

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

White Paper on Potential Control Strategies to Address Cumulative Impacts From Air Pollution

August 2003

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FOREWORD

Since its inception in 1997, AQMD's Environmental Justice (EJ) program has sought to identify and address local air quality issues, such as those brought to the agency's attention at Town Hall events and community meetings. Such issues have included concerns that the District's existing permitting, rules, and clean fleet control programs may need enhancements to better address multiple exposures, as experienced in or near urban industrial settings, including those operating in or near low-income communities of color.

The phrase "cumulative air quality impacts" is often used to describe possible health and nuisance impacts potentially related to a given neighborhood's cumulative emissions from sources that individually comply with AQMD, state, and federal rules. As such, cumulative impacts discussed in the White Paper go beyond those covered under CEQA. In neighborhoods near a relatively large number of industrial facilities, or located near heavy cross-town traffic, for example, there is concern about the accumulated effects of numerous emission sources operating within a limited area, particularly as related to air toxics, and when the group of sources is near residences, schools, or other sensitive receptors.

This White Paper is intended to present a forward-looking comprehensive strategy of how the AQMD intends to identify and further address cumulative impacts of air pollution, so that all communities in the South Coast receive equitable treatment and attention as to their local air quality concerns. The AQMD also intends to ensure fair and consistent treatment of local businesses as it carries out this facet of environmental justice.

This paper points out potential ways to achieve more substantial progress in public health protection. It describes a basic, reasoned approach and lays out a number of tools that staff believes can lay a valuable foundation for this emerging effort; the implementation tools will be developed in more detail upon Governing Board direction, and in conjunction with ongoing working group input. The strategies outlined will directly or indirectly contribute to addressing cumulative impacts. For example, some measures are designed to address localized impacts, which are likely to also address cumulative impacts, while other strategies are more for reducing cumulative impacts. The paper also outlines areas requiring more research, and makes suggestions on how to carry this out. Some elements (e.g., MATES II), are parts of other EJ initiatives or Board directives.

This White Paper is a starting point, developed with input from the Cumulative Impacts Working Group, whose members have spent much time and energy in contributing their expert knowledge, experience, and suggestions to this pathfinding effort. Input was also incorporated from five Community Forums held throughout the four-county region in June and July, and three community meetings in August. The report however, represents the AQMD staff's recommendations in this important area of air quality management.

This White Paper is intended as a policy document. With the Governing Board's direction, staff will proceed to work with stakeholders through working groups and a full public process to develop individual proposed rules and policies for the Board's consideration. Addressing cumulative air quality impacts should not be viewed as a means to prohibit growth or to interfere with local land use decisions. AQMD staff will work with local agencies in a partnership, by providing information and technical assistance relative to their critical role in land use and mitigation measures.

Acknowledgements

The following members of the Cumulative Impacts Working Group provided valuable input and their assistance is greatly appreciated.

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* Invited, did not attend

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EXECUTIVE SUMMARY

This report is an outgrowth of the following South Coast Air Quality Management District (AQMD) Governing Board actions:

- October 1997 adoption of ten Environmental Justice (EJ) Initiatives;
- September 2002 approval of enhancements to the EJ program for the Fiscal Year 2002-2003, including a directive to staff to report back on the feasibility of rulemaking to address cumulative impacts of air toxics beyond current AQMD requirements; and
- January 10, 2003 direction to staff to report back to the Board with a White Paper on regulatory and policy options for addressing cumulative impacts from air pollution emissions, including recommendations and schedule. At the January 10th meeting, staff also recommended a work plan that entailed creation of a Cumulative Impacts Working Group and a planned update to the second Multiple Air Toxics Exposure Study (MATES II).

Addressing cumulative impacts is a very complex issue. The working group process, which included a facilitator, was very helpful to staff in the development of the recommended approaches. The Working Group met seven times to discuss a program to reduce cumulative impacts from air pollution. This White Paper presents staff's recommendations regarding options for assessing cumulative impacts from sources of air pollution. It includes consideration of input received from the California Air Resources Board (CARB), U.S. Environmental Protection Agency (EPA), local government representatives, industry, and environmental and community groups on the Working Group, as well as input received from five Community Forums. Key policy issues addressed during the working group process include, but were not limited to:

- scope of the program (i.e., stationary and/or mobile sources; cancer and/or non-cancer health effects; and including particulate emissions);
- defining areas of concern for specific actions to reduce cumulative exposures, and
- potential approaches to address cumulative impacts.

Definitions

For the purposes of developing a program to address cumulative impacts from air pollution emissions, the AQMD staff will rely upon the definition of Environmental Justice that was approved by the Governing Board in October 1997:

Environmental Justice means the equitable environmental policymaking and enforcement to protect the health of all persons who live or work in the AQMD, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.

Under the subject of Environmental Justice, definitions of cumulative impact were extensively discussed by the Working Group. A cumulative impact can be defined in many ways and it is therefore difficult to arrive at a single definition that fits all circumstances. Cumulative impacts can be regional, as well as localized or neighborhood level. Estimated risks from air toxic measurement at 10 monitoring stations for residents of the South Coast Air Basin (Basin) are ~1,400 in a million (based on a range from about 1,120 in a million to about 1,740 in a million), with some areas experiencing higher risks. Reducing emissions throughout the

Cumulative Impacts

Basin would decrease the overall risk on a regional basis and will lower neighborhood risks by varying degrees, depending on the localized circumstances.

The following definition of a cumulative air pollution impact, while not a consensus of the Working Group members, attempts to recognize their viewpoints and develop a working definition:

A cumulative air pollution impact is an adverse health effect, risk or nuisance from exposure to pollutants released into the air from multiple air pollution sources.

Further refinement or variation of this definition may be needed in the future when a specific regulation or policy is formulated. Reference to “air pollution” under this working definition is intended to include not only air toxics, but criteria pollutants, such as particulates, and nuisances (e.g., odors).

Cumulative Impacts Reduction Strategy (CIRS)

At the start of the process, to stimulate discussions, staff introduced four design principles that were factored into the working group process: no redlining (e.g., defining an acceptable/unacceptable geographical area based on level of risk); not interfering with local land use decisions, but making more comprehensive air quality information available to decision makers; reasonable decision-making time frame for CEQA analysis and permits; and resource considerations and regulatory certainty.

Based on the design criteria and early discussions of the working group, staff developed a list of initial options for addressing cumulative impacts for working group comments. Industry and environmental/community representatives were asked to provide design criteria and options. Staff then evaluated the options in an attempt to examine feasibility and to identify where efforts should be prioritized. Several information sources, most notably, MATES II, year 2000 census data, and health care data were examined in an attempt to identify potentially high cumulative impact areas.

Section IV discusses MATES II, census data, and health care information, while Section V outlines the positions and interests of key stakeholder groups. Staff carefully considered the information, as well as the viewpoints expressed by stakeholders, and has the following recommendations:

Approach

The overall approach in addressing cumulative impacts will include several key features:

- Build on existing State Implementation Plan (SIP) programs that address criteria pollutants;
- Start with existing known information (i.e., MATES II) to address cumulative impacts of air toxics;
- Identify high cumulative impact areas and develop effective solutions accordingly; and
- Continue to develop/refine technical databases and tools.

Staff will rely on implementation of the most recently approved Air Quality Management Plan (AQMP) (i.e., 2003) to address criteria pollutants by expeditiously implementing the approved plan.

Scope

After consideration of information and comments from the Working Group members and from Community Forums, staff recommends that the scope of CIRS include the following areas:

- Cancer risk;
- Hazard Index from non-cancer risk sources;
- Odors; and
- Enforcement.

The proposed control strategies incorporate these elements.

High Impact Areas

After examining MATES II modeling data and incorporating input from stakeholders, staff is recommending that modeled cancer risks be ranked according to mobile and stationary source contribution separately. The ranking provides a priority list to characterize source contribution and identify solutions to address cumulative impacts. MATES II models cancer risk in grid cells of 1 km x 1 km. Staff recommends that the approach for investigating potential high impact areas start with the top 100 grid cells with the highest mobile source impacts and another top 100 grid cells with the highest stationary source impacts. As a result, there will be a total of 200 grid cells analyzed, which may have some overlapping areas, but will be examined separately. Total mobile and stationary source contributions need to be examined separately because the nature of the sources and possible solutions are different. Cumulative impacts can be addressed for localized areas, depending on the nature of the sources in that situation. These top 100 grid cells, each for total mobile or stationary sources, represent the approximate top 1 percent of risks from all grid cells in the MATES II study. The top 100 grid cells should not be viewed as a cut-off point for defining high cumulative impact areas. Rather it serves as guidance to prioritize staff resources. The intent is to work through the ranking (not necessarily limited to the top 100 cells) to evaluate individual circumstances, and to develop solutions accordingly. It is not staff's intent to prohibit growth in the high impact areas identified. This prioritization should be re-examined in future ATCP updates once staff gains more experience in addressing the cumulative impact issues and when additional technical information and tools become available.

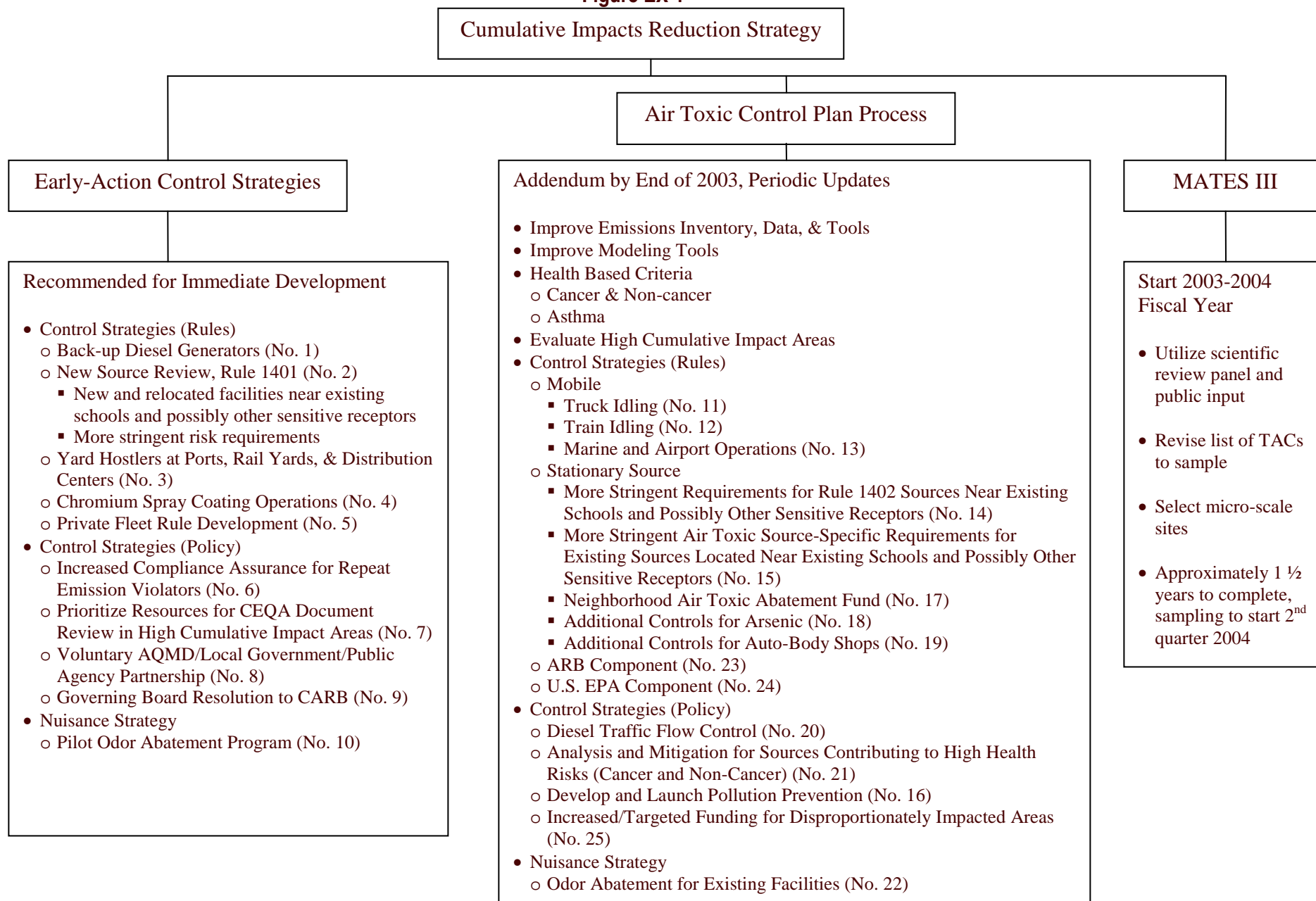
Key Elements

Addressing the cumulative impacts associated with exposure to air toxics requires a multi-faceted approach comprised of short- and long-term strategies. AQMD staff's suggested approach consists of three major components:

