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ANNUAL REPORT ON THE ENVIRONMENT

**CHAPTER III**

**AIR QUALITY**

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### **III. AIR QUALITY**

#### **A. OVERVIEW OF AIR QUALITY IN FAIRFAX COUNTY**

##### **1. Introduction**

Through a federal-state-regional-local partnership, the quality of our air is monitored for specific contaminants and actions are taken against those who cause the contamination level to exceed allowed limits. Fairfax County's major responsibilities involve conducting the monitoring of air quality and coordinating with regional organizations on plans intended to reduce air pollution and improve air quality. More recently, the county has also taken a leadership role beyond the limits of its traditional air quality partnership and has helped formulate and has subsequently adopted a program to reduce gases that may be the cause of global climate change. With regard to traditional air quality matters, Fairfax County has demonstrated a continuing commitment to being an active partner in improving the region's air quality.

##### **a. Budget Impacts**

Due to the overall budget constraints in the county, the Board of Supervisors made significant reductions in the budget for the Health Department that could potentially affect air quality in the county. The FY 2010 budget eliminated two of the four field positions in the Air Quality Monitoring Program, with full elimination of the monitoring program scheduled for FY 2011. The Program Manager position that deals with air quality will be retained and will continue to participate in local and regional air quality meetings. During FY 2010, the monitoring program will transition from county to state responsibility, with the Virginia Department of Environmental Quality assuming full responsibility for air monitoring in FY 2011. During FY 2010, two remaining air quality staff will provide monitoring and sampling activities along with routine maintenance for ozone and fine particulate matter at county-operated monitoring stations located at Lewinsville, Mason, Mount Vernon, and Cub Run. They will also perform data analysis, prepare written reports, represent the Health Department at local and regional air quality meetings and work with DEQ staff to facilitate the transition. All county air monitoring activities will cease on June 30, 2010.

Based on recent discussions with county staff, it is unclear as to what level of monitoring will be conducted by the state after the county ceases its air monitoring activities. There are ongoing discussions with the U.S. Environmental Protection Agency and the Virginia Department of Environmental Quality about this matter and it is unknown when further direction will be provided.

In addition, the FY 2010 budget reductions eliminated the Environmental Hazards Investigation Section. While this is sometimes viewed within the context of a Hazardous Materials program, it addresses several items relevant to air quality. In

the past, EHI staff responded to approximately 1,000 residents' concerns per year about potential chemical, biological, and nuclear hazards such as mold, radon, asbestos and indoor air quality. They also worked in collaboration with the Hazardous Materials program in the Department of Fire and Rescue to provide emergency response to hazardous material incidents. EHI staff investigated cases of elevated blood lead levels in children as mandated by state law. The Health Department will continue to investigate cases of elevated blood lead levels as mandated by law; however all other services previously provided by EHI to the public will now need be provided by private contractors. Services previously provided to the Hazardous Materials program in Fire and Rescue will be provided by the Virginia Department of Environmental Quality or private contractors.

**b. Update on Air Quality Regulatory Changes**

**i. Clean Air Interstate Rule**

In December 2008, the U.S. Court of Appeals for the D.C. Circuit issued an order that leaves the Clean Air Interstate Rule in effect while EPA develops a new clean air program for power plants. The court essentially reversed its previous ruling made in summer 2008 which vacated the rule and sent it back to EPA for retooling. The CAIR program was designed to reduce pollution from coal-fired power plants in 28 eastern states and the District of Columbia.

**ii. Atmospheric Ozone**

In March 2008, EPA tightened the ozone National Ambient Air Quality Standard from 0.08 ppm to 0.075 ppm but the standard was challenged by a coalition of environmental and health advocacy groups. The environmental and health advocacy groups have argued that EPA ignored the recommendation of its own scientific advisory panel, which advised that the standard be strengthened to 0.070 ppm.

EPA has requested the court that the briefing schedule in that case be suspended for six months, in order to review the existing ozone NAAQS and determine whether another revision is warranted. The fact that EPA has now asked for time to review the current standard indicates that EPA is considering the more stringent standards.

**iii. Fine Particulate Matter--PM<sub>2.5</sub>**

On February 24, 2009, the United States Court of Appeals for the District of Columbia issued its ruling on EPA's Final Rule on NAAQS for fine particulates. The case involves EPA's October 2006 revisions of the particulate matter NAAQS and particularly the agency's decision to retain the limit for the annual concentration for PM<sub>2.5</sub> (particulate matter less than 2.5 microns in diameter) at 15 µg/m<sup>3</sup>. The court concluded that EPA failed to adequately

explain why the annual standard of  $15 \mu\text{g}/\text{m}^3$  for fine particulates would be sufficient to protect the public health within an adequate margin of safety. The court chose to keep the standard in place so that some protection for fine particulates would remain in place.

