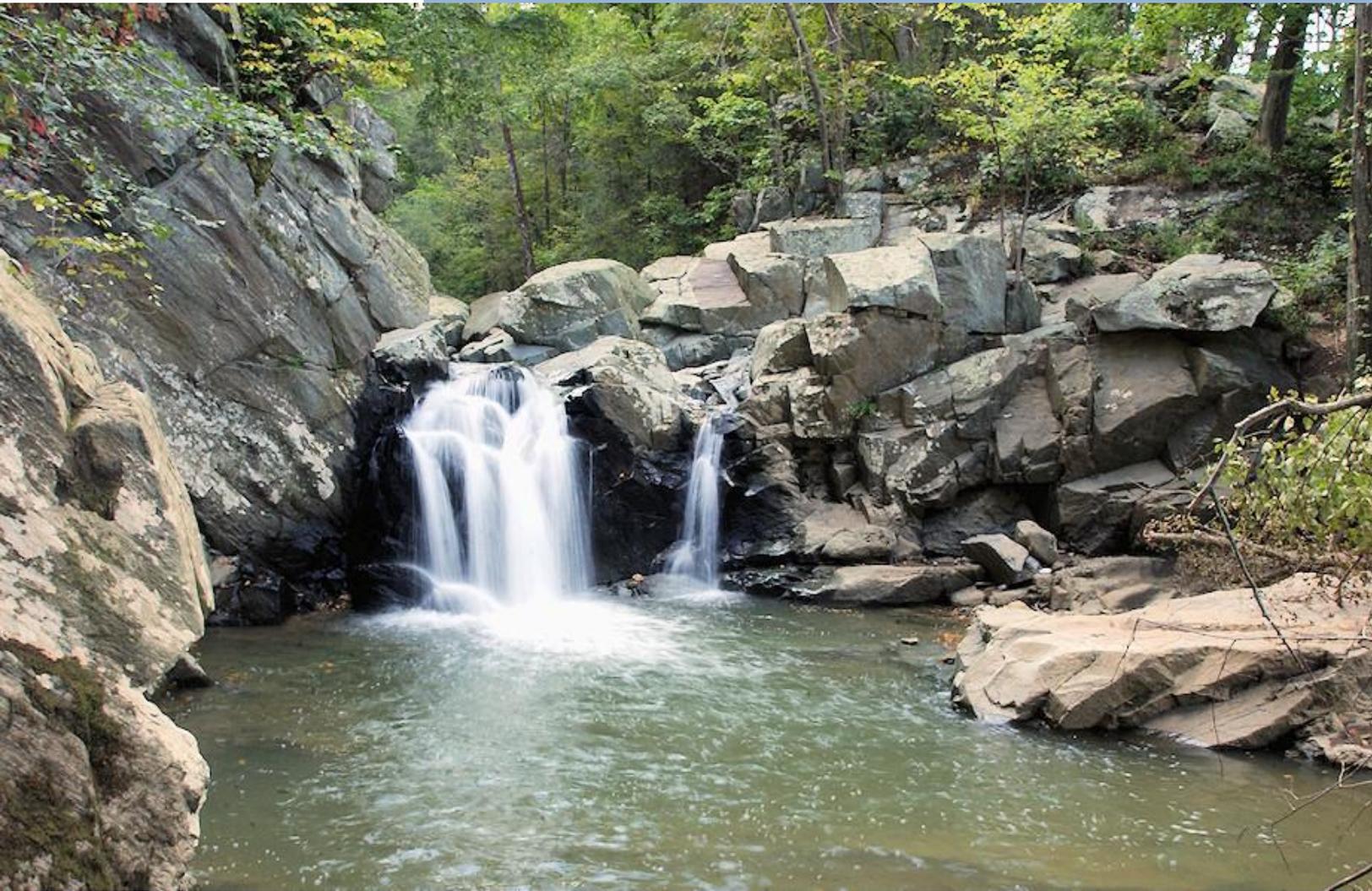




2015 Annual Report on the Environment



Environmental Quality Advisory Council Summary Report, November 2015 A Fairfax County, Virginia Publication

A detailed version of this report is available in the attached CD and is available online at:
www.fairfaxcounty.gov/eqac

To request this information in an alternate format, call the Department of Planning and
Zoning: (703) 324 1380 TTY 711



The cover depicts Scotts Run
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Katrina White, Student
Member, Environmental
Quality Advisory Council.

ANNUAL REPORT
on the
ENVIRONMENT
2015



SUMMARY REPORT

Fairfax County, Virginia

Environmental Quality Advisory Council
November 2015

Printed on recycled paper

**A detailed version of this report is provided in the attached CD
and is available on-line at www.fairfaxcounty.gov/eqac**

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Introduction

This year's Annual Report on the Environment has been prepared by the Environmental Quality Advisory Council. Staff support for the coordination and printing of the report has been provided by the Planning Division of the Department of Planning and Zoning.

The Annual Report on the Environment, which is an update on the state of the county's environment, serves a threefold purpose. First, it is intended to assist the Board of Supervisors in evaluating ongoing environmental programs and to provide the basis for proposing new programs. Second, the document aids public agencies in coordinating programs to jointly address environmental issues. Third, the report is intended to inform residents and others who are concerned with environmental issues.

This year's report in two formats: (1) a detailed report; and (2) a summary report providing highlights of recent activities, key issues and comments and recommendations associated with each of the major topical areas covered in the larger report. Both report formats are provided electronically, but only the summary document is being made available in hard copy.

The report includes chapters on major environmental topics including: climate change and energy; land use and transportation; air quality; water resources; solid waste; hazardous materials; ecological resources; wildlife management; and noise, light, and visual pollution. Also included are: EQAC's "Scorecard" of progress made on previous recommendations; a summary of EQAC activities since the last report was published; contacts for reporting potential environmental crimes/violations; an overview of stewardship/volunteer opportunities; and a "spotlight" on three environmental initiatives of Fairfax County Public Schools--High performance and sustainable schools; Get2Green Environmental Education and Action; and collaboration between FCPS and the county's Stormwater Planning Division on stormwater management plans for school properties. EQAC commends FCPS for working towards improved environmental performance in these areas. In addition, the detailed report includes appendices addressing: state legislation relating to the environment; resolutions and positions taken by EQAC over the past year; the county's Environmental Excellence Awards; the county's Environmental Improvement Program (EIP) and EIP project selection process; and acronyms and abbreviations used in this report.

Within each chapter of the detailed report are: a discussion of environmental issues; a summary of relevant data; and a discussion of applicable government programs. Most of the chapters include information regarding stewardship opportunities and conclude with recommendations that identify additional actions that EQAC feels are necessary to address environmental issues. References are generally presented only in the detailed report format. Recommendations are again presented in two formats: items addressing ongoing considerations and continued support for existing programs are noted as "comments." Comments may also provide information to support items in the "recommendations" section. Items addressing new considerations, significant refinements of previous recommendations or issues that EQAC otherwise wishes to stress are presented as "recommendations." EQAC requests that county staff provide its perspectives on items presented as "recommendations."

This report covers activities affecting the environment in 2014; however, in some cases, key activities from 2015 are also included.

While the Environmental Quality Advisory Council has prepared and is responsible for this report, contributions were made by numerous organizations and individuals. Many of the summaries provided within this report were taken verbatim from materials provided by these sources. EQAC therefore extends its appreciation to the following:

Alice Ferguson Foundation
Audubon Naturalist Society
Clean Air Partners
Clean Fairfax
Coalition for Smarter Growth
Fairfax County Deer Management Committee
Fairfax County Department of Administration for Human Services
Fairfax County Department of Cable and Consumer Services
Fairfax County Department of Code Compliance
Fairfax County Department of Information Technology
Fairfax County Department of Neighborhood and Community Services
Fairfax County Department of Planning and Zoning
Fairfax County Department of Public Works and Environmental Services
Fairfax County Department of Transportation
Fairfax County Department of Vehicle Services
Fairfax County Executive's Office
Fairfax County Environmental Coordinator
Fairfax County Facilities Management Department
Fairfax County Fire and Rescue Department
Fairfax County Health Department
Fairfax County Office of Community Revitalization
Fairfax County Park Authority
Fairfax County Police Department, Division of Animal Services
Fairfax County Public Schools
Fairfax County Restoration Project
Fairfax County Wetlands Board
Fairfax County Wildlife Management Specialist
Fairfax Joint Local Emergency Planning Committee
Fairfax Master Naturalists
Fairfax ReLeaf
Fairfax Water
Federal Aviation Administration
Illuminating Engineering Society of North America
International Dark-Sky Association
Interstate Commission on the Potomac River Basin
Metropolitan Washington Airports Authority
Metropolitan Washington Council of Governments
National Park Service
Northern Virginia Conservation Trust
Northern Virginia Regional Commission
Northern Virginia Soil and Water Conservation District
NOVA Parks (Northern Virginia Regional Park Authority)
Occoquan Watershed Monitoring Laboratory
Potomac Conservancy
Reston Association
United States Fish and Wildlife Service
United States Geological Survey
United States National Museum of Natural History
Upper Occoquan Service Authority
Virginia Cooperative Extension, Fairfax County

Virginia Department of Environmental Quality
Virginia Department of Forestry
Virginia Department of Game and Inland Fisheries
Virginia Department of Transportation
Virginia Division of Legislative Services
Virginia Outdoor Lighting Taskforce
Virginia Outdoors Foundation

Finally, EQAC wishes to acknowledge the efforts of the county's interagency Environmental Coordinating Committee, which coordinated the staff responses to the recommendations within EQAC's 2014 *Annual Report on the Environment*, as well as the ongoing efforts of the interagency Energy Efficiency and Conservation Coordinating Committee.



County of Fairfax, Virginia

To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County

Board of Supervisors
County of Fairfax
12000 Government Center Parkway
Fairfax, VA 22035

November 17, 2015

The Environmental Quality Advisory Council (EQAC) is pleased to present the 2015 Annual Report on the Environment. In this report, we discuss various environmental issues in Fairfax County and make recommendations as to what actions the county should take to resolve identified problems. This report covers 2014, but also includes significant actions from 2015 that could impact EQAC's comments and recommendations.

We realize that the report does not cover all ongoing actions; if we tried to accomplish this, the report would never be finished. The report consists of nine chapters – each chapter addressing a different aspect of the environment. The chapters are arranged to reflect the order of topics listed in the Board of Supervisors' Environmental Agenda.

We have:

- Created two versions of the report; one a printed summary version, and two, an electronic complete version with supporting information included, available both on-line and in the CD attached to this report.
- Highlighted environmental stewardship opportunities within the report chapters and have retained a summary of these opportunities.
- Included within the detailed report an appendix on the Environmental Improvement Program funding, explaining the program, what the funds are used for and what the selection process is for the funds.
- Included a section within both versions of the report summarizing EQAC's activities over the past year.

EQAC thanks the board for its continued strong support of environmental programs. We understand that budget constraints still continue to impact all programs within the county.

EQAC's priority recommendations this year focus on two areas:

The first is the need for continuing long-term financial support to sustain environmental programs that will only be effective and lasting if funded through multiple years. This includes:

- **Increase in the Stormwater Service District rate by one-quarter penny** that would again result in more funding for modest watershed improvement programs and a somewhat more realistic infrastructure replacement timeline.
- **Continued funding of Environmental Improvement Program projects**, most of which will be cost effective and result in significant cost reduction.
- **Funding for an approved Ecologist position in the Fairfax County Park Authority.**
- **Funding for the Assistant Wildlife Management Specialist position.**

The second recommendation asks that the county develop policies that address development and redevelopment within areas that are vulnerable to sea level rise.

As we do each year, EQAC would like to commend the outstanding efforts of the following groups whose actions improve and safeguard the environment in Fairfax County:

- The Northern Virginia Soil and Water Conservation District continues its work to provide excellent education programs, to consult with the county on innovative stream restoration work, to have a large and successful stream monitoring program and to be available to residents and developers alike for site work consultation.
- The Northern Virginia Conservation Trust continues to obtain easements on privately owned environmentally sensitive land.
- Fairfax ReLeaf continues to promote tree preservation and tree replacement programs.
- The Park Authority Natural Resources staff continues to provide exemplary service due to a small group of dedicated individuals, working with a very small budget, who are slowly enhancing environmental efforts in the county's parks.

The members of EQAC thank all these groups, and all others who work to preserve and enhance the environment of the county.

Once again, EQAC would like to thank and commend the county staff for its continued outstanding work. We thank staff especially for providing the data for this report and for a continued willingness to meet with EQAC to discuss various issues. We commend the county's Environmental Coordinating Committee (ECC), which is chaired by Deputy County Executive David Molchany, for its continued efforts at managing environmental action within the county. We appreciate ECC's willingness to meet with EQAC twice each year and to discuss issues of environmental significance.

Board of Supervisors
Continued

As I do every year it gives me great pleasure as the representative of EQAC to thank and acknowledge the work of two individuals. Every year we do this and every year the members of council continue to be impressed with the work and input of these two people.

First, we need to truly thank Noel Kaplan of the Environment and Development Review Branch, Department of Planning and Zoning. Noel provides county staff support to EQAC. Noel sets up and tapes every EQAC meeting, follows up on actions generated from the meetings and coordinates the inputs and publication of the Annual Report. Although the members of EQAC write the Annual Report, it is Noel who makes publication of the document possible. Again EQAC cannot thank him enough for his hard work and long hours in our support.

Second, we thank Kambiz Agazi, Environmental Coordinator, Office of the County Executive, who also attends all of our meetings and provides helpful advice and suggestions. His insight and his overview of county environmental activities are invaluable to our work. EQAC thanks him for his assistance and valuable contributions.

Finally, as I did last year, I would like to personally recognize my fellow EQAC members. They represent a diversity of views that allows for knowledgeable discussions and results in thoughtful recommendations. They spend extensive time investigating issues, write excellent resolutions and produce comprehensive chapters on subjects they have carefully researched. They are to be commended for their efforts.

EQAC asks that you continue to support the environmental programs you have established. These programs are important if we are to maintain the high quality of life we have in Fairfax County and the high standards we have set for ourselves. We note that for Fairfax County residents, quality of life is not just about good schools and jobs but also about having a clean and healthy environment in which to live and recreate.

The members of EQAC thank the Board of Supervisors for its leadership and look forward to continue working with you to achieve the goals of the Environmental Agenda and protecting and enhancing Fairfax County's quality of life in the coming years.

Respectfully submitted,

A handwritten signature in cursive script that reads "Stella M. Koch".

Stella M. Koch, Chairman

SUMMARY OF EQAC ACTIVITIES NOVEMBER 2014 THROUGH OCTOBER 2015

Between November 1, 2014 and October 31, 2015, EQAC held 12 meetings, including one public hearing and two joint meetings with the Fairfax County Environmental Coordinating Committee. During this period, EQAC issued five resolutions and positions, with one clarification (see Appendix B of the detailed version of this report). On November 18, 2014, EQAC presented its 2014 Annual Report on the Environment to the Board of Supervisors. On October 6, 2015, EQAC presented the 2015 Environmental Excellence Awards (see Appendix C of the detailed version of this report).

Key agenda items from EQAC's meetings were as follows:

November 12, 2014

- The FY 2016 Fairfax County budget process.
- Perspectives on PACE (Property Assessed Clean Energy).
- Grant funding through Virginia's Stormwater Local Assistance Fund (SLAF).
- Consideration of correspondence to the Board of Supervisors regarding transportation.
- 2014 Annual Report on the Environment.

December 10, 2014

- Discussion of spraying to control the fall cankerworm.
- Environmental Improvement Program project proposals.

January 21, 2015

- Election of officers for 2015.
- EQAC's annual public hearing.
- Consideration of correspondence to the Board of Supervisors regarding control of the fall cankerworm.
- The MITRE building energy technology report.

February 11, 2015

- County water quality monitoring programs.
- Stormwater education efforts in the public schools.
- Status of the county's MS4 permit.
- Review of issues identified at the January 21 public hearing.

March 11, 2015

- Joint meeting with Fairfax County’s Environmental Coordinating Committee.
 - The FY 2016 Advertised Budget Plan.
 - The Deer Management Program audit.
 - County activities supporting pollinators.
 - Climate change/energy efforts in the community.
- Energy dashboards.
- Freshwater mussels and the Virginia Department of Environmental Quality’s proposed ammonia criteria.
- Concerns identified in response to EQAC’s January 22, 2015 memorandum to the Board of Supervisors regarding fall cankerworm control.
- Review of issues identified at the January 21 public hearing.
- The annual report preparation process.

April 8, 2015

- Climate change/energy efforts in the community: emissions reductions in the utility sector.
- Climate change/energy efforts in the community: regional efforts and county support.
- 2015 Annual Report on the Environment.
- 2015 Environmental Excellence Awards.

May 13, 2015

- Tour of the Noman M. Cole, Jr. Pollution Control Plant.
- The Gunston Cove Study.
- EQAC notifications of certain development proposals.
- 2015 Annual Report on the Environment.
- 2015 Environmental Excellence Awards.

June 10, 2015

- Joint meeting with Fairfax County’s Environmental Coordinating Committee.
 - Fairfax Forward.
 - Proposed revision to the Noise Ordinance.
 - Overview of the county’s Wastewater Management Program.
 - Update on development of a Web-based energy dashboard for county government facilities.
- Student member search.
- 2015 Annual Report on the Environment.
- 2015 Environmental Excellence Awards.

July 8, 2015

- Cleanup of dump sites.
- Preparation for September 2015 budget discussion.
- Staff response to the EQAC recommendation addressing impacts of climate change to Fairfax County.
- Legislative proposals for the 2016 General Assembly.
- 2015 Annual Report on the Environment.
- 2015 Environmental Excellence Awards.

August 12, 2015

- Legislative proposals for the 2016 General Assembly.
- 2015 Annual Report on the Environment.

September 9, 2015

- The FY 2017 Fairfax County budget process.
- Legislative proposals for the 2016 General Assembly.
- 2015 Annual Report on the Environment.

October 14, 2015

- 2015 Annual Report on the Environment.

Approved minutes of EQAC meetings are available from EQAC's website, at www.fairfaxcounty.gov/dpz/eqac/minutes.

EQAC resolutions and positions were as follows:

- November 12, 2014: Support for grant funding through the Stormwater Local Assistance Fund
- January 21, 2015: EQAC position on the county's fall cankerworm spray program.
- February 11, 2015: EQAC comments on the MITRE building energy technology report.
- March 11, 2015: Clarification on the January 21 position on the county's fall cankerworm spray program.
- April 8, 2015: Testimony in support of the proposed budget for the environment.
- September 9, 2015: EQAC support for the Board of Supervisors legislative position on reducing environmental contamination from plastic and paper bags.

Details are available in Appendix B of the detailed version of this report as well as EQAC's website, at www.fairfaxcounty.gov/dpz/eqac/resolutions/dpz_eqac_resolutions.htm.

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SCORECARD
Progress Report on 2014 Recommendations

I. CLIMATE CHANGE AND ENERGY

Climate Change & Energy Recommendation	Action taken by Agency or Department	EQAC Comments	Completed
<p>1. EQAC is very encouraged to hear that a process has been established through which funding can be provided for a variety of environmental initiatives through the county's Environmental Improvement Program (EIP), including education programs (including social media) and other programs to promote energy efficiency. However, EQAC is concerned that the EIP activities were eliminated as part of budget negotiations for the FY 2015 budget. EQAC appreciates the Board of Supervisors' restoration of funding for EIP projects through the FY 2014 carryover process, but the FY 2015 budget decision suggests that future funding of EIP projects may be uncertain. EQAC recognizes that these programs hold promise for efficiencies that might not be identified by other means. It is EQAC's view that, if Fairfax County is going to continue to compete with neighboring jurisdictions for progressive companies to enhance our workforce, Fairfax County must be a leader in energy efficiency, outreach and education, and environmental stewardship in general. EQAC recommends that the County Executive and the Board of Supervisors support and fund those projects that are recommended by staff. Moreover, EQAC recommends that funding for the EIP be structured so that it is not as vulnerable to future actions like the one that would have eliminated it for FY 2015.</p>	<p>The County Executive recognizes the value of EIP project funding and will make every effort to include funding for this program in his Advertised budget annually. The new evaluation process for reviewing EIP projects has been extremely beneficial and enhanced the process for determining the level of project funding. All EIP projects are funded by the General Fund, and as with all other department and program funding, is subject the availability of General Fund revenue. Project funding will be evaluated each year based on the fiscal environment. It should be noted that the Board of Supervisors specifically requested that beginning in the FY 2016 budget, the funding that supports the Invasive Plant Management Program be included as a baseline funding adjustment outside the project selection process. All other EIP project will be evaluated using the new selection process annually.</p>	<p>EQAC is pleased to see that the County Executive and Board of Supervisors are supporting the EIP. We believe that the EIP should be used to support promising initiatives that will provide for energy efficiencies and other worthwhile environmental projects.</p>	<p>Yes.</p>

Climate Change & Energy Recommendation	Action taken by Agency or Department	EQAC Comments	Completed
<p>2. EQAC recommends that the Board of Supervisors direct county staff to evaluate alternatives for the county to further reduce greenhouse gas emissions from either incineration of waste or placement of waste in landfills. The long-term goal should provide for expanding the recycling of all waste streams, including composting of compostable waste. The expansion of waste streams recycled should be considered as the county develops a strategic plan for the management of county waste. Specific recommendations related to the support of recycling are included in the Solid Waste chapter.</p>	<p>This recommendation was presented in the EQAC report in 2012 and staff responded with information regarding the status of food waste composting in the northern Virginia region. As an update, Prince William County has recently announced an agreement to develop a composting facility on its Balls Ford Road property that will be capable of processing food waste, yard waste and wood waste. We hope to continue and expand our composting diversion rates with this program.</p> <p>EQAC's recommendation further requests that the county "provide for the recycling of all waste streams" and that this should be considered as the county develops its strategic plan for waste management. The county's Solid Waste Management Plan clearly identifies recycling as preferable over incineration and landfilling. Opportunities to enhance recycling are routinely explored.</p>	<p>The EQAC is pleased to see that progress has been made in this area, but further work is necessary to establish networks for the recycling of all waste streams.</p>	<p>No.</p>

Climate Change & Energy Recommendation	Action taken by Agency or Department	EQAC Comments	Completed
<p>3. The work of the Private Sector Energy Task Force was intended to help Fairfax County position itself as a leader in the area of energy efficiency, sustainability and “green” technology. The Private Sector Energy Task Force was a good beginning, but the work recommended by the task force is languishing and needs to be reinvigorated. As an example, EQAC recommends that Fairfax County place a priority on supporting education and recognition for companies that adopt energy efficient approaches as part of their business practices.</p>	<p>Yes and further work is underway. As described in the FY2015 Sustainability Initiatives report, http://www.fairfaxcounty.gov/living/environment/sustainability/, Fairfax County is a leader in the areas of energy efficiency, sustainability and "green" technology. The county recognizes the value in working more closely with the business community to achieve even greater gains in these areas. Work to address the recommendations of the Chairman's Private Sector Energy Task Force is ongoing. County staff has continued to develop policies like the Green Building Policy Comprehensive Plan Amendment and programs like the Energy Action Fairfax to position Fairfax County as a leader on energy efficiency and sustainability as recommended by the task force. Other recommendations rely on private investment and partnership with the private sector and efforts to identify partnership opportunities continue. As proposed in the response to EQAC's Climate Change and Energy Recommendation #3 in the 2013 Annual Report on the Environment, staff re-connected with the Chamber of Commerce and other key partners on forming an alliance or fostering a transformative project. Unfortunately, due to regional economic dynamics, these organizations are in no better position to lend resources to the creation of an alliance now than they were a year ago and there is no guarantee of when these circumstances will change.</p>	<p>While efforts continue to be made to address this recommendation, EQAC does not agree that this recommendation has been addressed. Funding of the Energy Action Plan and completion of the Sustainability Report are positive steps, but this work has not brought stakeholders together as envisioned by the Private Sector Energy Task Force.</p>	<p>No.</p>

