
2015 ANNUAL REPORT ON THE ENVIRONMENT

CHAPTER III

AIR QUALITY

III. AIR QUALITY

A. OVERVIEW OF AIR QUALITY IN FAIRFAX COUNTY

1. Introduction

Through a federal-state-regional-local partnership, a robust air monitoring network collects samples of our air for specific pollutants to determine air quality. Actions are taken against those who cause concentrations to exceed federal standards and against entities that fail to meet other regulatory requirements. Fairfax County's major responsibility involves participation and coordination with regional organizations on plans intended to reduce air pollution and improve air quality. The county has also taken a leadership role beyond the limits of its traditional air quality partnership; it helped formulate and subsequently adopted a program to reduce gases that may be the cause of global climate change (see chapter on Climate Change and Energy). With regard to criteria pollutant air quality matters, Fairfax County has demonstrated a continuing commitment to being an active partner in improving the region's air quality.

In support of the regional goal of improving air quality and attaining the federal ambient air quality standards, Fairfax County has, for many years, implemented air quality improvement strategies that include:

- Reducing county vehicle emissions through the purchase of hybrid vehicles, diesel retrofits and the use of ultra-low sulfur fuel.
- Not allowing refueling of county vehicles except emergency vehicles on Code Red Days.
- Encouraging county residents to use the Fairfax Connector bus rides on Code Red Days (free rides are provided on the Connector Bus on Code Red Days; this is a regional policy that all local governments have adopted to incentivize the use of public transportation on those days).
- Teleworking.
- Not allowing mowing of grass at county properties on Code Red Days.
- Use of low volatile organic compound paints.
- Promoting county building energy efficiency programs.
- Tree canopy and planting activities.
- Green building actions.
- Support for non-motorized transportation such as bicycling and pedestrian programs.
- Participation in community outreach.
- Maintaining standards and procedures that promote healthy air.

a. Budget Impacts

Due to the overall budget constraints in the county over the past several years, the Board of Supervisors made significant reductions in the budget for the Health Department, and, at this time the Health Department does not have an air quality program. The county contributes to the Metropolitan Washington Council of Governments (COG) and uses the outreach materials that are developed for the region. The budget reductions also ended the county's Air Quality Monitoring Program. The Health Department stopped conducting air quality monitoring activities in June 2010. At that time, the Virginia Department of Environmental Quality (DEQ) assumed responsibility for air quality monitoring in Fairfax County. The county continues to participate in regional air quality planning activities, with a staff person serving on the Metropolitan Washington Air Quality Committee (MWAQC) and the Technical Advisory Committee (TAC) to MWAQC. The Health Department's function is to provide health information as needed.

b. Update on Air Quality Regulatory Changes

i. Cross State Air Pollution Rule

On July 6, 2011, the U.S. Environmental Protection Agency (EPA) finalized the Cross State Air Pollution Rule (CSAPR), which required reductions in emissions of oxides of nitrogen and sulfur dioxide from large fossil fuel-fired electrical generating units. This rule requires 27 states in the eastern half of the United States to reduce power plant emissions. EPA estimates that CSAPR will reduce 2005 emissions from electrical generating units by 6,500,000 tons of SO₂ annually and 1,400,000 tons of NO_x annually in covered states. These estimates represent a 71 percent reduction in SO₂ and a 52 percent reduction in NO_x from 2005 levels.

On December 30, 2011, the U.S. Court of Appeals for the D.C. Circuit issued a ruling to stay the CSAPR pending judicial review. On June 24, 2013, the U.S. Supreme Court issued an order granting petitions from EPA and other groups for review of the D.C. Circuit Court's vacatur of CSAPR, and on April 29, 2014, the court reversed the D.C. Circuit opinion vacating CSAPR. CSAPR took effect in Virginia on January 1, 2015.

ii. Mercury and Air Toxics Rule

On December 16, 2011, EPA finalized national Clean Air Act (CAA) standards to reduce mercury and other toxic air pollution from coal and oil-fired power plants. The final rule established power plant emission standards for mercury, acid gases and non-mercury metallic toxic pollutants that will prevent 90 percent of the mercury in coal burned in

power plants from being emitted to the air; reduce by 88 percent the acid gas emissions from power plants; and cut power plant SO₂ emissions by 41 percent beyond the reductions expected from CSAPR. These reductions are expected in the 2016 time frame.

DEQ has received an extension request from American Electric Power regarding its Clinch River and Glen Lyn Power Stations, both of which are coal-fired electrical generating facilities in Virginia. The extension request announced the company's plans to retire the coal-fired units at Glen Lyn Power Station, retire Unit 3 at Clinch River Power Station, and switch fuels to natural gas at Unit 1 and Unit 2 at Clinch River Power Station.

Dominion Virginia Power has requested and received an extension for Units 1 and 2 at the Yorktown Power Station. The request notes that these coal-fired units will be retired by April 16, 2016. Additionally, Dominion Virginia Power retired four coal-fired units located at the Chesapeake Power Station in December 2014. These changes should improve air quality in all downwind areas.

iii. Stage II Gasoline Vapor Recovery Systems

On May 16, 2012, EPA published a notice that states could remove Stage II gasoline dispensing controls in areas where newer vehicle control technology superseded the need for Stage II controls. Virginia had previously adopted Stage II requirements in the Northern Virginia area, including Fairfax County, due to Clean Air Act mandates. DEQ submitted a request on March 18, 2014, to remove the Stage II program for the Northern Virginia area. Calculations in this request show that emissions actually increase from these systems in the Northern Virginia area due to incompatibilities between the Stage II equipment and onboard vehicle control equipment installed on newer vehicles. DEQ is working to remove these requirements from the Virginia regulations and is waiting for EPA's final approval of the request, expected in 2015.

iv. Greenhouse Gas Permitting

On January 2, 2011, greenhouse gases became pollutants regulated by the major source air permitting process pursuant to federal requirements. On May 13, 2011, EPA approved Virginia's program for GHGs. As a result of this approval, DEQ, not EPA, became the official permitting authority for major sources emitting GHGs. A facility must address its GHG emissions only if it emits more than 100,000 tons per year of carbon dioxide equivalent pollution or if it modifies its operations such that there is at least a 75,000 tons per year increase in CO₂e. These regulations exclude minor sources of air pollution from the GHG requirements.

v. Greenhouse Gas Guidelines for Existing Electric Generating Units

On June 18, 2014, EPA proposed the Clean Power Plan in the *Federal Register* (79 FR 34830). This proposal would cut CO₂ emissions from coal-fired and oil-fired electrical generating units in 2030 by 30 percent from 2005 levels, which is equivalent to about 730 million metric tons of carbon pollution (none of the units are located in Fairfax County). Reductions would begin in 2020. The proposal suggests setting interim and final goals for every state, and these goals would include energy efficiency and renewable energy building blocks. The comment period for this proposal closed on December 1, 2014. EPA has received over 4,000,000 public comments on this proposal.