- a set of early action control strategies for immediate development and implementation;
- revisions to Air Toxic Control Plan (ATCP)
 - addendum to the March 2000 ATCP; and
 - periodic updates; and
- a planned update to the Multiple Air Toxics Exposure Study, or conduct MATES III.

Figure EX-1 is a graphical representation of what is proposed under each component. Early-action strategies are those for which there is sufficient information for development and that can be implemented within 2 to 3 years. The ATCP Addendum will be completed by the end of 2003 and will contain additional strategies that can be developed and implemented in 3 to 5 years. The ATCP is expected to be updated periodically following a similar schedule as the Air Quality Management Plan (AQMP) to reflect the latest technical information and analytical methodology. The third component, MATES III, is already in the planning stages and is anticipated to be completed in approximately 1 ½ years, starting 2nd Quarter 2004. For a more detailed description of the suggested strategies that have been conceptualized, the reader is referred to Section IV of this White Paper.

Figure EX-1



I. INTRODUCTION

In October 1997, the South Coast Air Quality Management District (AQMD) Governing Board adopted a series of ten Environmental Justice Initiatives, along with four Guiding Principles, to address the potential adverse health effects of air pollution, including air toxics, and set forth a strategy to help ensure that clean air benefits are accorded to all residents and communities of the South Coast Air Basin (Basin). These Initiatives have helped identify and address potential areas of the AQMD's jurisdiction where citizens may be disproportionately impacted by air pollutants. Potential adverse public health impacts from cumulative emissions exposure, particularly from air toxics, are an environmental justice (EJ) concern. In September 2002, the Governing Board approved enhancements to the EJ program for the Fiscal Years 2002-2003. Addressing concerns about cumulative emission impacts is a key objective of the EJ program enhancements. An outgrowth of these enhancements was a Governing Board directive to staff to report back on the feasibility of rulemaking to address cumulative impacts of air toxics beyond current AQMD requirements.

On January 10, 2003, staff reported to the Governing Board on the initial investigation into the development of a cumulative impacts program. Also presented at that meeting was a proposal to develop a White Paper on regulatory and policy options for addressing cumulative impacts from air pollution emissions, including a work plan that entailed creation of a working group, development of a White Paper, and a planned update to the second Multiple Air Toxics Exposure Study (MATES II). The Board directed staff to report back to the Board with a White Paper containing recommendations and schedule.

Addressing cumulative impacts is a very complex issue. There are many factors that contribute to areas of higher impact in the Basin. Land use decisions, some made decades ago, prevalence of freeways and other transportation corridors, density and types of businesses, and local meteorology are some of these factors. Mobile source emissions continue to be the predominant contributor to regional cancer risk in the Basin. Cumulative impacts are somewhat difficult to define and assess. Stakeholders in the working group had divergent viewpoints with respect to what indicators should be used to address cumulative impacts and what approaches are needed. There are data limitations, as well. AQMD has an extensive air monitoring program and has the benefit of MATES II, an extensive toxic monitoring and modeling effort. However, there are knowledge gaps where additional information on air pollution emissions and exposures would be beneficial.

The working group process, which included a facilitator, was very helpful to staff in the development of the recommended approaches. The Working Group met seven times to discuss a program to reduce cumulative impacts from air pollution. This White Paper presents staff's recommendations regarding options for assessing cumulative impacts from sources of air toxics. It includes consideration of input received from the California Air Resources Board (ARB), U.S. Environmental Protection Agency (EPA), local government representatives, industry, and environmental and community groups on the Working Group, as well as input from five Community Forums. Key policy issues addressed during the working group process include, but were not limited to, scope of the program (i.e., stationary and/or mobile sources; cancer and/or non-cancer health effects; and particulate emissions), defining high impact areas for specific actions to reduce cumulative exposures, and potential approaches to address cumulative impacts.

II. DEFINITIONS

For the purposes of developing a program to address cumulative impacts from air pollution emissions, the AQMD staff will rely upon the definition of Environmental Justice that was approved by the Governing Board in October 1997:

Environmental Justice means the equitable environmental policymaking and enforcement to protect the health of all persons who live or work in the AQMD, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of air pollution.

Under the subject of Environmental Justice, the definition of cumulative impact was extensively discussed by the Working Group. A cumulative impact can be defined in many ways and it is therefore difficult to arrive at a single definition that fits all circumstances. Cumulative impacts can be regional, as well as localized or neighborhood. Estimated risks from air toxic measurement at 10 monitoring stations for residents of the Basin are ~1,400 in a million (based on a range from about 1,120 in a million to about 1,740 in a million), with some areas experiencing higher risks. Reducing emissions throughout the Basin would decrease the overall risk on a regional basis and will lower neighborhood risks by varying degrees, depending on the localized circumstances.

Definitions were discussed at several Working Group meetings. This was important to different stakeholders because the definitions would help frame the policy discussions and recommendations. The environmental and community groups were interested in ensuring that the definition of cumulative impacts would not be restrictive with respect to needing to prove harm before addressing an impact. These groups also stressed that cumulative impacts are not just related to air pollution, but include other media, such as water pollution, and ingestion.

It was important to industry representatives that the definition of cumulative impact not result in using resources where there was not a nexus demonstrated between pollution sources and health effects. For example, emissions may not result in an adverse impact if the compound is emitted in low amounts or has low toxicity. The following definition proposed by the AQMD staff, while not a consensus, attempts to recognize these view points and develop a working definition.

A cumulative air pollution impact is an adverse health effect, risk or nuisance from exposure to pollutants released into the air from multiple air pollution sources.

Further refinement or variation of this definition may be needed in the future when a specific regulation or policy is formulated. Reference to “air pollution” under this working definition is intended to include not only air toxics, but criteria pollutants, such as particulates, and nuisances (e.g., odors).

III. BACKGROUND

Currently, cumulative impacts are indirectly reduced through the application of existing programs at the federal, state, and local level. The State Implementation Plan (SIP) addresses criteria pollutants and the California Health and Safety Code covers nuisances. Control of air toxics is addressed in a variety of programs as described below.

Cumulative Impacts

For air toxics, it is generally assumed by the scientific community that there is no safe level or threshold that can be set relative to cancer risk regardless of the source. The AQMD has very limited jurisdiction over mobile sources and therefore its rules and regulations are primarily geared toward stationary and area sources only. Historically, jurisdiction for reducing mobile source (e.g., motor vehicles, diesel trucks, trains, ships, and aircraft) emissions, and therefore risk contribution, primarily falls to both state and federal levels of government, whereas localized reduction of stationary sources falls to the local level. The regulatory structure for addressing new or modified stationary sources is to require best available control technology (BACT) for air toxics, or T-BACT. Relative to existing sources, risk reductions are sought via rules and regulations, considering technical feasibility and cost.

AQMD's current regulatory program has five principle programs for addressing air toxics.

- Rule 1401 – New Source Review of Toxic Air Contaminants is equipment-specific and limits incremental increases in public health risk from new projects and modifications to existing equipment/processes;
- Rule 1402 – Control of Toxic Air Contaminants from Existing Sources is facility-specific and requires reduction of risk and public notification under certain conditions;
- California Environment Quality Act (CEQA) is project-specific and requires public disclosure and mitigation measures, as necessary, to limit risk;
- Multiple Air Toxics Exposure Study (MATES) is regional and utilizes actual monitored and modeling data to estimate emissions and risk in the Basin; and
- Air Toxics Control Plan is regional and utilizes MATES data in developing recommendations for source-specific and air toxic rules, as well as non-regulatory programs.

The AQMD, together with the state and federal agencies, works to control air pollution emissions from several sources. As mentioned earlier the AQMD has jurisdiction over stationary and area source emissions, as well as mobile source fleets. Over the years several programs and tools have been developed to regulate these sources. These programs and tools and the roles of the state and federal agencies are described in Appendix A.

IV. CUMULATIVE IMPACTS REDUCTION STRATEGY (CIRS)

At the start of the process, to stimulate discussions, staff introduced four design principles that were factored into the working group process: no redlining (e.g., defining an acceptable/unacceptable geographical area based on level of risk); not interfering with local land use decisions, but making more comprehensive air quality information available to decision makers; reasonable decision-making time frame for CEQA analysis and permits; consider resource considerations and regulatory certainty.

Based on the design criteria and early discussions of the working group, staff developed a list of initial options for addressing cumulative impacts for working group comments. Industry and environmental/community representatives provided their own list of design criteria and options. Staff then evaluated the options in an attempt to examine feasibility and to identify where efforts should be prioritized. Staff examined several information sources, most notably, the MATES II, year 2000 census data, and health care data in an attempt to identify potentially high cumulative impact areas.

Cumulative Impacts

In addition to the sections on the control strategies, this report also provides information on MATES II, census data, and the interests of key stakeholder groups. Staff carefully considered the information, as well as viewpoints expressed by stakeholders, and has the following recommendations.

Approach

The overall approach in addressing cumulative impacts includes several key features:

- Build on existing State Implementation Plan (SIP) Programs that address criteria pollutants;
- Start with existing known information (i.e., MATES II) to address cumulative impacts of air toxics;
- Identify high cumulative impact areas and develop effective solutions accordingly; and
- Continue to develop/refine technical database and tools.

These concepts are incorporated in the individual strategies described below.

Scope

After consideration of information and comments from the Working Group members and from Community Forums, staff recommends that the scope of the CIRS include the following areas:

- Cancer risk;
- Hazard Index from non-cancer risk sources;
- Odors; and
- Enforcement.

The control strategies incorporate these components.

Key Elements

Addressing the cumulative impacts associated with exposure to air toxics requires a multi-faceted approach including short- and long-term strategies. AQMD staff's suggested approach consists of three major components:

- a set of early-action control strategies for immediate development and implementation;
- Air Toxic Control Plan process; and
- Planned update to the Multiple Air Toxics Exposure Study, or MATES III.