Climate Change & Energy Recommendation	Action taken by Agency or Department	EQAC Comments	Completed
<p>4. Fairfax County should undertake an effort to identify all the impacts of climate change that might reasonably be expected to impact the county. This information will help to: 1) better plan for potential impacts; and 2) initiate mitigation or adaptation efforts where appropriate.</p>	<p>This recommendation has been addressed only to the extent that an unqualified list of impacts has been identified below; a more rigorous quantification of potential impacts has not been performed.</p> <p>Staff recognizes the value of identifying potential impacts of climate change that might reasonably be expected to impact the county. Staff also recognizes the need for the county to review and assess the impacts of climate change on the future of the county’s operations and the need to monitor and evaluate impacts as they occur and develop recommendations.</p>	<p>Other jurisdictions have placed a focus on the identification of areas that might be flooded as a result of climate change and are adjusting planning and permitting (e.g., comprehensive plan, permitting) so that building will not continue in areas that may be flooded. Also, mitigation measures to address existing facilities should be undertaken (e.g., construction of levies) to the extent appropriate and feasible.</p>	<p>No.</p>

Climate Change & Energy Recommendation	Action taken by Agency or Department	EQAC Comments	Completed
<p>5. Fairfax County has made significant strides in monitoring energy use, identifying opportunities for reducing energy use, and reporting this information to the county government. Just as this information has been useful to the county, it would also be helpful for businesses and residents to see the benefits of monitoring energy use. EQAC recommends that monitoring information that shows the benefits of monitoring be made available to the public and private sectors.</p>	<p>The Facilities Management Department (FMD) maintains 205 Board of Supervisors owned sites with more than 8.5 million square feet of space. These sites include numerous types of buildings, including offices, libraries, police and fire stations, community centers and vehicle maintenance facilities. FMD uses EnergyCAP software and a comprehensive database of building utility information to track and analyze energy consumption in each of the 205 buildings in its inventory. EnergyCAP allows FMD to identify high energy use buildings, develop a building's energy baseline and track changes in its energy use from year to year, or forecast energy usage for each utility.</p> <p>In addition to its use of EnergyCAP, FMD has installed a real-time building energy management system, or BEMS, in 94 of the 205 sites in its inventory. With BEMS, FMD can monitor and remotely control lighting and/or heating, ventilating and air conditioning (HVAC) systems in buildings. The number of building energy management systems will increase over time because BEMS installation is specified for all new building construction projects and for all end-of- lifecycle HVAC replacements. Investing in BEMS has allowed the County to achieve significant reductions in energy use while accruing energy savings.</p> <p>Data regarding the energy consumption of county buildings is not currently displayed via an energy dashboard on the county's website. However, at the Board of Supervisors Environmental Committee meeting on Tuesday, February 3, 2015, county staff presented various energy dashboard scenarios for the committee's consideration. The committee asked that staff pursue the low-cost option and create an energy dashboard that can be shown on the county website.</p>	<p>EQAC commends county staff for the focus on an energy dashboard that can show results on a website for the public.</p>	<p>No.</p>

II. LAND USE AND TRANSPORTATION

Land Use & Transportation Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>1. Continue to Innovate with Social Media</p> <p>EQAC commends the county for embracing new technology and leveraging the Web to share and interact with the public. We recommend that the county continue to integrate social media into the planning process and other outreach efforts. This allows community participation through the Internet technologies and is more cost effective and far reaching than traditional media and outreach. The concept of a virtual town-hall meeting with community participation and instant feedback is now possible. Social media is very powerful for encouraging and educating people about alternative transportation options.</p>	<p>Staff agrees that integrating social media into the planning process can be a powerful and effective tool to enhance public outreach capabilities and public participation opportunities. The Department of Planning and Zoning (DPZ) already has been using social media and continues to explore ways to expand its activities.</p> <p>Coordinating traditional outreach methods with social media can be an effective strategy to increase the number of community stakeholders who are reached. As the county explores new social platforms, DPZ will continue to look at using more social and public participation tools in concert with county policy to adopt the use of specific social media platforms on a countywide basis, not agency by agency.</p>	<p>EQAC agrees that the county is adopting social media for outreach. We continue to encourage new innovative approaches such as virtual town hall meetings and forums. This includes necessary policy expansion to accommodate new media approaches.</p>	<p>Ongoing.</p>
<p>2. Urban Design Standards</p> <p>Urban standards are designed to improve the environment, quality of life, balance and safety of a well-planned mixed-use place. These new standards are driving the potential in Tysons Corner and can apply equally well to all transit areas, as well as suburban centers and community business centers. EQAC recommends that the county allow a wide range of urban design standards, including green spaces, to be adopted and applied to all mixed-use centers.</p>	<p>Fairfax County has adopted Urban Design Guidelines for many of its mixed-use activity centers, including Tysons, and is moving towards adoption of such standards for additional areas including Seven Corners. The adopted Comprehensive Plan guidance for the Reston Transit Station Areas includes a section on urban design and placemaking.</p>	<p>EQAC supports urban standards adopted for Tysons. We encourage applying them broadly to Suburban, CBC, and Transit areas. The Urban Standards should be the baseline with exceptions as necessary. This is preferable to developing many site specific urban standards.</p>	<p>Ongoing.</p>

Land Use & Transportation Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>3. Data and Modeling</p> <p>EQAC recommends that nonresidential development data be comprehensively integrated into the county's Integrated Parcel Lifecycle System and used for forecasting, as demonstrated by residential data that have been harnessed in IPLS for that purpose. Currently, nonresidential data on proposed development projects are captured in disparate systems for zoning and site plan applications, but have not been fully brought into IPLS, and, therefore, cannot be used for forecasting.</p>	<p>Building on the momentum gained in 2013, staff continues to focus on this recommendation, propose improvements, and see progress.</p> <p>In 2014, DPZ staff briefed and subsequently gained the support of DPWES and DIT staff regarding a change to the IT system that captures site plans data (PAWS).</p> <p>Staff still believes that the IT project funding for the replacement of the FIDO and LDS (ZAPS and PAWS) systems (Fund 10040) presents a good opportunity to capture and track a development project and its associated data as it is processed at different stages, beginning with a zoning case and through project completion at the building permit stage.</p> <p>Having a unified IT system that tracks this "evolution" of development cases would allow one to address the question: <i>What development is in the pipeline?</i> However, this Fund 10040 project has not yet been approved.</p>	EQAC continues to support this project.	Ongoing.
<p>4. Data and Modeling</p> <p>EQAC continues to recommend that the Comprehensive Plan be reflected and modeled in the GIS. Applications such as the internal Comprehensive Plan Potential and the Comprehensive Plan Amendment applications (used to gather data for the State of the Plan report) are very useful for understanding the real time status of the Comprehensive Plan. These applications should be available to the public on the Comprehensive Plan website.</p>	<p>Land uses and densities are key pieces of information. That information is shown on the County's Comprehensive Plan Land Use Map available online at the County's map portal.</p> <p>The Comprehensive Plan also recommends land uses and densities that are different than the baseline for approximately 10% of the County. For these areas, DPZ created a Comprehensive Plan Potential database in 2006 to track the permutations of land use recommendations.</p> <p>While the database has been kept up-to-date as Plan Amendments have been approved, it has only been available to DPZ planners for land use modeling and forecasting work. The next step is to make this dataset publically-accessible.</p>	EQAC continues to support this project.	Ongoing.

Land Use & Transportation Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>5. Data and Modeling</p> <p>EQAC recommends that the county acquire new data sources and incorporate them into the business process. Planimetric data have proven to be both cost effective and transformative. Multi-spectral imagery has the potential to enhance our knowledge of the county by answering questions such as tree species identification and tree canopy density.</p>	<p>DPWES and DIT have partnered to obtain new satellite imagery in the summer of 2015 and to retain the services of a contractor to process the imagery and LIDAR to create land use and land cover data for the county. It will also identify changes from 2011 to 2015.</p> <p>DPWES were able to use those data to develop a GIS toolkit for facilitating and streamlining area delineation. These are essential analyses and with these tools Stormwater can do analyses in half the time.</p> <p>These recommendations have long-range fiscal impact. The four types of data must be refreshed on a cycle that provides sufficient value to the county to justify the investment. Ideally a predictable budgeting approach would assist in budgeting.</p>	<p>EQAC continues to support GIS and data acquisition projects.</p>	<p>Ongoing.</p>

Land Use & Transportation Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>6. Transportation</p> <p>EQAC recommends that the county provide priority for non-motorized/multi-modal transportation options. The county has been developing a comprehensive bicycle master plan that is ready for implementation. This complements requirements for pedestrian facilities in mixed-use centers. Proper implementation of the non-motorized/multi-modal master plan needs to include:</p> <ul style="list-style-type: none"> • Implementation of the bicycle master plan. Bicycle paths provide healthy and effective options to move about the county and between connected destinations. • Expanded bicycle parking guidelines modeled on successful programs such as the new secure bicycle parking facilities at Silver Line stations and other county park-and-ride/transit facilities. • Funding for implementation of both capital and non-capital elements of the county’s bicycle master plan. • Implementation of an outreach and education program for encouraging/promoting bicycling as a transportation mode. This could be called “Bike Fairfax!” • Engagement of the private sector. One example of this can be seen in New York City, where CitiBank underwrites 100 percent of the cost of a bikeshare program. This could work today in several suburban and transit centers. 	<p>The majority of the recommendations are being addressed. "Bike Fairfax" is still under consideration and funding opportunities for a "Bike Fairfax" program are currently being explored by DOTs Marketing Division.</p>	<p>EQAC fully supports these multi-modal programs and will continue to advocate for them.</p>	<p>Ongoing.</p>

III. AIR QUALITY

There were no recommendations in the 2014 Annual Report

IV. WATER RESOURCES

Water Resources Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>1. EQAC recommends that Fairfax County continue to adequately fund and implement its ongoing stormwater program, which includes dam maintenance, infrastructure replacement, water resource monitoring and management, watershed restoration and educational stewardship programs. EQAC realizes the funding for the stormwater program will come entirely from funds generated through the Service District rates. EQAC also realizes that there is a need for increasing capacity within the Department of Public Works and Environmental Services to provide these services.</p> <p>EQAC recommends that the Stormwater Service District rate be increased in FY 2016 by at least one-quarter penny, from a rate of 2.25 cents per \$100 assessed real estate value to 2.50 cents per \$100. EQAC understands that this increase would not fully meet stormwater management needs and therefore suggests that additional increases be continued each fiscal year until adequate funding to support the program is achieved. This would, once again, result in more funding for modest watershed improvement programs and a somewhat more realistic infrastructure replacement timeline. We realize that there will be a need for additional increases in funding for water quality projects to meet future permit conditions, and for infrastructure reinvestment, as the system is continually growing and aging.</p>	<p>The Board of Supervisors addressed this recommendation by increasing the Stormwater Service District rate to 2.50 cents per \$100 of assessed real estate value.</p>	<p>EQAC thanks the Board for increasing the funding for stormwater programs by the one-quarter penny.</p>	<p>Yes.</p>

V. SOLID WASTE

Solid Waste Resources Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>1. While the County's 48 percent recycling rate exceeds the minimum state requirement, it is considerably less than Montgomery County Maryland's rate of 58 percent. Additional means of increasing recycling should be investigated and implemented. In particular, recycling requirements for commercial properties should be enforced and additional requirements should be considered.</p>	<p>The county is investigating organics recycling with Prince William County. In addition, the county has expanded service for electronics and household hazardous waste disposal.</p>	<p>The County's 2015 recycling rate remains unchanged from 2014. In addition, it is a concern that glass contamination and market conditions have reduced the actual recycling rate substantially.</p>	<p>No.</p>
<p>2. EQAC recommends the continued investigation of alternative waste stream reduction including food waste composting. Regional cooperation should be considered.</p>	<p>A cooperative effort with Prince William County for food waste composting is planned to begin in July of 2017.</p>	<p>It will take continued action to bring this plan to fruition.</p>	<p>Ongoing.</p>
<p>3. EQAC recommends that opportunities to minimize redundant trash truck collection trips in the same neighborhoods be examined for implementation while not increasing cost.</p>	<p>County Staff has laid out the issues of implementing a franchise program.</p>	<p>It will take Board of Supervisors support for this recommendation to move forward.</p>	<p>No.</p>
<p>4. To increase the value and environmental benefit of recycled materials, the county should investigate ways to improve the quality of recyclables collected at residential and commercial properties. Removing glass from residential collection systems could significantly improve the quality of paper and plastic recycled. As such, alternative methods of glass recycling should be considered in addition to other ways to improve the quality of recyclables collected. One potential method to reduce the quantity of glass in the waste stream would be to establish a container redemption fee; such a fee would also reduce litter and increase the recovery of containers. EQAC therefore supports a statewide container redemption fee.</p>	<p>Staff has investigated several means of increasing the value of recyclables. In addition, the administrative steps and code changes needed have been identified.</p>	<p>Implementation will take Board of Supervisors support and changes to the county recycling code.</p>	<p>No.</p>

Solid Waste Resources Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
5. The county should investigate the potential for increased county participation in recycling of materials such as asphalt, glass and organic materials.	County staff described how materials under county control are used. They have examined additional options for adding to these programs.	This program should be considered for expansion.	Ongoing.

VI. HAZARDOUS MATERIALS

There were no recommendations in the 2014 Annual Report

VII. ECOLOGICAL RESOURCES

Ecological Resources Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>1. The Fairfax County Park Authority approved a Natural Resource Management Plan in 2004. This partially fulfilled a long-standing EQAC recommendation to develop and implement a countywide Natural Resource Management Plan. In 2014, the Park Authority adopted a revised Natural Resource Management Plan that more closely focused on adaptive management of natural resources. However, full funding to implement the plan is not yet in the Park Authority budget. The Park Authority has managed to secure some funding from several sources but lacks most of the amount to implement fully the plan. For the 2004 plan, FCPA staff estimated that full implementation would require approximately \$8 million per year and dozens of staff positions. This included about \$3.5 million to focus on general natural resource management and \$4.5 million for a non-native invasive plant control program. A more phased approach to funding would have allowed FCPA to begin to manage 10 percent of parklands and set up the program to be phased in over time. Phase 1 with this approach would have required \$650,000 and six positions. Implementation of the new plan will require similar funding and positions. EQAC strongly feels that the Natural Resource Management Plan needs to be fully implemented. Therefore, EQAC recommends that the Board of Supervisors provide sufficient funding to implement an initial phase for natural resource management efforts and that the Fairfax County Park Authority Board apply this funding accordingly. EQAC further recommends that, over time, the full plan be funded.</p>	<p>The Park Authority has not received recurring funding to fully implement Phase 1 of the Natural Resource Management Plan. It has, however, received dedicated recurring funding for one position, is making administrative changes in anticipation of additional funding such as reclassifying positions, and continues to pursue alternative funding strategies, which include further volunteer development, to implement the newly adopted plan.</p> <p>Fairfax County dedicated recurring funding for the Invasive Management Area (IMA) Volunteer Coordinator position beginning in FY14, which has ensured a consistent level of service provided by this program. In addition to the IMA Volunteer Coordinator merit position, the agency has identified a second merit position for plan implementation. The second position is vacant and will remain so until funding is available. Finally, all five merit positions in the branch were reclassified from the Naturalist to the Ecologist class in 2013.</p> <p>The newly adopted Natural Resource Management Plan will require approximately \$8 million and dozens of staff position annually to fully implement. This includes approximately \$3.5 million to focus on general natural resource management and \$4.5 million for a non-native invasive plant control program. Five additional merit positions and \$705,000 would be required to fund Phase 1 of the Natural Resource Management Plan.</p>	<p>EQAC commends the Park Authority for finding funding sources to fund a limited amount of activities called for in the Natural Resource Management Plan. EQAC continues its recommendation that Phase 1 be funded by the Board of Supervisors.</p> <p>Additionally, EQAC recommends that the unfunded merit position be funded by the Board of Supervisors.</p>	<p>No.</p>

VIII. WILDLIFE MANAGEMENT

VIII-1. IMPACTS OF DEER IN FAIRFAX COUNTY

Deer Management Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>I. Managed hunts should be continued as they have become both cost-effective and efficient in reducing excesses in the deer herd.</p>	<p>This recommendation has already been addressed. In FY 2015, managed shotgun hunts were coordinated by the Fairfax County Wildlife Management Specialist, Animal Control (FCPD), and the Fairfax County Park Authority at the Sully Woodlands area. Additional public hunts were held by federal and state agencies at Mason Neck National Wildlife Refuge and Mason Neck State Park (this program has been in place since 1993).</p> <p>Managed hunts are safe and often highly efficient for deer population control at select sites. Over the past five years of the program, managed hunts have contributed to approximately 13 percent of the total deer harvest even though this method is only implemented on a small proportion of total hunt acreage included in the Deer Management Program. Public managed hunts will continue to be used at selected parks to implement sustainable hunting pressures.</p>	<p>The previously authorized position of Assistant Wildlife Management Specialist, which has been in abeyance due to county budget constraints, should be restored as soon as possible and the Wildlife Management Program should receive a specific allocation in the county budget.</p>	<p>Yes, within the limits of available staff resources.</p>

Deer Management Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>2. The sharpshooter events should be continued because they are both humane and cost-effective.</p>	<p>This recommendation has already been addressed. Sharpshooting is a safe and highly efficient method for deer population control at select sites. Over the past five years of the program, sharpshooting operations have contributed to approximately 21 percent of the total deer harvest even though this method is only implemented on a small proportion of total hunt acreage included in the Deer Management Program.</p> <p>Sharpshooting is especially important for deer population control on public lands where other methods, such as archery and managed shotgun hunting, are not determined to be appropriate due to park operations and/or environmental features that make implementation difficult (i.e., large open fields, recreational complexes, botanical gardens). Sharpshooting allows for a targeted harvesting effort when parks are closed to minimize disruption to park operations and use by park patrons.</p> <p>Although sharpshooting is efficient, it does contribute to higher operational costs than other control methods because additional personnel are needed on sharpshooting nights for park security, harvesting and processing of deer. Improvements were made for the sharpshooting tactical operations in FY 2015 to increase efficiency of harvest and minimize suffering of deer.</p>	<p>The previously authorized position of Assistant Wildlife Management Specialist, which has been in abeyance due to county budget constraints, should be restored as soon as possible and the Wildlife Management Program should receive a specific allocation in the county budget.</p>	<p>Yes, within the limits of available staff resources.</p>

Deer Management Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>3. The archery program should be continued as a means of controlling deer depredation of vegetation on residential properties where firearms cannot be used. Archery is also particularly cost-effective, relying on hundreds of qualified volunteers contributing thousands of hunt hours to the program at no cost.</p>	<p>This recommendation has already been addressed. Archery is a safe, cost-effective, and highly efficient method for deer population control at select sites. Since the archery program was initiated in FY 2010, it has contributed to approximately 66 percent of the total deer harvest. By FY 2015, the archery program has been expanded to include 24 qualified volunteer archer groups assigned to approximately 65 parks countywide. This includes over 10,000 acres of FCPA parkland and 3,300 acres of NVRPA parks. The archery program continues to increase the number of hunt sites available in the county through participation by ethical, qualified archers with superior skill. All parks where the archery program is implemented remain open to the public due to the continued excellent record ensuring public safety and participant safety.</p> <p>Currently, the Fairfax County Deer Management Program only implements archery as a management tool on public parklands, which represent less than 20 percent of total county acreage. The county program does not currently coordinate hunting on private property, which also provides refuge and food that sustain overabundant deer. However, private citizens do hunt in these areas. Reduction of deer densities to more sustainable, healthy levels is likely to require coordination of hunting on both public and private lands within Fairfax County.</p>	<p>The previously authorized position of Assistant Wildlife Management Specialist, which has been in abeyance due to county budget constraints, should be restored as soon as possible and the Wildlife Management Program should receive a specific allocation in the county budget.</p>	<p>Yes, within the limits of available staff resources.</p>

VIII-2. IMPACTS OF GEESE IN FAIRFAX COUNTY

Geese Management Recommendations	Action taken by Agency or Department	EQAC Comments	Completed
<p>1. EQAC strongly recommends that the goose management program be continued, particularly the public outreach and training activities so that a cadre of volunteers can be created to provide the labor to do the actual egg-oiling that is the principal control measure. In addition, the shotgun hunt pilot test conducted by the Park Authority should be expanded into an established program.</p>	<p>This recommendation has already been addressed. Community outreach and a public education program to train volunteers to "addle" (oil) eggs will continue to be used as management tools to control the resident Canada goose population at selected sites.</p> <p>To date, the majority of the egg oiling activity remains concentrated on public lands. In order to be effective at reducing local resident goose populations, efforts will need to be greatly expanded on both public and private lands county- and region-wide, particularly by land managers and volunteers working on properties which contained large amounts of managed turf and/or water features.</p> <p>Egg oiling efforts should be combined with habitat modification to reduce the amount of suitable habitat for resident geese; behavior modification to discourage use of lands by resident geese; and goose population control (hunting) to better manage resident good populations.</p>	<p>The previously authorized position of Assistant Wildlife Management Specialist, which has been in abeyance due to county budget constraints, should be restored as soon as possible and the Wildlife Management Program should receive a specific allocation in the county budget.</p>	<p>Yes, within the limits of available staff resources.</p>

VIII-3. COYOTES IN FAIRFAX COUNTY

There were no recommendations in the 2014 Annual Report

VIII-4. WILDLIFE BORNE DISEASES OF CONCERN IN FAIRFAX COUNTY

There were no recommendations in the 2014 Annual Report

IX. NOISE, LIGHT POLLUTION AND VISUAL POLLUTION

There were no recommendations in the 2014 Annual Report



Spotlight on Fairfax County Public Schools

Fairfax County Public Schools (FCPS) is the largest school district in Virginia (the 10th largest in the U.S.) and has an enrollment of over 187,994 students for the 2014-2015 school year. Over 14 percent of Virginia’s K-12 students are enrolled in FCPS.

In this Spotlight, EQAC wants to provide recognition and to highlight three areas where FCPS is working towards improved environmental performance. These areas are:

- High Performance and Sustainable Schools.
- Get2Green Environmental Education and Action.
- Collaboration between FCPS and the county’s stormwater program.

High Performance and Sustainable Schools (Facilities and Transportation) – A high performance school implements design, construction and implementation strategies intended to create a learning environment which is: healthy; thermally, visually and acoustically comfortable; efficient in its use of energy, water and materials; easy to maintain and operate; environmentally responsible; a learning tool; safe and secure; and a community resource. Benefits of a high performance school include: heightened student performance; increased daily attendance; better student and teacher health; improved teacher satisfaction; improved indoor air quality; and reduced environmental impact.

FCPS uses the Collaborative for High Performance Schools (CHPS), (see <http://www.chps.net/dev/Drupal/node>), specifically the Virginia-CHPS Criteria, as its standard for sustainable design and benchmarking. CHPS offers resources for different phases and types of projects, including planning, designing, operating, commissioning or maintaining a school. In addition, it offers a “Best Practices Manual” to help schools, districts and practitioners to achieve: high performance design, construction and operations; assessment tools for new construction, major modernizations and relocatable classrooms; and recognition programs.

