
- May shift to 1-in-6 as study progresses
- Tentative start date – Nov./Dec. 2006
- Sampling Duration – 18 months
- Draft report - 6 months after end of sampling
- Final report - 12 months after end of sampling

Existing and Potential Sampling Locations



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