On January 15, 2009, EPA proposed to revise the agency's Air Quality Index to update the values states use to report daily concentrations for fine particle pollution, to reflect changes to the fine particle standard made in 2006. The proposed changes would set a  $\text{PM}_{2.5}$  AQI value of 100 at  $35 \mu\text{g}/\text{m}^3$ , which is the level of the 24-hour  $\text{PM}_{2.5}$  NAAQS. This means that anything above an AQI of 100 is unhealthy for sensitive groups.

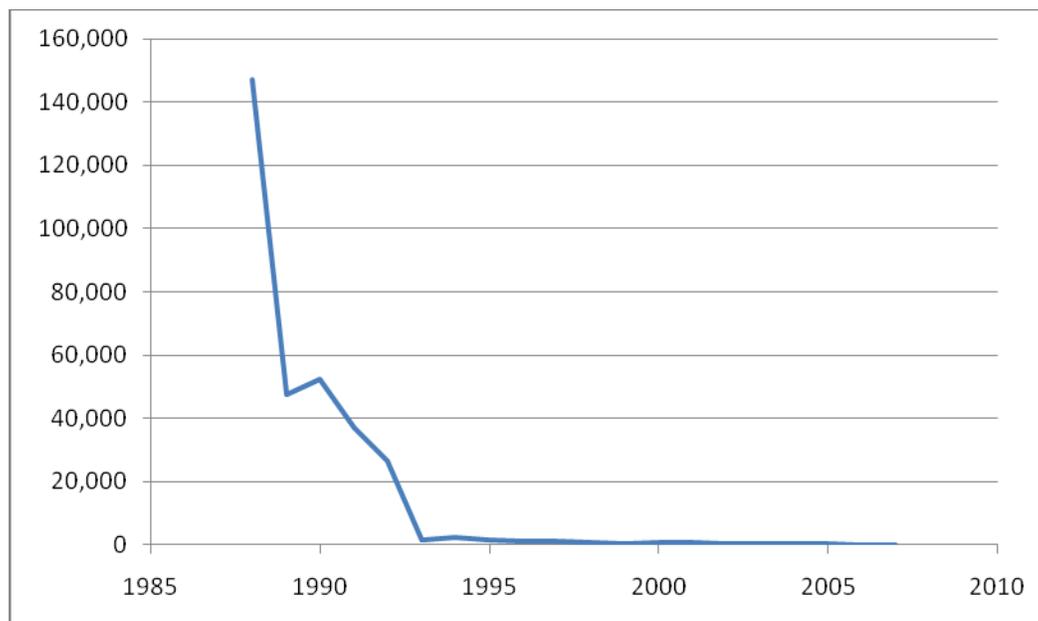
## 2. Air Quality Status in Northern Virginia

### a. Hazardous Air Pollutants and Enforcement

EPA tracks the emissions of air pollutants from stationary sources, including sources in Fairfax County. Some of these emissions are discharged through smoke stacks and some emerge from the source without treatment. All are regulated under law. Virginia DEQ's air compliance program (<http://www.deq.state.va.us/air/compliance/homepage.html>) conducts inspections of facilities within Fairfax County and records information on violations in the state's database (Comprehensive Environmental Data System). A preliminary review of the DEQ database shows a total of 12 facilities in Fairfax County that were noted for violations, consisting of six service stations, five dry cleaners and a concrete plant. The majority of these violations are for deficiencies in recordkeeping, with some violations also noted for hanging hardware (i.e., the gasoline dispensers, fuel hoses, and/or fuel nozzles [the above grade fuel dispensing equipment] at a gasoline station). In addition, there are several facilities where the subject of the violation has been addressed but where the state's database has not yet been updated.

Despite these violations, EPA data show a low level of hazardous pollutants in Fairfax County. Figure III-1 displays the most recent information on hazardous air pollutant emissions within the county, as reported by EPA's Toxic Release Inventory. Note that this graph shows a very low level of emissions in Fairfax County over more than the past ten years.