Analysis for Identification of High Impact Areas

A significant portion of the Working Group discussions focused on potential criteria for determining high impact areas. Basin-wide regional risk and census data maps were developed by staff as part of their analysis and in support of the Working Group discussions.

Cumulative Impacts

During 1998 and 1999, the AQMD conducted a second MATES program to further understand the current air toxics setting in the Basin. The results of MATES II were released in March 2000. MATES II examined the potential cancer risk from over 30 known toxic air contaminants including diesel particulates. MATES II data was key in this analysis, as it was an important part of the characterization of cumulative impacts throughout the Basin. It also was an indicator of risk contributions and aided in identifying control strategies and further steps needed, such as improved data, tools, and modeling.

MATES II Data

The results of MATES II indicate that the overall average Basin cancer risk is approximately 1,400-in-one million when diesel emissions are considered; the Basin risk is around 400- to 600-in-one million excluding diesel emissions. Figure 1 contains a map of the Basin showing the range of cancer risk contributed by all sources, including diesel emissions. As seen in Figure 1, the MATES II results also indicate that higher risk levels are seen in the more industrialized areas of the Basin (the south-central portion of Los Angeles County, not the neighborhood of south-central Los Angeles; at freeway interchanges; areas near airports; and industrial areas). However, as seen in Figure 2, mobile sources are the most significant contributors to risk levels in the Basin, with some individual grid cells as high as 5,700 in a million. The stationary source emissions of TACs contribution to the overall estimated risk levels are presented in Figure 3, with some individual grid cells as high as 660 in a million. Stationary source TACs tend to be around the same level year-round. However, mobile source TACs tend to be higher during the fall and winter months. Due to limitations in modeling techniques, stationary source risks tend to be underestimated at the localized level.

Figure 1
Range of Risk From All Sources In the South Coast Air Basin,
Including All Mobile and Stationary Sources

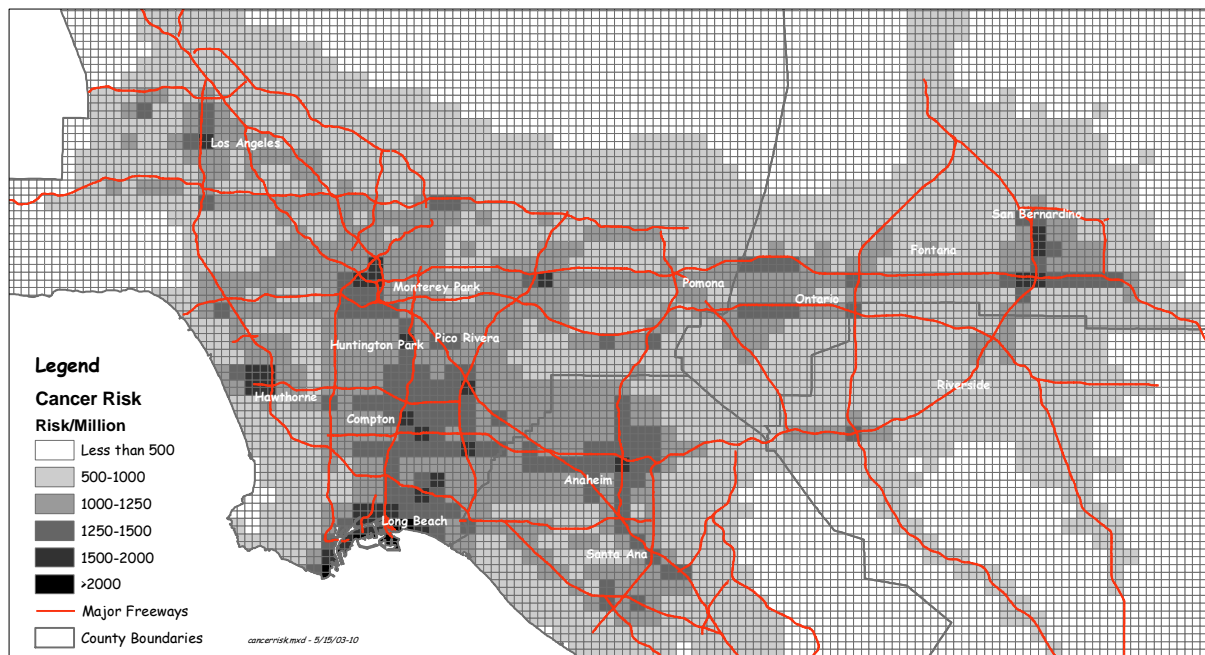


Figure 2
Range of Risk for Mobile Sources Only in the South Coast Air Basin,
Including Diesel Particulate

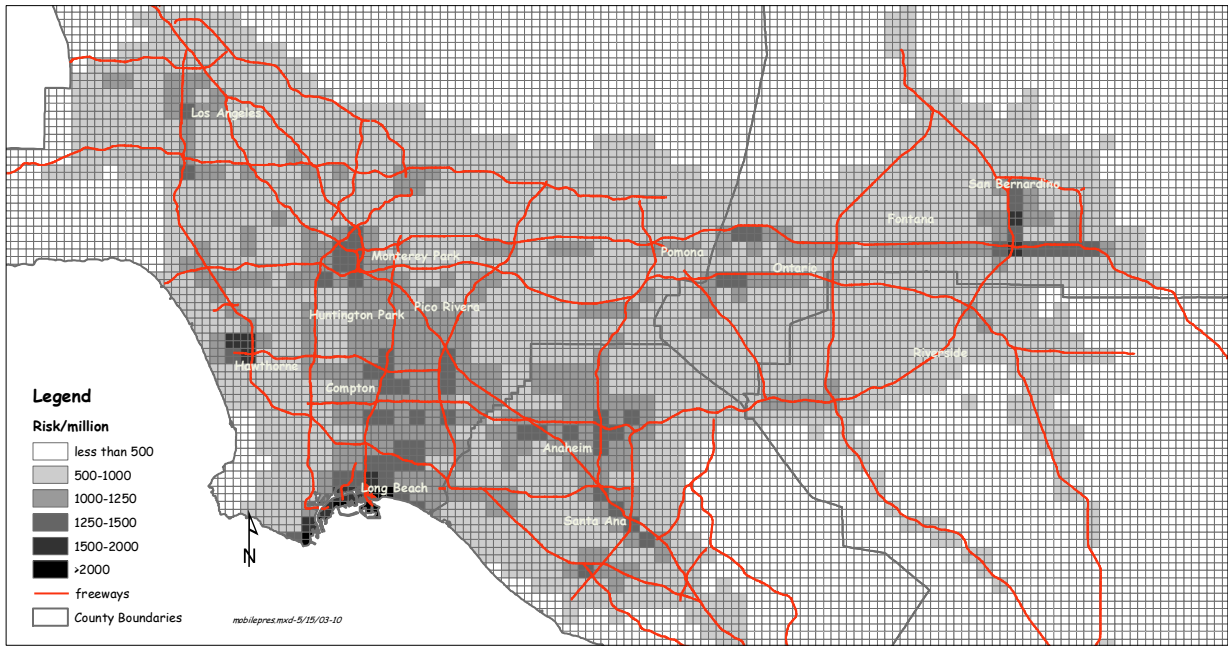
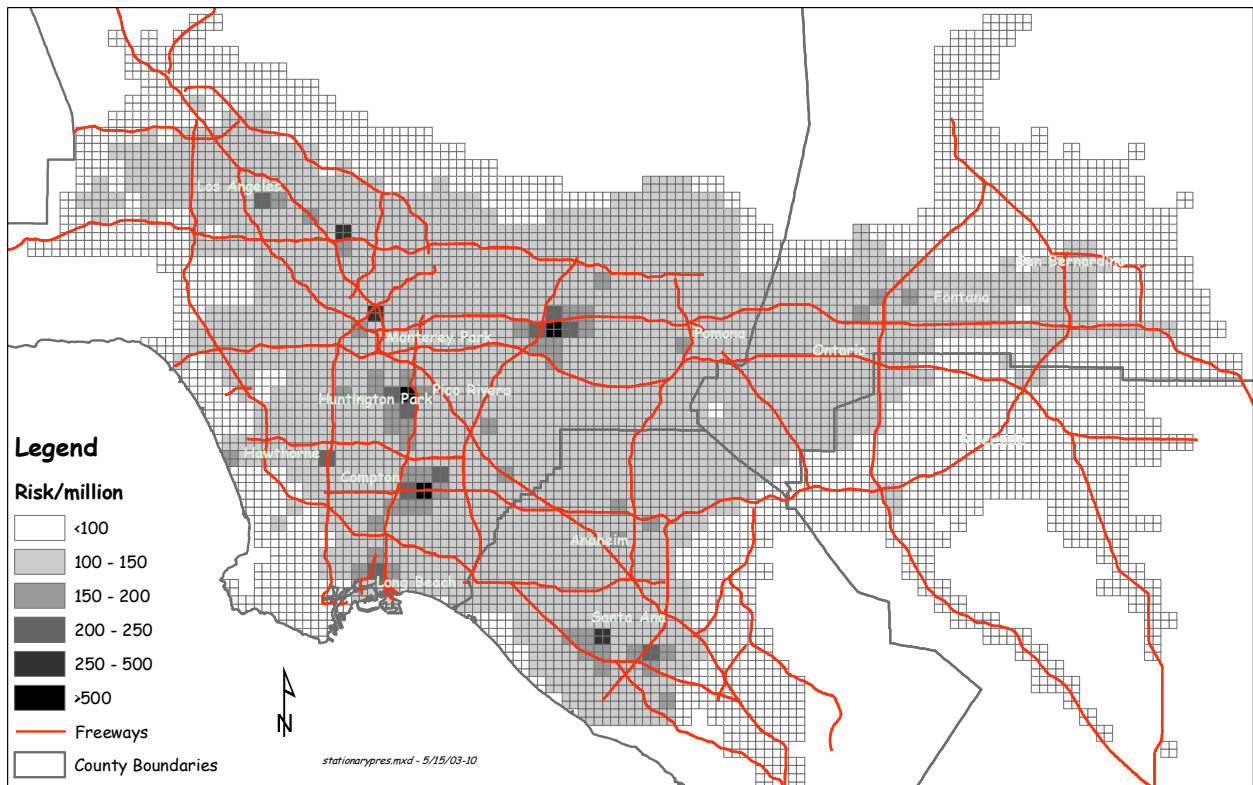


Figure 3
Range of Risk from Stationary Sources Only in the South Coast Air Basin



2000 Census Data

The Governing Board adopted definition of Environmental Justice states that the public health of all persons should be protected, regardless of race, socioeconomic status, etc. However, environmental and community members on the Working Group asked staff to evaluate poverty and ethnicity information that would potentially be used to define high cumulative impact areas.

Consistent with addressing Environmental Justice under the Carl Moyer program, staff examined those census tracts with greater than 10 percent poverty. Utilizing tract level data from the 2000 Census, Figure 4 shows the range of poverty for all demographics for the entire Basin. Staff also examined which areas, have greater than 50 percent non-white population, also utilizing 2000 Census data (see Figure 5). As can be seen from Figures 4 and 5, there is a correlation between areas of high poverty and those of large non-white populations. These areas also correlate strongly with modeled cancer risks. Therefore, prioritizing efforts in areas of high risk would also benefit those areas highlighted by the environmental and community members.

