

Improving AIR Quality

METROPOLITAN WASHINGTON REGION STATE IMPLEMENTATION PLAN | SIP

THE METROPOLITAN WASHINGTON AIR QUALITY COMMITTEE RECENTLY APPROVED A NEW PLAN TO IMPROVE AIR QUALITY IN THE METROPOLITAN WASHINGTON REGION. THIS PLAN WAS SUBMITTED ON BEHALF OF THE REGION TO THE U.S. ENVIRONMENTAL PROTECTION AGENCY BY THE DISTRICT OF COLUMBIA, MARYLAND AND VIRGINIA. THE PLAN CONTAINS ADDITIONAL PROGRAMS WHICH WILL REDUCE OZONE POLLUTION SO THE REGION CAN SAFEGUARD PUBLIC HEALTH AND MEET THE NATIONAL AIR QUALITY STANDARD.

National Air Quality Standards Every region in the U.S. is required to monitor its air to ensure that it complies with the U.S. Environmental Protection Agency's (EPA) national air quality standards. A region with air containing more pollution than the standards permit becomes a nonattainment area. EPA assigns a date by which each nonattainment region must meet the air quality standard. This attainment date depends upon the severity of the region's pollution. Each nonattainment area must prepare a State Implementation Plan (SIP) to show how it plans to improve the air in time to meet the standard. The Plan to Improve Air Quality in the Washington, DC-MD-VA Region is the latest SIP in a series beginning in the 1970s. In that sense, it revises previous SIPs. This SIP contains some of the same information presented in previous documents, but it also includes new information based on the latest available data important to air quality planning.

SIP Revisions A SIP revision is necessary when planning assumptions or requirements change significantly. This SIP revision enables the region to meet the new, more stringent air quality requirements associated with its revised attainment date of 2005. Our region was originally required to meet the ozone standard by 1999. However, as a previous SIP demonstrated, we were unable to do so because of high levels of pollution blown in from areas outside Maryland, Virginia and the District of Columbia, primarily from the Midwest. In recognition of this problem, the U.S. EPA extended our attainment date to 2005. However, in response to litigation, the U.S. Court of Appeals ruled that a requirement for new, more stringent air quality plan must accompany any extension of the region's attainment date. The Metropolitan Washington Air Quality Committee (MWAQC), successfully incorporated the new requirements into the SIP described below. The region is now on track to meet the federal ozone standard by 2005.



THE METROPOLITAN WASHINGTON AIR QUALITY COMMITTEE HAS DEVELOPED A NEW, MORE STRINGENT AIR QUALITY PLAN. THE REGION IS NOW ON TRACK TO MEET THE FEDERAL OZONE STANDARD BY 2005.

ELEMENTS OF THE SIP

A SIP must contain a number of elements. These include an inventory of all man-made emissions in the region, an estimate of the quantity of emissions allowed under the air quality standard, a plan for reducing emissions to that level, and a plan for additional “contingency” reductions, to be implemented if the region fails to meet its attainment date. The region must also demonstrate that it considered all reasonably available emission control measures during design of its air quality plan. All of these elements are included in the region’s new SIP.