**Figure III-1. Hazardous Air Emissions in Fairfax County  
(pounds of fugitive plus stack air emissions per year)**



SOURCE: U.S. EPA Toxic Release Inventory, Accessed October 16, 2009. TRI On-site and Off-site Reported Disposed of or Otherwise Released (in pounds), Trend Report for Total Air Emissions for Facilities in All Original Industries, for [1988 Core Chemicals](#), Fairfax County, Virginia, 1988 – 2007.

## **b. Update on county and regional air quality data**

### i. Ozone State Implementation Plan

In April 2004, EPA designated the metropolitan Washington region as a moderate nonattainment area for the 8-hour ozone standard. The Clean Air Act requires states to develop and implement ozone reduction strategies in the form of a state implementation plan. The SIP is the state's "master plan" for attaining and maintaining the NAAQS. The region has a deadline of June 15, 2010 to meet the 8-hour ozone standard. Virginia submitted its 8-hour ozone SIP in June 2007.

### ii. Fine Particulate Matter State Implementation Plan

Virginia submitted its PM<sub>2.5</sub> SIP in April 2008, despite a three-year history of PM<sub>2.5</sub> data in the region that demonstrates compliance with the 1997 PM<sub>2.5</sub> standards. In October 2008, EPA proposed to determine that the Metropolitan Washington region has attained the 1997 PM<sub>2.5</sub> NAAQS. This is the first step in the region getting an EPA determination of NAAQS attainment for PM<sub>2.5</sub>. The decision was based on 2005–2007 data. The Washington metropolitan area is

on course to meet federal requirements for reducing PM<sub>2.5</sub> in 2009 and will also meet the NAAQS.

EPA recently sent the PM SIPs submitted in April 2008 back to the states. States contacted EPA to alert them that the states did not want the SIPs returned. The PM SIPs are being resent to EPA.

### iii. Data and Trends

Ground-level ozone is a precursor to smog and can cause breathing problems for those sensitive to smog, especially those with asthma. Figure III-2, Figure III-3 and Table III-1 present regional and county air quality trends as they relate to the eight-hour ozone standard. It is evident from these charts that the metropolitan area has had continuing difficulty meeting the eight-hour ozone standard. Monitors in Fairfax County recorded violations of the eight-hour ozone standard on thirteen days during the 2008 ozone season. The Washington region registered 19 days with violations of the eight-hour standard during the 2008 season. Various studies have shown that much of the Washington Metropolitan area ozone problem originates west of the area and is beyond the control of Virginia, Maryland, and the District of Columbia.