Figure 4
Range of Poverty Within the South Coast Air Basin by Census Tract

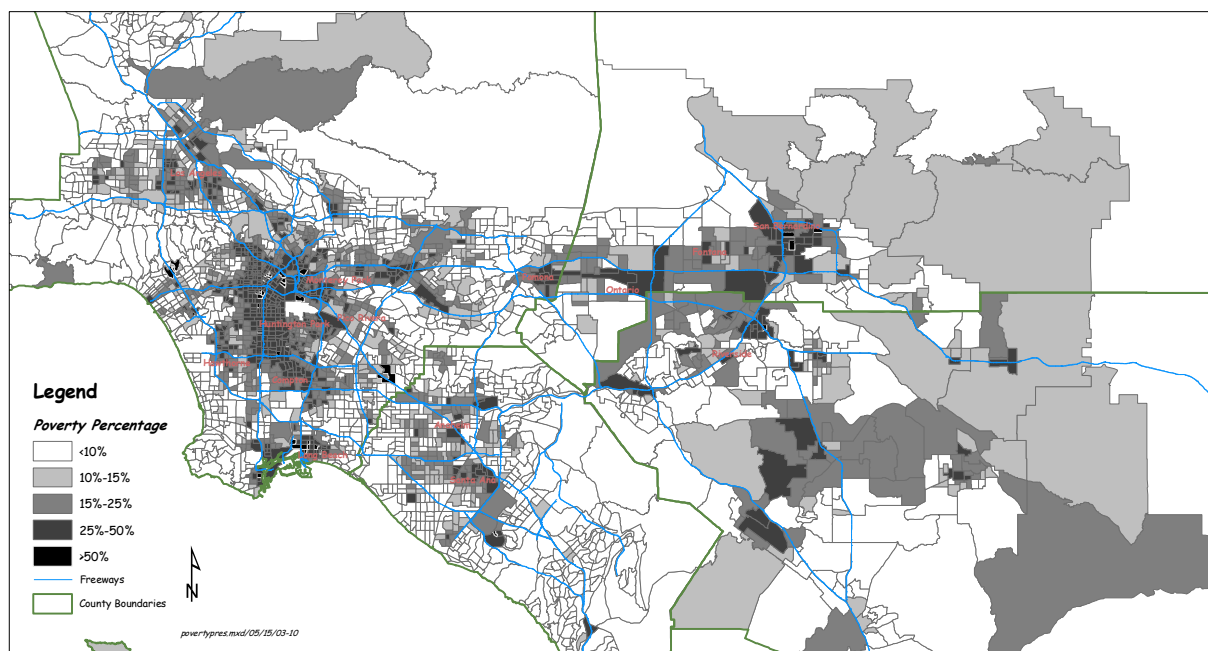
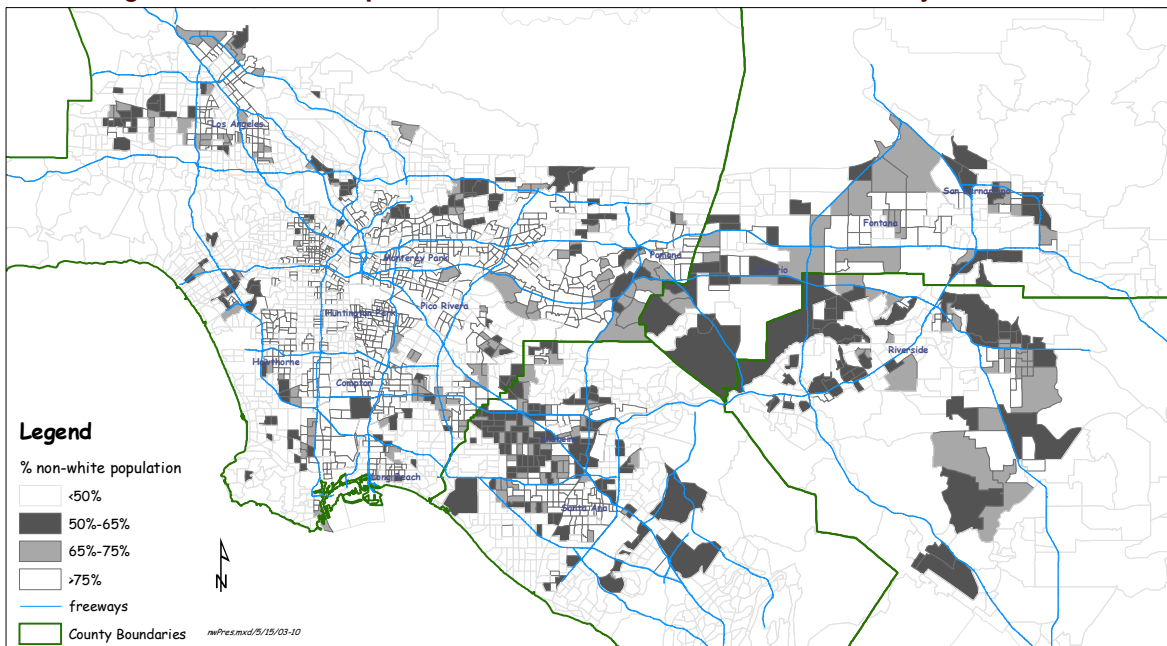


Figure 5
Range of Non-White Populations within the South Coast Air Basin by Census Tract



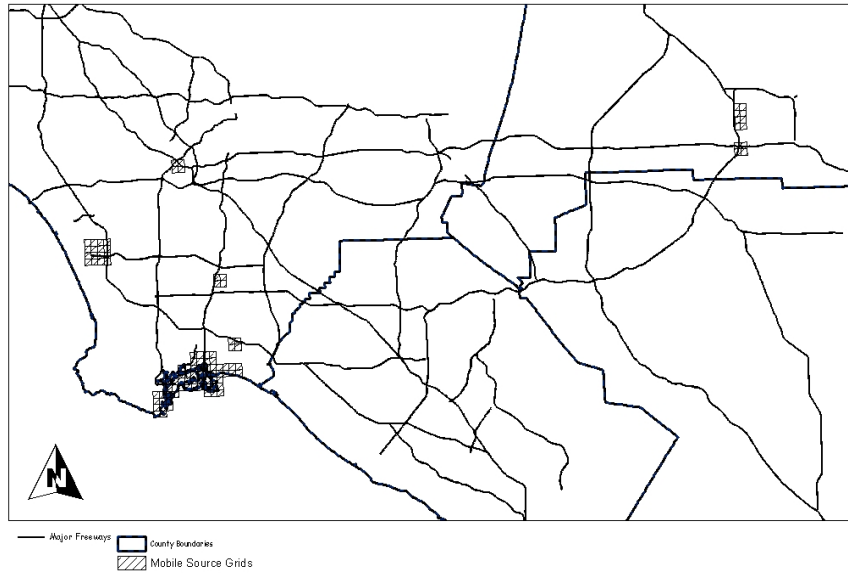
Health Care Data

A request was made at a working group meeting to use health care data to identify areas of high cumulative impacts by using information on rates of air pollution related illnesses, such as asthma. Lack of access to health care could exacerbate cumulative impacts of air pollution. There is not a conclusive source of information for local areas to derive these health-based criteria. Where data might be available, it would be resource intensive to obtain and analyze, as well as only being available for selected areas of the Basin. Therefore, this was determined not to be a practical source of information for prioritizing efforts.

Conclusion

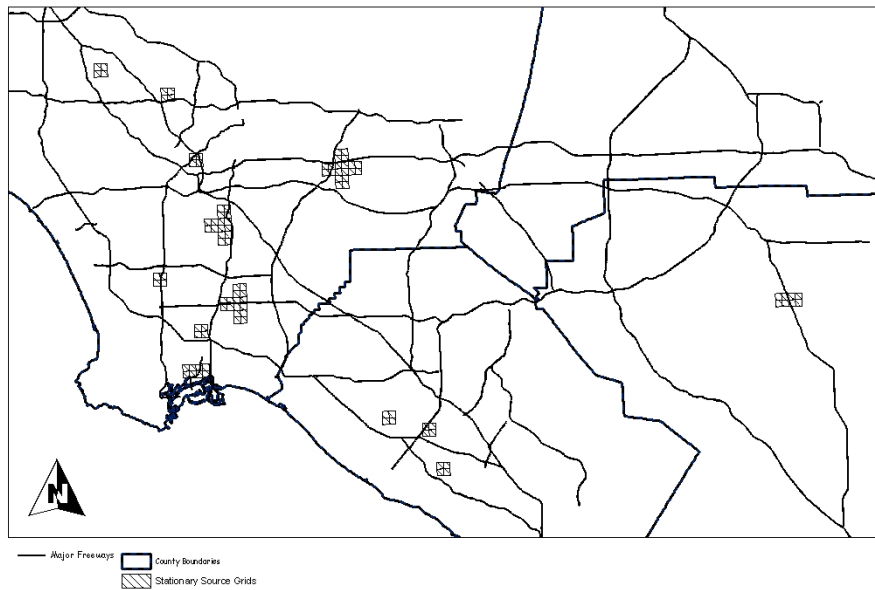
After consideration of the aforementioned data and information, staff recommends that the approach for investigating potential high impact areas start with the top 100 grid cells with the highest mobile source impacts and another top 100 grid cells with the highest stationary source impacts. As a result, there will be a total of 200 grid cells analyzed, which may have some overlapping areas, but will be examined separately. Staff was also asked to look at the top 100 grid cells due to all emission sources, which should be the same as the top cells for mobile sources because greater than 90 percent of the risks are from those sources. Figures 6, 7, and 8 contain preliminary maps using the MATES II data. The location of the top 100 mobile source grid cells are shown on the map in Figure 6, whereas the location of the top 100 stationary source grid cells are shown in Figure 7. Figure 8 shows which grid cells from Figures 7 and 8 overlap.

Figure 6
Top 100 Grid Cells for Mobile Sources Only



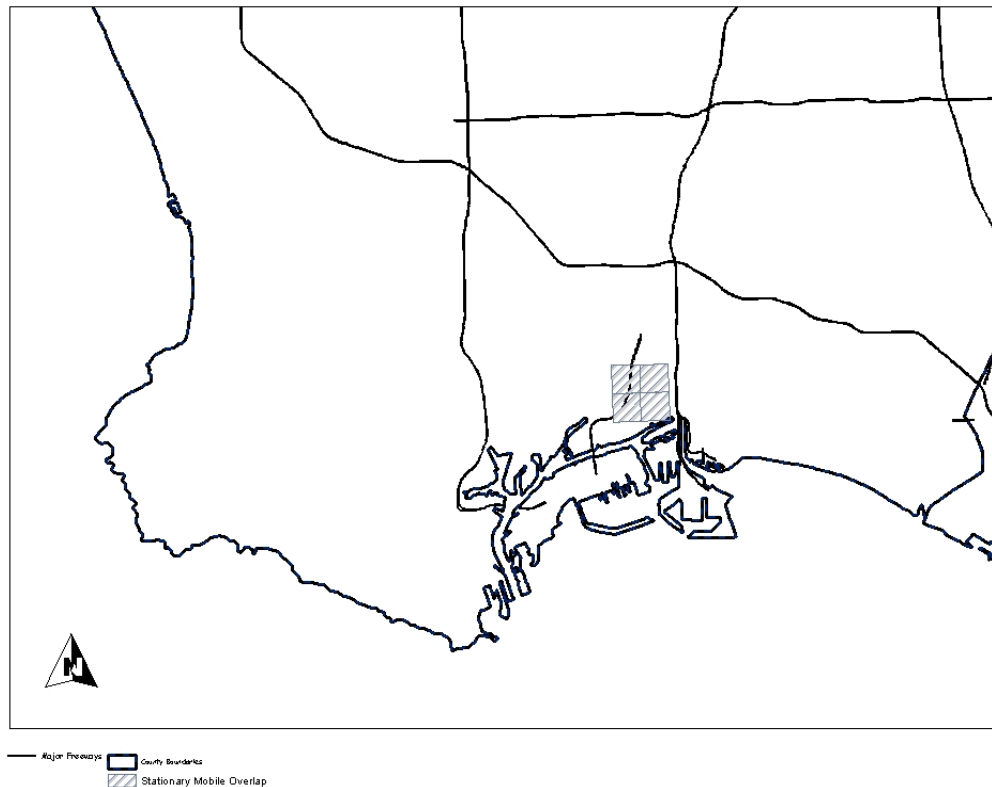
Note: The range of risks due to the mobile source contribution are 1,400 to 5,700 in a million.