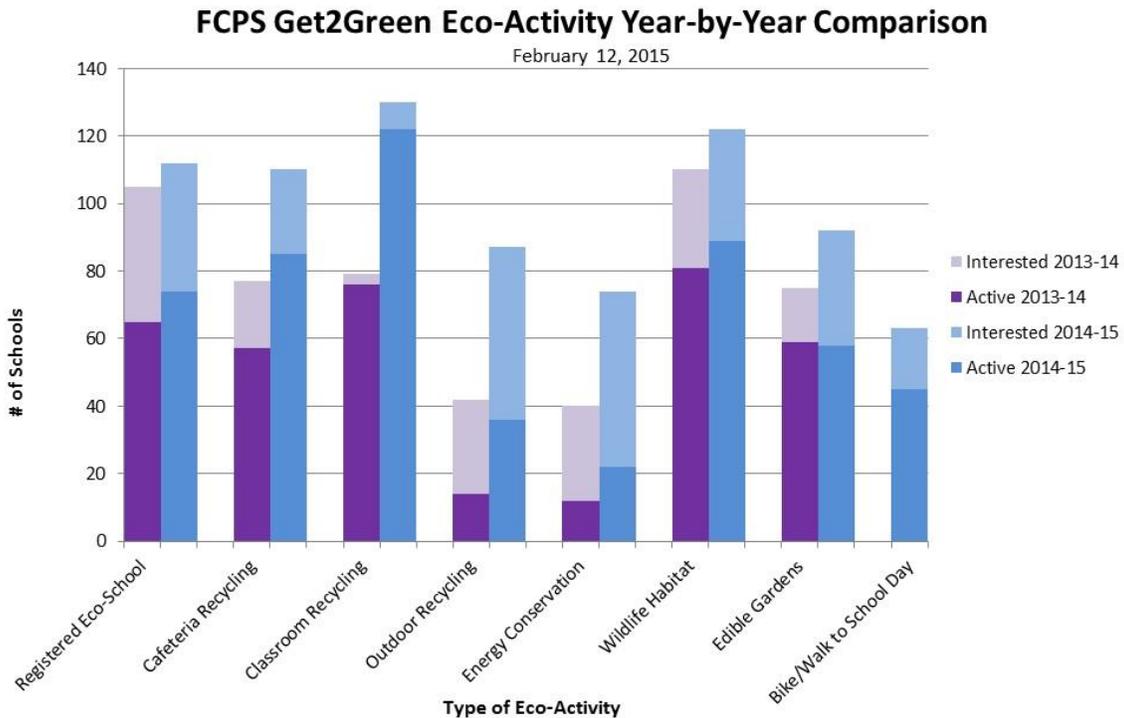
FCPS policy is for all 2013 bond (and beyond) projects to be CHPS-designed under the VA-CHPS Criteria.

The Office of Facility Management Energy Management Section prepares an annual greenhouse gas inventory for all of FCPS (annual reports from 2008 to 2013 are available at <http://www.fcps.edu/fts/facmanagement/greenhousegas/index.shtml>).

FCPS has contracted with Cenergistic, Inc., to implement an energy conservation program. Work started February 1, 2014, and Cenergistic engineers and experts are working throughout the school district to implement conservation procedures in all facilities. Ten energy specialists are conducting energy audits to ensure that students and teachers are comfortable during class time and scheduled activities and that energy is used only as necessary. Energy specialists are responsible for helping to motivate everyone in the school district to use energy wisely, keep

classrooms comfortable and practice smart energy strategies—ensuring that the energy management program is implemented district-wide.

Get2Green Environmental Education and Action – FCPS Get2Green (see <http://www.fcps.edu/is/science/get2green/>) is in its fifth year. It was started as a means to help attain the School Board goal to graduate environmental stewards. The school district defines stewardship as a combination of knowledge and action.



* The increase between years is partially attributable to improvements in data collection. The 2014-15 school year is also the first year data was collected on Bike/Walk to School Day.

To assist schools with a framework for student action, Get2Green partnered with the National Wildlife Federation Eco School USA program. Through this program, FCPS efforts focus on developing student driven action teams within Eco Schools across the county. These teams work on a variety of environmental topics (pathways) under the Eco School umbrella. In addition, FCPS focuses efforts on teacher professional development to assist teachers in running eco teams, working with students on Eco School USA activities, and in taking students outdoors for lessons.

Given the new focus of FCPS on the Portrait of a Graduate, a strategic focus to graduate global citizens, the environmental stewardship work that Get2Green fosters is integral in helping FCPS meet its goals. Through collaboration with initiatives such as Service Learning and Science, Technology, Engineering, Art and Math (STEAM) and the overall curriculum integration efforts of the Department of Instructional Services, Get2Green can help to offer teachers, staff and students opportunities to work on authentic problems with the environment as the integrating concept. This problem-based learning is shown to

enhance critical thinking and other 21st century skills.

FCPS has 75 registered Eco Schools and 7 of those have achieved Green Flag status, the highest honor in that program. They are Lanier Middle School, Churchill Road ES, Centreville ES, Lake Anne ES, Franklin Sherman ES, Longfellow Middle School and Flint Hill ES. In addition, FCPS records at least 75 more schools working on related projects. Most common areas of work include; energy conservation, reduction of waste, building wildlife habitat and studying biodiversity, sustainable food and edible gardens, water conservation, transportation improvements, and healthy living-exercise and nutrition. Additional metrics include: schoolyard habitats (90+ schools); edible gardens (60+ schools); and Blackboard Get2Green Community Members (600).

Get2Green collaborates with a wide variety of internal FCPS departments to assist schools in their “greening” efforts, as well as a group of Get2Green principals. Get2Green is collaborating with Cenergistic in the district’s efforts to conserve energy and will jointly plan a student energy conservation initiative in the 2015-2016 school year. The school district works with many external partners across the county and region to bring expertise and resources to the schools. Work is underway with the Fairfax County Park Authority to train teachers to use parks adjacent to the schools as additional outdoor classroom space. Students are engaged in service learning projects to improve the parks by removing invasive plants and litter. A grant from NOAA, where FCPS is partnered with both DPWES and FCPA and others, was received in 2015 to train middle school teachers to run stewardship projects with students over the next three years.

Recycling and Waste Reduction

In an effort to creatively increase the amount of recycling in schools, FCPS ran a business case competition with Ernst and Young for high school teams. The teams designed a marketing plan to increase recycling and waste reduction. As part of this effort, a set of signs designating what is recyclable and what is trash were developed and distributed to all schools. The high school students then created a contest for schools to build their mascots out of recyclable materials. The mascots were displayed and judged at the NoVA Outside/GMU School Environmental Action Showcase in April 2015.

Wildlife Habitat and Garden Implementation

Get2Green is assisting many schools to develop and expand their wildlife habitat. These habitats may take the form of meadows, enhanced woodland areas or butterfly and bird attracting gardens. Many of them are created to alleviate erosion issues and enhance storm water management on local campuses. Significant progress has been made to work with the Department of Public Works on increased stormwater education in the classroom and planning student wildlife habitat projects. FCPS is partnering with federal, state and local organizations to form an Urban Wildlife Habitat Program whose purpose is to educate students, faculty, staff and the general public about the importance of protecting and maintaining local wildlife habitats and gardens on campus. Although these habitats may be small, their collective impact can be felt district wide. To better understand this impact, Get2Green is piloting biodiversity studies to measure the positive effect these wildlife habitat constructions are having on the animal population within school grounds and the surrounding communities. The centerpiece of these

materials is the Fairfax County Field Guide that DPWES designed with FCPS. The US Fish and Wildlife Service provided an intern for the summer of 2015 to enhance and expand this program.

Get2Green is also partnered with the Fairfax County Health Department in a grant and other planning to develop edible gardens in locations in the county that have been designated as areas where fresh food and produce is not available.

Collaboration between Fairfax County Public Schools and the County's Stormwater Planning Division on Stormwater Management Plans

In November 2012, staff from FCPS and SWPD provided a briefing to EQAC regarding the identification of opportunities to enhance stormwater management efforts (beyond code requirements) on school properties through FCPS and DPWES collaboration. These include: evaluation of opportunities to provide additional stormwater management onsite during the design and construction of projects in the FCPS Capital Improvement Program (CIP); opportunities for SWPD to construct stormwater management facilities on school properties which are not part of the CIP; and education and outreach opportunities in the FCPS science curriculum.

FCPS and SWPD coordinate throughout the planning and design of FCPS CIP projects to identify opportunities to enhance the code required stormwater management provided by FCPS. For projects where additional stormwater management measures are found to be feasible, SWPD provides technical support and funding, through the Stormwater Service District revenue. The support is provided to FCPS for the design and construction of additional stormwater management measures to be permitted and built as part of the FCPS CIP. A list of FCPS CIP projects where SWPD and FCPS were able to provide additional stormwater management is included below. These additional stormwater management measures help us improve water quality in our streams and meet our Total Maximum Daily Loads (TMDL) requirements. It is anticipated that these efforts will continue with future FCPS CIP projects. A broader list that also identifies joint projects that are being planned is provided in the detailed Water Resources chapter of this report.

EQAC notes that it would be beneficial if the advanced stormwater management activities that are installed at FCPS facilities would include visible signage that describes the nature of the improvement. Such signage could help students and others at the schools to increase their appreciation of the efforts and be useful as an educational tool. SWPD will work with FCPS to identify opportunities to install signage on school stormwater management facilities.

FCPS and SWPD Stormwater Collaborations as of July 2015		
Location	Plan Status	Facility Descriptions
Langley High School	Under construction	Underground storage / filtration (Bay Filter)
Marshall High School	Construction substantially complete	Cistern - irrigation system
Mt Vernon High School	Construction complete	Added storage under turf field
Ravensworth Elementary School	Under construction	Bioretention, amended soils
Sunrise Valley Elementary School	Under construction	Permeable pavers, vegetative swale, underground detention / infiltration trench
Terraset Elementary School	Under construction	Pervious pavement, Filterrass, permeable pavers, Underground Detention
Keene Mill Elementary School	Under construction	Vegetative swales, permeable pavers, amended soils, sheet flow
North Springfield Elementary School	Under construction	Bioretention, amended soils
Hayfield High School	Under construction	Additional storage under turf field

Environmental Stewardship/Volunteer Opportunities in Fairfax County

Environmental quality is a team effort. We need partnerships with government, commercial and volunteer organizations to strive to improve our environment as is described throughout this annual report. We give details of stewardship efforts and best practices supporting government and non-government resources and broader environmental needs. This section is provided to highlight a group of governmental and non-governmental opportunities that individuals or organizations might consider supporting with their time and focus. Many of these organizations rely on volunteer resources to be effective, and greater participation may allow the organizations to expand the scope of their current work. EQAC does not assert that these are the only organizations making a valuable contribution to our environment. Some government organizations are listed if they either organize environmental activities or provide a good source for members of the community who want to contribute their time to improving environmental quality.

1. NOVA PARKS (NORTHERN VIRGINIA REGIONAL PARK AUTHORITY)

For the environmentally-conscious park enthusiast, we recommend contacting NOVA Parks (the Northern Virginia Regional Park Authority), www.NVRPA.org/. NOVA Parks continues to have a roving park naturalist regularly visit the high-attendance parks such as pools, campgrounds and golf courses, bringing live wildlife and other exhibits and providing programming about nature and the environment. The naturalist also attends events and functions such as the Dominion W&OD Trail Mix, the Walter Mess 5K race and the Friends of the W&OD 10K race.

The Northern Virginia Regional Park Foundation gives grants, through its Nature Nuts, to Fairfax County public schools for children to attend environmental education camps at Hemlock Overlook Regional Park. Adventure Links at Hemlock Overlook Regional Park in Clifton offers a variety of outdoor and environmental education, and team development programs for public and private schools, religious and community groups, sports teams, corporations, professional organizations and local, state and federal government and military agencies. Meadowlark Botanical Gardens partnered with the Volgenau Foundation to provide teacher training and student field trips to Meadowlark Botanical Gardens and Potomac Overlook Regional Park. These trips focus on the natural history of the Potomac River basin and conserving native plants and animals.

NOVA Parks partners with REI's adventure school, introducing people to the outdoors at Pohick Bay, Hemlock Overlook and Fountainhead Regional Parks. NOVA Parks' naturalists hold regular educational canoe and kayak trips at Pohick Bay, and the roving naturalist conducts environmental programs at Meadowlark Botanical Gardens as well as at Bull Run and Pohick Bay Regional Park

campgrounds. Potomac Overlook Regional Park and W&OD Trail staff has hosted booths at various county fairs to give environmental information to the public.

In 2015, Friends of the Occoquan hosted five cleanup events on the Occoquan River, at host sites Fountainhead and Occoquan Regional Parks, the town of Occoquan, Lake Ridge Marina and Bull Run Marina. Over 250 volunteers removed 154 bags of trash and 16 bags of recyclables. Many Girl and Boy Scout troops, as well as student organizations got involved.

Environmental stewardship opportunities for volunteers are available at Meadowlark Botanical Gardens, Potomac Overlook Regional Park, Upton Hill Regional Park, Pohick Bay Regional Park and various other parks on occasion. NOVA Parks implemented a program that allows youths to access its fee-based park facilities through volunteer service. It has a wide variety of community partnerships in place that encourage groups to take advantage of the regional parks for environmental and historic education and service projects. More information can be found at www.nvrpa.org/park/main_site/content/volunteer.

2. FAIRFAX COUNTY PARK AUTHORITY

The Fairfax County Park Authority (FCPA) offers a number of opportunities for volunteers, and EQAC encourages county residents to take advantage of these opportunities. Information about these opportunities is available at www.fairfaxcounty.gov/parks/volunteer/. More information about FCPA and its programs is available at www.fairfaxcounty.gov/parks/resources.

Many of the stewardship activities that occur on parkland could not take place without the efforts of many volunteers and partners. Groups and individuals participate in a wide range of volunteer opportunities in environmental stewardship on parkland, from becoming a permanent volunteer for the Park Authority to one-off events.

Specifically, volunteers engage in programming, leading walks and tours, writing fliers or brochures, answering the phone when a resident calls with an environmental question and/or hands-on resource management. FCPA partners with local agencies and nonprofits in two different annual stream cleanup events, although many individuals and friends groups participate in more regular cleanups along certain sections of stream throughout the year. FCPA also has habitat restoration events, including invasive plant removal and native species planting that attract day participants and more committed volunteers, e.g. the IMA Volunteer Leaders. Wildlife monitors work on birds and salamanders and everything in between, often in coordination with a long-term wildlife monitoring program such as the Virginia Bluebird Society. The Fairfax Master Naturalists have taken on some of these projects or created new opportunities to contribute hundreds of hours to Park Authority sites. FCPA continues to offer many of its environmental stewardship

opportunities for youths to get involved in their local parks - as permanent volunteers, as students for their community service hours and as scouts for Eagle and Gold Award projects. FCPA encourages its volunteers, be they individuals, groups, students or scouts, to propose ideas of how they can help steward the parks.

Fairfax County residents and other interested parties can donate to the Fairfax County parks through the Fairfax County Park Foundation. The Fairfax County Park Foundation is a nonprofit 501(c) (3) organization and donations are tax-deductible to the fullest extent allowed by law. The foundation's mission is to raise funds to support the parks and land under the stewardship of the Fairfax County Park Authority. Those interested in giving tax-deductible donations to the foundation can contact the foundation at:

Fairfax County Park Foundation
12055 Government Center Parkway
Fairfax, VA 22035
(703) 324-8581
SupportParks@aol.com
www.fairfaxparkfoundation.org

3. NORTHERN VIRGINIA SOIL AND WATER CONSERVATION DISTRICT

The Northern Virginia Soil and Water Conservation District (NVSWCD) supports numerous opportunities throughout the year to participate in stream cleanups and restorations, storm drain labeling, rain barrel workshops, native seedling sales, volunteer water quality monitoring and tree planting projects. Interested parties can send an e-mail to NVSWCD at <https://www.fairfaxcounty.gov/contact/mailform.aspx?ref=9990> or call 703-324-1460.

NVSWCD runs Envirothon, an annual environmental science competition for high school students.

NVSWCD is also a good resource for advice to homeowners on problems with ponds, eroding streams, drainage, problem soils and other natural resource concerns. More information about managing land for a healthier watershed is available from the NVSWCD publications "You and Your Land, a Homeowner's Guide for the Potomac River Watershed" and the "Water Quality Stewardship Guide" (www.fairfaxcounty.gov/nvswcd/youyourland/).

NVSWCD can assess the problems and advise on possible solutions.

4. FAIRFAX COUNTY DEPARTMENT OF PUBLIC WORKS AND ENVIRONMENTAL SERVICES

There are numerous opportunities throughout the year to participate in stream cleanups, storm drain labeling, volunteer water quality monitoring and tree planting projects. Interested parties can send an e-mail to NVSWCD at <https://www.fairfaxcounty.gov/contact/mailform.aspx?ref=9990> or call 703-324-1460. Additionally, DPWES-Stormwater Management provides links to information about these popular volunteer programs on its website at www.fairfaxcounty.gov/dpwes/stormwater/. For a list of common household hazardous materials and how to dispose of them, go to www.fairfaxcounty.gov/dpwes/trash/disphhw.htm.

5. ENERGY ACTION FAIRFAX PILOT PROGRAM

Fairfax County has implemented the Energy Action Fairfax pilot program to provide ways for residents to learn about their energy consumption and how to reduce it through improved energy efficiency. The program’s direct outreach has included presentations at homeowner association meetings, small “audit parties” within selected communities and the distribution of informative brochures at events and fairs. The program also generated stories for local media and created a multi-faceted presence on the county website (www.fairfaxcounty.gov/energyactionfairfax/) that includes tips sheets, checklists and short how-to videos. Groups or individuals may want to contact Energy Action Fairfax to discuss ways to support their educational efforts within a specific community (energyactionfairfax@fairfaxcounty.gov).

6. THE NORTHERN VIRGINIA CLEAN WATER PARTNERS EFFORTS TO MANAGE PET WASTE

Northern Virginia Clean Water Partners is a group of 19 Northern Virginia local governments, school systems, independent water and sanitary sewer authorities, and local businesses that are concerned with local water quality. Examples of the activities of this group include its Dog Blog and Facebook pages for dog owners. Clean Water Partners also provides sustainable landscaping, home and vehicle tips.

Find out more about this organization at its website at www.onlyrain.org.

7. CLEAN FAIRFAX

Clean Fairfax Council, now known as Clean Fairfax, is a private, nonprofit 501(c) (3) corporation dedicated to educating residents, students and businesses in Fairfax County about litter prevention and recycling. Clean Fairfax focuses on environmental education provided to students and adults throughout the county. Clean Fairfax continues efforts of updating the educational and interactive programs for students, community service opportunities for students (i.e., support at the council’s office or

organizing cleanups), classroom presentations and presentations to homeowner associations, church groups, small businesses and more.

For over 30 years, Clean Fairfax has been working to make Fairfax County clean, green and sustainable. In the last three years, community cleanups have yielded 975 cubic yards of trash. In addition, the organization has presented sustainability workshops to over 50 groups and has visited 39 schools. All of this was accomplished by the equivalent of 1.25 full-time employees and upwards of 7,000 volunteer hours.

Clean Fairfax serves on the county and statewide litter control and recycling committees. Clean Fairfax produces the county's official Earth Day and Arbor Day event, called SpringFest Fairfax, with the financial and personnel help of DPWES, and the Fairfax County Park Authority. Over 5,000 residents and children spend the day learning about the county agencies and nonprofits that work to keep their county clean and green.

A key effort of the council is the sponsorship of spring and fall cleanups. These cleanups rely on volunteers who desire to clean up a certain area of the county. The council asks volunteers to plan their cleanup by selecting a site, gathering volunteers and setting a date and time. Clean Fairfax supplies all the necessary tools (gloves, trash bags, recycling bags, vests and safety tips as well as assistance in large scale pickups by connecting residents with the county's trash pickup program) for a successful cleanup. A follow-up form is available on the Clean Fairfax website to track progress, tally volunteer hours and trash pickup tonnage.

In 2014, community cleanup programming yielded 82 neighborhood cleanups, with 2,200 volunteers putting in approximately 2,343 volunteer hours (a value of over \$263,000) and collecting over 355 cubic yards of trash. In addition, Clean Fairfax supports several individuals who provide daily or weekly cleanups in their community, adding an additional 600 volunteer hours, and over 10,000 illegally placed signs picked up.

Clean Fairfax also organizes periodic cleanup projects around the Fairfax County Government Center (with Fairfax County employees and area businesses) and supports the Virginia Department of Transportation with its Adopt-a-Highway program.

Clean Fairfax continues to organize and lead the Earth Day/Arbor Day event, now called SpringFest Fairfax, in partnership with the Department of Public Works and Environmental Services, the Fairfax County Park Authority and Workhouse Arts. Now in its third year at the Workhouse, over 5,000 children and families attended this all-day, Virginia Green certified event which included environmental education and entertainment, local food vendors, urban forestry workshops and open studio artist exhibitions. County agencies such as the Health Department, DPWES and the Park Authority as well as many local and regional environmental nonprofits were key to the success of the event. However, funding continues to be a challenge to this very

popular event, as the bulk of the costs are borne by Clean Fairfax and the Park Authority.

This is also the third year of the Clean Fairfax Environmental Passport which is a SpringFest Fairfax booklet that encourages attendees to visit each table/tent or booth to learn what each organization supports and represents. For every visit, children earn a sticker or a stamp and can show their passports at Clean Fairfax to be presented with an Environmental Good Citizen award (a globe “medal” made of recycled paper and seeds that can be planted in a pot or the family’s backyard). Clean Fairfax also encourages other festivals, events, fairs and carnivals.

Clean Fairfax also supports and promotes the Johnnie Forte, Jr. Environmental Education Program, which awards small grants to applicants from the Fairfax County Public Schools to promote sustainable programming, increase recycling, school cafeteria composting and other environmental projects with students from elementary, middle and high schools. Clean Fairfax funded the following projects: a rain barrel creation project to water a school’s community and pollinator gardens; establishing heavy duty recycling bins for outdoor playing fields as well as the same in school cafeterias; retrofitting drinking water fountains to fill reusable water bottles; and continuing to support cafeteria composting and saving of uneaten/unopened food which is then donated to a local food bank. In the past, the program was co-funded by Clean Fairfax and the Department of Public Works and Environmental Services, but this year DPWES was not able to fund the program and without additional resources it may be put on hold until more funds can be raised.

Clean Fairfax reports that the Report-a-Litterer program was dismantled due to Fairfax County Police Department budget limitations. The Clean Fairfax website asks that litter reports be sent to them and to the county Board of Supervisors’ office of the person observing the litterer.

Clean Fairfax continues to look for new opportunities to assist the county in litter reduction and enforcement and will continue to advocate and encourage participation in the State Police’s Cover Your Load campaign, which happens in the early spring.

Other major continuing projects include: outreach on reducing residents’ reliance on plastic grocery bags; cigarette butt litter education; promotion of the use of rain barrels; advising and mentoring environmental clubs in the school system; creating opportunities for college students wishing to explore the fascinating and important world of environmental advocacy; encouragement of small scale, backyard composting, grass-cycling, rain and pollinator gardens and other sustainable practices; and encouragement of community gardens and micro farms at schools and churches. This year, Clean Fairfax finished an 18 month process of updating the digital educational materials with four new short videos on Recycling and Trash, Water Quality and Conservation, Alternative Energy and Clean Fairfax.

Clean Fairfax is provided office space by DPWES, and the executive director works directly with many county staff on litter control and recycling education issues. The executive director also serves on the cross-agency Litter Task Force and the MS4 (Municipal Separate Storm Sewer System) Tactical Team on Public Outreach. The Memorandum of Understanding between the county and Clean Fairfax allows the organization to be deployed to assist on important tasks such as information dissemination in stormwater management, recycling, urban forestry and other crucial county environmental endeavors.