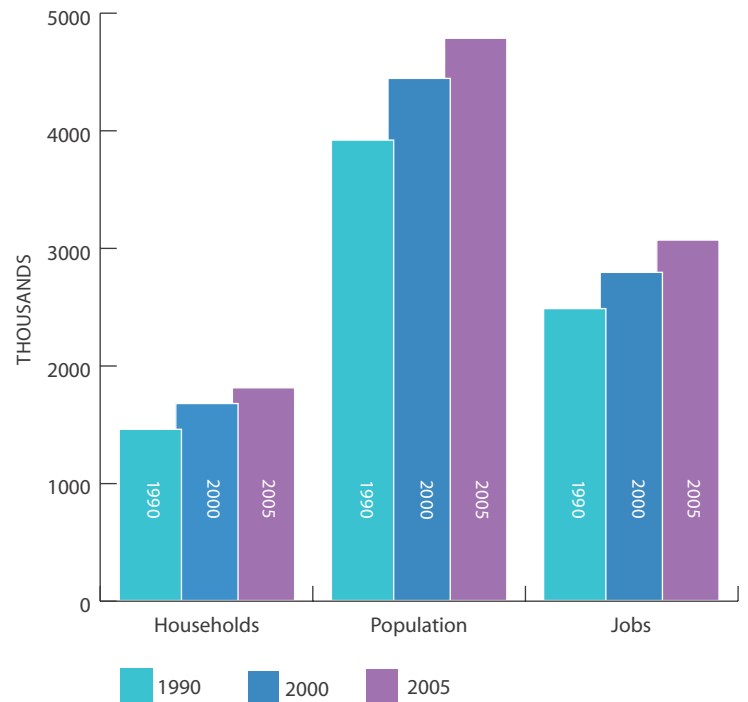
Emission Inventories

The SIP contains an accounting of VOC and NO_x emissions at specific points in time over a long-term planning horizon. The beginning, or baseline, inventory serves as the starting point for air quality planning. It represents the amount of human-made emissions in 1990 for the four source categories: point, on-road, non-road and area. The baseline inventory is the starting point used to calculate the inventory for future years, up to the year the region expects to attain the air quality standard. Because the quantity of emissions in the region is directly related to the number of people and businesses, the future year inventories are calculated using population, household and employment data.

Emission Controls

The Clean Air Act requires that emissions must be continually reduced below 1990 levels until the ozone standard is attained. This includes offsetting increased emissions resulting from the rapid growth occurring in the region. The SIP is the plan to reduce these emissions. It presents the control strategies established to reduce emissions and help attain the ozone standard by 2005. The SIP calculates the reductions from each control measure and totals them to demonstrate that the region will reduce emissions to the levels that protect the public. The level of VOC and NO_x emissions allowed under the air quality standard is determined by air quality modeling and analysis of air quality trend data. In cooperation with the states, MWAQC identifies which control strategies to implement and when they must be in place. Once the SIP is adopted, its control strategies become binding regulatory commitments for the entity committing to implement them.

PREDICTED REGIONAL GROWTH 1990–2005 Households, Population, Jobs



In the past 15 years, regional population has increased by an estimated 27 percent, while households increased by 28 percent and employment grew by 24 percent. Along with this high growth come even more activities that produce emissions, such as driving, mowing lawns, painting houses and buildings, generating electricity, construction and hundreds of other actions.

KEY TERMS

MWAQC: Metropolitan Washington Air Quality Committee Regional air quality planning committee consisting of elected officials from 21 cities and counties in the Washington non-attainment area, plus representatives from state legislatures, air agencies and transportation agencies. MWAQC has primary responsibility for developing SIPs to achieve the air quality standard for ground-level ozone.

NO_x: Nitrogen Oxides By-product of fuel burned for energy

VOC: Volatile Organic Compounds Produced through evaporation of alcohol and petroleum products

Emissions Inventories Accounting of quantity and source of pollutants produced in a region

Baseline Inventory Forms the starting point for calculating how emissions will change over a period of time

Control Strategies Initiatives designed to reduce pollution

Mobile Source Emissions Budget Maximum VOC and NO_x emissions allowable from mobile sources such as cars, trucks and buses

Regulatory Control Strategies in the SIP are targeted at each of the four source categories. Together, they achieve deep reductions that will enable the region to achieve the ozone standard by 2005. The following regulatory control strategies, implemented by state and federal agencies, achieve the biggest reductions:

1. Point Sources

Power plant controls to reduce smokestack NOx emissions

2. Area Sources

- Vehicle refueling controls to capture gasoline vapors
- Reformulated surface coatings, such as paints and stains, to reduce vapors
- Auto body refinishing controls to recapture paint and varnish vapors

3. Non-road Sources

National controls on machinery such as construction, boats and lawn and garden equipment.