Figure 7
Top 100 Grid Cells for Stationary Sources Only



Note: The range of risks due to the stationary source contribution are 160 to 660 in a million.

Figure 8
Overlap of the Top 100 Grid Cells for Both Mobile and Stationary Sources



Mobile and stationary source contributions need to be examined separately because the nature of the sources and possible solutions are different. Furthermore, the MATES II modeling technique (i.e., regional modeling rather than point source modeling) tends to underestimate the potential localized impacts. By evaluating the top mobile and stationary grid cells, cumulative impacts can be addressed for localized areas, depending on the nature of the sources in that situation. These top 100 grid cells represent the approximate top 1 percent of risks from all grid cells in the MATES II study. The top 100 grid cells should not be viewed as a cut-off point for defining high cumulative impact areas. Rather it serves as guidance to prioritize staff resources. Staff will not propose a prohibition of growth in these areas. The intent is to work through the ranking (not limited to the top 100 cells) to evaluate individual circumstances, and to develop solutions accordingly. This prioritization should be re-examined in the future ATCP updates once staff gains more experience in addressing the cumulative impact issues and when additional technical information and tools become available.

As seen in Table 1, when examining the top 100 grid cells, based on cancer risk, for mobile sources only, including diesel particulate, diesel emissions contribute the majority of risk in those cells (more than 90% in most grid cells). Relative to stationary sources, the risk within the top 100 grid cells is mostly contributed (e.g., more than 80%) by perchloroethylene, carbon tetrachloride, ethylene oxide, arsenic, chromium, cadmium, and nickel. Many of these pollutants have or will be controlled through implementation of rules or rule amendments over the last three years. Perchloroethylene and carbon tetrachloride are used as degreasers, ethylene oxide as a sterilizer, arsenic in metallurgical processes, and chromium, cadmium, and nickel in plating operations.

**Table 1
Key Mobile and Stationary Source Risk Contributors
(MATES II Modeled Risk Levels)**

Category	Key TACs	Range of Cancer Risk
Mobile Sources, Including Diesel Particulate Only	diesel particulate	1,400 – 5,700 in a million
Stationary Sources Only	perchloroethylene (Rules 1122, 1421, & 1425) carbon tetrachloride (Rule 1122) ethylene oxide (Rule 1405) arsenic (Rule 1407) chromium (Rule 1469) cadmium (Rule 1426) nickel (Rule 1426)	160 – 660 in a million

CONTROL STRATEGIES FOR REDUCING CUMULATIVE IMPACTS FROM AIR POLLUTION

Early-Action Control Strategies

The following early action control strategies are those that staff recommends should be started immediately. Not all strategies are expected to result in a rulemaking as they may not be necessary after further evaluation or solutions may not be technically or economically feasible at this time. Any strategy that is developed into a rule will go through the full public review process, including CEQA and socioeconomic analysis and public comments, and will be developed for Governing Board consideration. Some of the strategies may already be initiated as part of AQMD's EJ program. Each of these strategies are anticipated to be developed and implemented within 2 to 3 years.

Control Strategies (Rules)

- Approach:** **Air Toxic Control for Back-Up Generators**

Description: A key finding of MATES II was the significant contribution of cancer risk throughout the Basin by diesel sources. The current AQMD permitting rules exempt emergency engines from Rule 1401 – New Source Review of Toxic Air Contaminants. A number of these sources, such as back-up generators, are located in and around schools, as well as other sensitive receptors. This strategy would seek to reduce air toxic emissions, including diesel particulates, from back-up generators.

Mechanism: Under this measure, staff would develop requirements to reduce emissions from back-up generators, taking into consideration state Air Toxics Control Measure (ATCM) requirements assessment for diesel particulates and Office of Environmental Health Hazard Assessment (OEHHA) updated risk procedures. Such requirements may include greater limitation on hours for maintenance

operation, designation of when maintenance may be conducted when a generator is located near a sensitive receptor, or requiring the addition of diesel particulate filters. Such requirements may be applied to both existing back-up generators and new generators. Staff has been asked to evaluate whether special consideration is needed for engines to be used under emergency situations for essential public services, such as flood control or earthquakes.

2. Approach: **More Stringent Requirements for New Sources Located Near Existing Schools and Possibly Other Sensitive Receptors**
- Description: This control strategy would seek to establish requirements for new and relocated facilities near schools and possibly other sensitive receptors.
- Mechanism: Staff would seek to amend Rule 1401 to establish more stringent risk limits for new and relocated facilities emitting air toxics located near existing schools and possibly other sensitive receptors for their risk levels at these receptors. Sensitive receptors include schools (kindergarten through grade 12), licensed daycare centers, hospitals, and convalescent homes. The risk assessment procedures in Rule 1401 would be used to assess the maximum individual cancer risk at the school. These requirements may include more stringent risk limits for new and relocated facilities. If the increase in risk triggers Rule 1402 applicability, this strategy may also seek to expedite Rule 1402 risk reduction. For example, a new facility being located within a specified distance from a school (e.g., within 100 meters as specified in AQMD Rule 1469) may be required to meet a risk limitation of less than 1 in a million without using BACT or less than 10 in a million using BACT for toxics, or T-BACT. It is the staff's intent to use 100 meters as the distance threshold. However, the distance threshold needs to be further discussed through the rulemaking process. In addition, a new facility being located within a certain distance of a school may also be required to reduce a facility-wide cancer risk below the action level prior to the start of operation of the new equipment. The amendment to Rule 1401 associated with this strategy would be for existing schools or sensitive receptors only and would proceed through a two-step hearing process to first identify key policy issues and seek Governing Board direction prior to the rule adoption hearing.

Since this strategy has raised a number of general questions, a summary table (Table 2) has been provided to highlight key elements.

Table 2
Summary of Key Elements of Strategy No. 2

Element	Summary
Applies to:	new and relocated facilities
Variables	<ul style="list-style-type: none"> • distance • impacts at specified receptors
Sensitive Receptor	<ul style="list-style-type: none"> • schools (kindergarten through grade 12) • licensed daycare centers • hospitals • convalescent homes
Proposed Strategy	<ul style="list-style-type: none"> • more stringent risk levels • or expedited Rule 1402 risk reduction, if triggered.

3. Approach: **Yard Hostlers at Ports, Rail Yards, and Distribution Centers**
 Description: One source of emissions contributing to a cumulative impact is ground support operations associated with cargo sorting and transport within ports, rail yards, and distribution centers. These sources, known as yard hostlers, can cumulatively create potential increased exposures to the surrounding area due to their emissions. This strategy would seek to reduce emissions from yard hostlers at ports, rail yards, and distribution centers used in conjunction with these operations.
 Mechanism: Staff would develop new requirements to control emissions from yard hostlers used at ports, rail yards, and distribution centers (e.g., warehouses). Control strategies could include lower emitting equipment either by add-on control technologies or alternative fuels.
4. Approach: **Chromium Spray Coating Operations**
 Description: Emissions of hexavalent chromium have historically been a contributor to the ambient risk contributed by stationary sources throughout much of the Basin. Since 1990, a number of measures have been taken to reduce emissions of chromium from various sources, including metal finishing and coating applications. In 2000, the results of MATES II identified chromium as one of the most significant stationary source toxic air contaminants. Rule 1469 has been strengthened to significantly reduce chromium emissions from metal finishing operations. However, other operations, such as chromium-based spray coating operations have also been identified as potentially contributing to cancer risk. This strategy would investigate and potentially seek to reduce emissions of chromium from these operations.
 Mechanism: Staff would conduct an investigation into the remaining risk associated with spray operations using chromium-based coatings, including a technical analysis as to alternative coating materials, or the effectiveness of add-on control equipment. An issue was raised to have staff evaluate the potential toxic characterization of chrome from paint spray operations. In addition, compliance records for metal coating operations will also be examined to determine if non-compliant sources, if any, are contributing significantly to the risk. Consideration will be given to

sources already in compliance with Rule 1402, for example. Staff has been asked to consider sources covered under other rules, such as the aerospace NESHAP and Rule 1124. The result of this effort may result in the adoption of a new or amended rule to control emissions of chromium from spray coating applications.

5. Approach: **Private Fleet Rule Development**

Description: Findings from the MATES II program showed that the largest portion of the ambient cancer risk is contributed by diesel sources throughout the Basin. As a result, the AQMD Governing Board adopted a series of fleet rules (e.g., 1190 series rules) to reduce emissions of diesel particulates from mobile sources within the agency's jurisdiction. This strategy would develop additional new rules for further emission reductions from private fleets.

Mechanism: This strategy would lead to the development of new rules for additional emission reductions from private fleets, such as fuel providers and cargo/shipment carriers. This strategy also leads to the development of the necessary infrastructure to maintain the fleets, which is an important element for sustainability.

Control Strategies (Policy)

6. Approach: **Increased Compliance Assurance for Repeat Emission Violations**

Description: At public outreach meetings, requests are often made for an increased field compliance presence, particularly in those areas consisting of a high concentration of facilities. This stems from the concerns that non-compliance or accidental release would contribute to cumulative impacts. This strategy is to develop and implement an enhanced compliance assurance program for stationary sources which receive multiple notices of violation. Such action will likely provide the greater benefit in high cumulative impact areas.

Mechanism: As an early action measure, this strategy involves the development of a program that would guarantee minimum inspections and minimum penalties for repeat emission violations to assure continuous and consistent compliance. AQMD staff would investigate data and compliance records so as to focus resources to address the more localized issues. In determining repeat emission violations, AQMD staff will take into consideration industry-specific operations and the amount of excess emissions. Thus, facilities with multiple emission-related violations would be inspected at a greater frequency. Rules will be enforced consistently, regardless of facility location. The enhancement would involve more strategic deployment of AQMD field inspections and increased deterrence for repeat emission violators. This strategy will be implemented after approval of the ATCP by the AQMD Governing Board.