Clean Fairfax reaches thousands of Fairfax County residents, employees and businesses through e-newsletters, Facebook and Twitter as well as an environmental blog at www.cleanfairfax.org. The organization also provides the Fairfax County Visitors Center with thousands of auto litter bags each year plus informational bookmarks and brochures and this year will provide two Fairfax County Farmers Markets (the Workhouse Farmers Market and Town of Herndon Farmers Market) with branded reusable grocery and produce bags as part of the #PlasticFreeProduce pilot program.

2015 marks 35 years that Clean Fairfax has been an active partner in Fairfax County's environmental mission. For more information, please visit the website at www.cleanfairfax.org or the SpringFest Fairfax website at www.springfestfairfax.org

8. ALICE FERGUSON FOUNDATION

The nonprofit Alice Ferguson Foundation was established in 1954. While chartered in Maryland, it has implemented programs throughout the Potomac River watershed, with benefits to the main stem of the river as well as tributaries in Washington, D.C., Maryland, Pennsylvania, West Virginia and Virginia. As stated on its website, the foundation's mission is "to connect people to the natural world, sustainable agricultural practices and cultural heritage in their local watershed through education, stewardship and advocacy."

In April 2015, the foundation held its 27th annual Potomac River Watershed Cleanup. Reports from 77 cleanups throughout Fairfax County involved 1,643 volunteers removing almost 75,000 pounds of trash from local watersheds. This included 176 tires, 34,700 beverage containers, 10,402 plastic bags and 3,742 cigarette butts. For full cleanup results and information on volunteer opportunities, visit the cleanup Web page at www.potomaccleanup.org.

Other programs implemented by the foundation include:

- Trash Free Potomac Watershed Initiative: Celebrating its tenth anniversary, this is a program to reduce trash, increase recycling and provide education regarding trash issues in the watershed. Multiple years of data are available for specific areas. There is a free toolkit available to help supporters change behavior

regarding littering and illegal dumping. See <http://fergusonfoundation.org/trash-free-potomac-watershed-initiative/>.

- Potomac Watershed Trash Summit: The foundation convenes this meeting annually to provide a venue for key stakeholders to collaborate on strategies to eliminate trash from waterways, communities, streets and public lands, including regional public policy, model best management practices, business actions and public education.
- Enforcement: In February 2015, the foundation received unanimous support from the Police Chiefs of the Metropolitan Washington Council of Governments for its fifth Annual Litter Enforcement Month. This is a campaign to reduce littering and illegal dumping through enforcement of local laws. This effort provided a focus on litter-related crimes and raised awareness of the harmful effects trash has on communities and the environment.

There are numerous other programs and initiatives that are implemented by the foundation that can be found on the foundation’s website at www.fergusonfoundation.org.

9. CLEAN AIR PARTNERS

Residents of Fairfax County have many opportunities to contribute to improvements in air quality. While some of the metropolitan Washington area’s 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. 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.*

<u>HOW TO REPORT ENVIRONMENTAL CRIMES OR CONCERNS IN FAIRFAX COUNTY</u>	
<u>TTY 711 for all phone numbers</u>	
Type of Incident	Phone Number
<p><u>RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT—ACTIVE RELEASE, DANGEROUS, OR UNKNOWN</u></p> <p>If the dumping of any substance into a stream, into a manhole, into a storm drain or onto the ground is witnessed, assumptions regarding the contents of the materials should not be made. 911 should be called immediately. When calling 911, be prepared to provide specific information regarding the location and nature of the incident. The local office of the U.S. Environmental Protection Agency (703-235-1113) can be called in addition to (but not instead of) 911.</p>	911
<p><u>RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT—NO IMMEDIATE DANGER</u></p> <p>If a known discharge of hazardous materials has occurred in the past and no lives or property are in immediate danger; this should be reported to the Fairfax County Fire and Rescue Department’s Fire and Hazardous Materials and Investigative Services Section at this number (includes Towns of Clifton, Herndon and Vienna). If there is any question about whether a release may still be active or whether there may be any immediate danger, 911 should be called.</p>	703-246-4386 (working hours) 703-691-2131 (after hours)
<p><u>RELEASE OF ANY MATERIAL INTO THE ENVIRONMENT</u></p> <p>Any release of materials into the environment, whether hazardous or not, should be reported to the Northern Regional Office of the Virginia Department of Environmental Quality at the above number. If the release is an active one, call 911.</p>	703-583-3800 OR 911
<p><u>LAND CLEARING; TREE REMOVAL; DUMPING OF FILL</u></p> <p>To report the suspected illegal removal of trees, clearing of land, digging or dumping of fill dirt, contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code.</p>	703-324-1300
<p><u>SOIL EROSION</u> To report soil erosion from private properties or construction sites, contact the Site Development and Inspection Division of the Department of Public Works and Environmental Services</p>	703-324-1720

Type of Incident	<u>Phone Number</u>
<p><u>GENERATION OF DUST FROM CONSTRUCTION, GRADING OR LAND CLEARING</u> Contact the Virginia Department of Environmental Quality, Northern Regional Office</p>	<p>703-583-3800</p>
<p><u>TRASH/DEBRIS ON CONSTRUCTION SITES</u> Contact the Site Development and Inspection Division of the Department of Public Works and Environmental Services</p>	<p>703-324-1720</p>
<p><u>CONSTRUCTION NOISE</u> To report construction noise outside between 9 p.m. and 7 a.m. or before 9 a.m. on Sundays and federal holidays, contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code.</p>	<p>703-324-1300</p>
<p><u>NOISE IN A RESIDENTIAL AREA</u> To make a complaint about nuisance noises (e.g. barking dogs or loud music) in residential areas only, call the Fairfax County Police non-emergency number.</p>	<p>703-691-2131</p>
<p><u>TRASH COLLECTION BETWEEN 9:00 P.M. AND 6:00 A.M.</u> Call the Department of Public Works and Environmental Services. If possible, provide descriptive information about the truck, such as color, truck number, and license plate number.</p>	<p>703-324-5230</p>
<p><u>OTHER SOLID WASTE COMPLAINTS ASSOCIATED WITH WASTE COLLECTORS/HAULERS</u> Call the Department of Public Works and Environmental Services.</p>	<p>703-324-5230</p>
<p><u>SOLID WASTE COMPLAINTS ASSOCIATED WITH WASTE HANDLING WITHIN BUILDINGS (E.G., TRASH CHUTES)</u> Contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code.</p>	<p>703-324-1300</p>
<p><u>SIGNS ON ROADS AND MEDIANS</u> If a sign on a road or median poses a safety hazard, call the Virginia Department of Transportation to have it removed. Fairfax County performs monthly collections of illegal roadway signs on certain designated roads. More information can be found at www.fairfaxcounty.gov/code/signs.</p>	<p>1-800-367-7623</p>
<p><u>SIGNS ON PRIVATE PROPERTY</u> There are restrictions for signs on private property. For more information contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code.</p>	<p>703-324-1300</p>

Type of Incident	Phone Number
<p><u>POORLY MAINTAINED HOMES OR OTHER BLIGHTED PROPERTIES</u> To report problems including broken windows and gutters, junk or debris in yards and tall, uncut grass, contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code.</p>	<p>703-324-1300</p>
<p><u>ABANDONED VEHICLES (FIVE OR FEWER)</u> Contact the Fairfax County Police Department’s Traffic Division Impound Section; e-mail: FCPDJunkVehicle@fairfaxcounty.gov.</p>	<p>703-280-0716</p>
<p><u>ABANDONED VEHICLES (SIX OR MORE)</u> Contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code.</p>	<p>703-324-1300</p>
<p><u>OUTDOOR LIGHTING CONCERNS</u> To report problems with glare, overlighting or other issues, contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code.</p>	<p>703-324-1300</p>
<p><u>AIR POLLUTANTS</u> Air pollutants are emitted by stationary sources, such as power plants, gasoline service stations, and dry cleaners, as well as by mobile and area sources, such as from automobiles, trucks and other highway activities. This phone number is for the Virginia Department of Environmental Quality Northern Regional Office.</p>	<p>703-583-3800 After hours, call 1-800-468-8892</p>
<p><u>NO RECYCLING IN SCHOOLS</u> Section IX of the Fairfax County School Board’s Policy 8542 states that “Schools and centers will have mandatory recycling programs for paper products, cans, and bottles. Construction waste materials will be separated and recycled.” To report schools that are not recycling in accordance with this policy, contact the Fairfax County Public Schools Office of Facilities Management, Plant Operations Section. More information is available at: www.fcps.edu/fts/facmanagement/recycle.shtml.</p>	<p>703-764-2459</p>
<p><u>BUSINESS OR RESIDENTIAL RECYCLING</u> To report a suspected violation of recycling requirements (whether residential or business), contact the Department of Public Works and Environmental Services—Solid Waste at the phone number provided or through the Online Complaint/Comment Form at www.fairfaxcounty.gov/dpwes/trash/dispcompform.htm.</p>	<p>703-324-5230</p>
<p><u>HEALTH HAZARDS</u> For information and guidance on a suspected environmental hazard that may pose a public health risk, call the Health Department’s Division of Environmental Health. These hazards include unsanitary storage or disposal of waste; unburied dead animals; medical waste; insect infestations; and mosquito breeding sites.</p>	<p>703-246-2444</p>

I. Climate Change and Energy

Background

This chapter outlines work that is under way in Fairfax County to reduce greenhouse gas (GHG) emissions and improve energy efficiency.

Is climate change a threat to Fairfax County? In recent years we have seen warmer temperatures and more poison ivy, which has been attributed to slightly warmer temperatures. The county has redrawn the floodplain boundaries on maps to meet Federal Emergency Management Agency floodplain designations, resulting in more home structures now being located in floodplains. The Governor's Commission on Climate Change estimated that there will be a sea level rise of between 1 and 1.6 feet by 2050 and between 2.3 and 5.2 feet by the year 2100. Similar impacts are being predicted around the world. The average carbon dioxide level, which results from the combustion of fossil fuels and contributes to global warming, has risen to over 400 ppm (parts per million). National and international responses to climate change are expected, and while there are few national mandates to address climate change, Fairfax County is actively pursuing opportunities to inventory and reduce GHG emissions.

Fairfax County Greenhouse Gas Emissions Inventory

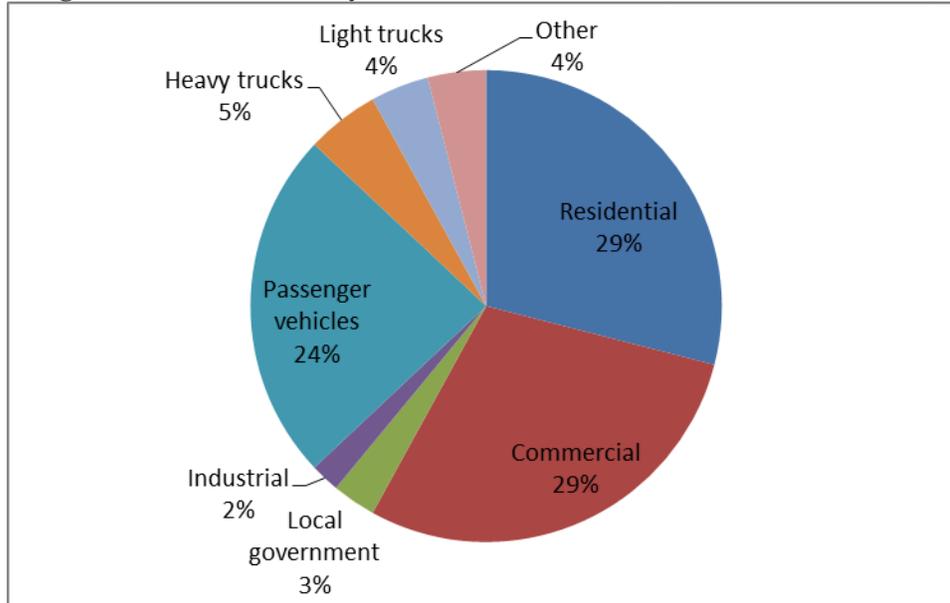
While Fairfax County has been working with the Metropolitan Washington Council of Governments to develop a comprehensive regional GHG inventory, the Fairfax County specific results are not yet available. Consequently, this section summarizes results from the 2006 countywide emissions inventory. When the Fairfax County results are available, they will be incorporated into this report.

The Fairfax County GHG emissions inventory followed accepted practices for GHG inventories. As Figure I-1 shows, the main sources of GHG emissions are electricity generation (both residential and commercial) and mobile sources.

Fairfax County Operations GHG Emissions and Actions to Reduce these Emissions

The Fairfax County government has undertaken extensive efforts to both characterize GHG emissions associated with county operations and to target opportunities for increased energy efficiency. While county savings from these efforts are to be commended, the success of the Fairfax County government in characterizing emissions and improving the efficiency of operations serves as a model for both businesses and residents in the county. In order to improve energy efficiency and reduce GHG emissions, the county has and continues to undertake work in county facilities, vehicle services, green buildings, parks, waste management and transportation.

Figure I-1. 2006 Countywide GHG Emissions (11.838 MMTCO_{2e})¹



Source: *Community Greenhouse Gas Inventory for Fairfax County, Virginia, Report of Findings: 2006-2010*, Fairfax County, Virginia (advance copy).

Education and Outreach

Fairfax County applied for and obtained a grant from the U.S. Department of Energy; this grant was used to create Energy Action Fairfax. The Energy Action Fairfax program is aimed at homeowners in Fairfax County, particularly those occupying single-family homes and townhouses. This program filled an important need for residents to be provided with valuable information as to how they can reduce their energy consumption, reduce their carbon footprints and sometimes save money in the process. EQAC commends this effort and recommends the continuation of education and outreach through a follow-on program (see the Recommendations section of this chapter).

Development of an Energy Strategy

Given that greenhouse gas emissions from anthropogenic sources are the primary source of climate change, reducing the release of greenhouse gases is critical to reducing climate change. An energy strategy to address all sectors of the county from Fairfax County government to the residential and commercial sectors is important to reducing the emissions of GHG.

Waste Management and Energy Efficiency

Fairfax County has also undertaken innovative energy savings measures to achieve energy savings and reduce GHG emissions in a variety of its industrial plant processes. While these innovative changes required some investment, they have often proven to be cost effective over reasonable timeframes.

Stewardship Opportunities

The Fairfax County GHG inventory serves as a guide for both actions that are fundamental to any GHG emissions reduction effort (e.g., monitoring energy use in buildings and undertaking renovations to be energy efficient) and other actions. Some efforts, such as saving energy, reducing vehicle miles, carpooling or maybe riding a bike to work will involve changes in lifestyle that can be better for the planet while providing good exercise.

Planning for Climate Change

Climate change is happening now. Even if greenhouse gas emissions were reduced tomorrow, the impact of greenhouse gases will continue, so planning to mitigate for the impact of climate change will be more cost-effective than repairing the damage that results from climate change. For this reason, many government agencies from local governments to the federal government, especially those adjacent to coastal waters, are developing plans to minimize the impacts of climate change. Such planning can include a variety of actions such as restricting development in low-lying areas.

Comments

1. The Facilities Management Department cost avoidance from fiscal year 2001 to fiscal year 2010 is in excess of \$7 million, or an average annual energy reduction of one percent. For example, one energy project performed by part-time efforts of one staff member resulted in a cost avoidance of approximately \$83,000 annually at the Government Center complex (variable frequency drives, lighting retrofits and lighting software upgrades). More could be accomplished with dedicated staffing. EQAC commends the county for its past efforts and looks forward to working with the county in the future on its climate change program. Continued support for the funding of projects through the county's Environmental Improvement Program will be important to continue to support progress in identifying new efficiencies in energy use.
2. EQAC commends the county for assembling an inventory of greenhouse gas emissions for Fairfax County facilities and for designing a GHG reporting program for the county that allows for GHG emissions to be easily combined with reporting of other jurisdictions.
3. EQAC commends the county for recognizing the importance of reducing the community's GHG emissions and for soliciting bids for a countywide education and outreach program that would cut GHG emissions. It is EQAC's view that this effort has been productive, and EQAC encourages the county to continue this work.
4. EQAC commends the county for participation in regional efforts to reduce GHG emissions and improve energy efficiency. Certain GHG programs, such as transportation-related programs, district energy and reporting of carbon footprints require intergovernmental cooperation.
5. EQAC commends Fairfax County for the work that has taken place to support residential education and outreach. This is a good beginning but it will need continued support. The

residential sector is a big part of Fairfax County and there are potential significant efficiencies to be realized by the county. This should continue to be an area of emphasis.

Recommendations

1. EQAC recommends that the county establish a program to evaluate and address the impacts of sea level rise. Last year, EQAC recommended that the county undertake an effort to identify all the impacts of climate change that might reasonably be expected to impact the county. County staff replied with a comprehensive list of such impacts, along with the climate drivers associated with each of the impacts (i.e., temperature changes, precipitation variability, severe storms and sea level rise). EQAC recommends that Fairfax County place sea level rise as a priority among the various impacts so that the impacts of sea level rise would be further evaluated and addressed through a program that would be dedicated to the reduction of impacts of sea level rise through proactive planning efforts, as other jurisdictions have done. An example of a possible outcome of this effort would be a consideration of land use policy changes that may be appropriate to address existing and potential future land uses within areas in Fairfax County that would be vulnerable to sea level rise.
2. While Fairfax County has made significant strides in monitoring energy use, identifying opportunities for reducing energy use and reporting this information to the county government, the county has not yet completed and published an online energy dashboard as discussed at a meeting of the Board of Supervisors' Environmental Committee earlier in 2015. Just as this information has been useful to the county, it would also be helpful for businesses and residents to see the benefits of monitoring energy use as well as the significant savings that the county has realized. EQAC understands that a website similar to websites in Arlington, Los Angeles and other cities is affordable and would likely more than pay for itself as energy savings opportunities are identified and addressed. In June 2015, county staff provided EQAC with an update to its Environmental Committee presentation, and EQAC understands that a refined approach to the establishment of an online energy dashboard is getting under way. EQAC recommends that this effort be completed.
3. While EQAC appreciates the efforts of Fairfax County to reengage the private sector on energy efficiency, sustainability and "green" technology, the work of the Private Sector Energy Task Force to help Fairfax County position itself as a leader in the area of energy efficiency, sustainability and "green" technology stopped years ago. The Private Sector Energy Task Force was a good beginning, but the work recommended by the task force is languishing and needs to be reinvigorated. More specifically, EQAC recommends that the county facilitate meetings of the private sector so that private sector entities can be acknowledged for their energy efficiency accomplishments in Fairfax County and so that steps can be taken to encourage and facilitate continued dialogue among private sector entities. We are hoping that Fairfax County will have private sector discussions on energy efficiency and acknowledge accomplishments like Arlington and other nearby jurisdictions have done.
4. While the county staff is pursuing opportunities with a composting facility in Prince William County and the county's Solid Waste Management Plan clearly identifies recycling as preferable over incineration and landfilling, EQAC continues to recommend that the Board

of Supervisors direct county staff to evaluate alternatives for the county to further reduce greenhouse gas emissions from the incineration of waste. It is unclear if facilities in nearby counties will accommodate additional waste streams from Fairfax County. The long-term goal should provide for expanding the recycling of all waste streams, including composting of compostable waste. The expansion of waste streams recycled should be considered as the county develops a strategic plan for the management of county waste. Specific recommendations related to the support of recycling are included in the Solid Waste chapter.

References

Fairfax County. 2012. Community Greenhouse Gas Inventory for Fairfax County, Virginia.

II. Land Use and Transportation

Background

EQAC encourages the integration of land use and transportation decisions to create better places and enhance environmental quality. This chapter examines the trends and decision-making processes for land use and transportation that have evolved over time as the county adds population, develops and becomes more prosperous within a finite and impacted environmental footprint. The term “build-out” is used to describe a state where there is no remaining vacant or under-developed land in the county. Instead of awaiting such a state, the focus of land use across the county is shifting from new development to revitalization and redevelopment. This expanded utilization concentrates activity which requires better planning to balance residential, commercial and public uses with multi-modal transportation options.

In May 2012, the county issued a report entitled *State of the Plan—An Evaluation of Comprehensive Plan Activities Between 2000-2010*. It describes changes that have been happening in our approach to planning over time. Since 2012, additional changes have been made with a new Comprehensive Plan review process called Fairfax Forward and a Zoning Ordinance Amendment Work Program making associated updates to the Zoning Ordinance. Fairfax Forward is a holistic approach that is appropriate for making the strategic decisions to guide and encourage future projects.

As changes are made to the Plan, the key metric available for growth is the ***Plan potential***. This tracks the amount of space that can be built across the county. Since the county is close to build-out, with only 6.1% vacant space available, the Plan potential increases through redevelopment that allows bigger and taller developments. In the residential sense, this means more multi-family complexes. In the nonresidential space, it means higher office buildings with multiple uses. After reviewing the 284 plan amendments, the following themes arose:

1. *Encouragement of Intensity and Land Use Flexibility in Mixed Use Centers.*
2. *Protection of Low Density Residential Neighborhoods.*
3. *Avoid Re-Planning Industrial Areas.*
4. *Expansion of Medical Facilities.*
5. *Revision of Policy Plan Regarding Acquisition of Land for Public Parks.*
6. *Environmental Policy Issues in Area Planning Process.*

The themes and trends clearly show that Fairfax County can continue to grow and accommodate new population and businesses into the future. As we grow, though, important values are reflected in how and where that growth occurs. The most valuable areas for growth are mixed-use centers. At the same time, we are focused on protecting residential neighborhoods. Parks and environmental themes reflect the value that the residents place on these resources. Among the important environmental initiatives over

the past 10 years were the implementation of the county watershed management plans and the augmentation and clarification of the Environmental Quality Corridor policy to preserve ecologically sensitive habitats.

Transportation Focus

Concurrent with land use build-out, transportation systems across the county and metropolitan region are becoming increasingly congested. During rush hour, most highways in the county receive a failing grade for peak hour level of service. Over the past 15 years, highway construction in the Washington area outpaced population growth, yet congestion has still increased. Discussions of transportation and the environment typically start with automobiles and the negative environmental impacts of cars. As congestion and density increase, however, single occupancy cars cannot be packed densely enough to move everyone about effectively. Transportation discussions are increasingly focused on multi-modal and public transit options that provide a better balance of options suited for particular needs.

The transition towards multi-modal and public transit options brings many environmental benefits. They include: reducing air pollution caused by automobiles and congestion; reducing water pollution caused by roadway and parking lot runoff and construction; reducing noise pollution caused by on-road vehicles; reducing energy required to operate motorized vehicles; and better health by walking and biking.

In 2013, a new transportation funding plan was approved in Virginia. This plan increased funding for transportation, from an additional \$392 million in FY 2014 to \$817 million in 2018, for a total of almost \$3.3 billion. In addition, regional funding has been provided for Northern Virginia (\$1.6 billion over five years) and Hampton Roads (\$1.1 billion over five years). In Northern Virginia, 30 percent of funds go to localities and 70 percent of funds are for regional projects approved by the Northern Virginia Transportation Authority. Funds can be used for road construction, projects that reduce congestion and public transportation projects that expand capacity.

Over the past 10 years, significant resources have been directed to mega projects and revitalization. The rapid growth and investment in Tysons would not have been possible without the Metrorail expansion. The Silver Line is an anchor for new development in the Reston Transit Station Area (TSA). The Blue Line has brought new vitality to Franconia and Springfield. As the county looks forward for the next 25 years, the next mega projects that include expansion of Metro should be starting in earnest now.

One of the biggest transportation disappointments was a decision by Arlington County in November 2014 to cancel the Columbia Pike Streetcar Project. Fairfax and Arlington counties had been working on this project to provide high quality transit options to the 7.4-mile corridor. Fairfax County remains committed to providing high quality transit for the residents, workers and businesses in the Baileys Crossroads area. Better transit options need to align with the revitalization efforts in Seven Corners, Baileys Crossroads and Annandale.