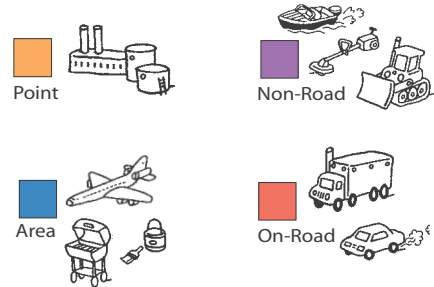
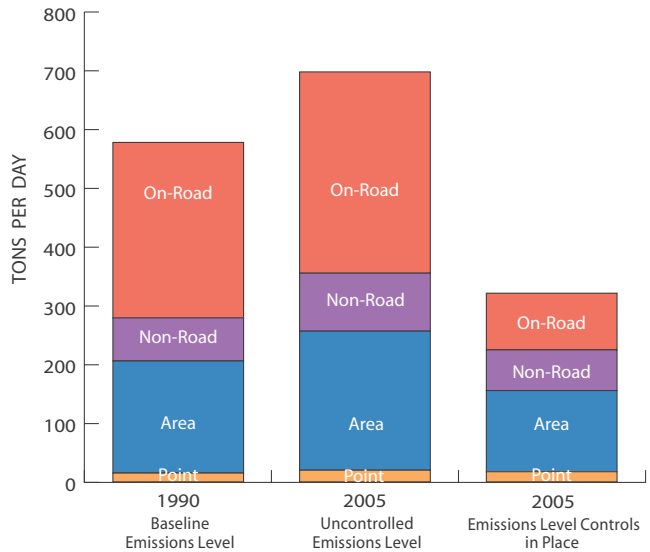
4. On-Road Sources Controls on cars and trucks, such as:

- Inspection and maintenance programs to maintain vehicle emission systems
- Cleaner burning gasoline
- National controls to require cleaner engines on all new cars, SUVs and heavy trucks

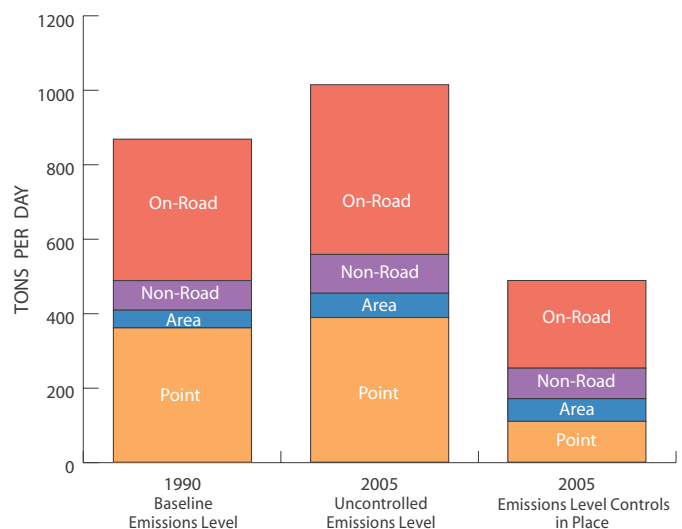
In all, 30 different control measures have been or will be enacted to achieve clean air in the Washington, DC, region. The charts at the right show the cumulative effect of these controls on NOx and VOC emissions. The leftmost bar shows 1990 emission levels, followed by 2005 emissions without controls and 2005 emissions once controls are in place. EPA has also taken action to reduce emissions of transported pollution, which comprises up to 70% of regional ozone on the worst air quality days and prevented our region from attaining the ozone standard in 1999. The controls on local and transported pollution should enable our region to attain the standard in 2005.

Non-Regulatory Strategies While most control strategies are implemented through state or federal regulation, controls can also be non-regulatory in nature. The Washington region’s SIP contains a group of innovative, non-regulatory emission reduction programs developed and funded by state and local governments. These programs focus on reducing emissions at the local level by replacing old gas cans, purchasing hybrid vehicles, using low-emission paint, purchasing wind power and retrofitting school and transit buses to reduce emissions. Several counties in the region have pledged to participate in these programs. In the future, MWAQC hopes to expand the programs to include more local governments, businesses and private citizens. MWAQC has also developed a “Gold Book” that highlights environmentally beneficial actions taken by local governments and will serve as an incubator for future emission reduction strategies.