vi. Reasonably Available Control Technology

The Clean Air Act requires that all major stationary sources of VOC located in the Ozone Transport Region, which includes Fairfax County, must install Reasonably Available Control Technology (RACT) to support each promulgated ozone standard. EPA published final rules supporting this requirement for the 2008 ozone standard on March 6, 2015 (80 FR 12264). Virginia DEQ is in the process of identifying subject facilities and updating state regulations to require the submittal of RACT analyses. Emission reductions deemed RACT compliant must be implemented no later than January 1, 2017, according to federal requirements

c. **Update on National Ambient Air Quality Standards (NAAQS) for Major Criteria Pollutants**

i. Atmospheric (Ground-Level) Ozone

On April 28, 2008, EPA announced that the Washington metropolitan area (including the District of Columbia and portions of Virginia and Maryland) met the 1991 one-hour ozone NAAQS by the required attainment date of November 15, 2005. Since then, EPA has revoked the one-hour ozone standard although some areas still have continuing obligations under that standard (due to “anti-backsliding” provisions).

On May 21, 2012, EPA published final designations for areas under the 2008 Ozone NAAQS. The Washington metropolitan area was designated as being in nonattainment of this standard, with a classification of marginal. The area’s compliance date for the 2008 ozone NAAQS was July 20, 2015. Since three full seasons of monitoring data are required for a compliance determination, the data collected in the summer of 2014 are being evaluated by EPA for compliance with this standard. The design value for the Washington metropolitan area was 76 ppb for 2012 through 2014. However, in

areas with no monitored exceedances during the most recent summer, the Clean Air Act allows states to request an extension of the compliance date, rather than having the area's classification "bumped up" to moderate. EPA defines a monitored exceedance as data from any monitoring site where the fourth highest eight-hour average ozone concentration exceeds 75 ppb. The Washington metropolitan area did not have an exceedance of the 75 ppb standard in 2014, and Virginia is requesting that EPA extend the area's 2008 ozone NAAQS compliance date.

Preliminary 2015 ozone data shows that the area also did not have an exceedance of the 75 ppb standard during the most recent summer. The preliminary design value for the area, using 2013 through 2015 data, is now 70 ppb, which is less than the 2008 ozone NAAQS. On December 17, 2014, EPA proposed to revise the ozone standard and requested comment on a range of 65 to 70 ppb (79 FR 75234). The proposal also noted that EPA would accept comments on standards as low as 60 ppb. The comment period for this proposal closed on March 17, 2015, and EPA adopted a new standard of 70 ppb shortly before this report went to print—EQAC will provide more information about the updated standard and its implications in its next Annual Report on the Environment.

ii. Fine Particulate Matter--PM_{2.5}

Effective December 14, 2009, EPA announced that the Washington metropolitan area had attained the 1997 PM_{2.5} NAAQS. This determination was based on 2004 - 2006 data; the region has continued to meet the attainment standard to date and to show improvement.

The Technical Advisory Committee of the Metropolitan Washington Air Quality Committee developed a redesignation request and maintenance plan for this standard, which included new interim and out-year mobile source budgets. DEQ submitted these documents to EPA on June 3, 2013. EPA published approval of the redesignation request and maintenance plan on November 5, 2014 in the *Federal Register* (79 FR 60081). Within Virginia's regulations, the Northern Virginia area was redesignated to attainment/maintenance for this standard on March 11, 2015. This redesignation highlights the improvements seen in PM_{2.5} air quality within the Washington metropolitan area.

On September 21, 2006, EPA promulgated a more stringent PM_{2.5} standard; a daily standard of 35 µg/m³ and an annual standard of 15.0 µg/m³. On October 8, 2009, EPA designated all of Virginia, including Northern Virginia, as being in attainment of this standard.

On December 14, 2012, EPA finalized an update to the PM_{2.5} NAAQS, setting the annual health standard at 12.0 µg/m³. On January 15, 2015, EPA designated the Washington metropolitan area, including Northern Virginia, as being in attainment of this standard (80 FR 2206).

iii Nitrogen Dioxide--NO₂

On January 22, 2010, EPA strengthened the health-based NAAQS for NO₂ to a new one-hour NO₂ standard of 0.10 ppm. This standard will protect people against adverse health effects associated with short-term exposure to NO₂, including respiratory effects. The standard also requires monitoring to occur near roads, in areas with high community-wide NO₂ concentrations, and in low income or minority at-risk communities. It became effective on April 12, 2010. EPA also retained the annual average NO₂ standard of 0.053 ppm.

iv. Sulfur dioxide--SO₂

On June 2, 2010, EPA strengthened the primary NAAQS for SO₂ by establishing a new one-hour standard of 0.075 ppm. The new standard is the three-year average of the 99th percentile of the annual distribution of daily maximum one-hour average concentrations. EPA revoked the two existing primary standards of 0.14 ppm evaluated over 24-hours and 0.03 ppm evaluated over an entire year because these standards will not add an additional public health benefit. All monitoring data for Virginia show compliant measurements. EPA did not revise the existing secondary SO₂ NAAQS of 0.50 ppm over a three-hour average (set to protect public welfare, including effects on soil, water, visibility, wildlife, crops, vegetation, national monuments and buildings).

v. Lead

On November 12, 2008, EPA issued a final rule that revised the primary and secondary NAAQS for lead and associated monitoring requirements. The effective date of this standard was January 12, 2009. The primary standard is set at 0.15 µg/m³ (in a rolling three-month average) to protect health. A secondary standard is set at the same level to protect the public welfare, including the environment. The revised standards are 10 times more stringent than the previous standards and will improve health protection for at-risk groups, especially children. This decision marked the first time the lead standards have changed in 30 years. By October 2011, EPA was to have designated areas that have to take additional steps to reduce lead air emissions. States will have five years to meet the new standards after designations take effect. No areas in Virginia were designated as nonattainment for the 2008 Lead NAAQS.

2. Air Quality Status in Northern Virginia

a. Introduction

Air pollutants are emitted by four types of sources: stationary (i.e. power plants and industrial); area (i.e. gasoline service stations and dry cleaners); nonroad (i.e. airplanes, tractors, boats); and mobile (i.e. automobiles and trucks).

EPA tracks the emission of air pollutants from stationary sources, including sources in Fairfax County. They are regulated under the Clean Air Act and the National Ambient Air Quality Standards. Virginia DEQ's air compliance program conducts inspections of facilities within Fairfax County and records information on violations in the state's database, the Comprehensive Environmental Data System.