### iv. Emissions from Motor Vehicles

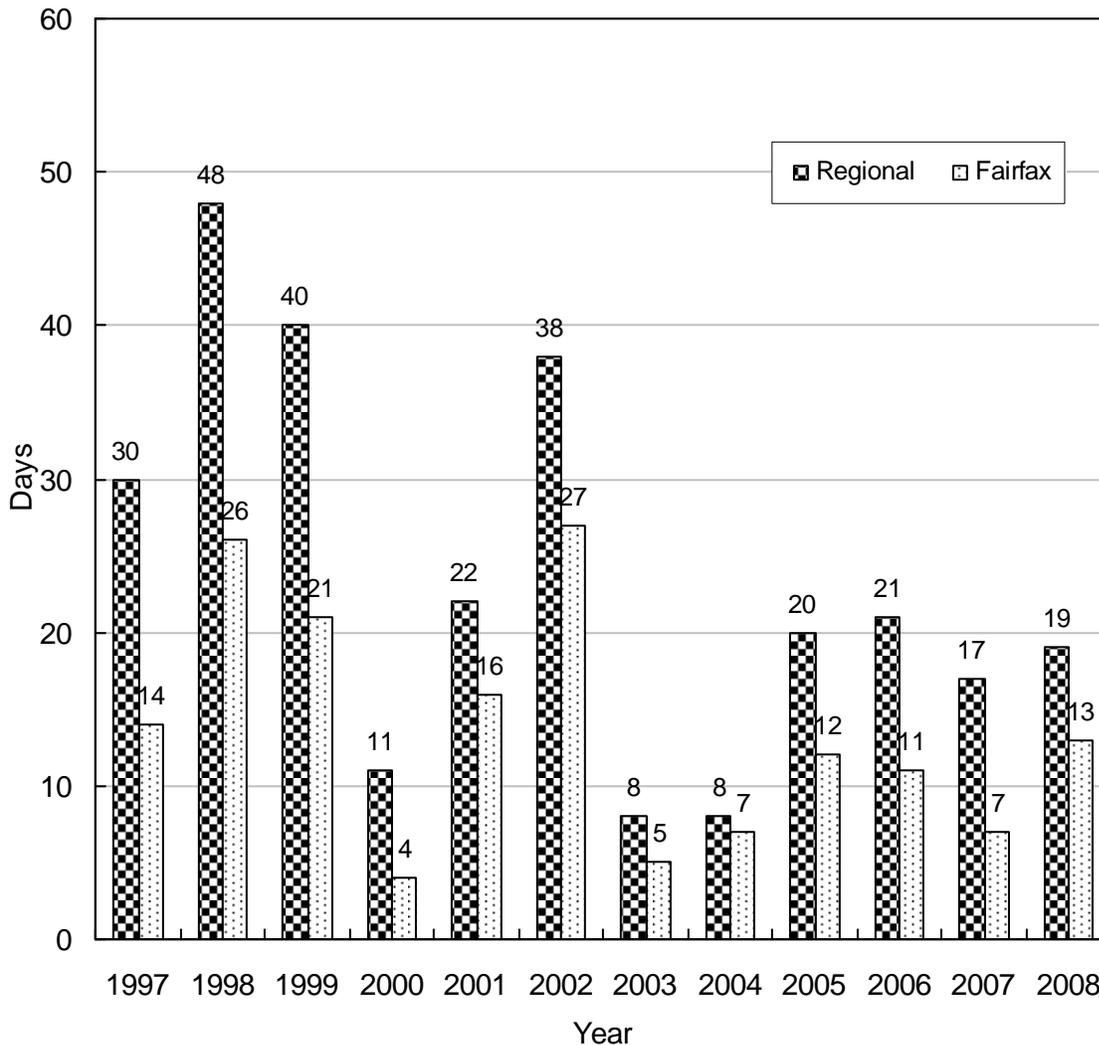
One of the key issues related to ozone nonattainment is the extensive use of motorized vehicles and their emissions. The number of vehicle miles traveled per day has increased steadily over the past 20+ years, and, based on the most recent data, totaled more than 25 million miles in 2007. In addition, there are a significant portion of vehicles in Virginia that do not pass the emissions testing, with initial failure rates of approximately 8% and waivers of more than 1%. Should Virginia decide to exempt newer cars from inspections, these types of emissions may serve to worsen the extent of ozone nonattainment in the county.

The following overview has been provided by VDOT:

VDOT is actively seeking to address transportation modes that can be used as alternatives to motorized vehicles, such as addressing increased safety for bicycling and pedestrians. These types of initiatives can serve to reduce the county's status as being in nonattainment for ozone, and should be commended.

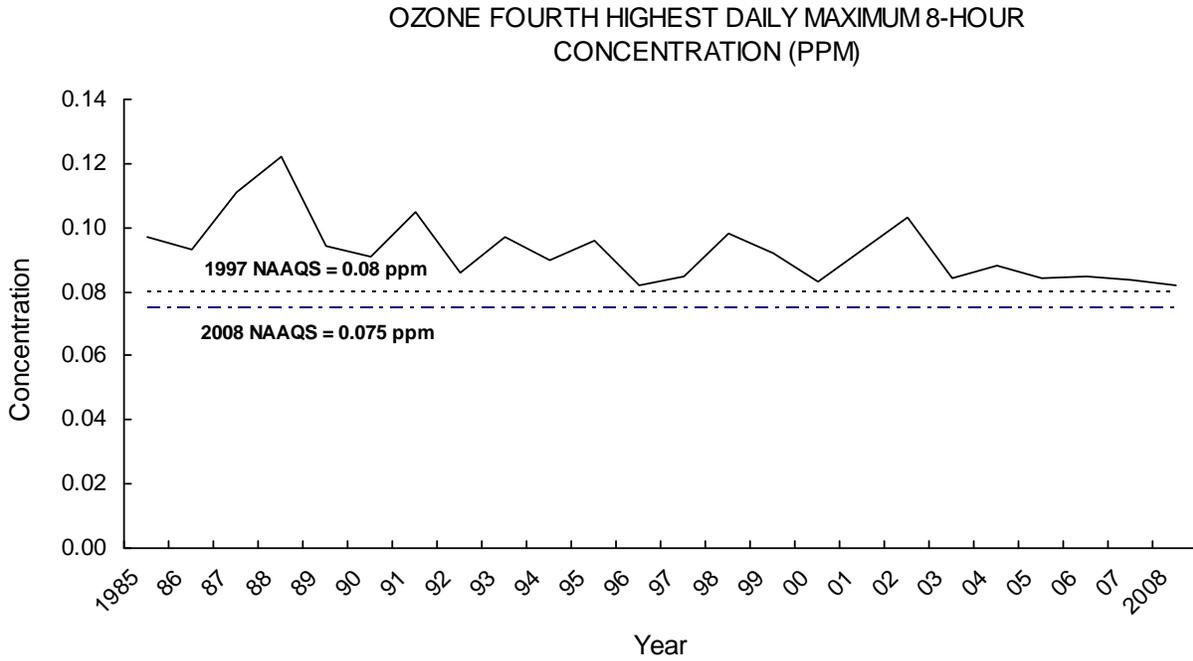
VDOT is attempting to make bicycling safer and more appealing as a transportation alternative. Experimental zigzag pavement markings were recently painted where the Washington and Old Dominion trail crosses a roadway in a neighboring county. The zigzag is an idea borrowed from Australia and the United Kingdom, where it has been used successfully to warn motorists of an upcoming crosswalk. The