One project under way is the Route 7 Corridor Transit Study / Envision Route 7¹. This in-depth assessment of the travel needs in the corridor includes the development of potential recommendations to improve mobility and accessibility within the Route 7 corridor between Tysons and the City of Alexandria. It is being conducted by the Northern Virginia Transportation Commission and is funded by the Northern Virginia Transportation Authority. The primary objective of this study will be to assess the project for viability and, if desired, prepare for entrance into the Federal Transit Administration's (FTA) Project Development process.

EQAC encourages the work on both Columbia Pike and Route 7. These projects can be anchors for transit expansion around the Beltway. The spoke from the Pentagon through Arlington to Baileys Crossroads then to Annandale was dealt a blow by Arlington's decision to withdraw from the Columbia Pike streetcar project. Refocusing on connecting Tysons and Dulles to Springfield through Annandale would link the county together. Now is the time to prioritize these long-term projects.

Technology to Understand the County

Fairfax County is a recognized leader in using technology to better understand, explain and predict changes. The centerpiece of the technology is its Geographic Information System (GIS) managed by GIS and Mapping Services, which is a branch of Fairfax County's Department of Information Technology. It is tasked with developing, maintaining, coordinating and distributing GIS/mapping data and technology to Fairfax County government agencies and residents. GIS provides a capability to "see" the county through maps, imagery and other geospatial data and helps analysts discover relationships between and among sets of computer-readable, geographically referenced data. To complement the GIS, the county has assembled a comprehensive digital inventory of the 395 square miles within our borders. These investments in information technology and GIS are paying dividends in increased staff productivity using more and better data.

Over the past several years, EQAC has advocated for an enhanced IT capability for managing and monitoring land use. Our original recommendations in this area focused on updating the 1970s mainframe-based Urban Development Information System. In 2005, the Integrated Parcel Lifecycle System debuted--IPLS combines parcel based information from various county agencies with the GIS. Many agencies work on parcels for a particular period, but IPLS allows that full lifecycle to be captured across agencies. Layering these data on the GIS allows for a visualization of how land in the county is used and how it changes over time.

Through work with the county's Department of Information Technology, EQAC has become more familiar with capabilities and possibilities for using GIS. There are three attributes that must be in place for the technology to be effective:

¹ www.envisionroute7.com/

- Technology for GIS and IPLS—these are the technical systems that gather, move, manipulate and display information based on geographic location.
- Data that are geographically located, also called spatial data—this is an expensive component that needs to be constantly updated as the county changes. There are many sources of data, from aerial imagery to U.S. census data to county records, which need to be transformed into useable information.
- Models and applications that can use the data to create scenarios and advanced visualization tools to help with decision making. The Visual Fairfax 3-D application is an example that leverages the GIS and data to help make informed decisions.

Surveys of staff across business lines have indicated that the GIS tools and capabilities allow the county to do business much more efficiently and accurately than before. Some pertinent examples include:

- GIS used 2009 topographic data to create highly detailed elevation model of the county. With that, GIS was able to build a complex set of watershed delineation tools that significantly reduces DPWES Stormwater time and cost in carrying out its work.
- LIDAR data from U.S. Geological Survey (expected to arrive in 2015) will assist DPWES Stormwater management in analysis and forensics analysis of runoff problems.

Transportation Demand Management

Transportation Demand Management is an important approach to maximize the effectiveness of the overall transportation network. The Mobility Lab² describes TDM as *“a program of information, encouragement and incentives provided by local or regional organizations to help people know about and use all their transportation options to optimize all modes in the system – and to counterbalance the incentives to drive that are so prevalent in subsidies of parking and roads.”* The Mobility Lab goes further to explain that *“TDM should guide everything we do in designing our transportation and physical infrastructure so that alternatives to driving are naturally encouraged and our systems are better balanced. TDM thus underlies most of the important new initiatives of today: transit-oriented development, complete streets, walkable activity centers, livability and sustainability initiatives, and integrated corridor management, to name a few examples.”*

Fairfax County has been practicing TDM for many years, starting with early work encouraging telework and workforce flexibility, to new programs that tie TDM to development and county employees, residents and businesses to make better transportation choices. The county has integrated TDM strategies into the land development process and has standardized this program. TDM proffers promote

² <http://mobilitylab.org/about-us/what-is-tdm/>

alternatives to single occupant vehicle trips. These proffers contain commitments to provide TDM services, goals for percentage trip reduction and remedies or penalties for nonattainment of proffered goals.

The TDM proffer coordinator negotiates proffers and monitors implementation and performance of existing proffers. A comprehensive and standardized program for TDM was endorsed by the Board of Supervisors in 2012. In FY 2015, TDM proffers were committed for new developments in Reston, Fairfax, Tysons and Merrifield. The implementation of TDM has been going smoothly, and proffer monitoring continues for properties throughout the county. Overall, the standardized TDM proffers are still seen as a benefit by all involved parties when compared to the previous method of securing TDM commitments.

Fairfax County encourages employees to take public transportation to work through the Commuter Benefits Program. In 2015, there were 232 employees participating in the program. The county has a long history with telework. In 2015, there were 1,884 eligible county employees who teleworked at least one day a week.³ The county's active partnership in regional efforts to expand telework keeps it current on best practices and identifies the county as a resource for businesses on teleworking.

Recent Activities

The summary below provides a brief spotlight on programs that span land use and transportation activities.

Dulles Rail Project

In 2014 the county saw the opening of the first phase of the Silver Line Metro from East Falls Church through Tysons Corner to Reston. Phase 2 substantial completion is expected in summer 2019 with passenger service to follow.

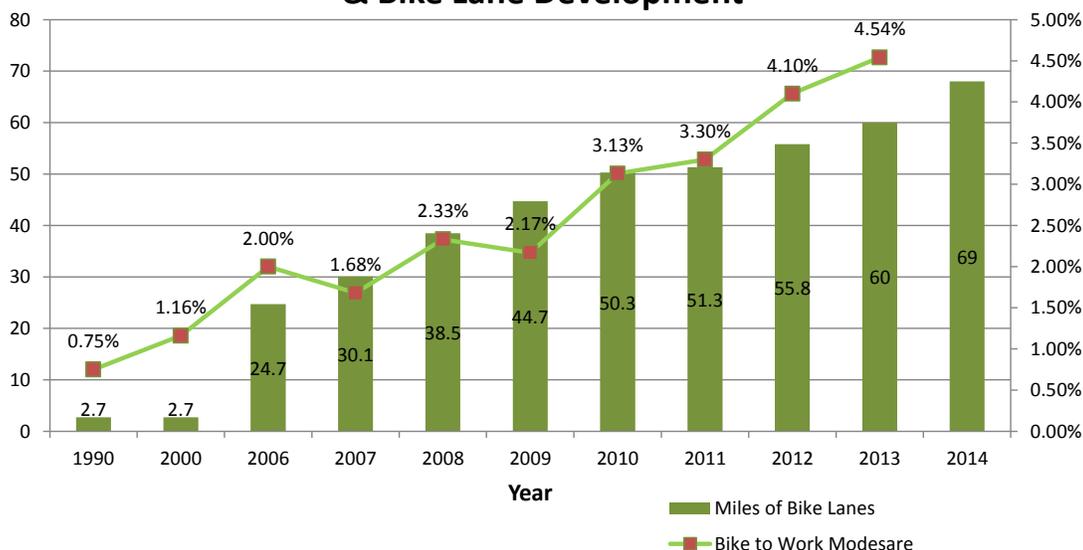
Non-motorized transportation

Walking and biking are gaining popularity in urban areas and are being considered as viable alternatives to vehicles. Biking and walking reduce traffic congestion and improve air quality. Not having sufficient infrastructure for walking and biking is a major impediment to expanding non-motorized options. The District of Columbia (D.C.) has demonstrated a commitment to non-motorized transportation by investing in biking infrastructure. Since 2000, D.C. has added over 69 miles of bike lanes that steadily have increased the modeshare of bicycle commuters⁴.

³ Provided July 2014 by Sharon Kay Hackett Organizational Development and Training Division

⁴ <http://ddot.dc.gov/publication/2014-bike-program-fact-sheet>

**Figure II-1
DC Travel to Work by Bicycle
& Bike Lane Development**



Fairfax County’s Pedestrian Program was started in 2002, following a spike in pedestrian fatalities. 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.

The pedestrian program includes 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 completed construction on 121 sites/segments; 16 are under construction and another 96 are under design.⁵

The Bicycle Master Plan and the bicycle parking guidelines are both important. The Bicycle Master Plan (BMP) was adopted by the Board of Supervisors on October 28, 2014. The BMP sets bicycle policies, programs and facilities for the county. The parking guidelines expand on the success of the county’s new secure bicycle parking facilities at Silver Line stations and other county park-and-ride/transit facilities. Funding for implementation of both capital and non-capital elements of the county’s bicycle master plan is required. The county should consider implementation of “Bike Fairfax!”--a program for encouraging/promoting bicycling as a transportation mode with related education and outreach.

VDOT continues to ensure that biking remains an integral component of Virginia’s multimodal transportation system; it is a local sponsor of Bike to Work Day events promoted by the Washington Area Bicyclist Association and Commuter Connections. VDOT administers the Safe Routes to School Program, a federally funded program to promote safe walking and bicycling to school by students, including those with disabilities.

⁵ Provided 2015 by Fairfax County Department of Transportation

Public Transportation

The Fairfax Connector system now consists of 84 routes that provide over 650,000 revenue hours annually, representing 55 percent of the total bus service in the county. Connector is a compliment to Metro and as Metro expands, Connector routes adapt to maximize the effectiveness of the new stations. With the Silver Line opening, coverage had to be modified to complement the faster Metro service in the northwest corner of the county. Two rounds of service changes have been implemented since the commencement of Silver Line service in July 2014. In total, approximately 40 percent of all Fairfax Connector bus service has changed to fit with the new Silver Line stations.

FCDOT, in compliance with the agreement between the Department of Justice and Fairfax County, has completed self-assessments of major park-and-rides and bus stops improved by the county since 2007. The board identified \$2.5 million from the general fund and \$7.75 million in the 2007 Transportation Bond for improvements to the priority stops identified in the study. Stop improvements are ongoing, and include improvements such as the construction of concrete or asphalt pads and accessible paths to and from bus stops. A total of 457 sites have been completed since the bus stop improvement program began, with 26 more under construction, 55 under development, and eight being initiated.

Revitalization Projects

The Comprehensive Plan recognizes that reinvestment in communities is necessary to maintain their vitality. The Fairfax County Office of Community Revitalization facilitates strategic redevelopment and investment opportunities in older commercial activity centers and across the county. In general, recent revitalization plans support compact, walkable, mixed-use centers, which reduce the need for automobiles, increase access to transit and support other modes of transportation like bicycling and walking. Revitalization projects span the county, from McLean to Springfield and the Richmond Highway corridor. Some recent project summaries include:

Tysons Urban Center and Park Plans

By 2050, the 2,100 acre Tysons Urban Center will be transformed into a walkable, sustainable, urban center that will be home to up to 100,000 residents and 200,000 jobs. Tysons is envisioned to become a 24-hour urban center where people live, work and play; where people are engaged with their surroundings; and where people want to be. To be a great downtown, Tysons needs great parks. The Tysons Comprehensive Plan amendment includes a conceptual park network. The Plan also includes a typology of urban park types (pocket parks, civic plazas, common greens and recreation-focused parks), a recommendation for 20 new athletic fields and guidance on restoration and enhancement of existing stream valley parks. As Tysons transforms from a suburban commercial center to a major regional urban center, the urban park network will distinguish Tysons as a great urban place. After an extensive public input process, the Tysons Park System Concept Plan was endorsed by the Park Authority Board in October 2014 (see www.fairfaxcounty.gov/parks/plandev/tysons-park-planning.htm).

Baileys Crossroads/Seven Corners

The Bailey's Crossroads/Seven Corners Commercial Revitalization District (CRD) includes two Community Business Centers – Baileys Crossroads and Seven Corners. Each serves as a gateway from neighboring jurisdictions to Fairfax County. The concept for Baileys Crossroads encourages a transition from a predominately retail environment to one that balances retail, office, residential, civic uses and open space. A key element of the original plan was the Columbia Pike streetcar project. That was unilaterally cancelled by Arlington County in 2014, leaving the Fairfax County community without direct linkage to the Pentagon and Metro.

An extensive planning process for the Seven Corners Community Business Center (CBC), with two citizens committees, concluded with the board's adoption of a Plan amendment on July 28, 2015. The CBC generally lacks modern stormwater management systems and buildings that meet green building standards. Through redevelopment there is an opportunity to achieve environmental goals such as reducing runoff that improves nearby water quality, reducing energy consumption due to a decreased reliance on automobiles and replacing older buildings with newer, more energy-efficient buildings.

The Richmond Highway Corridor

The Richmond Highway corridor extends 7.5 miles from the Capital Beltway to Fort Belvoir. The CRD is not continuous, but rather consists of six distinct CBCs that are envisioned to serve as focal points or nodes for residential and mixed-use development. The Huntington TSA is envisioned to include transit-focused housing and employment to take advantage of its location surrounding the Huntington Metro station. In May 2015, the Board of Supervisors authorized a Comprehensive Plan Amendment to consider the recommendations of the Route 1 Multimodal Alternative Analysis (includes roadway, transit and bicycle/pedestrian improvements) and directed staff to proceed with an Environmental Assessment for the project.

Summary

Ensuring that the activity centers are vital and that they attract investment and growth is critical to the success of Fairfax County's growth strategy. This is reflective of concern for sustainability and efficiencies in the provision of infrastructure and facilities and consistent with the Metropolitan Washington Council of Governments' Region Forward 2050 plan.

There are clearly opportunities to leverage multi-modal options across the county. This requires, however, the integration of land use decisions with transportation projects. As can be seen in Tysons and in other mixed-use centers across the county, focused efforts are aligning resources to create vibrant places for people to live, work and have a high quality of life. The Comprehensive Plan needs to be updated holistically. Multi-modal transportation options need to be designed that include a street grid, public transit--especially Metro, safe pedestrian access, connected bike paths and connector shuttles.

These options need to be managed through transportation demand management programs and encouraged through outreach and education so they achieve their potential.

Fairfax County is expected to increase both population and jobs by more than 200,000 over next 20 years, and new infill development and redevelopment will be much more complicated to effectuate than the initial development within the county. There will be changes imposed on existing residents and businesses and impacts that are both real and perceived. By continuing to integrate land use, transportation and sustainable planning, the county can change and grow without sacrificing our quality of life.

Comments and Ongoing Concerns

1. Progress on Mega Projects

The county has seen the successful completion of several mega projects such as the I-495 Express Lanes and Beltway widening and the Dulles Corridor Rail Project. These projects fundamentally changed and improved the transportation flow in the region. EQAC has made recommendations in the past expressing concern about the complexity and interaction of these efforts and the impact on localities. To date, they have kept on schedule and delivered the promised service improvements. We remain concerned that all mitigations promised for these projects be completed to restore the environment to pre-construction conditions and replace the canopy that was removed during construction.

We also advocate that a dialogue begin on the next mega projects which should include:

1. Continued expansion of Metro in the county through additional stops and expanding capacity on the existing lines. With the cancellation of the Columbia Pike Streetcar, that corridor needs renewed focus to build the backbone for the next 20 years.
2. Focus on improving multi-modal options within and between urban centers, especially along the Richmond Highway corridor.
3. Continue working to improve transit utilization through a systematic plan that includes multiple options within a community. This can be combined with pedestrian improvements, more connector bus options and biking trails that together provide a diverse transportation plan.

2. Affordable Housing

EQAC commends the Board of Supervisors for adopting “The Housing Blueprint: A Housing Strategy for FY 2011 and Beyond.” There are many land use and transportation efforts under way with significant relevance to the county’s housing goals. EQAC suggests that the county:

1. Continue to expand options for affordable housing by investing and partnering appropriately in locations that will need increased affordable options as the economy rebounds.
2. Identify vacant offices and homes in locales with good transit options and coordinate with the real estate industry to aid in marketing those properties,

- thereby supporting new tenants with quality of life perquisites, improved commuting options and better residential/commercial or mixed use utilization.
3. Coordinate with agencies and businesses to inform prospective/new workers of opportunities for desirable commutes and local housing amenities.

3. Comprehensive Planning

EQAC fully supports changes that have been made to the Comprehensive Plan update process and the retrospective analysis of changes that have been realized by the Plan over the past 37 years. The 2012 review of the Plan “*State of the Plan, An Evaluation of Comprehensive Plan Activities between 2000-2010*” (published in 2012) should continue to be updated every 10 years.

EQAC also endorses efforts to focus on revitalization through the Office of Community Revitalization (established in 2007) and the Fairfax Forward process that succeeds the Area Plans Review (APR) process as a new, holistic and integrated approach to plan future development. These changes address the complexities of build-out and redevelopment and bring together the best information and tools to make wiser and more effective decisions.

We are encouraged to see Fairfax Forward as the long term process to update the Comprehensive Plan and completely replace the APR process. We also commend the Fairfax Forward team for providing a wealth of information to the public on the county Web page.

Recommendations

1. Continue to Innovate with Social Media

EQAC commends the county for embracing new technology and leveraging the Web to share and interact with public. We recommend that the county continue to integrate social media into the planning process and other outreach efforts. This allows community participation through the Internet technologies and is more cost effective and far reaching than traditional media and outreach. Social media is very powerful for encouraging and educating people about alternative transportation options. The Envision 7 crowd sourcing map is one innovative example that can be replicated: www.envisionroute7.com/crowdsource/map.

2. Urban Design Guidelines

Urban guidelines are designed to improve the environment, quality of life, balance and safety of a well-planned mixed-use place. These new guidelines are driving the potential in Tysons Corner and can apply equally well to all transit areas, as well as suburban centers and community business centers. EQAC recommends that the county develop one countywide set of urban design guidelines that would have sufficient breadth to address variations in circumstances among mixed-use centers within the county, as

opposed to the development of multiple area-specific urban design guidelines. These urban design guidelines should be the baseline expectation for development in mixed-use centers, with exceptions as necessary to accommodate site-specific considerations.

3. Data and Modeling

EQAC is an advocate of the county GIS and the Integrated Parcel Lifecycle System. These applications have proven their value in understanding the county and providing quantitative information to a variety of users.

- a. EQAC recommends that nonresidential development data be comprehensively integrated into the county's Integrated Parcel Lifecycle System and used for forecasting, as demonstrated by residential data that have been harnessed in IPLS for that purpose. Currently, nonresidential data on proposed development projects are captured in disparate systems for zoning and site plan applications, but have not been fully brought into IPLS, and, therefore, cannot be used for forecasting.
- b. EQAC continues to recommend that the Comprehensive Plan be reflected and modeled in the GIS. Applications such as the internal Comprehensive Plan Potential and the Comprehensive Plan Amendment applications (used to gather data for the State of the Plan report) are very useful for understanding the real time status of the Comprehensive Plan. These applications should be available to the public on the Comprehensive Plan website.
- c. EQAC recommends that the county acquire new data sources and incorporate them into the business process. Planimetric data have proven to be both cost effective and transformative. Multi-spectral imagery has the potential to enhance our knowledge of the county by answering questions such as tree species identification and tree canopy density.

4. Transportation

EQAC recommends that the county provide priority for non-motorized/multi-modal transportation options. EQAC support the goals of Fairfax Advocates for Better Bicycling which includes:

- Implementation of the bicycle master plan, which is now complete and ready for implementation.
- Growing the bike share community in Fairfax County.
- Encouraging the Safe Routes to School project with Fairfax County Public Schools.
- Implementation of an outreach and education program for encouraging/promoting bicycling as a transportation mode. This could be called "Bike Fairfax!"

III. Air Quality

Background

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.

Recent Activities

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 continued 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 to MWAQC. The Health Department's function is to provide health information as needed.

Stage II Gasoline Vapor Recovery Systems

Virginia had previously adopted Stage II gasoline dispensing controls 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.

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

There are several activities ongoing or completed by the U.S. Environmental Protection Agency (EPA) to update NAAQS for major criteria pollutants such as atmospheric (ground-level) ozone, fine particulate matter (referred to as PM_{2.5}, or particulate matter less than 2.5 microns in diameter), Nitrogen dioxide, Sulfur dioxide and lead, some or all of which may have impacts on Fairfax County.

On December 17, 2014, EPA proposed to revise the ozone standard (currently 75 ppb) 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.

Air Quality Status in Northern Virginia

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.

Update on County and Regional Air Quality Data

Ground-Level Ozone

Ground-level ozone is a precursor to smog and can cause breathing problems for those sensitive to smog, especially those with asthma (some use the term smog as a colloquial name for ground level ozone).

In July 2012, EPA designated the Washington metropolitan region as a marginal nonattainment area for the 2008 ozone standard, and the region had a July 2014 deadline to meet the standard. The region is requesting an extension of the deadline.

Monitors in the metropolitan region recorded data on four days during the 2014 ozone season (also four days in the 2013 season) when ozone values were above the 0.075 ppm standard. This resulted in a three-year design value for 2012-2014 of 0.076 ppm (76 ppb). 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 2015 of 0.070 ppm (70 ppb), which is less than the 2008 ozone standard.

Fine Particulate Matter

The Technical Advisory Committee of the Metropolitan Washington Air Quality Committee developed a redesignation request and maintenance plan for the Fine Particulate Matter (PM_{2.5}) standard, which included new interim and out-year mobile source budgets. 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.

Nitrogen Dioxide

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.

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. The Virginia Department of Transportation provided information about the daily vehicle miles traveled in Fairfax County, showing that approximately 26.4 million vehicle miles were traveled daily in 2014, a slight decrease from the number for 2013.

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 by FCDOT) for the 606,954 workers, 16 years of age and over, who live in Fairfax County (updated information was not made available by FCDOT):

- 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. VDEQ 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):

- 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.
- 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.
- 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 NOx level of 0.2 g/bhp-hr).
- 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.
- DVS sells leftover waste oil (that is not burned in its waste oil furnaces).

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.

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 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.

Public Agency Responsibilities

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.

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 current and expected new ozone NAAQS will be evaluated based on their ability to cost-effectively reduce ozone precursors NO_x and VOC (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 (SIP) for the 2008 Ozone NAAQS. This is needed in the event the Washington 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, CEEPC, and 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.

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., May 2010 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 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.

Recommendations

None.

IV. Water Resources

Note: There are several references in this section to the detailed Water Resources chapter of this report. As is the case with all sections of this summary report, information in this section has been excerpted from the much lengthier, more detailed overview that is provided in a companion detailed report. This detailed report is available on the CD that is attached to the hard copy of this summary report and on-line at www.fairfaxcounty.gov/eqac/report.

Background

Water resources include streams, ponds, lakes and groundwater. These resources serve as sources of drinking water, recreation, stormwater conveyance and habitat for numerous organisms. These water bodies can be impacted significantly by land disturbances and surface runoff. Over the past decade, Fairfax County has demonstrated a strong commitment to restore and protect its water resources through a variety of management efforts and public outreach initiatives. Unless water resources are managed properly, increasing demands put on watersheds, such as rapid development, can create many problems.

