
ANNUAL REPORT ON THE ENVIRONMENT

CHAPTER III

AIR

QUALITY

III. AIR QUALITY

A. ISSUES AND OVERVIEW

1. Introduction

We guarantee good air quality by monitoring the air for specific contaminants and taking action against those who cause the contamination level to exceed allowed limits. This is a federal-state-regional-local partnership. 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 warming.

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. In the bullets below, EQAC notes the efforts taken by the Board of Supervisors and county staff to promote and encourage clean air initiatives and practices.

The county completed no Environmental Quality Improvement Program elements related to air quality in 2007, but the Board of Supervisors:

- Endorsed county use of the Natural Landscaping Manual and the Implementation Plan (10/13/08);
- Committed to implement the following voluntary control measures for inclusion in the Virginia portion of the Washington metropolitan region's Clean Air Act State Implementation Plan:
 - Purchase 5.8 million kWh of wind energy annually, through March 2008; 7.25 million kWh of wind energy, from April 2008 through March 2009; 11.6 million kWh of wind energy, from April 2009 through March 2010;
 - Use ultra-low sulfur fuel for all off-road and stationary diesel applications, 2007;
 - Expand green building activities; and
 - Continue participation as a Clean Air Partner, through 2010. (12/3/07)
- Approved a Comprehensive Plan Amendment that strengthens air quality guidance in the Plan; incorporates support for green building practices into the Plan; and, encourages and promotes the application of these practices in the private sector (12/3/07); and

- Directed staff to:
 - Prepare a Zoning Ordinance Amendment to de-classify wind turbines and towers associated therewith as accessory structures and undertake to eliminate hurdles to installing wind turbines.
 - Explore legislation for the General Assembly to address homeowner association covenants that prevent the installation of solar panels, and report to the Board's Legislative Committee with recommendations. (6/30/08)

The remainder of this section introduces some important topics to which the county either has responded or will have to respond.

a. Clean Air Interstate Rule – Help Reduce SO₂ and NO_x

On March 10, 2005 the U.S. Environmental Protection Agency issued the Clean Air Interstate Rule, which would have achieved the largest reduction in air pollution in more than a decade. CAIR would have required 28 eastern states (including the states in the Metropolitan Washington region) to permanently cap emissions of sulfur dioxide and nitrogen oxides. EPA promulgated this rule to address the fact that upwind states contribute significantly to nonattainment of eight-hour ozone and fine particulate/PM_{2.5} standards in downwind states. Implementation of the rule would have assisted nonattainment areas in achieving the National Ambient Air Quality Standards.

Based on air quality modeling conducted by the Metropolitan Washington Council of Governments, Fairfax County expected a 20 percent reduction in oxides of nitrogen, an important precursor in the formation of ozone. These potential reductions were an important part of the Washington region's portion of the Clean Air Act State Implementation Plan, a plan to reduce air pollution in our region. Actual reductions in the metropolitan area along with reductions of transported NO_x will be critical to attaining the federal standard during ozone season.

On July 11, 2008, the D.C. Circuit Court of Appeals struck down (vacated in its entirety) both the Clean Air Interstate Rule and the CAIR federal implementation plan. The rule was brought before the court due to charges by the state of North Carolina that challenged EPA's decision to allow unrestricted interstate trading in allowances.

The court ruled that CAIR would not require individual states to reduce emissions but rather it focused on regional emissions reductions goals. The court held that this conflicted with the requirements of the Clean Air Act. This aspect of the court's ruling also required that the cap and trade portion of CAIR also be struck down, as it might result in no emissions reductions in upwind states.

The CAIR rule would have replaced the NO_x SIP Call cap and trade program which now limits the amount of smog-forming NO_x emitted by air pollution sources. The

CAIR rule also included revisions to the Acid Rain Program regulations streamlining the operation of the Acid Rain SO₂ cap and trade program.

There are four large power plants (major sources under the Clean Air Act) within the Washington D.C. area and some of these power plants have emitted considerable quantities of NO_x into this area as a result of decisions to purchase emission reduction allowances outside of the Washington Metropolitan air shed.¹ Under the CAIR rule, these plants could have continued to emit NO_x by purchasing emission allowances from sources well away from the Washington D.C. area. Because the court has struck down this rule, these plants will be less able to avoid using pollution controls.