**Figure III-2. Air Quality Trends in Relation to the Eight-Hour Ozone Standard (1997 Standard)  
Ozone Exceedance Days**

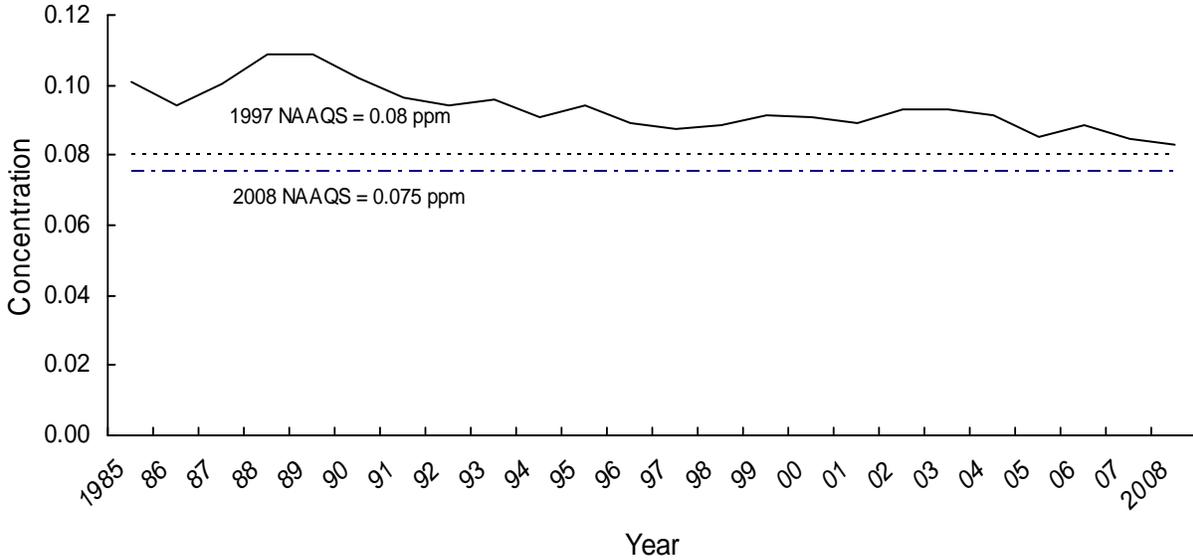


SOURCE: Fairfax County Health Department and the Metropolitan Washington Council of Governments. 2008 data are draft and are subject to change after Quality Assurance/Quality Control.