Watersheds include both surface water and groundwater. Rainfall soaks into the earth and drains to low points in the surrounding land, and then emerges from the ground as seeps, springs and trickling headwaters. These small streams join with others in the same drainage area to create a stream system. There is a natural progression in size from the smallest tributaries to the largest rivers into which they eventually flow. Perennial streams flow throughout the year and intermittent streams flow only part of the year. There are approximately 860 miles of perennial streams in the 30 watersheds in Fairfax County

In a healthy stream, the bottom, or bed, of a stream can consist of boulders, cobbles, gravel, sand and/or silt. Within a stream are shallow, fast flowing areas called riffles. Dissolved oxygen levels typically are high because water is flowing over rocks, mixing air into the tumbling water. Alternating with riffles are deeper pools and runs where flows slow and particles of inorganic and organic matter fall to the bottom and oxygen levels are reduced. Streams support a diverse community of plants and animals that spend all or part of their life cycles in the water. The area of trees and other types of vegetation adjacent to and lining the banks of streams is called a stream buffer. These areas are essential for healthy streams. The temperature in a stream greatly affects how much oxygen it can hold. Since cooler water holds more oxygen, shade-providing trees and vegetation are vital along the edges of streams to help maintain cooler water temperatures so the water will hold more oxygen.

As development occurs, natural areas that once had vegetative cover capable of absorbing water and filtering pollutants are replaced by impervious surfaces such as roads, driveways and buildings. With the increase in impervious surface and loss of vegetative cover, the amount of stormwater runoff increases and it flows into the streams more quickly. Increased uncontrolled runoff causes stream erosion, resulting in scouring, down cutting and over-widening of stream channels and loss of streamside vegetation. When stream channels become incised from down-cutting, they become disconnected from their floodplains. Water cannot get out of the banks

onto the adjacent floodplain where flows can be dissipated and drop their sediment loads. High flows stay in the channel, resulting in increased erosion. Silt and sediment from erosion smother the stream bottom and destroy in-stream habitat for benthic macroinvertebrates that are the basis of the food chain and smother any eggs from fish and other organisms. Loss of shade results in increased water temperatures. During summer storms, runoff from heated impervious surfaces also raises water temperatures. In urban and suburban watersheds, rain flows off impervious surfaces such as parking lots and highways, carrying oil and other automobile wastes into streams.

Figure IV-1. Healthy stream components



Lakesuperiorstreams. 2009. LakeSuperiorStreams: Community Partnerships For Understanding Water Quality and Stormwater Impacts at the Head of the Great Lakes (<http://lakesuperiorstreams.org>). University of Minnesota-Duluth, Duluth, MN 55812.

Figure IV-2. An Unhealthy Stream



Photo provided by the Fairfax County Department of Public Works and Environmental Services.

Surface Water Monitoring and Analyses

The Fairfax County Department of Public Works and Environmental Services (DPWES), Fairfax County Park Authority, Virginia Department of Environmental Quality (VDEQ), U.S. Geological Survey (USGS), local water treatment plants and other organizations regularly conduct water quality monitoring and testing. The Northern Virginia Soil and Water Conservation District (NVSWCD) also collects monitoring information through its volunteer water quality monitoring programs. All of these data help provide a comprehensive understanding of the condition and health of Fairfax County's water resources. The county

collects data that is system wide, specific watershed-wide and has had some that focuses on some specific stormwater treatment methods to monitor their effectiveness.

Countywide Watershed and Stream Assessments

The Stream Protection Strategy Baseline Study, published in 2001, provides a holistic ecological baseline assessment of county streams. The study provides information on fish taxa, benthic macroinvertebrates, general evaluation of watershed and stream features and calculations of the percent impervious cover within each watershed. The Stream Protection Strategy Baseline Study can be viewed online at: www.fairfaxcounty.gov/dpwes/environmental/sps_main.htm.

Ongoing monitoring programs include the following four:

DPWES Biological Monitoring

The 2014 Annual Report on Fairfax County's Streams (now the Stormwater Status Report) provides data from sampling efforts conducted in 2014 and documents overall stream conditions based on the health of fish and benthic macroinvertebrate communities. In addition, the potential human health risk associated with wading or swimming in streams is assessed based on analyses of *E. coli* bacteria.

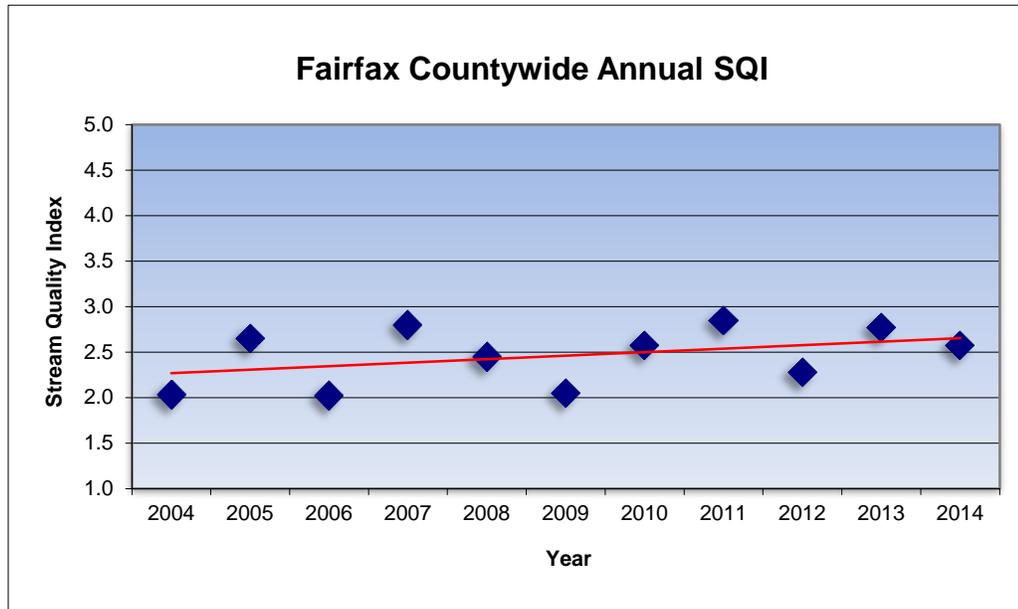
The Fairfax County Biological Stream Monitoring Program includes annual sampling of fish and macroinvertebrate communities in wadeable, non-tidal freshwater streams. Countywide biological monitoring is conducted using a probabilistic design approach, whereby statistically valid inferences may be made about the condition of the county's streams. Each year, all potential sampling sites are stratified by stream order (first through fifth order) and 40 sites are selected randomly for monitoring. At these sites, samples are collected for both benthic macroinvertebrates and fish and for *E. coli* bacteria. Water quality and stream habitat characteristics are also evaluated. The previous year's annual stream reports are available online at www.fairfaxcounty.gov/dpwes/stormwater/stormwater_status.htm and www.fairfaxcounty.gov/dpwes/stormwater/streams/streamreports.htm. Figure IV-3 presents a summary of trends in a countywide Stream Quality Index.

A total of 53 sites were sampled in 2014: the 40 sites randomly selected in Fairfax County plus 11 Piedmont reference locations in Prince William National Forest Park and two Coastal Plain reference sites in the Kane Creek watershed of Fairfax County. Of the 40 sites selected, all were sampled for macroinvertebrates and 17 were sampled for fish.

Additionally, fish were sampled at six Piedmont reference sites. (Only those sites with a drainage area greater than 300 acres are sampled for fish; headwater streams have few fish.) Results from the 40 randomly selected sites suggest that approximately 52.5 percent of the county's waterways are in "Poor" to "Very Poor" condition based on a macroinvertebrate sampling and 58 percent are in "Poor" to "Very Poor" based on fish sampling. This is an increase in the biological ratings compared to previous years. This may be a result of the random site selection (it is possible for a group of lower quality sites to be chosen in some years). **Over the past 10 years, a small increase in the benthic Index of Biological Integrity scores is suggested. As future sampling results are added, this small trending may emerge more clearly.** The index is reported annually to evaluate long-term trends in

the overall health of streams. As more data are reported annually, emerging trends can be identified with greater certainty.

Figure IV-3: Trends in the Countywide Stream Quality Index



Source: 2014 Fairfax County Stormwater Status Report, August 2015

The 2014 Stormwater Status Report states the following:

The monitoring program is part of the framework to establish a baseline to evaluate future changes in watershed conditions. Monitoring results from 2008 through 2014 were reported in Fairfax County Stormwater Status Reports, which may be viewed at www.fairfaxcounty.gov/dpwes/stormwater/stormwater_status.htm.

Monitoring results from 2005 through 2007 may be found in Annual Reports on Fairfax County Streams at www.fairfaxcounty.gov/dpwes/stormwater/streams/streamreports.htm.

DPWES Bacterial Monitoring

In 2014, the Stormwater Planning Division completed its eleventh year collecting data for the bacteria monitoring program since acquiring the program from the Fairfax County Health Department.

According to the Virginia Department of Environmental Quality, the following standard now applies for recreational contact with all surface water:

E. coli shall not exceed a geometric mean of 126 per 100 ml of water or exceed an instantaneous value of 235 per 100 ml of water.

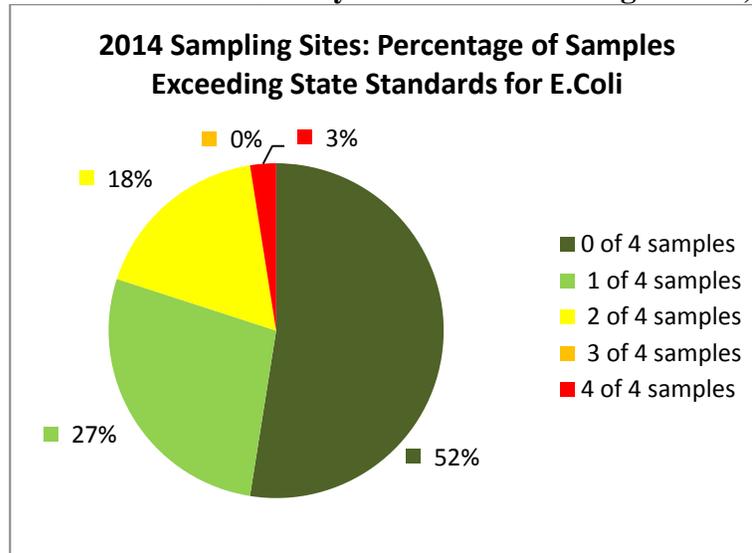
In 2014, 52 percent of Fairfax County’s bacteria monitoring locations were consistently below VDEQ’s standard of 235 units per 100 ml of water (Figure IV-4). Fairfax County staff concurs with officials from VDEQ and the Virginia Department of Health, who caution that it is impossible to guarantee that any natural body of water is free of risk from disease-causing organisms or injury.

Based on historical and ongoing bacteria monitoring data, the Fairfax County Health Department issues the following statement related to the use of streams for contact recreation:

“[A]ny open, unprotected body of water is subject to pollution from indiscriminate dumping of litter and waste products, sewer line breaks and contamination from runoff of pesticides, herbicides and waste from domestic and wildlife animals. Therefore, the use of streams for contact recreational purposes such as swimming, wading, etc., - which could cause ingestion of stream water or possible contamination of an open wound by stream water, should be avoided.”

Past annual reports on Fairfax County streams and monitoring methods are available on the Stream Quality Assessment Program page at www.fairfaxcounty.gov/dpwes/stormwater/streams/assessment.htm.

Figure IV-4: Fairfax County Bacteria Monitoring Results, 2014



Source: 2014 Fairfax County Stormwater Status Report, August 2015

DPWES Dry and Wet Weather Screening

In 2014, the county selected 102 outfalls in its Municipal Separate Storm Sewer System (MS4) for dry weather screening and recorded physical parameters at each outfall. Water was found to be flowing at 47 of the outfalls and was tested for a range of pollutants

(ammonia, conductivity, surfactants, fluoride, pH, phenol, copper and temperature) using field test kits. Of the outfalls tested, three required follow-up investigations because they exceeded the allowable limit for at least one pollutant. Upon retesting these sites, none of the sites continued to exceed the screening criteria and further testing was not necessary.

In 2014, the county solicited a proposal to review and update its Wet Weather Screening program. This updated plan will monitor a suite of 12 targeted sites during 40 storm events between 2014 and 2018.

U.S. Geological Survey Monitoring Network

In June 2007, a joint funding agreement between the DPWES Stormwater Planning Division and USGS was signed by the Board of Supervisors. This agreement established a study designed to be an ongoing, long-term (five to 10 year) monitoring effort to describe countywide conditions and trends in water quality (e.g. nutrients and sediment) and water quantity. Ultimately, the information gathered will be used to evaluate the benefits of projects implemented under the watershed planning program and stormwater management program and to characterize urban and suburban streams.

This base network now is comprised of five automated stations and 15 less-intensely monitored sites. Instruments at these stations collect data every 15 minutes; data are then transmitted via satellite and posted hourly to a USGS Web page. Nutrient analyses are conducted by the Fairfax County Environmental Services Laboratory and the suspended sediment analyses are conducted by the USGS Eastern Region Sediment Laboratory. All data collected can be accessed online at <http://va.water.usgs.gov/fairfax>.

A report summarizing the data collected at the original 14 station network through the first five years of the study (2007-2012) has been published by the USGS ([Streamflow, Water Quality, and Aquatic Macroinvertebrates of Selected Streams in Fairfax County, Virginia, 2007–12](#) By John D. Jastram). This can be found at: <http://pubs.usgs.gov/sir/2014/5073/>.

Volunteer Water Quality Monitoring Programs

The Northern Virginia Soil and Water Conservation District continued its successful volunteer stream monitoring program in 2014. This program supplements the county's stream bioassessment program. The data collected support the findings of the county's program and help to provide trend data. The data can also alert staff to emerging problems. Throughout FY 2015, 17 sites continued to be monitored by 21 active certified volunteers. In order to drum up new recruits, NVSWCD held nine training sessions for 142 potential new volunteers. In addition, six special monitoring field trips were provided to 93 students with the Northern Virginia Community College. NVSWCD partners with the Reston Association and the Fairfax County Park Authority and others to monitor at various sites throughout the county. For a list of streams, see the detailed Water Resource chapter of this report.

Potomac River, Occoquan River and Gunston Cove Monitoring

All three of these water bodies have shown vast improvements in water quality with the advent of improved sewage treatment plants. All three of these water bodies are carefully monitored to ensure on-going water quality. Funding for the continued monitoring of the Occoquan River may prove to be an issue after 2015.

Potomac River

The Metropolitan Washington Council of Governments (COG) collects data from 99 stations on the main stem of the Potomac River and the mouths of its tributaries (Point of Rocks to Point Lookout) and 46 stations in the Anacostia River watershed. In addition, more than 33 wastewater treatment plants send their monthly discharge monitoring reports and monthly operating reports to COG.

A Potomac River Water Quality fact sheet

(www.mwcog.org/environment/water/downloads/Potomac%20WQ%20factsheet_January%202014.pdf) and a summary (www.mwcog.org/uploads/committee-documents/bF1YX1lc20140515151124.pdf) were developed to provide a snapshot of current conditions and an assessment of water quality in the Potomac River.

For more information on this and the control monitoring at Chain Bridge see the detailed Water Resources chapter of this report. Information from a summer 2010 news release reviewing an 18-year study of submerged aquatic vegetation in the tidal Potomac River can be found at http://water.usgs.gov/nrp/highlights/potomac_update.html.

Occoquan River

The Occoquan River straddles the southern border of Fairfax County and the northern border of Prince William County. The river has been dammed near the town of Occoquan. The Occoquan Reservoir, created by the damming, serves as one of two primary sources of drinking water for Fairfax Water, which operates a facility along, and withdraws water from, the reservoir. Because of its use as a drinking water source, water quality in the reservoir is highly monitored and water from a sewage treatment plant upstream of the reservoir is carefully treated.

The Occoquan Watershed Monitoring Laboratory (OWML) has administered a comprehensive hydrologic and water quality monitoring program in the Occoquan Watershed since 1972. Synthetic organic compounds (SOCs) have been monitored quarterly in the Occoquan Watershed since 1982. Calendar year 2014 was a reasonably good year for the SOC monitoring program. Few ‘detects’ were found for any compound of concern, and most of those were well below limits of concern. Besides the ubiquitous phthalates, typically found in concentrations much lower than those that might be a cause for concern, atrazine, Dual (metolachlor) and lindane were the compounds detected most often.

General water quality in the Occoquan Reservoir has also remained stable over the years. While the reservoir continues to be enriched with nutrients (eutrophic), the water quality has not deteriorated from what it has been for some time now.

The OWML monitoring program serves as a means of providing advance notice should any conditions deteriorate, whether in the short or the long term.

In program year 2015-16 for OWML monitoring, the approach being taken is to continue the monitoring and stop it when the money is exhausted.

Updates continue to be made to the OWML website (www.owml.vt.edu), and stakeholders can continue to access near-real-time field data at various stream sites.

Gunston Cove

Gunston Cove is an embayment of the tidal freshwater Potomac River located in Fairfax County about 12 miles (20 km) downstream of the I-95/I-495 Woodrow Wilson bridge. The cove receives treated wastewater from the Noman M. Cole, Jr. Pollution Control Plant (NMCPCP) and inflow from Pohick and Accotink Creeks, which drain much of central and southern Fairfax County. The cove is bordered on the north by Fort Belvoir and on the south by Mason Neck.

In 2014, Fairfax County's Wastewater Management Program continued its funding of and collaboration with the George Mason University (GMU) Department of Environmental Science and Policy to monitor the water quality of Gunston Cove. Since 1984, the primary objective of the Gunston Cove monitoring program has been to determine the status of the ecological communities and physical-chemical environment in the Gunston Cove area of the tidal Potomac for evaluation of long-term trends. Sampling and analysis results are shared with GMU researchers, who gather and evaluate data on the cove's biota. Together, Wastewater Management Program and GMU collect hundreds of field measurements and samples yearly. Data from the 2014 report (December 2014) generally reinforced the major trends which were reported in previous years.

First, phytoplankton algae populations in Gunston Cove have shown a clear pattern of decline since 1989. Accompanying this decline have been more normal levels of pH and dissolved oxygen and increased water clarity. The increased water clarity has brought the rebound of submerged aquatic vegetation, which provides increased habitat value for fish and fish food organisms. Overall, the fish assemblage in Gunston Cove is dynamic and supports a diversity of commercial and recreational fishing activities.

This trend is undoubtedly the result of phosphorus removal practices at the Noman M. Cole, Jr. Pollution Control Plant, which were initiated in the late 1970s. A lag period of 10-15 years between phosphorus control and phytoplankton decline has been observed in many freshwater systems, resulting at least partially from sediment loading to the water column, which can continue for a number of years. Gunston Cove is now an internationally

recognized case study for ecosystem recovery due to the actions that were taken and the subsequent monitoring to validate the response.

In short, due to these strong management efforts of the county and the robust monitoring program, Gunston Cove has proven an extremely valuable case study in eutrophication recovery for the Chesapeake Bay region and even internationally.

For a copy and detailed read of the “Ecological Study of the Gunston Cove 2013” Final Report, see

www.academia.edu/12414213/THE_ONGOING_AQUATIC_MONITORING_PROGRAM_FOR_THE_GUNSTON_COVE_AREA_OF_THE_TIDAL_FRESHWATER_POTOMAC_RIVER_2013_FINAL_REPORT or contact R. Christian Jones, Professor and Project

Director at George Mason University.

Total Maximum Daily Loads

Under the Clean Water Act, states are required to monitor water quality and assess compliance with water quality standards every two years. Water quality standards designate uses for waters and define the water quality needed to support each use. There are six designated uses for surface waters in Virginia: aquatic life; fish consumption; public water supplies (where applicable); shellfish consumption; swimming; and wildlife. Several subcategories of the aquatic life use have been adopted for the Chesapeake Bay and its tidal tributaries. If a water body contains more pollutants than allowed by water quality standards, it will not support one or more of its designated uses. Such waters have “impaired” water quality and are listed on Virginia’s 303(d) list as required under the Clean Water Act. If monitoring data indicate that a water body does not meet water quality standards, the water body is listed as impaired and a Total Maximum Daily Load (TMDL) must be developed. A TMDL is a watershed-specific plan for bringing an impaired water body into compliance with water quality goals. Since fulfilling the requirements of a consent decree, Virginia has developed a pacing guideline of approximately 150 TMDLs per biennium, which is expected to allow for TMDL development for currently listed waters by 2022.

Fairfax County Stream TMDLs

To date, the following TMDLs have been established in Fairfax County and have assigned reductions to the county’s MS4:

Bacteria (Fecal Coliform and/or E. coli):

- Accotink Creek.
- Four Mile Run.
- Bull Run (includes Cub Run, Johnny Moore Creek and Little Rocky Run).
- Popes Head Creek.
- Difficult Run.
- Hunting Creek (includes Cameron Run and Holmes Run).
- Sugarland Run.
- Mine Run.
- Pimmit Run.

Sediment (Benthic Impairment):

- Bull Run (includes Cub, Johnny Moore and Little Rocky Runs).
- Popes Head Creek.
- Difficult Run.

PCBs: Tidal Potomac (includes Accotink Creek, Belmont Bay, Dogue Creek, Four Mile Run, Gunston Cove, Hunting Creek, Little Hunting Creek, Occoquan River and Pohick Creek).

Water Quality Assessments are performed by VDEQ and are available at:

www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityAssessments.aspx.

For a discussion of individual stream segment TMDLs, please see the detailed Water Resource chapter of this report.

Information on TMDL development in Virginia is available on VDEQ's website: www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/TMDLDevelopment.aspx.

Chesapeake Bay TMDL

EPA established the Chesapeake Bay TMDL in December 2010. In order to provide reasonable assurance that the Chesapeake Bay TMDL can be achieved, EPA required states and the District of Columbia to develop Watershed Implementation Plans (WIP) that document how each jurisdiction will partner with federal and local governments to achieve and maintain water quality standards. The WIP does include local strategies aggregated at the state scale and organized by source sector (agriculture, urban/suburban, on-site wastewater, forest lands and resource extraction). Implementation of the urban/suburban strategies will take place through permits in MS4 communities including Fairfax County.

Information on the Chesapeake Bay TMDL is available on EPA's website at:

www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/index.html.

Information on Virginia's WIP process is available on VDEQ's website at:

www.deq.virginia.gov/Programs/Water/ChesapeakeBay/ChesapeakeBayTMDL/ChesapeakeBayWatershedImplementationPlans.aspx.

Northern Virginia Regional Commission (NVRC) Chesapeake Bay TMDL Coordination

An NVRC staff member continues to serve as the Chairman of the Urban Stormwater Work Group for the EPA Chesapeake Bay Program (CBP). For a discussion of and links to specific papers of the set of recommendations for the CBP's Water Quality Goal Implementation Team regarding issues dealing with urban stormwater and the impact to the health of the Chesapeake Bay, see the detailed Water Resource chapter of this report.

A complete review of all the past and current USWG BMP Expert Panels can be found under the publication tab at: www.chesapeakebay.net/groups/group/urban_stormwater_workgroup.

Groundwater Monitoring and Regulation

The United States Geological Survey maintains a series of wells throughout the nation to monitor groundwater levels and drought. Several wells are depicted on the Fairfax County, Virginia location map, which is provided at the following link: <http://groundwaterwatch.usgs.gov/countymap.asp?sa=VA&cc=059>. By clicking on the icon associated with the well, you can get information on how long the well has been functioning and what data are being collected.

Virginia Department of Environmental Quality Leaking Underground Storage Tank Information

With respect to leaking underground storage tanks for regulated tanks (i.e., gas stations), there were 16 open cases and 1,108 closed cases. In 2014, seven new cases were opened and 14 were closed. In terms of unregulated tanks (i.e. residential heating oil), there are 46 open cases and 2036 closed cases. In 2014, 82 new cases were opened and 75 were closed.

Watershed Management

Watershed management is the process of implementing plans, programs, and projects to protect and/or restore watershed functions. Streams form at the low points of watersheds. Plans usually take into account both ground and surface water flow, recognizing and planning for the interaction of water, plants, animals and human land use found within the physical boundaries of a watershed.