Emissions from all sources are modeled by a number of modeling centers, including the University of Maryland/Maryland Department of the Environment, DEQ, and the Ozone Transport Commission, to determine if the National Capital Region complies with Clean Air Act requirements. The region and the Commonwealth of Virginia have had to develop air quality plans to improve air quality when the region is not in compliance.

b. Status of State Air Quality Plans

i. Ground-Level Ozone

In April 2004, EPA designated the Washington metropolitan region as a moderate nonattainment area for the eight-hour ozone standard of 0.08 ppm (80 ppb). This required the region's states to develop and implement ozone reduction strategies in the form of a State Implementation Plan (SIP). The SIP is the state's "master plan" for attaining and maintaining the NAAQS. Virginia, Maryland and the District of Columbia submitted the Washington region's attainment plan for the 1997 ozone NAAQS to EPA in May 2007. EPA published final approval of this plan on April 10, 2015 (80 FR 19206).

The region had a deadline of June 15, 2010 to meet the 0.08 ppm eight-hour ozone standard. Air quality data from 2008-2010 demonstrate compliance with the 0.08 ppm eight-hour ozone standard in the Northern Virginia area. EPA published a determination that the area attained the 1997 eight-hour standard on February 28, 2012.

EPA published a revised eight-hour ozone standard of 0.075 ppm in March 2008 and, in July 2012, designated the Washington metropolitan region as a marginal nonattainment area for this standard. The region had

a July 20, 2014 deadline to meet the 0.075 ppm ozone standard. In 2014, the area's design value was 76 ppb (0.076 ppm); however, the area is requesting an extension of the deadline under the CAA due to the area's 2014 ozone data showing no exceedances of the standard.

Figures III-1 through III-3 and Table III-1 present regional air quality trends as they relate to the 2008 eight-hour ozone standard.

In 2014, monitors recorded data on four days during the ozone season when ozone values were above the 0.075 ppm standard. The 2014 summertime ozone data resulted in a three year design value for 2012 through 2014 of 0.076 ppm. Since the region's design value was above the 2008 ozone standard, there was a possibility that the region would not meet the 2008 standard, which would result in the area being reclassified (bumped-up) to the moderate nonattainment level. To prepare for this possibility, the Metropolitan Washington Air Quality Committee Technical Advisory Committee is developing a Reasonable Further Progress plan and laying the groundwork for an attainment plan, if needed. Additionally, DEQ has sent a request to EPA to extend the attainment date by one year to July 20, 2016. The Clean Air Act allows states to request this one year extensions to the attainment date as long as it meets the criteria for such extensions.

Preliminary data show that monitors in the metropolitan region recorded data on five days during the 2015 ozone season when ozone values were above the 0.075 ppm standard. This resulted in a preliminary design value for 2013 through 2015 of 0.070 ppm (70 ppb), which is less than the 2008 ozone standard.

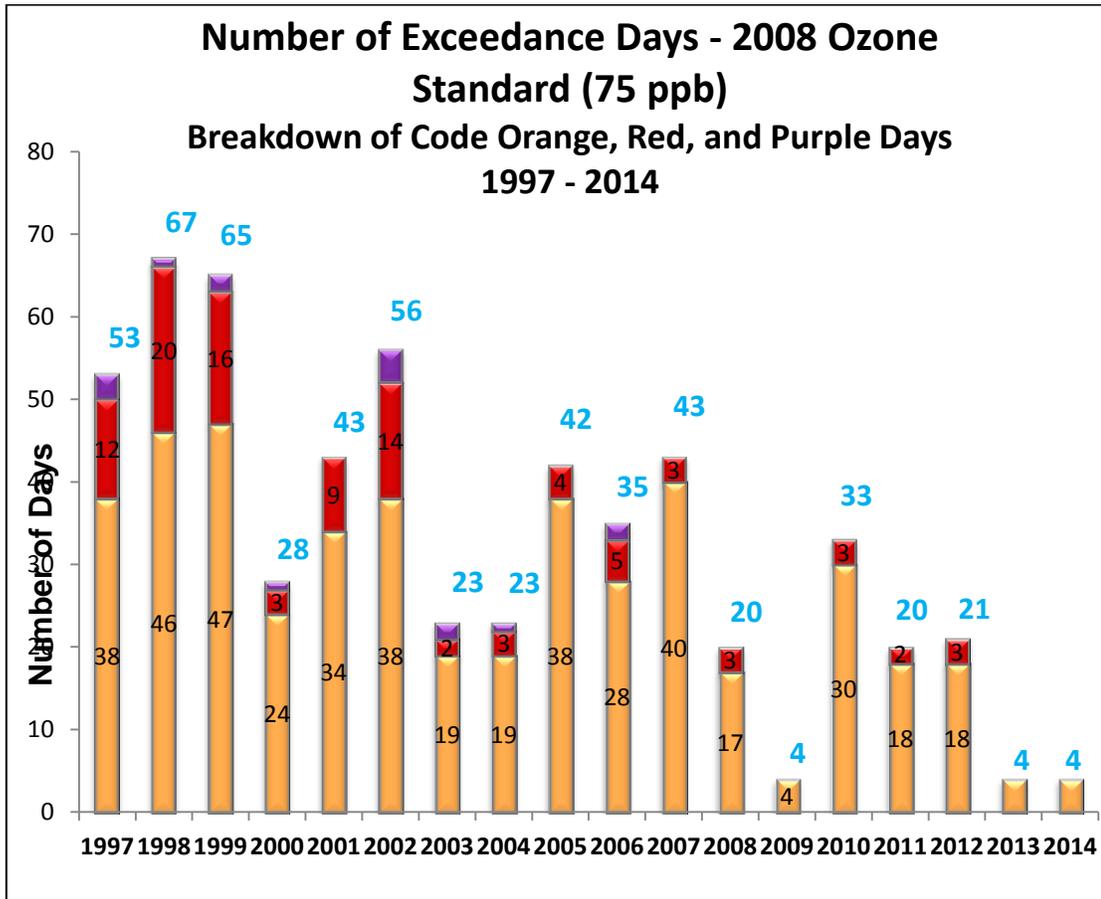
EPA adopted a new standard of 70 ppb shortly before this report went to print—EQAC will provide more information about the updated standard and its implications in its next Annual Report on the Environment.

ii. Fine Particulate Matter

The current federal NAAQS for fine particulate ($PM_{2.5}$) set limitations of $12.0 \mu\text{g}/\text{m}^3$ on an annual average, as required by the 2012 $PM_{2.5}$ NAAQS, and $35 \mu\text{g}/\text{m}^3$, as required by the 2006 $PM_{2.5}$ NAAQS. The Washington metropolitan area has met these standards for several years.

Fine particulate concentrations have continued to improve over the past several years. Additional improvements are expected due to the installation of upwind control devices and retirements of coal fired combustion units. Figures III-4 and III-5 present regional $PM_{2.5}$ trends (annual and 24-hour, respectively) as they relate to the standard.