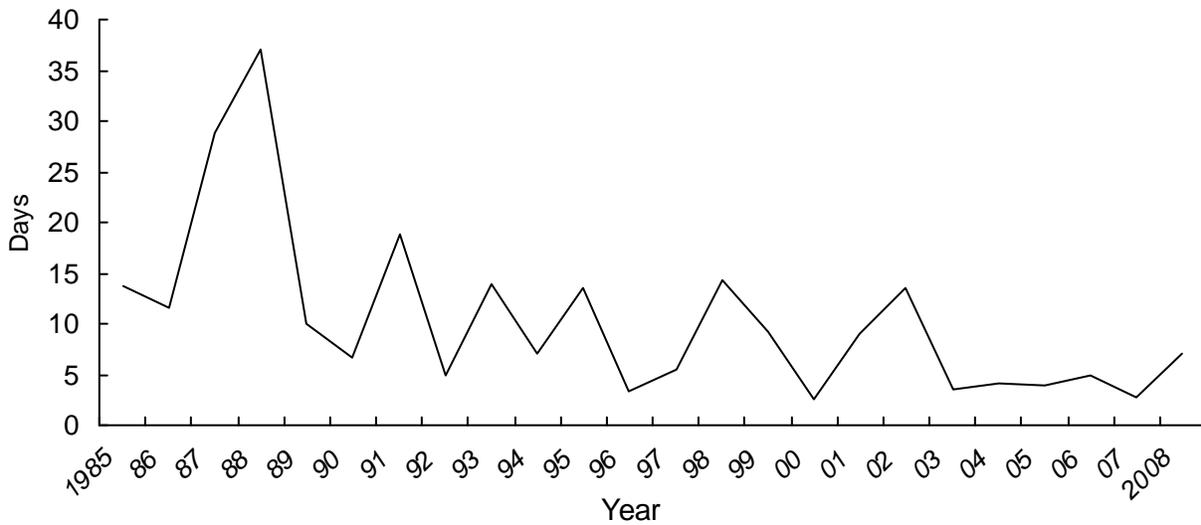
**Figure III-3. Air Quality Trends in Relation to the Eight-Hour Ozone Standard (Fourth Highest Daily Maximum; 3-Year Mean of Fourth Highest Daily Maximum; No. of Days with Maximum Daily Above Standard; and Vehicle Miles Traveled).**  
 (Source: Fairfax County Health Department and COG)

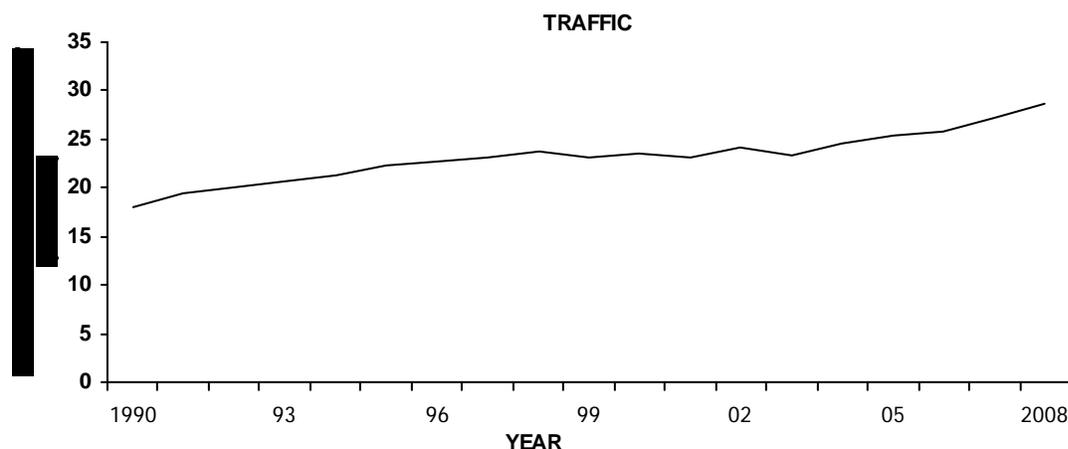


3-YEAR MEAN OF OZONE FOURTH HIGHEST DAILY MAXIMUM 8-HOUR CONCENTRATION (PPM)



DAYS WITH MAXIMUM DAILY 8-HOUR CONCENTRATION ABOVE OZONE STANDARD IN FAIRFAX COUNTY





**Table III-1: Regional Eight Hour Ozone Exceedances (2008 Standard)**

Date	Number of Stations that Exceeded the Standard	Washington, DC-MD-VA Ozone Non-Attainment Area: Maximum 8-Hour Ozone (ppb)
4/18/2008	5	82
4/19/2008	3	77
6/5/2008	1	82
6/7/2008	1	81
6/10/2008	5	85
6/12/2008	13	102
6/13/2008	10	94
6/21/2008	5	80
7/12/2008	1	76
7/15/2008	4	85
7/16/2008	12	92
7/17/2008	15	112
7/18/2008	13	97
7/29/2008	5	89
8/19/2008	2	77
8/21/2008	1	80
8/25/2008	1	78
9/3/2008	7	87
9/4/2008	6	82

Source: Metropolitan Washington Council of Governments.