Watershed Management Plans

In 2003, the Stormwater Planning Division of the Fairfax County Department of Public Works and Environmental Services commenced a planning initiative to develop a series of watershed management plans. The plans were developed between 2003 and 2011 with the assistance of the community through a public involvement process that included community interest meetings and stakeholder groups. A total of 13 plans, which cover all 30 county watersheds (www.fairfaxcounty.gov/dpwes/watersheds/), were developed and adopted by the Board of Supervisors. From this planning effort, more than 1,700 structural and non-structural projects were proposed to help restore and protect our vital natural resources. The overarching goals for the watershed plans are:

1. Improve and maintain watershed functions in Fairfax County, including water quality, habitat and hydrology.
2. Protect human health, safety and property by reducing stormwater impacts.
3. Involve stakeholders in the protection, maintenance and restoration of county watersheds.

Many non-structural projects and policy recommendations from the watershed plans have been implemented while implementation of others is ongoing. The number of projects selected each year for implementation will be determined as part of the annual budget process. Projects under design and construction can be found on the Stormwater Improvement Projects Web page at www.fairfaxcounty.gov/dpwes/stormwater/projects/project_list.htm

Restoration Efforts

Department of Public Works and Environmental Services Stream Restoration and Stabilization Projects—Stormwater Capital Projects and Education

In 2014, the county and its partners continued to implement stormwater management-related capital projects. Projects in this section are projects completed in 2014 included: six stormwater management facility retrofits; seven low impact development projects; and nine stream restoration projects. For a list of these projects see the detailed Water Resource chapter of this report. Tours of stormwater retrofits were conducted in 2014 to educate county staff, other agencies, civic and environmental groups, homeowner associations and residents on innovative stormwater techniques.

NVSWCD Stream Restoration Efforts

Virginia's Phase II Watershed Implementation Plan recognizes a need for urban/residential BMPs in its "Local Implementation Strategies for Urban/Suburban Source Sector," including a cost share program strategy. Funded through the Environmental Improvement Program and working with representatives from Fairfax County DPWES' Stormwater Planning Division and Maintenance and Stormwater Management Division and the Fairfax County Park Authority, NVSWCD implemented the first four urban cost-share projects in Fairfax County in spring 2015.

Reston

Reston's multi-year stream restoration project is under way. Reston Association continues to work with Northern Virginia Stream Restoration, L.C., managed by Wetland Studies and Solutions, Inc., to help coordinate the Reston stream mitigation bank. The groundbreaking for Phase I, which covers 14 miles of stream, occurred on February 12, 2008. Approximately eight miles of stream in the Snakeden Branch, The Glade and Colvin Run watersheds have been restored, fully funded by the Northern Virginia Stream Restoration, L.C.

Engineering design plans are underway for the remaining six miles of stream restoration. For more information on the stream restoration project in Reston visit: <http://reston.wetlandstudies.com> or www.reston.org.

Collaboration between Fairfax County Public Schools (FCPS) and the County’s Stormwater Planning Division (SWPD) on Stormwater Management Projects

In November 2012, staffs from FCPS and SWPD provided a briefing to EQAC regarding the identification of opportunities to enhance stormwater management efforts (beyond code requirements) on school properties through FCPS and DPWES collaboration. These include: evaluation of opportunities to provide additional stormwater management onsite during the design and construction of projects in the FCPS Capital Improvement Program (CIP); opportunities for SWPD to construct stormwater management facilities on school properties which are not part of the CIP; and education and outreach opportunities in the FCPS science curriculum.

FCPS and SWPD coordinate throughout the planning and design of FCPS CIP projects to identify opportunities to enhance the code required stormwater management provided by FCPS. For a list of the location and plan status of these projects, please see the detailed Water Resource chapter of this report.

Low Impact Development (LID) Techniques

Environmentally sensitive site design and low impact development practices serve to minimize impervious cover and replicate natural hydrologic conditions. The county recommends and encourages “Better Site Design” development techniques and LID practices be used to the full extent allowed by the county’s Public Facilities Manual.

In 2014, the Department of Public Works and Environmental Services, the Fairfax County Park Authority, Fairfax County Public Schools, various nonprofit organizations, individual volunteers and other partners contributed to the design and implementation of seven projects within the county that incorporated one or more of these techniques and practices.

VDOT’s research division, the Virginia Center for Transportation Innovation and Research, conducts research on current and future environmental topics related to maintenance, construction and operations of transportation systems. Current research projects include:

- Assessment of the low impact development strategies for the Lorton Road widening project, Fairfax County, Virginia: This pre-construction monitoring will continue until the initiation of construction in the area and is expected to be completed in fall 2015. Subsequent sampling will take place at new sites as construction progress allows.
- Permeable pavement pilot project using porous asphalt: The purpose of the study is to address the remaining VDOT-specific questions pertaining to installation costs, constructability, maintenance requirements and long-term hydraulic performance of porous asphalt permeable pavements by way of a pilot project at the newly constructed I-66/Route 234 Bypass Park and Ride Facility in Prince William County. The project is scheduled to be complete in fall 2016.

Flood Remediation/Reduction Programs

Since 2003, several communities in the City of Alexandria and Fairfax County have been damaged by significant floods.

For the **Belle Haven Watershed Flood Damage Project**, the U.S. Army Corp of Engineers (USACE), on behalf of Fairfax County, worked to determine if there were technically-feasible and cost-effective flood damage reduction alternatives for the Belle Haven watershed. The USACE last updated cost estimates and cost benefit ratios for several floodwall/levee alignments in April 2014, with the most expensive alternative being approximately \$34 million.

For the **Huntington Flood Remediation Project**, the USACE completed conceptual flood mitigation plans in April 2009, which included a levee along Cameron Run. The estimated cost for the levee project is \$30 million. On November 6, 2012, Fairfax County voters approved a stormwater bond referendum that included funds to design and construct the levee and pump station proposed by the USACE in its 2009 study. ARCADIS U.S., Inc. was selected as the design consultant and began work in June 2013. The project is expected to take five to seven years to complete.

Support Programs

NVSWCD continues to provide environmental and stewardship offerings for adults and families, as well as youth. Throughout FY 2015, NVSWCD staff presented or participated in roughly 100 events, reaching out to approximately 5,000 individuals on watershed, soil, stormwater and conservation-related topics. In addition, NVSWCD staff coordinated storm drain marking efforts. In FY 2015, 484 volunteers logged 2,883 hours over 33 projects to label 2,303 storm drains and educate 12,249 households. Since the start of this program, one-quarter of the more than 80,000 storm drains in the county have labels.

In 2014, the Virginia Department of Forestry partnered with volunteers from organizations such as Fairfax ReLeaf, Eagle Scouts, homeowner associations and school groups and completed 23 community tree plantings in the county. Citizen volunteers donated 615.25 hours and planted 1,417 trees in these events. Two of the tree plantings were along streams and added 863 feet of riparian buffer.

Organized Watershed Cleanups

Staffs from the Stormwater Planning Division, Solid Waste Management Program, Wastewater Management, Fairfax County Park Authority and the Northern Virginia Soil and Water Conservation District continued to support large and small-scale volunteer cleanups coordinated by the Alice Ferguson Foundation, Clean Virginia Waterways and Clean Fairfax.

The Reston Association held a cleanup during the 2015 Potomac River Watershed Cleanup. It was a success, with 80 volunteers getting out into Reston's natural areas and streams to collect a total of 112 bags of trash. They were able to recycle 42 of those bags and remove three tires, over 550 plastic bags, and 1,350 cigarette butts. On June 6, 2015, thirty-four volunteers

collected 300 pounds of trash from lakes Anne, Audubon and Thoreau. At the Fall Stream Watershed Cleanup on October 18, 2014, fifty-eight volunteers cleaned approximately two miles of stream and collected 55 bags of trash, 23 of which were able to be recycled. The cleanup effort at the four sites (Hunters Woods, Cedar Ridge, Great Owl Circle and Nature House) removed about 700 pounds of trash.

The 27th Alice Ferguson Foundation Annual Potomac River Watershed Cleanup was successful again, with 16,521 volunteers removing 285 tons of trash from 411 sites throughout the watershed. In Fairfax County, 1,643 volunteers removed 37.5 tons of trash from 77 sites. NOVA Parks (Northern Virginia Regional Park Authority) and Fairfax County Park Authority both assisted in the Alice Ferguson cleanups and other cleanups throughout the year.

According to Clean Virginia Waterways, a total of 778 volunteers participated in the International Coastal Cleanup in Fairfax County during September and October 2014. 10,055 pounds of trash and marine debris were removed. Plastic bags, beverage bottles, food wrappers and containers and litter from recreational activities and fast food consumption (i.e. cups, plates, forks etc.) were the most commonly collected trash items in the county.

Stormwater Management, Enforcement and Inspections

Virginia Pollutant Discharge Elimination System (VPDES) Municipal Separate Storm Sewer System (MS4) Permit

Fairfax County's VPDES Municipal Separate Storm Sewer System permit (known as the "MS4 permit") requires the county to prevent the discharge of pollutants such as oil, fertilizer, pet waste and trash from the stormwater management system into waterways to the maximum extent practicable.

The permit also prohibits non-stormwater discharges into the storm drain system, such as from illicit sanitary sewer connections or illegal dumping. It also requires storm event monitoring and assessment of the effectiveness of stormwater controls being used in the county.

The county's MS4 permit was renewed on April 1, 2015. Fairfax County's MS4 permit and MS4 annual reports can be viewed on-line at:

www.fairfaxcounty.gov/dpwes/stormwater/ms4permit.htm.

Stormwater Management Facilities and Infrastructure

The Maintenance and Stormwater Management Division (MSMD) of DPWES inspects and maintains all county-owned and operated stormwater management facilities and best management practice facilities and infrastructure. Pond inspections occur on a biannual basis and are balanced by fiscal year, which exceeds the permit requirement to inspect all county-maintained facilities at least once during the term of the permit. MSMD also inspects privately-maintained facilities at least once during the term of the permit (every five years). As part of the private facility inspections, MSMD oversees private maintenance agreements.

During 2014, MSMD staff:

- Inspected 475 of the 1,749 county-owned stormwater management facilities and 749 of the 3,825 privately maintained stormwater facilities.
- Cleaned and/or mowed 1,355 dam embankments, including 56 regional ponds that were maintained four times each during the calendar year. The county completed 3,432 work orders, including: un-blocking stormwater management ponds and pipes to avoid flooding or damaging infrastructure; channel and pond cleaning; mowing; weeding; planting; outfall repair; stream restoration and bank stabilization; graffiti removal; sign repairs/installation; and responses to complaints.
- Performed annual inspections of 19 state-regulated dams in the county (owned by DPWES) to ensure that the dams satisfy state safety requirements.
- Increased the inventory of low impact development facilities to 168 facilities.
- Continued a partnership with the Fairfax County Sheriff's department using the Community Labor Force crews to help maintain roughly 36 publically maintained LID facilities and removed trash in over 1,300 ponds.
- Inspected over 11,000 pipe segments and over 10,000 storm structures with video and photo documentation. More than 834,200 linear feet (158 miles) of pipe were videoed. These efforts represent 389 miles, or one-third of the storm drainage network. In addition, more than 3.1 miles of storm pipe in the county's inventory were rehabilitated or repaired through replacement or by lining entire pipe segments using cured-in-place pipe lining methods.

Much of the stormwater infrastructure in Fairfax County is reaching the end of its useful life; as the system ages, it will be critical to maintain adequate inspection and rehabilitation programs to avoid infrastructure failures and ensure the functionality of stormwater treatment systems. MSMD is increasing its stormwater management infrastructure replacement program, has created a more comprehensive LID maintenance program and continues to rehabilitate a number of older stormwater management dams and other critical facility components. In addition, MSMD and the Department of Code Compliance are continuing to enhance the private stormwater facility enforcement program to ensure all non-functional stormwater facilities are restored to their original design.

Erosion and Sediment Control (E&S)

DPWES continues to make improvements to the county's erosion and sediment control program, resulting in a greater emphasis and a higher quality of inspection services. DPWES developed a quality assurance program and trained field specialists on how to handle erosion and sediment control violations.

In 2014, a total of 594 E&S plans for projects that would disturb a land area of 2,500 square feet or more were submitted and approved for construction.

In 2014, 25,844 E&S inspections were performed through the county's Alternative Inspection Program on all sites under construction. Those E&S inspections represented 57.2 percent of the 45,167 total site inspections that were performed by Site Development and Inspection Division (SDID) personnel.

In 2014, SDID wrote 741 E&S control reports, which identify the E&S control deficiencies developers must correct within five days. SDID issued 99 violations in 2014 and 90 of those were later cleared. The remaining nine violations are extended until the required corrections are made or court action is initiated. SDID held 21 escrows for either landscaping or stabilization issues.

The Land Disturbance and Post Occupancy Branch of DPWES-Land Development Services also investigates complaints alleging violations of the county's Chesapeake Bay Preservation Ordinance (Chapter 118 of the County Code). In 2014, the branch received 245 total complaints. In most instances there was either no violation or there was timely compliance if a violation was cited. The branch issued 19 Resource Protection Area violation notices and 38 land disturbance violation notices. The branch undertook one criminal proceeding to ensure compliance.

Illicit Discharges

Fire and Rescue Department

In 2014, the Fire and Rescue Department's Fire and Hazardous Materials Investigative Services received 581 complaints involving hazardous materials. The actual spill, leak or release of hazardous materials into the environment occurred in 289 of these cases. Of these 289 releases, 125 involved petroleum-based products. There were 22 hydraulic oil spills/releases (mostly from trash trucks), 22 gasoline releases, 10 fuel oil or home heating oil releases and 40 diesel fuel releases. The remainder consisted of a variety of materials including, paint, antifreeze, cleaners, various gases, various chemicals and mercury. There were 22 incidents where the release of hazardous materials impacted storm drains or surface waters. The section tracked eight sites for both short and long term remediation activities.

Virginia Department of Environmental Quality

The Northern Regional Office of the Virginia Department of Environmental Quality reported that, in 2014, there were 158 stream pollution incidents in Fairfax County. These include petroleum surface spills, discharges from point sources (discrete conveyances/pipes) and sewage discharges. Water bodies were involved in 72 of the incidents.

Wastewater Treatment

Wastewater is primarily treated two ways in Fairfax County. In most cases it is collected from homes and commercial sites and carried through the sanitary sewer pipe system (maintained by Fairfax County) to large treatment facilities that release the treated waters into local waterways. For a small percentage of Fairfax County residents, wastewater is treated on-site via septic systems through which the water infiltrates into ground and ultimately reaches groundwater. The

only small treatment plant remaining in the county serves the Harborview subdivision of Mason Neck.

Fairfax County generates about 100 million gallons a day in wastewater. Approximately 40 percent of this is delivered to the Noman M. Cole, Jr. Pollution Control Plant (owned and operated by Fairfax County) for treatment. The treatment facility operated by the Upper Occoquan Service Authority (UOSA, an independent regional authority) treats 13 percent of the county's wastewater. The Blue Plains facility (the largest tertiary sewage treatment facility in the world, it is owned and operated by the District of Columbia) treats 30 percent, 15 percent is delivered to AlexRenew (Alexandria) and the remaining small percentages go to facilities in Arlington County and Prince William County.

The improved water quality of Gunston Cove (Noman M. Cole, Jr. Pollution Control Plant), the Occoquan Reservoir (the UOSA Plant) and the Potomac River (Blue Plains) are testament to the high standards of treatment in the last decades.

Treatment Facilities

Upper Occoquan Service Authority

UOSA is an independent authority that operates an advanced water reclamation facility in Centerville, Virginia and serves the western portions of Fairfax and Prince William counties, as well as the cities of Manassas and Manassas Park. The water reclamation plant includes primary-secondary treatment followed by advanced waste water treatment processes: chemical clarification; two-stage recarbonation with intermediate settling; multimedia filtration; granular activated carbon adsorption; chlorination for disinfection; and dechlorination. The plant's rated capacity is 54 million gallons per day.

UOSA operates under a Virginia Pollutant Discharge Elimination System Permit, which is issued by the Virginia Department of Environmental Quality. The permit limits and 2015 plant performance are listed in Table IV-1.

Table IV-1. UOSA Permit Requirements and 2014 Performance		
Parameter	Limit	Performance
Flow	54 mgd	34.1 mgd
Fecal Coliform	<2/100 mg/l	<1./100 mg/l
Chemical oxygen demand	10.0 mg/l	0.54mg/l
Turbidity	0.5 NTU	<0.1 NTU
Total Suspended Solids	1.0 mg/l	<0.1 mg/l
Total Phosphorus	0.1 mg/l	<0.1 mg/l
Surfactants	0.1 mg/l	0.03 mg/l
Total Kjeldahl Nitrogen	1.0 mg/l	0.34 mg/l
Dissolved Oxygen	>5.0 mg/l	>7.0mg/l
Dechlorination Chlorine Residual (mg/l)	Non detect	Non detect

Source: Upper Occoquan Service Authority

In 2014, the influent highest rolling 30-day flow was observed during the 30-day rolling period ending on May 14, 2014 at 40.53 mgd. The UOSA Plant continues to produce high quality reclaimed water that is used to replenish the Occoquan Reservoir.

Of the total biosolids produced in 2014, 791 dry metric tons were produced by centrifugation followed by lime stabilization. Thickened lime residuals are gravity thickened and dewatered on recessed chamber filter presses. All lime solids are landfilled on site in a permitted industrial landfill owned by UOSA. UOSA's lime solids are registered with the Virginia Department of Agriculture and Consumer Services as an industrial co-product for use as a soil amendment. However, because agricultural lands are located in areas far away from UOSA, their distribution is not currently cost effective.

Noman M. Cole Jr. Pollution Control Plant

The NMCCPCP, located in Lorton, is a 67 million gallon per day advanced wastewater treatment facility that incorporates preliminary, primary, secondary and tertiary treatment processes to remove pollutants from wastewater that is owned and operated by the Fairfax County DPWES Wastewater Division. The original plant, which began operation in 1970 at a treatment capacity of 18 million gallons a day, has undergone three capacity and process upgrades to meet more stringent water quality standards. After treatment, the wastewater is discharged into Pohick Creek, a tributary of Gunston Cove and the Potomac River. The plant operates under a VPDES permit. The plant is required to meet effluent discharge quality limits established by the Virginia Department of Environmental Quality. Table IV- 2 presents the facility's performance and current effluent monthly limitations.

Table IV-2 NMCCPCP Permit Requirements and 2014 Performance Averages		
Parameter	Limit	Performance
Flow	67 mgd	39.23 mgd
CBOD ₅	5 mg/l	< 2 mg/l
Suspended Solids	6 mg/l	0.6 mg/l
Total Phosphorus	0.18 mg/l	0.06 mg/l
Chlorine Residual	0.008 mg/l	< 0.008 mg/l
Dissolved Oxygen	6.0 mg/l (minimum)	8.6 mg/l
pH	6.0-9.0 (range)	6.9
<i>E. coli</i> Bacteria	126/100 N/MCL*	1 N/MCL*
Ammonia Nitrogen	1.0 – 2.2 mg/l (seasonal)	< 0.12 mg/l
Total Nitrogen (Annual)	7 mg/l	2.25 mg/L

*Geometric mean

Source: Fairfax County Department of Public Works and Environmental Services

In 2014, 56,927 wet tons of sludge were generated and incinerated. Inert ash from the process was disposed of in a monofill at the county's I-95 campus.

Sanitary Sewer Maintenance, Repairs and Rehabilitation

The Wastewater Collection Division (WCD) within the Department of Public Works and Environmental Services manages the county's operation and maintenance program for the sanitary sewer system, which includes:

- Approximately 3,380 miles of gravity sewers and force mains.
- 63 wastewater pumping stations.
- 57 permanent flow metering stations.
- 11 rain gauge stations.
- 135 grinder pump and associated pressure sewer systems.

WCD takes a proactive approach toward maintenance of the county's wastewater collection and conveyance system to assure that facilities remain at a high service level:

- **Sewer Rehabilitation** - Utilization of trenchless technologies for sewer rehabilitation is a major initiative for both gravity and pressure lines. In 2014, 99,774 linear feet of gravity sewers and 2,237 linear feet of 20-inch force mains were rehabilitated using cured-in-place pipe repair. Over the past 10 years, 206.2 miles of sewer lines have been rehabilitated. From 1974 to present, 492.34 miles of sewer lines have been rehabilitated. In 2014, 384.2 miles of sewer lines were cleaned, and 104.0 miles were visually inspected. Closed circuit television (CCTV) inspection is used to inspect sanitary sewer lines to identify defective lines in need of repair, rehabilitation and/or regular maintenance. In 2014, 163.5 miles of old sewer lines and 7.5 miles of new sewer lines were inspected using CCTV.

WCD has a series of ongoing programs, which include Inflow/Infiltration and Flow Monitoring, the Sewer Maintenance group, the Television Inspection Group, the Sanitary Sewer Extension and Improvement Program and the operation and maintenance of the county's sewage pump stations, low pressure systems and flow meters by the Pumping Stations Branch.

- **Lifecycle Asset Management Initiative** - The county has listed as an example case study by EPA its capacity, management, operation and maintenance program to abate sewer overflows and extend the life of the sewer systems. Since its inception in 1995 it has reduced sewer overflows by 66 percent. See www.epa.gov/npdes/pubs/sso_casestudy_fairfax.pdf.

Septic System Permitting and Repairs

Overview

An estimated 21,534 homes and business are served by onsite sewage disposal systems in Fairfax County. Over 700 of these systems are alternative sewage disposal systems, which require more extensive maintenance than conventional systems. The operation and maintenance of all onsite sewage disposal facilities is regulated by the county's Health Department, which reported that, in 2014, 143 New Sewage Disposal Permits were issued for single family residences. There were 115 new sewage disposal systems installed: 62 (54 percent) were

alternative type systems and 53 (46 percent) were conventional systems. There were 737 sewage disposal system repair permits issued; repairs ranged from total replacement of the system to minor repairs such as broken piping or pump replacement. There were 3,275 septic tank pumps outs.

Septic system failures

There are challenges to sustainability of existing onsite sewage disposal systems through proper use, maintenance and upkeep by the homeowner. There remains a concern for future failing septic systems. There are also challenges associated with the increasing reliance on alternative systems.

There are 28 properties permitted for pump and haul as a result of failing onsite sewage disposal systems with no areas for replacement or availability of public sewer.

Areas of the county with marginal or highly variable soils that have been deemed unsuitable for on-site sewage disposal systems in the past are now being considered for development utilizing alternative on-site sewage disposal technology. In addition, alternative systems are becoming the norm for developers who want to maximize lot yield from properties that are not served by the sanitary sewer system. Alternative on-site systems require more aggressive maintenance on a regular schedule for the systems to function properly. Some require maintenance contracts as part of the permitting process. Homeowners may not be aware of their responsibilities for maintaining these systems. Education from the private sector and government sector is essential.

Drinking Water

The county's water supply comes from the Potomac River, the Occoquan Reservoir, community wells and private wells. Fairfax Water withdraws water from the Potomac River near the James J. Corbalis Water Treatment Plant and from the Occoquan Reservoir at the Frederick P. Griffith Water Treatment Plant. Fairfax Water provides drinking water to most Fairfax County residents. Fairfax Water also provides drinking water to the Prince William County Service Authority, Loudoun Water, Virginia America Water Company (City of Alexandria and Dale City), Town of Herndon, Town of Vienna, Fort Belvoir and Dulles Airport. As of 2014, both the City of Fairfax and Falls Church systems were incorporated into Fairfax Water's system.

Fairfax Water provided 59,585 million gallons of drinking water in 2014 (see Table IV-3). With the exception of water from some wells, water must be treated prior to use.