The court remanded the rule to EPA and at this time the agency has not decided how, or even whether, it can rewrite the rule to allow for a cap and trade program that requires each state to attain national air quality standards. The existing programs will remain in place, but many states have indicated they will take independent action to form cap and trade programs within their own borders. Virginia has not yet declared how it will respond to the CAIR decision.

State Implementation Plans have been submitted for the Washington Metropolitan region (Maryland, Virginia and Washington, D.C.). An eight-hour ozone SIP was submitted in May 2007, and a SIP for fine particulate matter (expressed as “PM_{2.5}”) was submitted in April 2008. Both SIPs have proposed to take NO_x and SO₂ reduction credit from the CAIR. Since the vacature of CAIR in July 2008, EPA has not officially disclosed its move. EPA has filed a petition for reviewing the court decision within the deadline of September 24, 2008. At this point, in the absence of any guideline from EPA, the actions needed to rectify allocated pollution credit in SIP are unclear. The impact of this void may mean the revision of SIPs to find measures to substitute the credits that are supposed to be derived from CAIR.

d. Metropolitan Washington Council of Governments Air Quality Plan

The Metropolitan Washington region was previously designated as a severe non-attainment area under the one-hour ground level ozone standards. The region had to demonstrate attainment of the standards by November 2005. The region developed a plan to do this and established limits on emissions of volatile organic compounds and nitrogen oxides from the transportation (mobile) sector. The one-hour ground level ozone standard was revoked in June 2005 and replaced with a tougher, eight-hour ground level ozone standard. The region did demonstrate attainment of the one-hour ground level ozone standard by November 2005. The region is classified as a moderate non-attainment area under the new eight-hour standard and has until June 2010 to demonstrate attainment of the standard. The region has developed the required plan to demonstrate attainment, which

¹ Three of these plants are in Maryland (Morgantown, Chalk Point and Dickerson) and one is in Virginia (the Potomac River Generating Plant in Alexandria).

established new limits of VOC and NO_x emissions from the transportation sector. The plan was submitted to the state air agencies by the June 15, 2007 deadline. Additionally, in December 2004, EPA designated the Metropolitan Washington region as nonattainment of the standards for another criteria pollutant, Particulate Matter (addressing small (“fine”) particles, expressed as “PM_{2.5}”). The Metropolitan Washington region will have to demonstrate attainment of the PM_{2.5} standards by April 2010. The region’s SIP to attain the PM_{2.5} standards was submitted to the US EPA by April 2008. The Metropolitan Washington Council of Governments attainment plan is available at:
<http://sharepoint.mwcog.org/airquality/Shared%20Documents/Forms/AllItems.aspx>

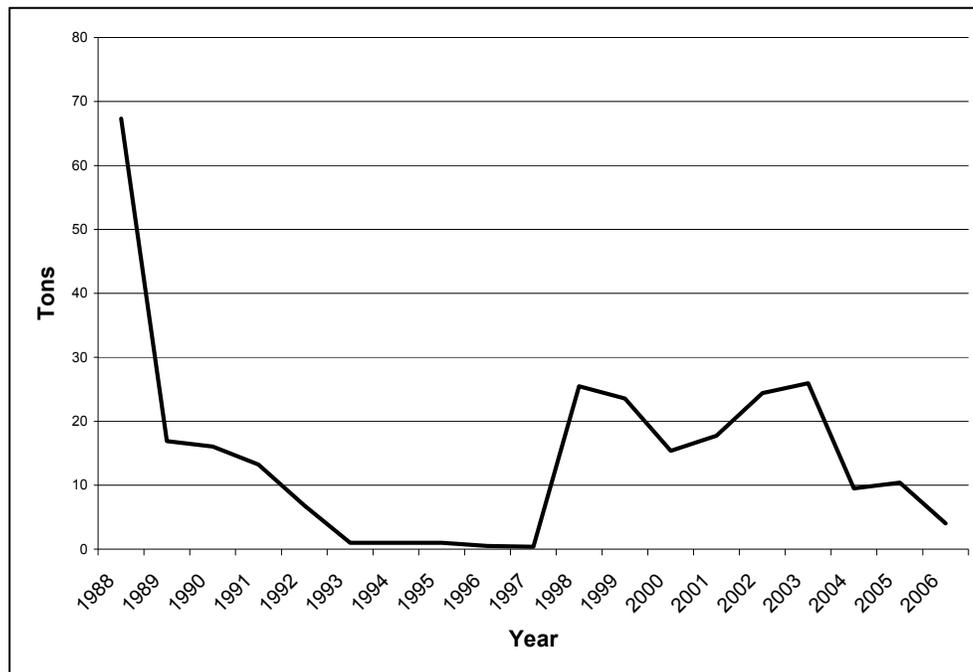
2. Air Quality Status in Northern Virginia