VOC EMISSION REDUCTIONS from evaporation of alcohol and petroleum products



NOx EMISSION REDUCTIONS from burning of fuels to create energy



Transportation Planning

The Clean Air Act includes a special requirement that air quality plans address pollution from mobile sources, such as cars, trucks and buses. Specifically, the SIP must contain a limit on VOC and NO_x produced by mobile sources. The illustration at the right shows the effect of these limits, which are referred to as "mobile source emissions budgets." When transportation planners prepare regional transportation plans, they must analyze all improvements to the transportation system proposed for future years and ensure that emissions will not be greater than the emissions budget set in the SIP. This requirement is designed to help ensure that the region will meet the goal of clean air in 2005 and beyond. The most recent regional transportation plan shows that 2005 emissions will not exceed the mobile budget. It also indicates that cleaner vehicle technology will result in significant mobile emission reductions over the next decade.

The emissions budget incorporated in the SIP was set at a level consistent with achieving the ozone standard by 2005. It was based on 2005 mobile emissions, taking into account all control measures designed to reduce emissions from vehicles or the number of miles traveled.

Penalties

The SIP is a commitment by the states and localities governing the region to implement the regulatory measures that guide the plans. If the results are not achieved, or if the commitments are not met, there are harsh penalties for the region's residents and businesses. These include large sources of pollution paying a fee, losing all federal money for transportation projects, and developing and imposing a more restrictive plan. More importantly, residents continue to breathe unhealthy air. Because meeting the clean air goals is a serious endeavor, the SIP also contains contingency measures that will go into effect if the region does not achieve the federal health standard by the deadline. These include reformulated consumer products, such as hairspray and window glass cleaner, stricter controls on the use of commercial solvents, and redesigned fuel containers.

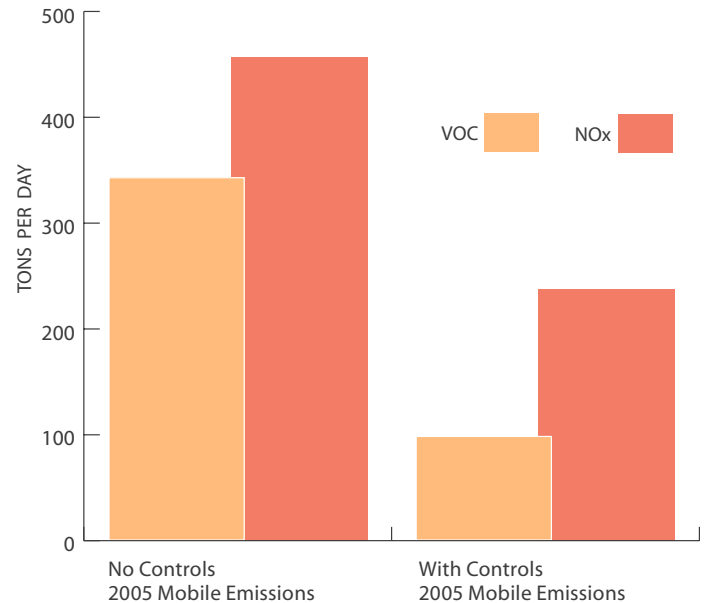


Local governments are purchasing wind power to reduce NO_x emissions.



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REDUCTIONS DUE TO MOBILE EMISSIONS CONTROL PROGRAMS



With the proposed SIP Mobile Emissions Budget the region's motor vehicle emissions will not exceed VOC: 97.4 tons/day and NO_x: 234.7 tons/day

NEXT STEPS

Maryland, Virginia and the District of Columbia submitted the SIP prepared by MWAQC to EPA in February 2004. Once EPA verifies that the SIP is technically correct and meets all Clean Air Act requirements, it will issue an official rulemaking approving the SIP. EPA will also conduct a separate review of the mobile emissions budget to determine whether it is "adequate," or consistent with attainment of the air quality standard. MWAQC expects EPA to complete the rulemaking process in mid-2005. MWAQC will also revisit the SIP periodically to review assumptions and determine if the region is still on course to meet air quality standards.

AIR QUALITY CONTACT INFORMATION

MWAQC www.mwcog.org/environment/air

District of Columbia Department of Health www.doh.dc.gov

Maryland Department of the Environment www.mde.state.md.us

Virginia Department of Environmental Quality www.deq.state.va.us

Clean Air Partners www.cleanairpartners.net

Air Quality Hotline 202-962-3299

Real-Time Air Quality Data www.air-watch.net