Figure III-1. Air Quality Trends in Relation to the Eight-Hour Ozone Standard (relative to 0.075 ppm 2008 NAAQS Standard) Ozone Exceedance Days



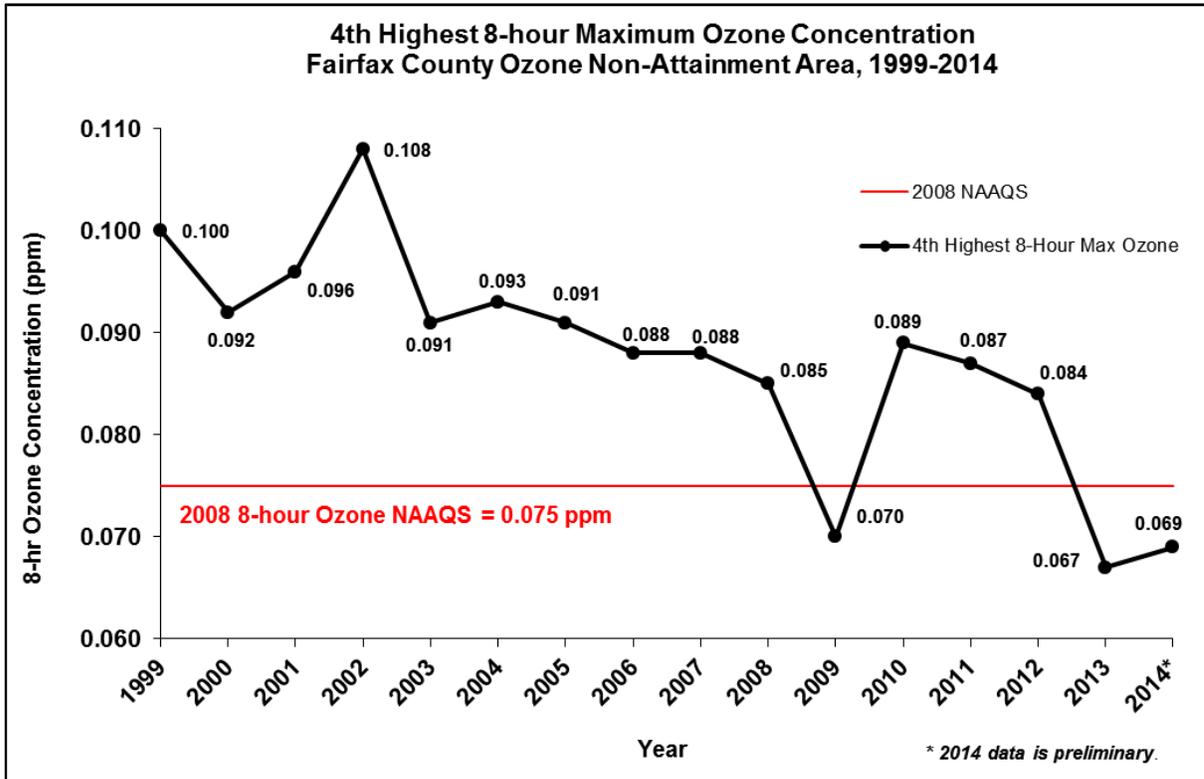
Source: Metropolitan Washington Council of Governments. 2014 data are preliminary and are subject to change.

Table III-1. Regional Eight Hour Ozone Exceedances – 2014 (Relative to 0.075 ppm 2008 NAAQS Standard)

| Date | Maximum Values in the Metropolitan Statistical Area (Maximum 8-Hour Ozone, ppm) | Number of Stations That Exceeded the Standard |
|-----------|---|---|
| 6/16/2014 | 0.087 | 2 |
| 7/11/2014 | 0.076 | 1 |
| 8/6/2014 | 0.077 | 1 |
| 8/27/2014 | 0.076 | 1 |

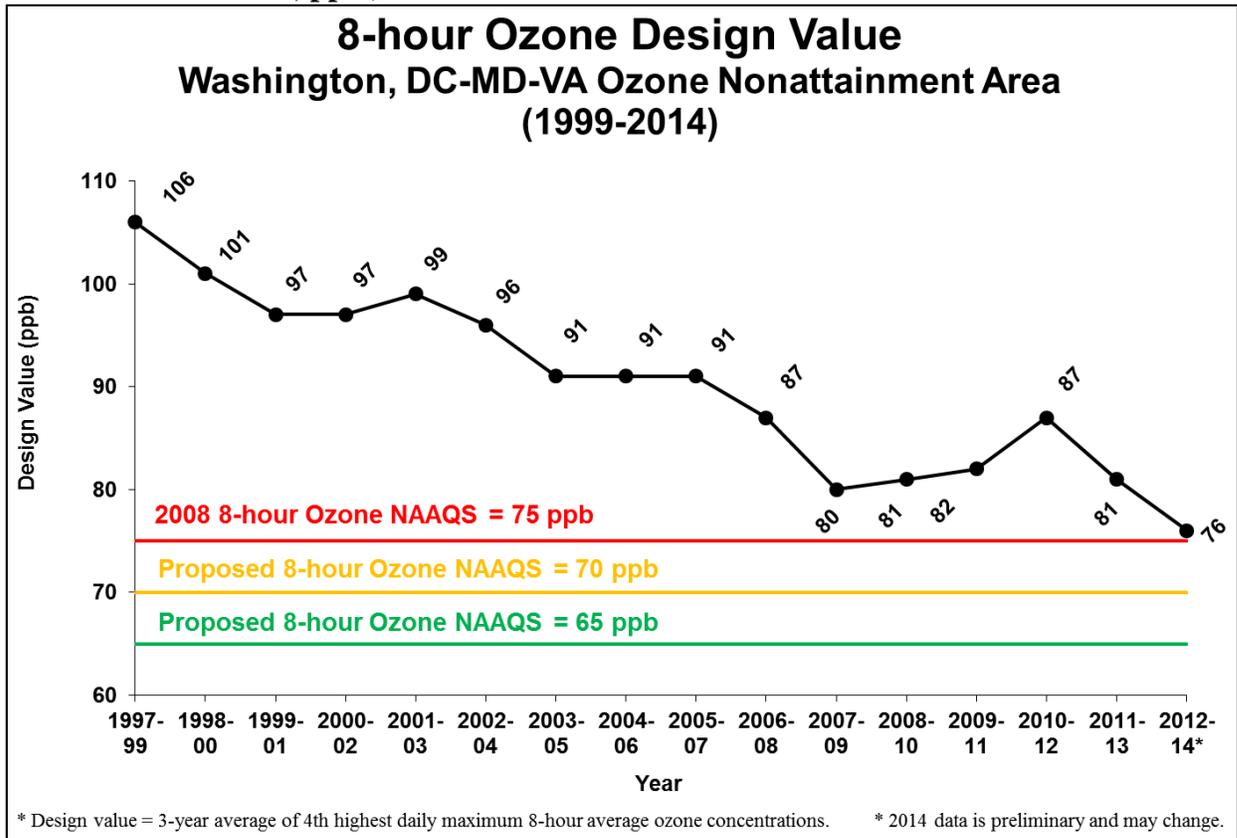
Source: Metropolitan Washington Council of Governments. 2014 data are preliminary and are subject to change.