a. Hazardous Air Pollutants and Enforcement

The United States Environmental Protection Agency tracks the emission 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. During 2007, Virginia’s Department of Environmental Quality conducted 331 inspections of facilities within Fairfax County, finding 38 instances of non-compliance. All but three violations have been resolved. The list below identifies the three non-compliant facilities and the status of Virginia DEQ’s enforcement activities.

- **Romeros Auto Service Incorporated:** The facility was issued a Request for Corrective Action for record keeping deficiencies note during an on-site inspection conducted on 12-21-2007. There is no record of a response to the RCA. The inspector assigned to the facility has scheduled follow-up action. At this point in time, the facility is still listed as out of compliance.
- **George Mason University – Fairfax:** The facility was required to stack test on Natural Gas and #2 Oil for a variety of permitted pollutants. Testing was done on gas but not oil, and an Executive Compliance Agreement was issued to address the Notice of Violation. According to the state’s database and available documents, the facility still has not tested on oil fuel.
- **Upper Occoquan Sewage Authority:** A Consent Order is still active. The facility is meeting its schedule. The Supplemental Environmental Project is to be completed soon and the action will be resolved at that time.

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. Note that this graph displays significantly updated data for past years. It also shows a continuing reduction in hazardous air pollutants within the county over the past four years.

Figure III-1: Hazardous Air Emission Air Quality Trend

Source: USEPA Toxic Release Inventory, accessed 8-17-2008.

b. Ground-level Ozone

The Metropolitan Washington area, including Fairfax County, was classified as a severe non-attainment area for the one-hour ozone standard and a moderate non-attainment area for the eight-hour ozone standard during 2004. To obtain compliance with the eight-hour standard, the three year average of the fourth-highest daily maximum eight-hour average value at each monitoring site in a region must not exceed 0.08 ppm. Ozone is a precursor to smog and can cause breathing problems for those sensitive to smog, especially those with asthma. Based on three years of complete, quality-assured ambient air quality data, EPA finds this region to be in compliance with National Ambient Air Quality Standards for one-hour ozone (Federal Register, April 28, 2008).

On March 12, 2008, EPA announced a final rule revising the NAAQS for ozone. The new standard tightens the primary and secondary standards to 0.087 parts per million (ppm). As a result, it is expected that there will be a significant increase in the number of ozone violation days during the ozone season in this region, including Fairfax County.

c. Ozone Exceedances in 2007

The U.S. Environmental Protection Agency evaluates compliance with ozone standards by examining the maximum level daily ozone levels at each monitoring

site within the Washington metropolitan area. Because there can be unusual ozone levels that are beyond reasonable human control, EPA disregards the three highest days and examines the fourth-highest daily maximum levels at each monitor. It averages these levels for each monitor over three years to determine whether the area has attained the air quality required by the federal ozone ambient air quality standard. Attainment of the ozone standard in the Metropolitan Washington area will require each monitoring site in the region to have a three-year average equal to or less than 0.08 ppm.

Monitors in Fairfax County recorded violations of the eight-hour ozone standard on seven days during the 2007 ozone season. The Washington region registered 16 days with violations of the eight-hour standard during the 2007 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.

Table III-1. Regional Eight-Hour Ozone Exceedances, 2007		
Date	Number of Stations that Exceeded the Standard	Maximum Values in the Metropolitan Statistical Area; Maximum 8-Hour Ozone (ppm)
5/26/2007	1	0.091
5/30/2007	5	0.089
5/31/2007	2	0.086
6/18/2007	11	0.100
6/19/2007	3	0.088
7/9/2007	6	0.089
7/17/2007	10	0.095
7/28/2007	1	0.088
8/1/2007	1	0.085
8/2/2007	4	0.091
8/4/2007	9	0.110
8/7/2007	5	0.091
8/15/2007	1	0.085
8/25/2007	1	0.088
9/5/2007	2	0.088
9/25/2007	1	0.086

Source: Metropolitan Washington Council of Governments

Figures III-2 and III-3 present regional and county air quality trends as they relate to the eight-hour ozone standard. It is evident from these figures that the metropolitan area has had continuing difficulty meeting the eight-hour ozone standard. This indicates that the county needs to expand its air quality planning and technical support efforts.