7. Approach: **Prioritize Resources for CEQA Document Review in High Cumulative Impact Areas**

Description: Projects with potentially significant adverse environmental impacts require an evaluation under CEQA. AQMD regularly receives CEQA documents prepared by other lead agencies for comments. Air quality is one of the CEQA topics. Relative to air quality impacts, a thorough evaluation of project related emissions, including both mobile and stationary source emissions is needed, particularly for projects located in high cumulative impact areas. This strategy would ensure that CEQA

- documents prepared in conjunction with these projects are evaluated by AQMD for potentially significant impacts and that adequate measures are taken to mitigate the impacts when required.
- Mechanism: AQMD staff will prioritize resources to ensure adequate intergovernmental review of CEQA documents to ensure the accuracy and the adequacy of air quality impact analyses and the associated mitigation measures, if deemed necessary.
8. Approach: **Voluntary AQMD/Local Government/Public Agency Partnership**
Description: One of the key resources to address potential cumulative impacts associated with emissions from new, modified, and relocated facilities is local government staff such as planners, as they have the ability to control where and how facilities are located in their community. This strategy is to work with local governments and planners through a partnership to provide the necessary information and tools to minimize cumulative impacts from future potentially air toxic emitting facilities and projects in their area.
- Mechanism: This strategy would be implemented through an education and outreach program to advise local governments outside the current CEQA analysis process. AQMD would partner with local governments and other public agencies. This effort is different than AQMD's role in review and comment on CEQA projects because it is a more proactive, educational effort, not related to a specific project. In conjunction with the Model Air Quality Element (an EJ enhancement), AQMD staff will offer to make presentations and to consult with City Councils and Planning Commissions regarding land use decisions, and provide them with tools to identify incompatible land uses and to identify and address projects that may have a direct or indirect affect on the health of the surrounding community due to their operations. An air quality/environmental checklist may be developed for use by any local government to aid them in their decisions.
9. Approach: **Governing Board Resolution to CARB**
Description: Mobile sources, which are regulated under CARB, are significant contributors to risk levels in the Basin (see section on MATES II). Consequently, additional controls from this sector would greatly enhance the reduction of cumulative impacts.
- Mechanism: This Early Action strategy would entail a Governing Board resolution to CARB urging their partnership and timely control of mobile source emissions. AQMD wants to work with CARB to be full partners in resolving cumulative impacts in this Basin, especially where mobile sources are the key contributors to cumulative impacts. Staff recommends that the resolution include a request that CARB Board members participate in a summit with a delegation of AQMD Board members to discuss this partnership and efforts to assist in reducing cumulative impacts.
- Nuisance Strategy**
10. Approach: **Pilot Odor Abatement Program**
Description: Nuisance complaints, including odors, have continuously been raised by the public at outreach meetings, such as the AQMD's Town Hall and Environmental Justice (EJ) meetings, as well as Community Forums for addressing cumulative impacts. Odor complaints are a localized issue and can trigger adverse health impacts due

to the physical sensitivity of individuals located in and around the area of incidence. The presence (or absence) of odors does not always relate directly to toxics exposure. Currently, odor issues are addressed after occurrence of the incident through public nuisance complaints (i.e., AQMD Rule 402). This strategy would seek to develop proactive measures to prevent exposure to odors.

Mechanism: To address this issue staff would develop a pilot rule for one or two industries. The pilot rule would set the foundation for a process to determine and implement control requirements for odors from new sources. The selection of industries for this pilot program would be based on the historical nuisance complaint records, recent compliance actions, and input from a working group. The control technologies could include best management practices and would examine technologies used in the past resolution of Orders of Abatement or Notices of Violations (NOV).

Appendix C shows the records of the most frequent confirmed odor complaints from 1988 to 2003 along with the corresponding NOVs. These complaints and NOVs are summarized and organized by standard industrial classification (SIC) codes. The industrial classifications receiving the highest number of odor complaints include: Petroleum Refining, Refuse Systems, and Sewage Systems. The next steps needed to develop a control strategy for these sources of odors would be to analyze individual complaints received regarding facilities in these categories. Once a pattern of complaints is found (i.e., type of odor, area, time of day, weather conditions) it can then be determined if a control strategy can be used to mitigate odors in the ambient air. To accomplish this task, staff would rely on a scientific review group for developing standards, similar to that used for establishing BACT (the same group could be used) for sources of criteria air contaminants.

AIR TOXICS CONTROL PLAN (ATCP) PROCESS

Identifying and resolving cumulative impacts will be a continuous and iterative process since no single solution can adequately address the issues. Therefore, staff is proposing to integrate a cumulative impact component into the ATCP process, which will be updated periodically to incorporate the latest technical information as well as strategies to address air toxic issues (e.g., regional and localized) in the Basin. The ATCP was approved by the Governing Board in March 2000. It was designed to reduce air toxic exposure in the Basin and was envisioned to be updated following the SIP revision process.

Addendum to the Air Toxics Control Plan

An Addendum to the ATCP will be completed after the 2003 update to the Air Quality Management Plan (AQMP). It will include improved emission data and a partial inventory update using the AQMP, as well as data from the implementation of control strategies contained within the March 2000 ATCP to revise current and projected air toxic levels (see Appendix B for ATCP implementation progress). Staff anticipates that the air toxics plan update will be presented to the Governing Board for its approval by the end of 2003. Although MATES III emissions monitoring will not be completed by this time, the inventory and assessment of changes in toxic air pollution levels can proceed for the air toxics plan addendum. Future updates to the ATCP will include MATES III data.

Cumulative Impacts

The addendum will utilize information contained in the enhanced Toxic Emissions Inventory, described as follows. The procedure used will be similar to that used in MATES II and the March 2000 ATCP. The base calendar year used for the inventory will be 2000 with future years extending from 2010 to approximately 2020.

The inventory data used will be as follows: on-road sources will use EMFAC 2002 and CARB's most recent specification profiles; point sources not in the AB 2588 program will use calendar year 2000 Annual Emissions Report (AER) data; sources within the AB 2588 program will incorporate any changes reported up to the end of 2000; metal plating facilities, gas stations, and dry cleaners will use the most recent inventory information available; and off road sources will use the data in the 2003 AQMP for calendar years 2000, 2010, and 2020. Once the 2000 inventory is complete, appropriate emission reductions for each category will be determined and a future inventory will be created.

The ATCP Addendum will consider additional health based indicators in the development of control strategies. Consistent with MATES II, the March 2000 air toxics plan primarily focused on cancer-based risks. The air toxics plan Addendum will also consider non-cancer health risks. In addition, it will also examine asthma as a health-based indicator for potential control strategy development to the extent feasible.

The Addendum will have both mobile and stationary control strategies based on technically and economically feasible approaches. Relative to mobile strategies, the efforts will focus on the risks associated with diesel particulate emissions. Control strategies to be developed would include truck and train idling restrictions, and diesel traffic flow management. Staff will also be evaluating other control strategies. This effort will benefit mobile source risk reduction because it will use the CARB Diesel Reduction Plan (October 2000) as a baseline and seek additional reductions beyond what is called for in the state plan.

The ATCP update will include a systematic review of existing toxic rules to determine if additional reductions are technically and economically feasible for facilities located near schools and possibly other sensitive receptors. These efforts may include the addition of sensitive receptor requirements for existing sources through amendments to existing rules and consideration during future rule development.

Other potential control strategies include pollution prevention (such as technical assistance for all facilities and a focus on facilities in higher cumulative impact areas that are close to schools), and funding for localized risk reduction projects, through an abatement fund or other mechanisms.

Analysis of MATES II stationary source cancer risk indicates that perchloroethylene (a.k.a., "perc" or tetrachloroethylene), chromium, arsenic, and carbon tetrachloride were key contributors to cancer risk. Several of these TACs are or will be reduced from implementation of recently adopted and amended rules. Spray coatings containing chromium will be evaluated for further reduction. Arsenic will also be evaluated. Due to odor complaints and the large use of various TACs in paint formulations, staff proposes a two-step process for evaluating odors and potential control approaches for auto-body shops. Additional fleet rules will also be developed.

Conceptually, an outline of Addendum to the March 2000 Air Toxics Control Plan would include the following topics:

Progress in Implementing 2000 Toxics Plan

- AQMD
- State
- Federal
- Previous projections
- Revised projections

Additional Control Strategies

- Introduction, including design criteria used in first plan and any updates
- Early action measures
- Stationary source measures
- Mobile source measures

Implementation

- Time frame
- Partnerships with other agencies and stakeholders
- Environmental and socioeconomic implications
- Outreach
- Monitoring
- Future enhancement

It should be noted that MATES II and the March 2000 ATCP focused primarily on cancer risks. This update will include incremental efforts to reduce cancer risk, since most of these are on-going, long term efforts. The update will also identify high cumulative impact areas for focusing efforts relative to the control strategies.

The following control strategies, which are in addition to the Early Action Control Strategies, are staff's recommendation for further consideration and development. Development of some strategies will begin right away, others may take longer to develop. Not all strategies are expected to result in a rulemaking, as they may not be necessary or feasible upon further evaluation. For example, there were strategies identified in the March 2000 ATCP that did not result in rulemaking and were not pursued after further technical evaluation (i.e., hospital ethylene oxide sterilizers and rubber manufacturing). Any strategy that is developed into a rule will go through the full public review process, including CEQA and socioeconomic analysis, and public comments, and will be developed for Governing Board consideration. Some of the strategies may already be initiated in conjunction with the AQMD's EJ program. Each of these strategies are anticipated to be developed and fully implemented within 3 to 5 years.

Proposed Control Strategies for Addendum to the Air Toxics Control Plan

11. Approach: **Truck Idling**
Description: During many public outreach meetings, staff has heard numerous concerns about the diesel truck traffic associated with the moving of cargo to and from ports, rail yards, and distribution centers. In addition to the traffic from moving cargo, the idling of trucks waiting for loading and unloading contributes to increased ground level emissions that move into nearby areas and contribute to health and nuisance complaints. This strategy will seek to develop requirements to reduce emissions

- from diesel truck idling. This control measure was identified in the March 2000 ATCP.
- Mechanism: Under this strategy, staff would develop a new rule to control diesel truck idling to the extent feasible, taking into consideration operational needs for the movement of cargo and infrastructure for electrification as necessary.
12. Approach: **Train Idling**
Description: As with truck idling, staff has heard numerous complaints related to rail traffic. This traffic is associated with the moving of cargo to and from ports and rail yards. Particular focus has been on idling locomotives waiting to move cargo. This strategy would likewise seek to develop requirements to reduce emissions from train engine idling.
Mechanism: Under this strategy, staff would develop a new rule to control train idling to the extent feasible, taking into consideration operational needs for the movement of cargo and infrastructure needed to support locomotives.
13. Approach: **Marine and Airport Operations**
Description: Early-Action Strategy No. 3 addresses yard hostlers at ports, rail yards and distribution centers. This strategy would seek to address emissions from marine and airport related operations.
Mechanism: Staff would examine emission reduction options for marine and airport related operations. Staff would first conduct feasibility studies, including AQMD legal authority, control technologies, and cost effectiveness prior to developing specific regulatory programs.
14. Approach: **More Stringent Requirements for Rule 1402 Sources Near Existing Schools and Possibly Other Sensitive Receptors**
Description: As stated under early action measure No. 2, health risks associated with facilities located near existing schools and possibly other sensitive receptors are of concern. Whereas strategy No. 2 would address new and relocated equipment, and new facilities, this strategy would address existing facilities located near (e.g., within 100 meters) schools and possibly other sensitive receptors.
Mechanism: Staff would seek to amend Rule 1402 to add additional requirements for risk levels for facilities located near schools, and possibly other sensitive receptors. Sensitive receptors include schools (kindergarten through grade 12), licensed daycare centers, hospitals, and convalescent homes. The risk assessment procedures in Rule 1401 would be used to assess the maximum individual cancer risk at the school. Such requirement may include lowering the action risk level below the current 25 in a million or expediting the timeframe allowed to implement risk reduction. The amendment to Rule 1402 associated with this strategy would address schools or sensitive receptors only and would proceed through a two-step hearing process to first identify key policy issues and seek Governing Board direction prior to the rule adoption hearing. Staff will seek funding to assist facilities with cost of risk reduction or relocation. Staff's intent is that this would apply to existing facilities and existing sensitive receptors, not for a new sensitive receptor that moves near facilities. Strategy No. 8, the Voluntary AQMD/Local

Government/Public Agency Partnership, will be used to help better inform land use decisions.