2008 data in Table III-1 is draft as of July 30, 2009 and is subject to change.

zigzag pattern extends for 500 feet in each direction from the W&OD crossing. Traffic habits on this stretch of road will be monitored for the next year to determine its safety effectiveness. If successful, bicyclists and pedestrians in Fairfax County may see this new traffic calming measure implemented in the future at some high risk crossings. In collaboration with local governments and partnering organizations around the state, VDOT continues to create an infrastructure that facilitates more routine use of bikes for commuting to work or by staffing various “pit stops” strategically located within the region to promote bicycling as one of the most efficient forms of transportation that offers a healthy option for traveling to work, school and home.

## **B. MAJOR PUBLIC AGENCY RESPONSIBILITIES**

### **1. Introduction**

Although compliance with National Ambient Air Quality Standards and resulting air quality management responsibilities is a function of federal law, in Fairfax County these responsibilities have been split between the Commonwealth of Virginia and the regional metropolitan planning organization, on which Fairfax County holds a seat and which the county staff is required to support. Metropolitan planning organizations are set up under the Clean Air Act in metropolitan areas with populations in excess of 50,000. In more difficult situations, MPOs are multi-jurisdictional, as is the case in the Washington MPO. Members of MPOs are appointed by the governors and mayors of affected jurisdictions to represent areas included in the MPO. The MPO works with state departments of transportation and transit providers in identifying transportation needs and priorities. They make transportation investment decisions for the metropolitan area and, by default, for the individual regions encompassed within the MPO. The Transportation Planning Board at the Metropolitan Washington Council of Governments serves as the designated MPO for the metropolitan Washington, D.C. area.

### **2. Commonwealth of Virginia**

#### **a. Virginia State Air Pollution Control Board**

This board is authorized to propose policies and procedures for air quality regulatory programs, including emissions standards for landfills and vehicles.

#### **b. Department of Environmental Quality**

This department is responsible for establishing or adopting standards for air quality, air quality monitoring and vehicular inspection and maintenance programs. Air quality enforcement is handled by DEQ.

**c. Virginia Department of Transportation**

This department is responsible for planning, developing, delivering, and maintaining transportation for the traveling public.

**3. Region – The Metropolitan Washington Council of Governments, the Metropolitan Washington Air Quality Committee and the National Capital Region Transportation Planning Board**

COG is the Metropolitan Washington regional planning group that works toward solutions to regional problems related to air and water quality, transportation and housing. COG also manages other programs such as those responsible for forecasting demographic changes. The Metropolitan Washington Air Quality Committee, which is a part of COG, is responsible for all air quality planning in the Metropolitan Statistical Area identified under Section 174 of the Clean Air Act. The authority of MWAQC is derived from the certifications made by the governors of Virginia and Maryland and the mayor of the District of Columbia.

MWAQC was established to conduct interstate air quality attainment and maintenance planning for the Metropolitan Washington region. Members are appointed, and Fairfax County currently has three members of the Board of Supervisors on the committee. The Transportation Planning Board serves as the designated Metropolitan Planning Organization for the Washington region and is responsible for regional transportation planning and conformity. The TPB is staffed by the Department of Transportation Planning, which is part of COG. Members of the TPB are appointed, and Fairfax County currently has two members of the Board of Supervisors sitting on the TPB. TPB and MWAQC work together on air quality and transportation issues. COG is also responsible for issuing air quality indices on a weekly basis.

**a. MWAQC Technical Advisory Committee**

This committee was established to advise and assist MWAQC in planning for and maintaining the region's air quality. Members review technical issues and documents before they are submitted to MWAQC for review and approval.

**b. Interstate Air Quality Council**

On May 31, 2005, Virginia Governor Mark Warner, Maryland Governor Robert Ehrlich, Jr., and D.C. Mayor Anthony Williams signed a Memorandum of Understanding creating the Interstate Air Quality Council. The council consists of six members: the secretaries of the environment and transportation from each of the three governments. The IAQC provides overall guidance and streamlined planning to ensure the states and the District meet their shared goals of improved air quality, including compliance with new federal standards for ozone and fine particulates,

and efficient transportation. The IAQC works in concert with the air quality and transportation committees of COG to achieve its goals.

**c. Forecasting Subcommittee**

This subcommittee considers how to monitor and report the new eight-hour ozone standard and how to devise guidelines for issuing health alerts during the ozone season.

**d. Attainment Subcommittee**

This subcommittee considers evidence for the case that the Washington nonattainment area can attain the eight-hour ozone standard with the control measures already adopted.