Figure III-2: Air Quality Trends in Relation to an Eight-Hour Ozone Standard

**Ozone Exceedance Days
Eight-Hour Standard**

Source: Fairfax County Health Department

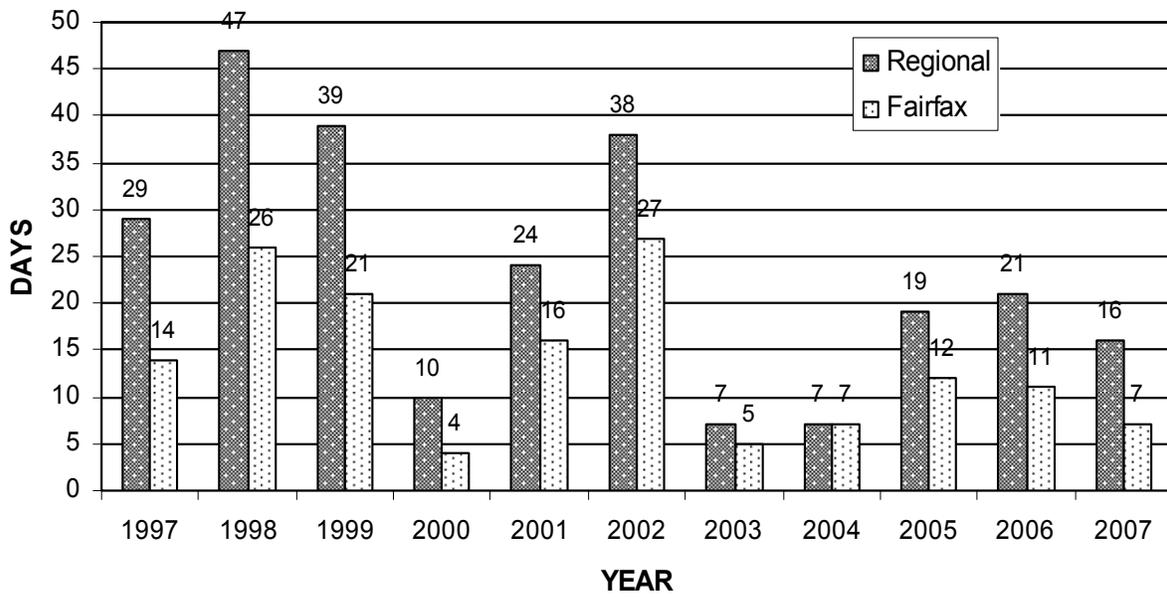
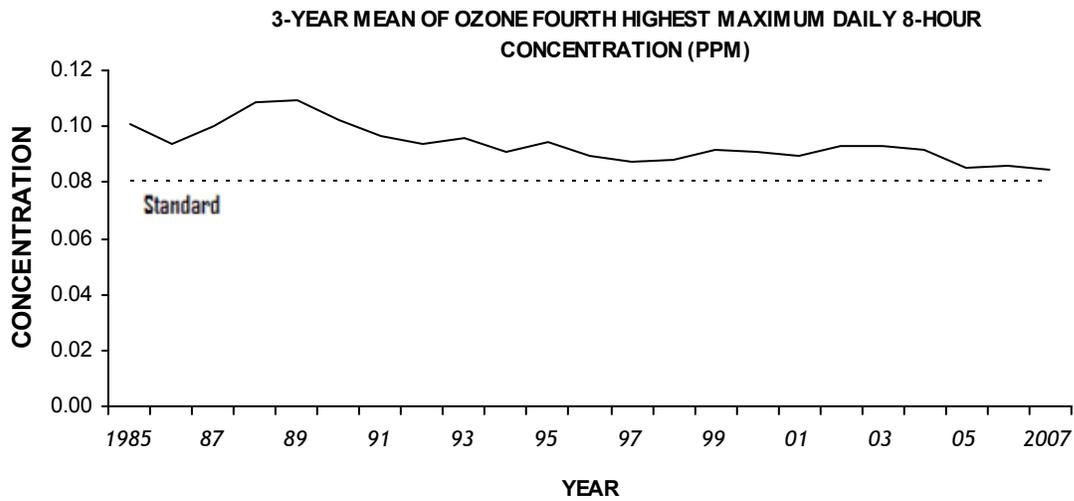
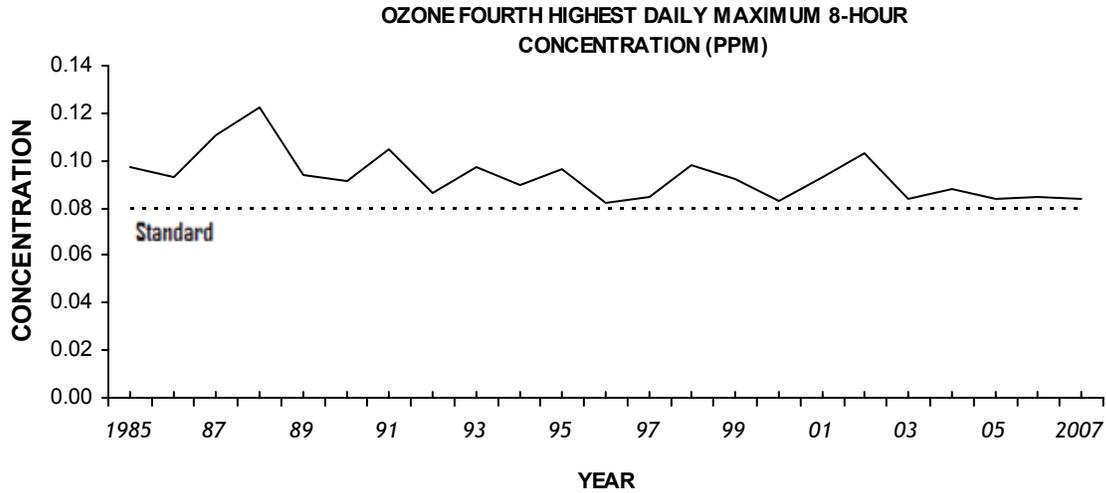
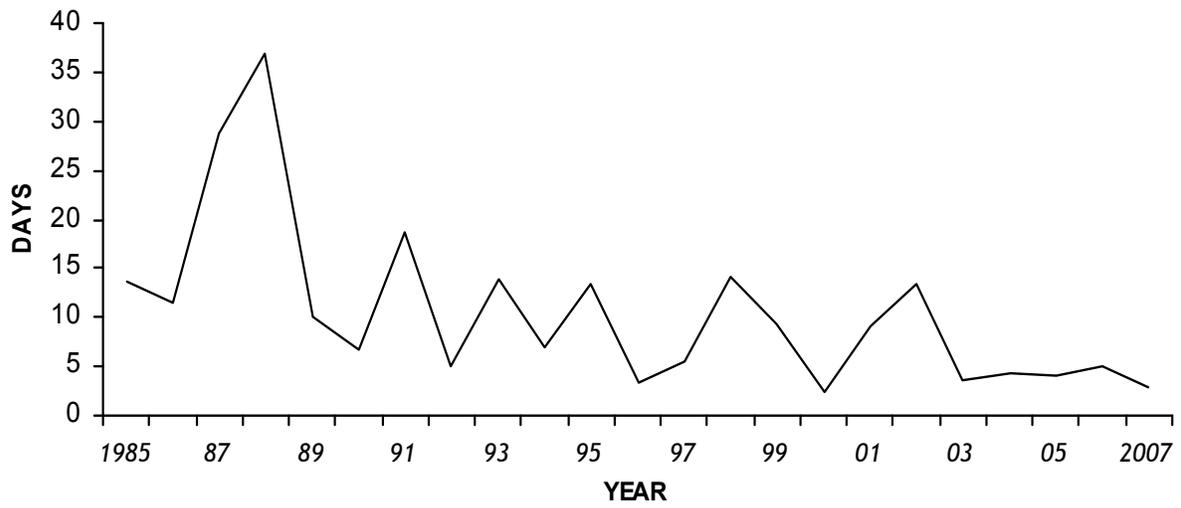