Since this strategy has raised a number of general questions, a summary table (Table 3) has been provided to highlight key elements.

Table 3
Summary of Key Elements of Strategy No. 14

Element	Summary
Applies to:	<ul style="list-style-type: none"> existing facilities subject to Rule 1402
Variables	<ul style="list-style-type: none"> distance impacts at specified receptors
Sensitive Receptor	<ul style="list-style-type: none"> schools (kindergarten through grade 12) licensed daycare centers hospitals convalescent homes
Proposed Strategy	<ul style="list-style-type: none"> more stringent risk reduction action levels, or expedited compliance schedule for risk reductions

15. Approach: **More Stringent Air Toxic Source-Specific Requirements for Sources Near Existing Schools and Possibly Other Sensitive Receptors**
- Description: Early action strategy No. 2 addresses facilities located near schools and possibly other sensitive receptors through an amendment to Rule 1401. Strategy No. 14 would address existing facilities located near existing schools and possibly other sensitive receptors through an amendment to Rule 1402. This strategy would seek to amend existing toxic source-specific rules, or for consideration during development of future new toxic rules, to evaluate more stringent requirements and distance and receptor criteria.
- Mechanism: Staff would investigate the feasibility of amending existing toxic source-specific rules that currently contain requirements for industries or pieces of equipment to include requirements based on distance and receptor impacts, similar to that contained in Rule 1469-Hexavalent Chromium Emissions From Chrome Plating and Chromic Acid Anodizing Operations. Consideration would also be given during future new rule development. Each source category would be evaluated individually to determine feasible and appropriate proposals.
16. Approach: **Develop and Launch Pollution Prevention Initiatives**
- Description: Staff continues to identify and implement pollution prevention measures when developing regulatory and non-regulatory programs. Under this strategy, staff would seek to develop a pilot pollution prevention program that could be initiated in areas of high cumulative impact.
- Mechanism: The pilot pollution prevention program would initially be focused on sources contributing to high cumulative risk and would start by concentrating on facilities located near schools. AQMD staff would provide a consultation and make

recommendations to facilities as to how they may improve operations, provide information on low-cost alternatives to lower emissions, or outline steps that can be taken to prevent nuisance complaints. According to the success of this program, it may be expanded to other sensitive receptors. Staff also recognizes that there have been concerns raised by members of the Cal EPA Environmental Justice Advisory Committee with regards to pollution prevention techniques. Such concerns will be taken into account as part of the development of this strategy. Staff's analysis will consider technical feasibility, cost-effectiveness, product quality, and other potential impacts of pollution prevention options. District staff will also work with facilities and local government to seek potential funding for implementing pollution prevention strategies.

17. Approach: **Neighborhood Air Toxics Abatement Fund**
Description: This strategy would call for the creation of a fund that can be used for local programs to reduce public exposures to air pollution and support or match funds for projects that would reduce local exposures to air pollution.
Mechanism: Staff would recommend AQMD establish a Neighborhood Air Toxics Abatement Fund for facilities from penalties and other public funding. Staff would also seek U.S. EPA/state funding designated for EJ/toxic programs for matching funds for high priority mobile source emission reduction projects. The funding mechanism is not intended to be a pay to pollute program nor a means for compliance flexibility. The fund would not be used for strategies Nos. 2 and 14. Strong concerns were raised by environmental and community representatives regarding potential toxic trading and receptors benefiting from the toxic reduction projects not being the same receptors that are affected by the facility. However, they indicated that public funding or penalty monies directed toward reducing toxic emissions would be acceptable and if residual risks cannot be mitigated in a meaningful way, potential relocation of receptors should be considered.
18. Approach: **Additional Controls for Arsenic**
Description: MATES II data indicates that arsenic is one of several compounds that contributes to the ambient risk. This strategy would evaluate and establish additional control requirements for sources of arsenic emissions.
Mechanism: Using the MATES II data, staff will examine the sources of arsenic contributing to the risk levels within the Basin. Staff will then develop technically and economically feasible requirements for the control of arsenic emissions. Such requirements may be implemented through a new or existing rule, depending on the findings of staff's assessment.
19. Approach: **Additional Controls for Auto-body Shops**
Description: During public outreach meetings, auto-body refinishing has been identified as a source of nuisance complaints. This has been verified by examining nuisance complaint records. Due to odor complaints and the variety of TACs in auto-body coatings, this strategy will examine typical causes of odors, compliance status, and evaluate control options for auto-body shops.
Mechanism: This strategy would be implemented in two steps. First, staff would work jointly with stakeholders to conduct a technical assessment of the auto-body refinishing

industry to determine what causes odor complaints. The second step would focus on developing technically and economically feasible options for the reduction of TAC emissions and odors. The options will consider compliance history and impacts on receptors. Such requirements may be implemented through amendments to Rule 1151.

20. Approach: **Diesel Traffic Flow Control**
Description: Companion to strategy No. 11, this strategy would work with local governments and planners to minimize impacts from diesel-based traffic on schools or other sensitive receptors.
Mechanism: Under this strategy, staff would work with local governments and planners to develop alternative traffic patterns for diesel traffic to minimize impacts to schools or other sensitive receptors. This strategy stems from staff's previous analysis for diesel fuel traffic from distribution centers in the Mira Loma area.
21. Approach: **Analysis and Mitigation for Sources Contributing to High Cumulative Air Pollution Impacts (Cancer and Non-Cancer)**
Description: Once the high cumulative impact areas and their key risk contributors are identified, this strategy seeks to develop mitigation measures to reduce air toxic emissions from sources contributing to the cumulative impacts.
Mechanism: Staff would identify those sources in the high ranking areas that contribute to the ambient risk and develop strategies to reduce that risk. Implementation of this strategy will be independent of other strategies contained herein, thereby eliminating duplication. Strategies for sources identified could include regulatory or policy approaches. Regulatory approaches may include, but are not limited to, more stringent new source review or risk reduction requirements for existing sources. Other enforceable legal instruments, such as memorandums of understanding (MOUs) and stipulated abatement orders, may also be used. Staff would recommend the most effective regulatory or policy tools available to reduce cumulative impacts.
22. Approach: **Nuisance Strategy**
Description: **Odor Abatement Program for Existing Facilities**
As mentioned in Early-Action Control Strategy No. 10, the issue of nuisance odors has continuously been raised at public meetings. This program would build on the Pilot Odor Abatement Program by extending control strategies to existing facilities.
Mechanism: This control strategy would focus on existing equipment that have been identified in the Pilot Odor Abatement Program or other efforts that require measures to prevent exposure to odors. This would include the identification and development of technically feasible and cost-effective retrofit control options.
23. Approach: **ARB Component**
Description: This strategy would consider CARB's air toxics control program to identify sources under their jurisdiction that contribute significantly to cumulative impacts.
Mechanism: Staff would work cooperatively with CARB to identify strategies under their authority for implementation that would be supported at the local level. Such strategies could include requirements for particulate traps for in-use diesel

engines. AQMD could also make recommendations to CARB based on findings from this effort.

24. Approach: **U.S. EPA Component**
Description: As with CARB, this strategy would develop strategies for sources under U.S. EPA jurisdiction that contribute significantly to cumulative impacts.
Mechanism: Staff would work cooperatively with U.S. EPA to identify strategies for mobile sources, such as diesel trucks, trains, and ships that are under U.S. EPA jurisdiction. AQMD could also make recommendations to U.S. EPA based on findings from this effort.
25. Approach: **Increased/Targeted Funding for Disproportionately Impacted Areas**
Description: Prioritize funding to disproportionately impacted areas.
Mechanism: AQMD would continue to prioritize funding for areas of higher risk, similar to the criteria set by AB 1390 (Firebaugh) applicable to the use of Moyer Funds in disproportionately impacted areas and the priority established in the AQMD's grant program for school bus funding and non-perc dry cleaners (50 percent of funding reserved for areas with greater than 1,000 in a million cancer risk or greater than 10 percent population below the poverty level). Funding could also include money from the federal government and other sources. AQMD will maintain an active role in securing continuous funding for Carl Moyer, school bus funding, and other programs where funding is essential for reducing cumulative impacts.

Periodic ATCP Revisions

Future updates to the air toxics plan will be conducted on a periodic basis, the first of which will utilize data from MATES III (discussed below). Future updates will include improved inventories, methodologies, and special studies to focus on achieving greater air toxic emission reductions from stationary and mobile source categories. Development of those plans will rely on an iterative process for prioritization. The updates will also take into consideration comments received at various Town Hall meetings, task forces, and other public meetings.

The ATCP will be subject to periodic revisions, including the following four enhancements:

1. Improve Emissions Inventories, Data and Analysis Tools

This enhancement would involve the development of better data and analytical methods with which to measure, report, and evaluate cumulative air pollution impacts, and programs to address those risks. Such improvements would be made to the AQMD's inventories, as well as the data needed to conduct analyses. This would be accomplished by using special studies (e.g., MATES III), information gained through various rule development efforts and existing efforts to update and improve emissions inventories, such as linking Annual Emission Reporting (AER) program and Air Toxics Hot Spots (AB 2588) databases. Updated inventory information from the state relative to mobile sources (i.e., EMFAC 2002) will also be utilized for the first ATCP update. Such information will be continually updated on an ongoing basis. This will enable staff to focus and facilitate efforts relative to addressing cumulative impacts and implementing the control strategies in the most efficient manner possible.

2. Improve Modeling Tools

To assess cumulative impacts, staff would utilize improved modeling tools (e.g., 2003 AQMP modeling techniques) for evaluating air toxic impacts at the local level from all nearby sources, including mobile sources, for comparing local level exposures within the region. In the short-term, staff will conduct an assessment using the improved emission inventories associated with the 2003 AQMP to examine progress since the approval of the March 2000 ATCP. Staff would then continue to update these tools on an ongoing basis.

3. Identify and Address Non-Cancer Risks

MATES II focused on examining those TACs contributing to cancer risk throughout the Basin and did not specifically analyze non-cancer impacts associated with those chemicals. At many public outreach meetings, consistent comments were made that such studies should also address non-cancer impacts. This strategy would develop a program that not only seeks to reduce cancer risk, but also identifies ways to reduce chronic and acute non-cancer or other public health exposures. To address this issue in the short-term, staff will be examining the data collected in MATES II to estimate the non-cancer impacts throughout the Basin using the previous data. This information will be used in the ATCP Addendum and to assist in development of the strategies. MATES III will examine non-cancer and asthma impacts (to the extent possible) and staff will seek to use this information for future updates to the ATCP.