**Figure III-2. Air Quality Trends in Relation to the Eight-Hour Ozone Standard, Fairfax County
(Fourth Highest Daily Maximum Eight-Hour Ozone Concentration, ppm)**



Source: Metropolitan Washington Council of Governments. 2014 data are preliminary and are subject to change.

Figure III-3. Air Quality Trends in Relation to the Eight-Hour Ozone Standard (Design Value, Three-Year Average of Fourth Highest Daily Maximum Eight-Hour Ozone Concentration, ppm)



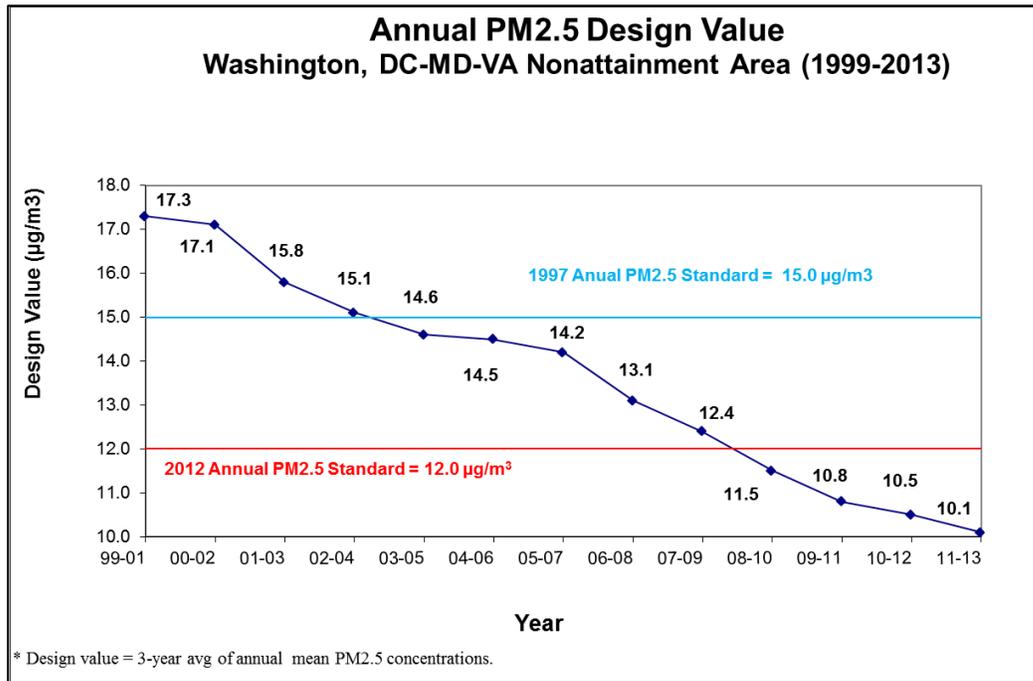
Source: Metropolitan Washington Council of Governments. 2014 data are preliminary and are subject to change.

In May 2013 the Metropolitan Washington Air Quality Committee endorsed a redesignation request and maintenance plan for PM_{2.5}. DEQ submitted these documents to EPA on June 3, 2013. EPA published approval of the redesignation request and maintenance plan on November 5, 2014 in the *Federal Register* (79 FR 60081). Within Virginia’s regulations, the Northern Virginia area was redesignated to attainment/maintenance for this standard on March 11, 2015. This redesignation highlights the improvements seen in PM_{2.5} air quality within the Washington metropolitan area.

iii. Nitrogen Dioxide--NO₂

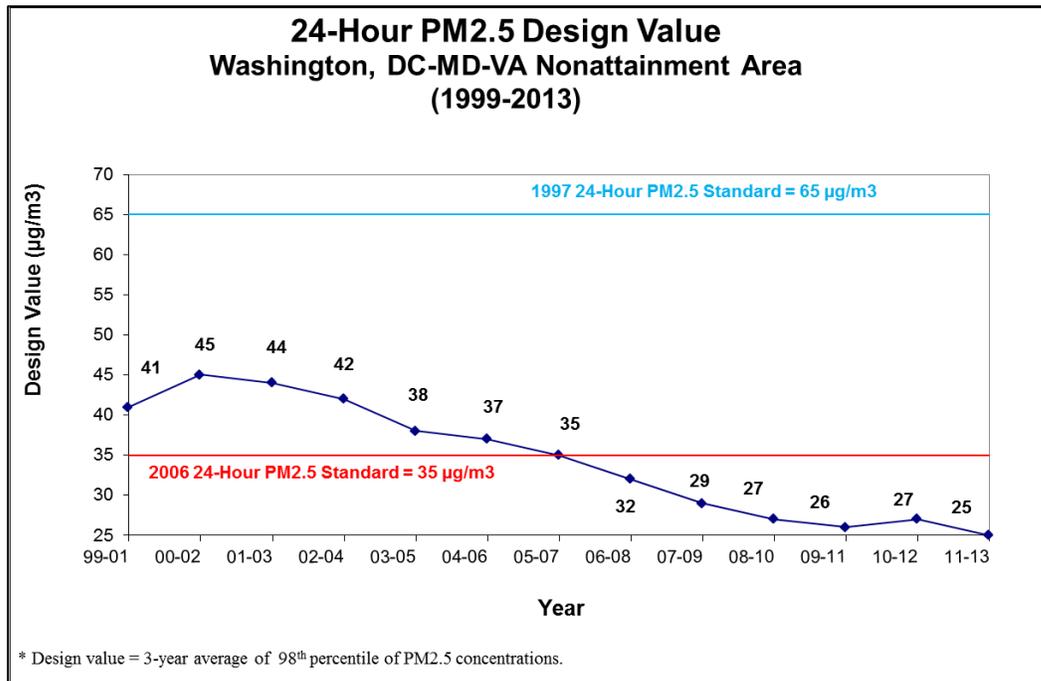
DEQ is in the process of installing a near-road monitoring site at the Backlick Road park and ride lot, and this site will include an NO₂ monitor.