**e. Conformity Subcommittee**

This subcommittee reviews Air Quality Conformity Determinations prepared by the TPB to ensure that regional transportation plans are consistent with plans to improve air quality. This includes verifying that estimated emissions from mobile sources, such as cars, trucks and buses, do not exceed the mobile budget, a cap on regional mobile emissions contained in the region's air quality plan.

**f. Air Quality Public Advisory Committee**

This committee has been established to provide a vehicle to brief residents on actions pending before MWAQC. This committee functions as an important source of feedback from the public on air quality concerns in the metropolitan area.

**g. Control Measures Workgroup**

This workgroup was established to research control measures and develop a plan of emission reducing control measures for the region to implement in an effort to reach attainment for ozone. With the recent designation of PM2.5 nonattainment, this group will add emission-reducing control measures for attainment of this standard to its duties.

## **C. STEWARDSHIP OPPORTUNITIES**

Residents of Fairfax County have many opportunities to contribute to improvements in air quality. While some of the Washington Metropolitan area ozone problem originates west of the area and is beyond the control of Virginia, Maryland, and the District of Columbia, there are many aspects of our daily lives that can affect the quality of our air. A significant contributor to air quality issues is vehicle miles traveled. As discussed above, Virginians drive many millions of miles. Reducing the amount of driving, as well as the use of other

combustion devices, especially during times where ground-level ozone is of concern (e.g., on hot days with lots of sun and little or no wind), can help to improve air quality. Examples of actions that can be taken include carpooling, taking mass transit, reducing or postponing mowing, paving and outdoor painting, limiting vehicle idling, bringing a lunch to work, avoiding drive-thru windows and refueling after dark. The following is a “Top 10 Tips List” that has been provided by Partners for Clean Air ([www.cleantheair.org/overview.shtml](http://www.cleantheair.org/overview.shtml)):

1. Limit driving – rideshare, walk or bike
2. Take public transportation
3. Avoid excessive idling and abrupt starts
4. Use E85 [an ethanol fuel mixture] in your flexible fuel vehicle
5. Use a charcoal chimney or electric starter instead of lighter fluid when grilling
6. Limit use of household products that cause fumes
7. Conserve energy at home to reduce demands on power plants
8. Do not burn leaves and other yard waste
9. Avoid burning wood in fireplaces
10. Avoid using lawnmowers and other gasoline-powered equipment

## **D. COMMENTS**

1. EQAC supports the retention of all of the air quality monitors that are currently being operated by the county’s Health Department; these monitors should be incorporated within the Virginia Department of Environmental Quality’s monitoring network. EQAC’s understanding is that DEQ is working with the regional EPA office to determine the specific air quality monitors and suite of monitoring parameters that it will propose to operate in the county. EQAC will continue to track DEQ’s decision-making process (proposals are anticipated to be made in Spring 2010) and may recommend further action at that time.
2. EQAC acknowledges that budget limitations required significant cuts in the FY 2010 budget and will likely require further cuts in the future. The FY 2010 budget reductions eliminated the Environmental Hazards Investigation Section of the Fairfax County Department of Health, which has provided valuable services by responding to complaints about mold, radon, asbestos and indoor air quality and in assisting the Fire and Rescue Department with responses to hazardous materials incidents. EQAC feels that, in the future, when budgetary conditions allow, these functions should be restored. Until these functions are restored, these services will need to be provided by private contractors.

## **E. RECOMMENDATION**

1. EQAC acknowledges the budget limitations that can be expected to continue for a few years, yet also recognizes that without a continued commitment to traditional air pollution problems, the area will not attain national air quality standards. EQAC commends the Board

of Supervisors for retaining, in the FY 2010 budget, the county's air quality management position and recommends that this position be retained in future budgets as well. This staff position provides the following services: manages the county's air quality program; provides support to address board matters related to air quality and the environment; performs ongoing planning through attendance at Metropolitan Washington Council of Government's Air Quality Committee meetings and participation on the Air Quality Technical Review Committee and subcommittees; collaborates with other local, regional, and national air quality organizations, such as Clean Air Partners; coordinates with other county agencies on efforts to reduce air pollution and perform annual county survey to assess progress toward SIP commitments; serves on county groups and committees such as Environmental Coordinating Committee and Environmental Improvement Program Action Group; reviews proposed projects for environmental impact related to air quality; performs legislative reviews; assesses the results of ongoing monitoring; and participates in outreach events and encourages county residents and others to take voluntary action to improve air quality.

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