Figure III-3: Air Quality Trends in Relation to an Eight-Hour Ozone Standard

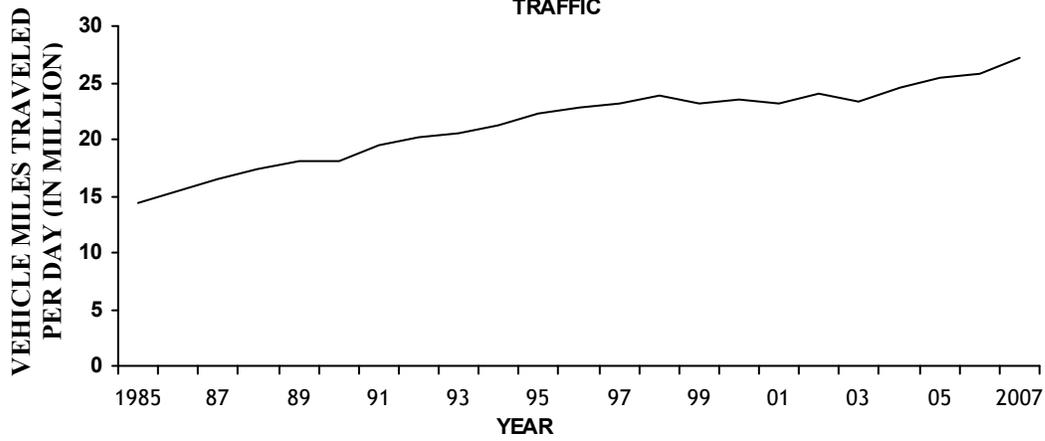
Source: Fairfax County Health Department/Fairfax County Monitoring Sites, VDOT



DAYS WITH MAXIMUM DAILY 8-HOUR CONCENTRATION ABOVE OZONE STANDARD



TRAFFIC



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. MPOs 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.

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. Prior to 1996, Fairfax County held responsibility for enforcement of these state and federal requirements. Thereafter, upon Fairfax County's rejection of this role, DEQ has the default enforcement responsibility.

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 MWAQC, 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 MPO 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 non-attainment 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 PM_{2.5} nonattainment, this group will add emission-reducing control measures for attainment of this standard to its duties.

4. County of Fairfax

a. Department of Health, Division of Environmental Health, Air Quality Section

The county's Air Quality Section sits within the Department of Health's Environmental Health Division. Due to the 1997 budget (July 1996-June 1997), the section suffered a massive reduction in force that has now translated into a skeleton staff unable to meet all existing needs. The staff went from 12 members down to five. The enforcement section was completely eliminated along with the meteorologist position. Regulatory enforcement activities on facilities reverted back to DEQ. In addition, the Air Quality Section had an Air Quality Planner position that had been transferred to the Department of Planning & Zoning in 1982. The RIF completely eliminated this position as well. The section currently has five staff (three technical field inspectors, one data analyst and one program manager) to operate the air program in a county that is larger than seven other states.

This division is authorized by the Fairfax County Code, Chapter 103, in cooperation with federal and state agencies, to conduct an air monitoring program. In the past, this division has provided consultative services to those requesting assistance in indoor air quality issues and other air quality-related matters. If there is a substantial threat to public health, on-site investigations are provided concerning indoor air quality and exposure to toxic substances in non-occupational, indoor environments. A representative from the Health Department now sits as a member of the MWAQC Technical Advisory Committee and functions as a conduit to

communicate with the county on air quality issues of concern to MWAQC. At the present time, the Air Quality Program Manager represents Fairfax County on this committee.

During a time of growing regulatory mandates and the need to coordinate and manage the increasingly complex body of information relevant to air quality planning in Fairfax County, EQAC notes that an Air Quality Program Manager position, alone, is not sufficient to ensure adequate county participation on these planning functions. EQAC also notes the need for greater technical support to county businesses and to the public with regard to both Clean Air Act responsibilities and to energy and climate change agendas being adopted by the commonwealth and the county.

The Air Quality Section continues its monitoring network in the county, measuring levels of criteria pollutants in an effort to measure compliance with the National Ambient Air Quality Standards. All of the monitoring data obtained from these sites goes into the National Air Quality Database.

b. Department of Transportation

This agency is responsible for the planning and the coordination of improvements that reduce both congestion and the vehicle miles traveled.

C. PROGRAMS, PROJECTS AND ANALYSES

1. Regional Air Quality Planning

The county's Air Quality Program Manager continues to work closely with the Director of Environmental Health and the Fairfax County Environmental Coordinator to manage air quality efforts on behalf of the county. In light of new regulations for particulate matter, the continuing failure to attain the national ozone standard and the growing demand for assistance regarding the relationship between energy use and greenhouse gases, EQAC notes the need for additional technical staff support within the Air Quality Program.