4. Evaluate High Cumulative Air Pollution Impact Areas

Using the data and information resulting from the previous three enhancements, staff will refine the approach to prioritize areas of concern based on unusually high levels of cumulative health risk and to identify sources contributing significantly to that risk. This information will be used to develop specific measures to reduce public exposures to air pollution and health risks. As previously described, the approach was developed as a tool to prioritize staff resources, not as a regulatory classification. Staff recommends using MATES II data to examine the top 100 1 km x 1 km grid cells for each mobile and stationary sources to identify sources and potential solutions. The process will then continue with the next 100 grid cells. This approach may be revised when staff gains more experience and new techniques become available. The analysis of potentially high cumulative impact areas will form the foundation to formulate control strategies.

MATES III

As directed by the Governing Board in January 2003, staff will be conducting the third MATES program. As before, AQMD will use a scientific review panel and will seek public input on the various aspects of the program, including monitoring locations and evaluation tools. The list of toxic air contaminants (TACs) will be revised from MATES II to address the risks associated with additional chemicals of concern. Some TACs may be eliminated from the analysis if they were not detected in the previous study.

A key element of MATES III will be the selection of micro-scale sites for localized monitoring. Staff has received numerous suggestions for such sites and will be further evaluating various locations. It is anticipated that monitoring, modeling, analysis, and reporting, will take approximately 1 ½ years. Monitoring is projected to start in April 2004.

V. PUBLIC PROCESS

The Working Group met seven times to discuss a program to reduce cumulative impacts from air pollution. These meetings, plus five Community Forums, helped identify issues and potential approaches.

Working Group and Public Input

Environmental/community, industry, and AQMD staff Working Group members generated separate lists of recommended cumulative impact control strategies. All three lists of suggested options were discussed, combined and narrowed down to a list of 19 options that were provided for public comment at five Community Forums. Staff conducted these forums at various locations throughout the Basin in the evenings or Saturdays (Mira Loma, Fontana, Sun Valley, Santa Ana, and Wilmington) in May and June 2003. A summary of the input received from the Community Forums is provided in Appendix F. Additional strategies were added as a direct result of comments heard at the Community Forums.

The discussion in the following sections highlights interests of the different groups represented on the working group. There were many areas of agreement among the members. First, all parties agreed that areas of high cumulative impacts need to be addressed; it is how that may be accomplished where there are differences. There was also consensus that in order to establish an effective program to reduce cumulative impacts, improvements in emission inventories, data, tools, and modeling are necessary. In addition, all parties agreed that non-cancer risks need to be identified and addressed. These areas of agreement correspond to the enhancements proposed for the periodic updates to the ATCP. There was also general agreement on other suggested control strategies to reduce air emissions from source-specific activities that are currently unregulated, such as truck and train idling (Nos. 11 and 12), yard/port activities (No. 3), chromium spray operations (No. 4), and arsenic controls (No. 18). There was support for the Voluntary AQMD/Local Government/Public Agency Partnerships.

However, there was not consensus on strategies that would result in source-specific requirements for sources, such as more stringent requirements for new or existing sources located close to schools or possibly other sensitive receptors.

Following is a summary of the key interests and recommendations by members of the working group representing industry, environmental/community, and local governments.

Industry

Industry representatives of the Cumulative Impacts Working Group felt that the most effective programs addressing air pollution have resulted from identifying the source(s) of the cumulative air pollution problem and developing strategies for reducing pollution from the sources that are creating the problem. They pointed out that California law provides clear direction in the area of Environmental Justice, defining it as “the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.” (Government Code §65040. 12(c)), as well as highlighting AQMD’s own definition. Industry also felt that the AQMD should use valid tools to identify areas that have unusually high levels of cumulative risk and exposure and develop programmatic solutions to address these areas.

Cumulative Impacts

Pursuant to Health and Safety Code Section 40440(c), industry representatives have pointed out AQMD's obligation to regulate in a manner that results in the most effective and least burdensome programs. They felt that this can only be done if the problem areas are clearly identified and prioritized and the sources of the problem identified. The industry representatives' key recommendations are summarized as follows:

1. Define the areas of concern based on areas which have unusually high levels of cumulative risk when compared to the region;
2. Identify the sources contributing significantly to the health risk in those areas; and
3. Develop programs targeting the sources contributing to the problem.

Environmental/Community

Environmental/community representatives agree that high risk areas should be addressed. In addition, they site the need for better tools and data for analyzing cumulative risks and they suggest a program that is broad and more encompassing. The environmental/community representatives are also interested in:

1. Further developing and implementing methods of pollution prevention;
2. Developing additional mitigation requirements for all facilities, including both existing and future proposed facilities that are located in heavily impacted areas;
3. Establishing emission reduction goals for industry-wide reductions for certain heavy polluting sectors (e.g., refineries, auto body/paint shops, printers, and nail salons);
4. Adoption of specific goals for Hazardous Air Pollutants (HAPs) emission reductions from both the stationary and mobile sources under AQMD's authority. Success would be measured by decreased TAC emissions and increased number of permits denied or not renewed; and
5. Developing and incorporating into source-specific rules health-based and distance-based siting criteria for residential and sensitive receptors, and requiring applicants for new, modified, or renewed permits in heavily impacted areas to verify the underlying assumptions and assertions about emissions and impacts of the proposed equipment and processes.

The environmental and community representatives feel strongly that Rules 1401 and 1402 should be strengthened and applied to all permitted sources, regardless of their contribution to cumulative impacts. They also do not want the Neighborhood Toxic Abatement Fund to be used by facilities to meet more stringent standards.

Local Government

Local government representatives commented that a program to mitigate cumulative risk should only proceed once the highest risk areas and the contributors to those highest risks are identified. In general, across-the-board programs that target risk reduction within the stationary source category while disregarding the large contribution from mobile sources are undesirable. Stationary source risk reduction is appropriate where it has been clearly shown that the stationary source contributes the major portion of the risk. In general local government representatives desire a cumulative impacts program that:

1. Identifies high risk areas from all contributors;
2. Analyzes the risk contributors for those high risk areas;
3. Identifies agencies with authority/jurisdiction;
4. Minimizes disproportionate risk through existing programs if possible, such as expanded fleet rules, AB 2588 etc.; and
5. Creates incentive programs secondly to target under-regulated/unregulated problem source.

VI. RECOMMENDATIONS

Staff recommends the approach outlined within this White Paper, which calls for immediate work to develop the Early-Action Control Strategies and an Addendum to the March 2000 Air Toxics Control Plan, a commitment for future periodic updates to the ATCP, and completion of MATES III.

VII. PROPOSED SCHEDULE

Staff proposes the following schedule:

1. White Paper presented to the Governing Board: September 2003.
2. Addendum to the March 2000 Air Toxics Control Plan: December 2003.
3. Report to the Stationary Source Committee every 6 months.
4. Report to Board once per year as part of the EJ Enhancements.
5. Early-Action Control Strategies developed and implemented within 3 years.
6. Remaining Control Strategies developed and implemented within 3 to 5 years.
7. Working Group meetings, as necessary, to receive input on proposals being developed.

Table 4A presents the proposed schedule for each of the control strategies, sorted by strategy number, addressed in this paper. Table 4B presents the strategies sorted by proposed adoption date.

**Table 4A
Control Strategy Schedule
(Sorted by Strategy Number)**

No.	Title	Date of Proposed Adoption
Early-Action Control Strategies (Rules)		
1	Air Toxic Control for Back-up Generators	1 st Quarter 2004
2	More Stringent Requirements for New Sources Located Near Existing Schools and Possibly Other Sensitive Receptors	2004
3	Yard Hostlers at Ports, Rail Yards, and Distribution Centers	2004-2005
4	Chromium Spray Coating Operations	4 th Quarter 2004
5	Private Fleet Rule Development	2004-2005
Early-Action Control Strategies (Policy)		
6	Increased Compliance Assurance for Repeat Emission Violations	2004-2005
7	Prioritize Resources for CEQA Document Review in High Cumulative Impact Areas	2004
8	Voluntary AQMD/Local Government/Public Agency Partnership	2004
9	Governing Board Resolution to CARB	2003
Early-Action Nuisance Strategy		
10	Pilot Odor Abatement Program	2004-2006
Additional Recommended Strategies for the ATCP		
11	Truck Idling	2005
12	Train Idling	2005
13	Marine and Airport Operations	2005-2008
14	More Stringent Requirements for Rule 1402 Sources Near Existing Schools and Possibly Other Sensitive Receptors	2004-2005
15	More Stringent Air Toxic Source-Specific Requirements for Sources Near Existing Schools and Possibly Other Sensitive Receptors	2005-2008
16	Develop and Launch Pollution Prevention Initiatives	Ongoing
17	Neighborhood Air Toxic Abatement Fund	2004 & Ongoing
18	Additional Controls for Arsenic	2005
19	Additional Control for Auto-body Shops	2005
20	Diesel Traffic Flow Control	Ongoing
21	Analysis and Mitigation for Sources Contributing to High Cumulative Air Pollution Impacts (Cancer and Non-Cancer)	2004 & Ongoing
22	Odor Abatement Program for Existing Facilities (Nuisance Strategy)	2005 & Ongoing
23	ARB Component	Ongoing
24	U.S. EPA Component	Ongoing
25	Increased/Targeted Funding for Disproportionate Impacted Areas	Ongoing

*Initial development will commence upon the ATCP Addendum approval by the AQMD Governing Board. Updates will be made in conjunction with future updates to the AQMP and ATCP, as well as using the results derived from the MATES III effort.

**Table 4B
Control Strategy Schedule
(Sorted by Date)**

No.	Title	Date of Proposed Adoption
9	Governing Board Resolution to CARB	2003
1	Air Toxic Control for Back-up Generators	1st Quarter 2004
2	More Stringent Requirements for New Sources Located Near Existing Schools and Possibly Other Sensitive Receptors	2004
7	Prioritize Resources for CEQA Document Review in High Cumulative Impact Areas	2004
8	Voluntary AQMD/Local Government/Public Agency Partnership	2004
4	Chromium Spray Coating Operations	4th Quarter 2004
3	Yard Hostlers at Ports, Rail Yards, and Distribution Centers	2004-2005
5	Private Fleet Rule Development	2004-2005
6	Increased Compliance Assurance for Repeat Emission Violations	2004-2005
14	More Stringent Requirements for Rule 1402 Sources Near Existing Schools and Possibly Other Sensitive Receptors	2004-2005
10	Pilot Odor Abatement Program	2004-2006
17	Neighborhood Air Toxic Abatement Fund	2004 & Ongoing
21	Analysis and Mitigation for Sources Contributing to High Cumulative Air Pollution Impacts (Cancer and Non-Cancer)	2004 & Ongoing
11	Truck Idling	2005
12	Train Idling	2005
18	Additional Controls for Arsenic	2005
19	Additional Control for Auto-body Shops	2005
13	Marine and Airport Operations	2005-2008
15	More Stringent Air Toxic Source-Specific Requirements for Sources Near Existing Schools and Possibly Other Sensitive Receptors	2005-2008
22	Odor Abatement Program for Existing Facilities (Nuisance Strategy)	2005 & Ongoing
16	Develop and Launch Pollution Prevention Initiatives	Ongoing
20	Diesel Traffic Flow Control	Ongoing
23	ARB Component	Ongoing
24	U.S. EPA Component	Ongoing
25	Increased/Targeted Funding for Disproportionate Impacted Areas	Ongoing