Figure III-4. Air Quality Trends in Relation to the Annual Fine Particle (PM_{2.5}) Standard (3-Year Average of Annual Mean PM_{2.5} Concentrations, ug/m³)



Source: Metropolitan Washington Council of Governments

Figure III-5. Air Quality Trends in Relation to the Daily Fine Particle (PM_{2.5}) Standard (3-Year Average of 98th Percentile of PM_{2.5} Concentrations, ug/m³)

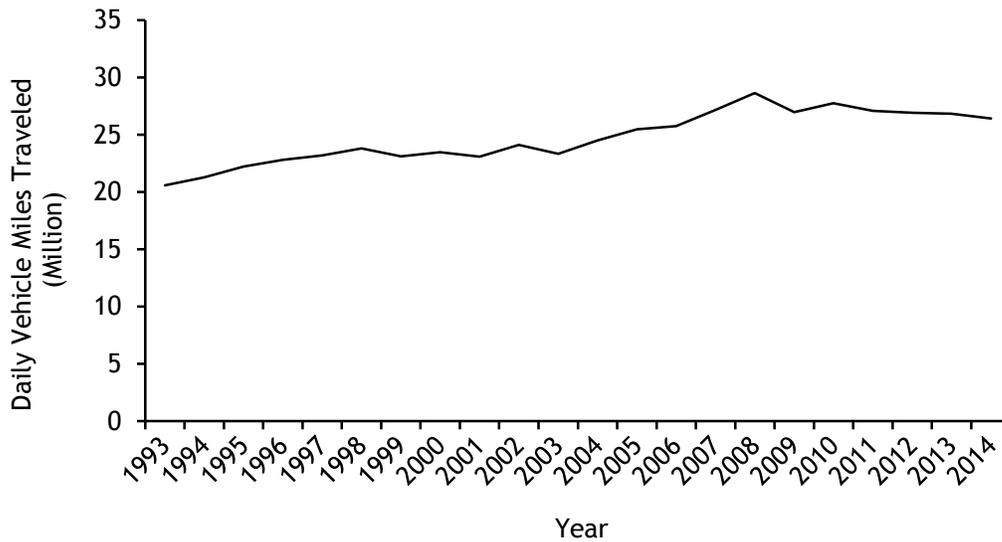


Source: Metropolitan Washington Council of Governments.

c. Emissions from Motor Vehicles

One of the key issues related to ozone nonattainment and other air quality concerns is the use of motorized vehicles and their emissions. There is extensive use of motor vehicles in Fairfax County, including a significant number that do not pass the required emissions testing. Figure III-6 shows the daily vehicle miles traveled in Fairfax County, illustrating that approximately 26.4 million vehicle miles were traveled daily in 2014, a slight decrease from the number for 2013.

Figure III-6. Daily Vehicle Miles Traveled in Fairfax County (Millions)



Source: Virginia Department of Transportation

The Fairfax County Department of Transportation (FCDOT) provided the following information (based on the 2011 American Community Survey 1-year estimate, area: Fairfax County, with revised estimates for Fairfax County for 2012 as provided on the survey’s website and as refined for this report by FCDOT) for the 606,954 workers, 16 years of age and over, who live in Fairfax County:

- 71.6 percent drove alone to work in a car, truck, or van.
- 10.2 percent of those workers commuted via carpool or vanpool.
- 9.1 percent used public transportation (excluding taxicabs).
- 1.8 percent walked to work.

- 1.6 percent used other means.
- 5.8 percent worked at home (this number may not fully represent the true number of teleworkers in Fairfax County).

DEQ operates a motor vehicle inspection and maintenance (IM) program in Northern Virginia, which requires that vehicles pass an emissions test every two years in order to register or reregister with the Virginia Department of Motor Vehicles. In 2013, over 868,000 vehicles were tested in the Northern Virginia area (data are not yet available for 2014). Fairfax County vehicles represent 47.2 percent of the IM fleet in the area. The overall fail rate was 4.0 percent, and the fail rate increases as vehicles age. Several changes to the program occurred during 2014 or are about to be implemented. One major change, which relates to the fail rate, will be an increase in the new vehicle exemption period from two years to four years. Based on historical data, these newer vehicles have a very low fail rate so the overall program effectiveness should not be affected. Another significant change will be the expansion of the “Clean Screen” program, in which the cleanest vehicles, as determined by remote sensing observations, will have the option of purchasing a Clean Screen pass or getting a regular test at an emissions inspection station. DEQ anticipates no negative impact on the overall effectiveness of the emissions inspection program as a result of this change. Moreover, this program improvement will increase the number of very high emitters identified that must retest and get repairs. DEQ expects that the expanded clean screen program will be implemented in 2015. A final change, which was fully implemented in 2014, was new emissions testing equipment and a faster internet-based communication system, which has improved customer convenience.

The following information was provided by the Fairfax County Department of Vehicle Services (DVS):

i. Update on purchase of alternate fuel vehicles

The Fairfax County Department of Vehicle Services’ responsibilities include management of the county’s Vehicle Replacement Fund. In response to the county’s desire for cleaner and more energy efficient vehicles, DVS has included hybrid electric vehicles in its vehicle replacement program, where appropriate. As a result, a conventional gasoline fueled county fleet vehicle at the end of its service life may be replaced with a hybrid vehicle, if acceptable to the using agency and conditions warrant. The county’s fleet includes 117 hybrid electric and plug-in hybrid-electric vehicles. The county saves over 16,000 gallons of gas on average each year from its use of hybrid vehicles.

Using federal stimulus funding, in the 2011-2012 period DVS added 16 Ford Fusion Hybrids, five Chevrolet Volts and one plug-in hybrid electric school bus to the county fleet. In December 2014, DVS purchased an all-electric Nissan LEAF. In FY 2016, DVS plans to

purchase an additional all-electric vehicle and increase the fleet of hybrid-electric to 135. DVS anticipates installing charging stations necessary to support the electric vehicles.

ii. Other DVS initiatives

- In FY 2015, DVS purchased 132 school buses that use Selective Catalytic Reduction (SCR) technology. SCR meets the EPA 2010 requirement of providing engine emissions to near zero (a NO_x level of 0.2 g/bhp-hr).
- DVS has implemented an automotive parts core reuse program.
- DVS is transitioning school buses that are model year 2009 and newer to 5W-40 synthetic motor oil, which reduces harmful engine deposits.
- DVS upgraded the Alban fuel site by installing new double walled tanks, lines and fuel dispensers.
- DVS upgraded fuel sites at Fair Oaks Police Station, McLean Police Station and Government Center, Newington DVS Maintenance Facility and Newington Connector Bus in conjunction with major facility construction.
- The Newington Maintenance Facility was constructed in June 2013. The modern LEED certified facility was built using materials with recycled content purchased regionally within a 500-mile radius of the project. Also, the building was designed to ensure no increase in runoff. Rain from the roof is captured for vehicle washing.
- DVS continues to recycle waste antifreeze, scrap metal and retread tires.
- DVS sells leftover waste oil (that is not burned in its waste oil furnaces).