D. CONCLUSIONS AND OBSERVATIONS

1. EQAC lauds the county for focusing on air quality management and working with COG and others involved in regional planning, but notes that the county has a greater role to play and cannot meet that responsibility without additional technical staff. EQAC continues to note with gratification the county's VOC and NO_x emission reduction strategies for both short-term ozone action days and long-term ongoing initiatives, although EQAC again notes that county outreach is severely limited from lack of

technical support to local facilities. The pattern of ongoing violations identified above discloses the need for local compliance assistance if the area is to reach attainment of the standard. Although it is recognized that regional planning has attempted to develop control strategies to address this problem, they have not provided compliance assistance to local violators, nor has the commonwealth initiated either informal or formal enforcement against local violators. Thus, county action to reach out to these violators, all of whom are sophisticated enterprises, is needed if we are to reach ozone attainment. Further, to maintain such attainment, the air quality management staff feels, and EQAC agrees, that the county needs a continuing technical outreach capability it does not now have.

2. Based on the discussions that have occurred among EQAC, the interagency Environmental Coordinating Committee and the Planning Commission, EQAC understands the problems and concerns and even the limitations associated with the long-range nature of land use planning as it relates to transportation and air quality. EQAC will continue to interact in that venue to try to constructively address the issues that have been discussed there. Meanwhile, EQAC continues to welcome the opportunity to be as interactive as possible with the Air Quality Subcommittee and its activities.

E. RECOMMENDATION

1. EQAC acknowledges the budget limitations that can be expected to continue for a few years, yet also recognizes that without a greater commitment to traditional air pollution problems, the area will not attain national air quality standards. Thus, despite budget constraints, EQAC recommends that the county add one supervisory staff position to provide needed compliance assistance, program coordination and public outreach in order to help eliminate ozone-related air pollution violations occurring within the county, in order to reach full compliance with PM_{2.5} ambient air quality standards and in order to ensure adequate participation in regional planning activities. A supervisory staff position would support: the review of environmental impacts for projects and actions; extension of necessary support to address Board Matters related to Air Quality and the environment; participation in regional planning efforts through the Metropolitan Washington Council of Governments; legislative reviews; program coordination; and expanded outreach efforts to businesses and schools.

LIST OF REFERENCES

2005 Ozone Data Information, Fairfax County Health Department, Air Quality Section, Division of Environmental Health

Agency Responses to the Environmental Quality Advisory Council Recommendations Contained within the 2005 Annual Report on the Environment.

Air Quality Management/Fairfax County, (memorandum from the Environmental Quality Advisory Council to the Deputy County Executive dated August 28, 2002).

Air Pollution Has Declined Significantly Since 2003; Metropolitan Washington Council of Governments News Release dated September 27, 2006

Clean Air Interstate Rule, www.epa.gov/air/interstateairquality/index.html .

Correspondence dated November 15, 2002, from the Deputy County Executive to EQAC describing the intentions of the county with respect to air quality in response to the August 28, 2002, memorandum from EQAC.

Declaration on Air Quality Leadership, (memorandum from the County Executive to senior management team dated February 12, 2003).

Environmental Improvement Program Appendix 3: Summary of Retired Actions, Fiscal Year 2009

Fairfax County Web site: <http://www.fairfaxcounty.gov/airquality>

Federal Register, Part II, 40 CFR Parts 51, 72 et al, Environmental Protection Agency dated May 12, 2005.

Implementation of Available Ozone Action Best Practices, (memorandum from the County Executive to senior management team dated July 21, 2003, describing the background and objectives for the Air Quality Sub-Committee and attaching its Charter).

Fine Particle Standards, Air Quality Conformity Assessment, Metropolitan Washington Council of Governments dated June 8, 2005.

Regional Summit, Interstate Air Quality Council Memorandum, dated May 31, 2005.

State Implementation Plan (“SIP” or “Severe Area SIP”) to Improve Air Quality in Washington, DC – MD – VA Region, (final SIP and appendices available at the MWCOG Web site (www.mwcog.org/environment/air/)).

Transportation Conformity Rule Amendments for PM_{2.5} Standard, www.epa.gov/otaq/stateresources/transconf/index.htm

USEPA Enforcement and Compliance History Online <http://www.epa-echo.gov/echo/>

USEPA, Decision of the D.C. Circuit Court on the CAIR Rule <http://www.epa.gov/cair/pdfs/05-1244-1127017.pdf>

Virginia DEQ Web site, www.deq.state.va.us/ozone/

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