d. Alternatives to Use of Motor Vehicles

The Fairfax County Board of Supervisors has directed the Fairfax County Department of Transportation to lead the effort to improve bicycle and pedestrian safety and mobility, including constructing bicycle and pedestrian improvements in high-priority areas of Fairfax County. Through FY 2020, the board has designated over \$313 million in federal, state and county funding to construct high-priority bicycle and pedestrian improvement projects throughout the county. These include projects on major roadways, in

activity centers, providing access to Metro stations and completing neighborhood missing links. From FY 2008 through FY 2015, the county has completed construction on 121 sites/segments; 16 are under construction and another 96 are under design.

i. Bicycle Program

Fairfax County's bicycle program was established by the Board of Supervisors in late 2006 and the responsibilities for program implementation were assigned to the Fairfax County Department of Transportation. The Virginia Department of Transportation (VDOT) administers the Safe Routes to School Program and continues to ensure that biking remains an integral component of Virginia's multimodal transportation system. Please see the Land Use and Transportation chapter of this report for information about these efforts as well as FY 2015 funding allocations to Fairfax County through VDOT's Transportation Alternatives Program.

e. **Additional Air Quality Information from Fairfax County**

i. Radon

Fairfax County has natural mineral deposits that release radon gas. The health risk from radon can be reduced significantly when known in advance. The Fairfax County Health Department has developed specific resources necessary to let residents know in advance the potential risks associated with a property. Extensive information is available online and residents who contact the department are provided information based on their specific circumstances.

The Surgeon General has identified radon as a leading cause of lung cancer. The U.S. Environmental Protection Agency broadly considers all of Fairfax County as a high risk for the accumulation of radon gas inside homes. However, studies conducted by the Fairfax County Health Department resulted in a more detailed map identifying radon risk rankings from low to high in geographic regions of the county. This map, along with information to include radon mitigation techniques, can be found on the Health Department's Radon Information Web page at www.fairfaxcounty.gov/hd/air/radon.htm.

ii. Asbestos

Asbestos, a known human carcinogen when inhaled, is a mineral found within certain geologic formations in Fairfax County. Fairfax County has approximately 11 square miles of land with the potential for these mineral deposits. The Fairfax County Health Department has maps showing these areas in the county, along with additional information

sources, on the Health Department's Naturally Occurring Asbestos Web page at www.fairfaxcounty.gov/hd/chs/natural-asb.htm

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 and in other major metropolitan areas in Virginia, these responsibilities have been split between the Commonwealth of Virginia and the regional lead planning organization as defined by Section 174 of the Clean Air Act. Fairfax County holds a seat on, and the county staff is required to support, the lead planning organization for the Washington metropolitan area, the Metropolitan Washington Air Quality Committee. Members of MWAQC and all lead planning organizations are appointed by the governors of affected jurisdictions to represent areas included in air quality planning requirements. MWAQC works with state departments of transportation and transit providers in identifying transportation needs and priorities. The Transportation Planning Board makes transportation investment decisions for the metropolitan area and, by default, for the individual regions encompassed within MWAQC.

2. Commonwealth of Virginia

a. Virginia State Air Pollution Control Board

This board is authorized to approve regulations, 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, as well as for performing air quality monitoring, stationary source inspection, new and existing source permitting 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

The Metropolitan Washington Council of Governments is the regional planning group that works toward solutions to regional problems related to air and water quality, energy, climate change, 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, partners with the state air agencies to assist in the development of air quality plans as required under Section 174 of the Clean Air Act. MWAQC's authority is derived from the certifications made by the governors of Virginia and Maryland and the mayor of the District of Columbia. In Virginia, the roles of local planning organizations, are described in the State Air Pollution Control Board's *Regulations for the Control and Abatement of Air Pollution*, specifically at 9 VAC 5-151-70 et seq.

MWAQC was established to work cooperatively with state air agencies to conduct interstate air quality attainment and maintenance planning for the Washington metropolitan region. Three members of the Fairfax County Board of Supervisors currently serve on the committee. The Transportation Planning Board (TPB), which also is part of COG, serves as the designated Metropolitan Planning Organization for the Washington region and is responsible for regional transportation planning and conformity. Fairfax County currently has four 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 daily basis. Staff from the Fairfax Health Department attends MWAQC meetings to support the Fairfax County members.

MWAQC operates through a subcommittee system. Subcommittees include:

a. MWAQC Technical Advisory Committee (TAC)

This committee was established to advise and assist MWAQC in planning for and maintaining the region's air quality. Fairfax County is represented on the TAC by staff from the Health Department's Division of Environmental Health along with a member from the Fairfax County Federation of Citizens Associations. Members research, review and discuss technical issues and documents at monthly meetings to develop information and recommendations that are submitted to MWAQC members for their review and approval.

b. Interstate Air Quality Council (IAQC)

The Interstate Air Quality Council consists of six members: the secretaries of the environment and transportation from Virginia, Maryland and the District of Columbia 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 information on the 2008 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 and Climate Public Advisory Committee (ACPAC)

The Air and Climate Public Advisory Committee advises COG's Metropolitan Washington Air Quality Committee and Climate, Energy and Environment Policy Committee on air quality, climate, and energy issues and initiatives. ACPAC provides a forum for members to provide input to local elected officials and staff on environmental policy issues and stay informed of local and regional progress. Six members represent Northern Virginia.

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.

4. Summary of Regional Air Quality Planning Efforts in 2014

a. PM_{2.5} Redesignation Request & Maintenance Plan

MWAQC developed a redesignation request and maintenance plan for the 1997 PM_{2.5} NAAQS and DEQ submitted these final documents to EPA on June 3, 2013. These documents included mobile vehicle emissions budgets for PM_{2.5} and NO_x for 2007, 2017, and 2025. EPA approved the above plan along with mobile budgets in it and reclassified the Washington region as a maintenance area for the 1997 PM_{2.5} NAAQS.

b. Attainment Modeling

MWAQC staff participated in the Mid-Atlantic Regional Air Management Association (MARAMA) to follow their development of emissions inventories. MARAMA also evaluated various ozone NAAQS attainment scenarios using a regional photochemical model for the current and expected future ozone NAAQS. Staff also kept track of various emissions control measures and rules being developed by the Ozone Transport Commission as part of the 2008 ozone standard (75 ppb) implementation plan.

c. Transportation Conformity/Mobile Emissions Analysis

MWAQC commented on the transportation conformity analysis (2014 Constrained Long-Range Transportation Plan and 2015-2020 Transportation Improvement Program).

Conformity was tested against the attainment and contingency mobile budgets in the region's eight-hour ozone SIP for:

- a) The 1997 ozone standard.
- b) Winter carbon monoxide (CO) mobile budgets in the CO maintenance plan.
- c) PM_{2.5} and NO_x mobile budgets in the region's PM_{2.5} maintenance plan for the attainment year 2007 emissions, interim year 2017, and the future year 2025.

The conformity analysis showed current and future mobile emissions lower than the ozone, PM_{2.5}, and CO mobile budgets. MWAQC noted that a more stringent federal standard for ozone is expected soon and urged state and local governments to maintain their commitments to emission reduction measures.

d. Air and Climate Public Advisory Committee

Key topics ACPAC took on in 2014 include the Gold Book (compilation of local air quality initiatives), EPA Clean Power Plan, Metro's Sustainability Agenda, transportation planning and air quality conformity, air quality

impacts on environmental health and environmental justice. ACPAC served as the judging panel for the Climate and Energy Leadership Awards at its July meeting. At the December meeting, ACPAC received a Climate Communications Training session from the Frameworks Institute.

e. Climate Change and Air Quality Technical Support

MWAQC staff, with collaboration from COG climate, energy and transportation staff, reviewed and revised the Gold Book (<https://www.mwcog.org/uploads/committee-documents/Z11YV1xb20141001155247.pdf>), the region's compendium of voluntary local measures to clean the air. The Gold Book presents a summary of measures currently in place, those that could be expanded for further air quality improvements, and new initiatives for local government consideration.

5. MWAQC FY 2016 Work Program

MWAQC and the states will work towards maintaining compliance with the 2008 ozone NAAQS and meeting the recently-adopted lower ozone NAAQS. A number of potential control measures to address the ozone NAAQS will be evaluated based on their ability to cost-effectively reduce ozone precursors NO_x and VOCs (volatile organic compounds). The region may also quantify control measures' co-benefits in reducing SO₂ or PM_{2.5} emissions. The work program will also provide technical support for local government air quality initiatives. Coordinating air quality planning with state and local clean energy programs will continue to be a focus.

In FY2016, MWAQC Core Program tasks include:

- Prepare ground work to develop a State Implementation Plan for the 2008 Ozone NAAQS. This is needed in the event the Washington metropolitan region is reclassified to a Moderate Nonattainment Area. Identify cost-effective control measures to meet the requirements of attaining future standards. Finalize the Reasonable Further Progress (RFP) plan as required by the 1997 PM_{2.5} NAAQS redesignation request and maintenance plan.
- Develop RFP and attainment year inventories for ozone.
- Develop updated 2017 and 2025 mobile vehicle emissions budgets for NO_x and PM_{2.5} for the 1997 PM_{2.5} Maintenance Plan.
- Conduct revisions for MOVES2014 model implementation.
- Review and comment on transportation conformity assessments for ozone, PM_{2.5}, and CO.

- Work with the Region Forward Coalition, TPB, COG’s Climate, Energy and Environment Policy Committee (CEEPC) and others at COG to identify and coordinate opportunities to advance strategies identified in the Regional Transportation Priorities Plan.
- Work with the Multi-Sector Greenhouse Gas Workgroup to develop actions that provide co-benefits for reducing emission of ozone precursors.
- Coordinate air quality planning with state and local Clean Energy Programs.

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 outside 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 each year. 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 lawn-mowing, paving and outdoor painting; limiting vehicle idling; bringing a lunch to work; avoiding drive-thru windows; and refueling after dark.

The following are tips provided on the Clean Air Partners website (www.cleanairpartners.net):

Small Changes Make A Big Difference

Begin the day right. Check [today’s air quality forecast](#) and modify your plans if unhealthy air quality is predicted. Protect yourself and others in your care, by taking the appropriate actions. Making small changes in your lifestyle at home, at work, and on the road can make a big difference.

At Home:

- *Postpone mowing and trimming or use electric garden equipment.*
- *Postpone painting or use water-based paint instead of oil-based paint.*
- *Replace your charcoal grill with a propane gas grill.*
- *Choose ENERGY STAR™ appliances and lighting.*
- *Cut back on heating and air conditioning when you can and turn off lights and appliances when not in use.*
- *Clean heating filters each month.*

At Work:

Employers have a unique opportunity to make a difference. They can promote programs that help employees make positive lifestyle changes. For example, employers can encourage staff to use public transportation or carpool. Employers also can give employees the option of working from home. Encourage employees to sign up for [AirAlerts](#), a free service that delivers air quality information straight to their inbox.

On the Road:

- *Keep driving to a minimum.*
- *Fill up your gas tank during evening hours. Avoid spilling gas and “topping off” the tank. Replace gas tank cap tightly.*
- *Have your car tuned regularly by replacing the oil and air filter, and keep tires properly inflated and aligned.*
- *Carpool or use public transportation when possible.*
- *Combine your errands into one trip.*
- *Avoid revving or idling your engine.*
- *Avoid long drive-through lines; instead, park your car and go in.*
- *Looking for a new vehicle? Consider purchasing a fuel-efficient model or a hybrid that runs on an electric motor and gasoline engine.*

D. COMMENTS

1. EQAC has previously commented about Fairfax County’s plans to cease the operation of the four ozone air quality monitors and expressed concerns about the elimination of those ozone monitors, in particular the one in Mount Vernon. DEQ notes that the annual network monitoring plan is available yearly to the public for review and comment. It is usually made available in May of the year, with the final due to EPA in July. In addition, information was provided by DEQ about the results from statistical analyses relating to monitors that they maintain in Northern Virginia (see, e.g., letter from DEQ to ACPAC). Further, DEQ notes that additional data are not available to perform a more up-to-date analysis than the one noted in 2010. Unless additional information is made available relevant to this concern, EQAC will no longer identify this issue in its Annual Report on the Environment.
2. Although Health Department staff no longer participates in air quality monitoring or planning activities, EQAC appreciates that the county continues to support participation in and attendance at Metropolitan Washington Council of Governments’ Air Quality Committee meetings and meetings of MWAQC’s Technical Advisory Committee and subcommittees. In addition, county staff will: collaborate with other local, regional and national air quality organizations, such as Clean Air Partners; provide support to address board matters related to air quality and the environment; provide for interagency coordination as needed on efforts to reduce air pollution;

perform legislative reviews; and encourage county residents and others to take voluntary actions to improve air quality.

3. EQAC supports the efforts of Fairfax County, VDOT, and the Commonwealth Transportation Board to provide funding to programs that further the availability and use of non-motorized transportation alternatives for Fairfax County. This includes the efforts by the Fairfax County Board of Supervisors, which has directed FCDOT to lead the effort to improve bicycle and pedestrian safety and mobility, including constructing bicycle and pedestrian improvements in high-priority areas of Fairfax County. Through FY 2020, the board has designated over \$313 million in federal, state and county funding to construct high-priority bicycle and pedestrian improvement projects throughout the county. These include projects on major roadways, in activity centers, providing access to Metro stations and completing neighborhood missing links.

E. RECOMMENDATIONS

None.

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