Treatment Facilities

Fairfax Water Occoquan Reservoir Facilities

The Frederick P. Griffith, Jr., Water Treatment Plant, sourced by the Occoquan Reservoir, came on line in 2006. It is currently operating at an average of 59 mgd and has a current capacity of 120 million gallons per day. The plant is designed for a future capacity of 160 mgd. In addition to flocculation and sedimentation, the Griffith Plant includes advanced

Table IV-3 Fairfax Water -Water Supply Sources, 2014	
<u>Sources</u>	<u>Gallons (in billions)</u>
Occoquan Reservoir (Griffith)	21.638
Potomac (Corbalis)	32.753
Purchased	5.114
Untreated	.08
TOTAL	59,585

Source: Fairfax Water

treatment processes of ozone disinfection and biologically active, deep bed, granular activated carbon filtration. Chloramines are used for final disinfection. Residual solids from the water treatment process flow into a nearby quarry with the decant water being discharged in compliance with a Virginia Pollutant Discharge Elimination System permit.

On June 3, 2014, the Board of Supervisors adopted an amendment to Fairfax County's Comprehensive Plan to facilitate the reconfiguration and conversion in phases of the quarry located adjacent to the Griffith facility to a future water supply storage facility. In 2015, Fairfax Water and the quarry operator received zoning approvals for this action.

Fairfax Water Potomac River Facilities

The James J. Corbalis, Jr. Water Treatment Plant, sourced by the Potomac River, is currently operating at 90 mgd and has a current capacity of 225 mgd. The plant is designed for an ultimate capacity of 300 mgd. The plant uses ozone as a primary disinfectant, flocculation-sedimentation, biologically active filters with carbon caps and chloramine final disinfection. Residual solids from the water treatment process are dewatered and land-applied off-site.

Fairfax Water Quality Monitoring

Federal regulations require water suppliers to provide annual reports on the quality of the drinking water to their customers through the Consumer Confidence Report Rule. The current Water Quality Report is available for review on the Fairfax Water website at www.fairfaxwater.org/water/water.htm.

For a discussion of drinking water quality monitoring, disinfection by-products, metals, the microbial pathogen *Cryptosporidium* and other emerging water quality issues, the Special Perchlorate Monitoring Study and the Special Hexavalent Chromium Monitoring Study, see the detailed Water Resource chapter of this report. To view the results from Fairfax Water's monitoring of these compounds and learn more about emerging water quality issues, visit the Fairfax Water Web site at www.fairfaxwater.org/current/monitoring_program.htm or call 703-698-5600, TTY 711.

Wells

Fairfax Water no longer operates public wells.

There are approximately 14,285 single family residences and businesses that are served by individual well water supplies in Fairfax County.

The Fairfax County Health Department has developed and maintains an extensive database and geographic information system data layer of all water well systems installed in the county. The Health Department permits and inspects all new well construction, existing well repairs and well abandonments. In 2014, there were 153 new well permits for single family residences, 30 well repairs permits and 167 Water Well Abandonments issued. There were 40 Geothermal Well Permits issued.

The Virginia State Health Department Office of Drinking Water regulates 44 public well water supplies in Fairfax County. The operators of these systems are required to conduct quarterly water sampling and analysis.

Regional Cooperative Water Supply Agreements

In order to provide adequate supplies of drinking water and to protect the Potomac River ecosystem during low flow periods, the three major water utilities in the Metropolitan Washington Area (Fairfax Water, Washington Aqueduct and Washington Suburban Sanitary Commission) became signatories to agreements that lay out the rules for allocation of water during low flows. Upstream dams, the Jennings-Randolph Dam on the Potomac River and the Savage River Dam, along with Seneca Lake in Montgomery County, Maryland have been constructed. Releases from these reservoirs can be used to augment natural river flows during times of drought.

Since the creation of the region's cooperative water supply system in 1982, managed by the Interstate Commission on the Potomac River Basin Cooperative Water Supply (CO-OP) Operations, low flow conditions necessitating the release of water from upstream reservoirs to augment Potomac River flow have occurred in only three years: 1999; 2002; and 2010. Since 2010, flow in the Potomac River has been more than adequate to meet drinking water withdrawal needs by the region's major utilities and no additional releases from upstream reservoirs to augment water supplies have been needed. Given the rainfall this year throughout the Potomac watershed, it is unlikely that releases will be needed for the remainder of 2015.

Information on water supply status, recent Potomac River flow, reservoir storage, water supply outlooks and precipitation maps can be found in the "Drinking Water and Resources" section of the ICPRB website under "Cooperative Water Supply Operations on the Potomac," at www.potomacriver.org/focus-areas/water-resources-and-drinking-water/cooperative-water-supply-operations-on-the-potomac/.

In coordination with the water utilities in the Washington area, including Fairfax Water, a regional Water Emergency Response Plan was developed through the Metropolitan Washington

Council of Governments. The plan was completed in 2005 and updated in 2009. The plan provides communication and coordination guidance to area water utilities, local governments, and agencies in the event of a drinking water related emergency. The plan replaced the 1994 Water Supply Emergency Plan.

Virginia Stormwater Management Program—Stormwater Management Regulations

As required by of the Code of Virginia, beginning July 1, 2014, local governments became the Virginia Stormwater Management Program authorities.

The Board of Supervisors approved a new Chapter 124, Stormwater Management Ordinance, as well as related Code and Public Facilities Amendments, on January 28, 2014. For a further discussion of the details of the new Stormwater criteria, see the detailed Water Resource chapter of this report.

Stewardship Opportunities

There are numerous actions that county residents can and should take to support water quality protection.

Disposal of Household Hazardous Wastes

Paints and other toxics should NOT be flushed down toilets and should NOT be dumped down storm drains. Instead, they should be taken to one of the county's household hazardous materials collection sites. Medicine may be mixed with coffee grounds or kitty litter to be made unusable and then disposed of in regular trash.

Putting hazardous household wastes in the trash or down the drain contributes to the pollution of surface waters. The Fairfax County Solid Waste Management Program is responsible for the county's Household Hazardous Waste Management Program, through which county residents are given the opportunity to properly dispose of hazardous waste (such as used motor oil, antifreeze and other automotive fluids) at no charge. The SWMP has two permanent HHW facilities that are open every day.

For a list of common household hazardous materials and how to dispose of them, go to <http://www.fairfaxcounty.gov/dpwes/trash/disphhw.htm>.

Septic System Pump Outs

Septic systems must be pumped out every five years—it's the law! Residents with questions or with problems with their septic systems should call the Fairfax County Health Department at 703-246-2201, TTY 711.

Yard Management

Residents are encouraged to get soil tests for their yards before fertilizing and then to apply fertilizers and pesticides responsibly. Grass should not be cut to the edge of a stream or pond; instead, a buffer should be left to filter pollutants and provide wildlife habitat.

The Northern Virginia Soil and Water Conservation District can advise homeowners on problems with ponds, eroding streams, drainage, problem soils and other natural resource concerns. More information about managing land for a healthier watershed is available from the NVSWCD publications "You and Your Land, a Homeowner's Guide for the Potomac River Watershed" (www.fairfaxcounty.gov/nvswcd/youyourland/) and the "Water Quality Stewardship Guide" (www.fairfaxcounty.gov/nvswcd/waterqualitybk.htm).

Advice regarding drainage and erosion problems in yards can be provided by the technical staff of the Northern Virginia Soil and Water Conservation District. NVSWCD can assess the problems and advise on possible solutions. Interested parties can send an e-mail to NVSWCD at <https://www.fairfaxcounty.gov/contact/mailform.aspx?ref=9990> or call 703-324-1460.

Volunteer Opportunities

There are numerous opportunities throughout the year to participate in stream cleanups, storm drain labeling, volunteer water quality monitoring and tree planting projects. Interested parties can send an e-mail to NVSWCD at <https://www.fairfaxcounty.gov/contact/mailform.aspx?ref=9990> or call 703-324-1460.

Additionally, DPWES-Stormwater Management provides links to information about these popular volunteer programs on its website at www.fairfaxcounty.gov/dpwes/stormwater/. EQAC also commends the efforts of the Alice Ferguson Foundation and encourages residents, employers and employees in Fairfax County to participate in these initiatives. Visit the foundation's website at www.Fergusonfoundation.org for further information.

Environmental stewardship opportunities for volunteers are available at Meadowlark Botanical Gardens, Potomac Overlook Regional Park, Upton Hill Regional Park, Pohick Bay Regional Park and various other regional parks on occasion. NOVA Parks implemented a program that allows youths to access its fee-based park facilities through volunteer service. It has a wide variety of community partnerships in place that encourage groups to take advantage of the regional parks for environmental and historic education and service projects. More information can be found at www.nvrpa.org/park/main_site/content/volunteer. For current information about the Northern Virginia Regional Park Authority, visit its website, www.NVRPA.org/.

Reporting Violations

Vigilance in reporting activities that threaten water quality is important to the protection of water resources.

Sediment runoff from construction sites can be reported to the Site Development and Inspection Division of DPWES at 703-324-1720, TTY 711; e-mail reports can also be filed at <https://www.fairfaxcounty.gov/contact/mailform.aspx?ref=70003>.

Improper disposal of motor oil, paint or other materials into streams or down storm drains should be reported through a phone call to 911. This is particularly important if the substance being dumped can be identified as motor oil or another toxic substance but also applies to any other substance; assumptions regarding the contents of the materials should not be made. Callers to 911 should be prepared to provide specific information regarding the location and nature of the incident. If the person dumping materials into the stream or storm drain has a vehicle, the tag number should be recorded.

Storm drains are for stormwater only, NOT motor oil, paint or even grass clippings.

If dumping is not witnessed but is instead suspected, and if no lives or property are in immediate danger, the suspected incident can be reported to the Hazardous Materials and Investigative Services Section of the Fire and Rescue Department at 703-246-4386, TTY 711. If it is unclear as to whether or not there may be a danger to life or property, 911 should be called.

A more comprehensive table addressing how to report environmental crimes is provided immediately following the Scorecard section of this report.

Pet Wastes

The Northern Virginia Clean Water Partners continued its support efforts tailored to stormwater specific messages in 2013. Clean Water Partners used television, print, internet advertising and the Only Rain Down the Storm Drain website (www.onlyrain.org) to distribute messages linked to specific stormwater problems, such as proper pet waste disposal, over-fertilization of lawns and gardens and proper disposal of motor oil.

From April 2013 through August 2013, four commercials featuring messages on the importance of picking up pet waste and general household stormwater pollution reduction measures aired on twelve cable TV channels, including three Spanish-speaking channels, 1,530 times. These TV ads reached four million Northern Virginia residents and resulted in more than 400 visits to the www.onlyrain.org website.

Comments

Wastewater Treatment

EQAC commends the Board of Supervisors and the county for both its own facilities and the other facilities that are contracted with to treat wastewater to high standards. The present levels of funding from fees for service as collected allow the county to adequately maintain and replace the significant amount of infrastructure managed by the Waste Collection Division and the Noman M. Cole, Jr. Pollution Control Plant.

Stormwater Management

EQAC commends the Board of Supervisors for its actions of the past few years, initially authorizing one penny of the real estate tax to be dedicated to the stormwater management program in FY 2006 and establishing a Stormwater Service District in FY 2010 that is currently funded at two and one half pennies of the real estate tax. Stormwater funding has increased from the original amount of \$17.9 million for FY 2006 to \$40.2 million for FY 2014. In FY 2010, however, this amount decreased to about \$10.3 million due to the creation and structuring of the Service District as a funding mechanism halfway through the fiscal year.

The Board of Supervisors' adoption of the FY 2016 Stormwater Service District tax rate of 2.50 cents (and adoption of the five-year plan with a quarter cent increase each year to ramp up to meet the Chesapeake Bay TMDL mandates) has allowed the county's stormwater program to increase stormwater infrastructure replacement, create a more comprehensive low impact development maintenance program and rehabilitate a number of older stormwater management dams as well as other critical components. Much of the stormwater infrastructure in Fairfax County is reaching the end of its life cycle, and as the system ages it will be critical to maintain adequate inspection and rehabilitation programs to avoid infrastructure failures and ensure the functionality of stormwater treatment systems. It is also critical for the stormwater program to implement cost effective solutions such as trenchless pipe rehabilitation technologies, naturalized stormwater management facilities and partnerships with other county agencies such as Fairfax County Public Schools and the Fairfax County Park Authority to help protect and improve local streams.

The county's existing stormwater conveyance infrastructure includes over 1,600 miles of pipes, man-made ditches, channels and swales. This infrastructure conveys stormwater to over 850 miles of perennial streams and about 400 miles of non-perennial streams in the county. The majority of the stormwater control facilities and pipes were constructed 35 or more years ago. Prior to the board providing a dedicated penny to stormwater in FY 2006, there had never been consistent funding to proactively inspect or reinvest in these stormwater systems. When the video inspections of the inside of pipes were first undertaken in FY 2007, over five percent of the system was identified as being in a state of failure and another 10 percent in need of rehabilitation. With the recently adopted Stormwater Service District tax rate, it is estimated that the reinvestment cycle for stormwater infrastructure has been reduced from well over 1,000 years to less than 200 years. With the implementation of the next five-year funding plan, this should reduce this reinvestment cycle eventually to a 100 year plan.

In addition to the conveyance system, the county owns and maintains roughly 1,500 stormwater management facilities, ranging from large flood control lakes to LID techniques such as small infiltration swales, tree box filters and rain gardens. Again, prior to providing a dedicated funding source, there was not funding for reinvestment in these LID facilities.

Nineteen of the county's stormwater management facilities have dam structures that are regulated by the state. The county must provide rigorous inspection and maintenance of these 19 facilities in order to comply with state requirements. Significant upgrades to the emergency spillways have been required in some cases.

In addition to supporting infrastructure reinvestment, the capital program funds critical capital projects from the watershed management plans including: flood mitigation projects; stormwater management pond retrofits; implementation of low impact development techniques; and stream restoration projects. It is important to note that these projects are necessary to address current community needs, mitigate the environmental impacts of erosion and comply with the county's Municipal Separate Storm Sewer System permit. The benefits of these projects include: reducing property damage due to flooding and erosion; reducing excessive sediment loading caused by erosion; improving the condition of streams; and reducing nutrient and sediment loads to local streams, the Potomac River and the Chesapeake Bay.

The county must meet the federally mandated requirements of its MS4 permit. Fairfax County and Fairfax County Public Schools are combining their MS4 responsibilities into a single permit that will be administered by the county. Fairfax County's new MS4 permit was issued on April 15, 2015.

It has been estimated that the annual cost to comply with current and anticipated stormwater regulatory requirements and to implement a sustainable infrastructure reinvestment program would likely be between \$80 and \$100 million per year. EQAC supports meeting these challenging requirements through a phased approach (as demonstrated in the five-year adopted plan) that builds capacity over a period of time that can be based on success and experience and should result in a more cost effective and efficient program.

Recommendation

1. EQAC recommends that Fairfax County continue to adequately fund and implement its ongoing stormwater program, which includes dam maintenance, infrastructure replacement, water resource monitoring and management, watershed restoration and educational stewardship programs. EQAC realizes the funding for the stormwater program will come entirely from funds generated through the Service District rates. EQAC also realizes that there is a need for increasing capacity within the Department of Public Works and Environmental Services to provide these services.

EQAC recommends that the Stormwater Service District rate be increased in FY 2017 by at least one-quarter penny, from a rate of 2.50 cents per \$100 assessed real estate value to 2.75 cents per \$100. EQAC understands that this increase would not fully meet stormwater management needs and therefore suggests that additional increases be continued each fiscal year until adequate funding to support the program is achieved. This would, once again, result in more funding for modest watershed improvement programs and a somewhat more realistic infrastructure replacement timeline. We realize that there will be a need for additional increases in funding for water quality projects to meet future permit conditions, and for infrastructure reinvestment, as the system is continually growing and aging.

V. Solid Waste

Overview

The Fairfax County Solid Waste Management Program (SWMP) manages solid waste recycling, collection, transfer and disposal within the county. As it has for many years now, Fairfax County's recycling rate exceeds the Virginia minimum requirement of 25 percent. The program achieved a recycling rate of 48 percent last year. It should be noted that the recycling rate of 48 percent is based on materials sent to recycling centers. An unknown quantity of this material is rejected from recycling due to contamination and other factors.

The county met the 930,750 tons annual waste delivery obligation to the Energy/Resource Recovery Facility (E/RRF), which is located at the county's I-95 Landfill Complex and owned and operated by Covanta Fairfax, Inc.

The program provides waste collection and recycling services to over 44,000 homes in designated county sanitary districts.

Recent Modifications to Covanta Contract

The E/RRF continues to serve as the primary disposal location for the county's municipal solid waste (MSW), processing approximately 1,000,000 tons of MSW per year. Approximately 25 percent of the waste processed at the facility is from neighboring jurisdictions, including Prince William and Loudoun counties and the District of Columbia, with minor amounts also being brought to the plant under merchant arrangements that are managed by Covanta. A new waste disposal agreement was negotiated with Covanta Fairfax, Inc. for the continued processing of county waste when the original Service Agreement expires in February 2016. This new five-year contract brought with it the following changes:

1. Below-market disposal pricing, with greater flexibility to adapt to opportunities for increased recycling and changing waste composition.
2. Simplified administration of the partnership, with a "fixed price" flat-rate disposal contract replacing the complex, higher-risk approach of the expiring Service Agreement.
3. Reduced annual tonnage delivery guarantees, with a new contract minimum low enough to be covered solely by the projected tonnage of waste that will be generated within the county (at time of writing, the guarantee falls from 950,750 to 650,000 tons).

4. Performance standards that promote faster and higher levels of customer service for waiting collection vehicles, translating to shorter idle times and the various economic and environmental benefits that will yield.

Covanta is free to market the remaining disposal capacity at the plant (nominally thought to be approximately 600,000 tons per year). However, the county retains the right of first refusal for this remaining capacity, provided an agreeable price can be negotiated (i.e., the existing rates do not apply).

The new contract covers a five-year term (2016-2021), and includes two potential five-year renewals, if contract terms continue to be mutually agreeable. The intent to renew by either party requires two years' advance notice, and the key terms such as price, tonnage or capacity guarantee and revenue-terms are entirely negotiable. As a practical matter, then, the county has no guarantees or commitments after 2021. It is germane to note that Covanta has a lease on the property where the plant stands and the right to operate there until 2031.

Enhanced Metals Recovery at the E/RRF

In addition to recovering energy from municipal solid waste, metals are recovered from the ash residue and recycled. In FY 2015, approximately 24,000 tons of ferrous metal and 2,500 tons of non-ferrous metal were recycled from the ash.

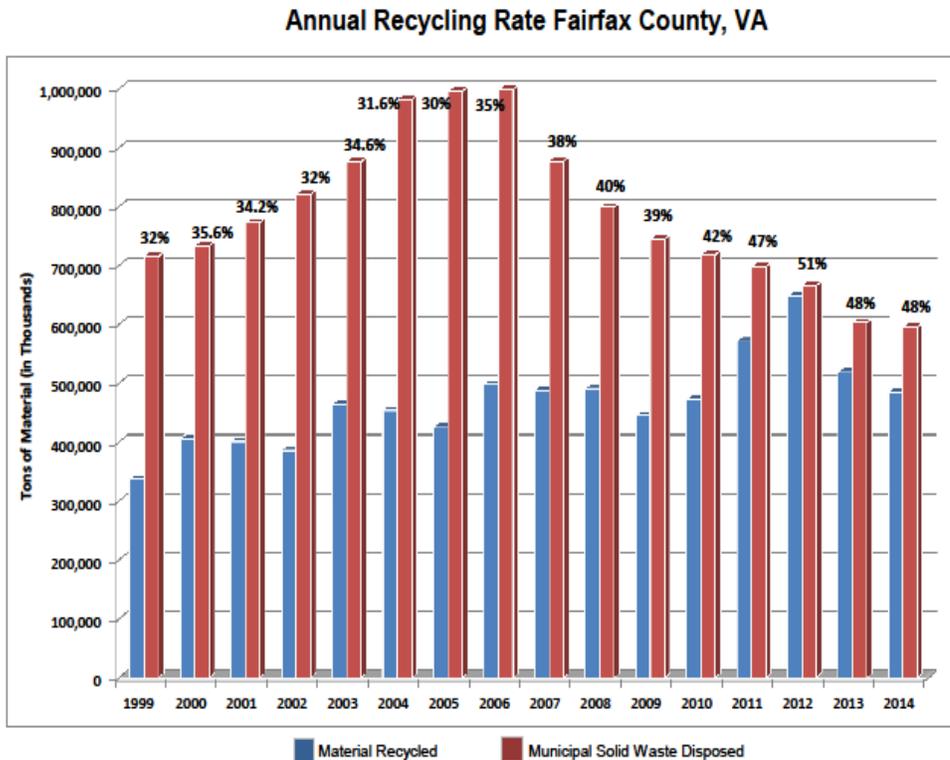
Over the past two years, the performance of the non-ferrous materials recovery system has improved significantly, largely due to the addition of a duplicate line of mechanical and magnetic processing equipment that targets small-size non-ferrous items (less than ¼-inch diameter), and the optimizing of ash conditions and handling processes. As a result, the overall recovery rate for non-ferrous metals has approximately doubled since FY 2012.

Education/Outreach Activities

Fairfax County's recycling rate for 2014 was 48 percent, unchanged from the previous year. Figure V-1 depicts the historical quantities of recyclables collected in the county since 2000.

It is important to note that the reported "recycling rate" is not a simple, calculated fraction (e.g., weight of recyclables as a percentage of the total weight of waste generated). Instead, the rate is a value calculated from a statutory formula that includes "credits" for various beneficial solid waste management practices, applied to the percentage of waste *collected* as a recyclable. The majority of recyclables collected in Fairfax County are delivered to third-party material processors that sort, purify and package target recyclables for resale. As a result, some collected recyclables do not ultimately go to market, due to contamination or the absence of a willing buyer. For example, such is currently the case for glass, for which none of the processors used by county collectors are actually recycling this material; it is currently considered a discard at area recycling plants and is shipped elsewhere for disposal.

Figure V-1 - Historical Quantities of Materials Recycled in Fairfax County



The annual recycling rate is calculated by comparing the material recycled to the municipal solid waste generated. The technique for calculating the annual recycling rate is defined in Virginia's administrative code, 9VAC20-130-125B. Fairfax County includes a 2% credit for having a source reduction program, as allowed by 9VAC20-130-125C(4).

Public education and outreach are key components of any successful municipal recycling program. To that end, the SWMP has focused on developing outreach and education programs that take advantage of its partnerships with county agencies. Examples of ongoing efforts in this area include:

“Know Toxics” - The program is centered on its website: www.KnowToxics.com, which provides a resource through which businesses can learn how to legally and appropriately manage these materials.



County “Fairs” - The SWMP continues to sponsor “Fall for Fairfax” and participate in “Celebrate Fairfax”. These events provide great opportunities to conduct public outreach and disseminate technical guidance and practical information on using the county’s solid waste management system.

The Solid Waste Management Program is a proud financial sponsor of the annual SpringFest Fairfax

(Earth Day/Arbor Day) festival produced by Clean Fairfax. SpringFest Fairfax boasts an attendance of over 5,000, and the Department of Public Works and Environmental Services (DPWES) and other county agencies are well-represented and spend the day teaching residents and children about the important role DPWES plays in keeping the county clean and healthy.

I-95 Landfill Groundwater Programs

Opened by the District of Columbia in 1972, the county assumed operational responsibility for the facility in 1982. The facility accepted MSW for landfill disposal through 1995. Since that time, only incinerator ash has been disposed in the landfill.

In response to the presence of regulated constituents found in groundwater leaving the site, the SWMP established a Corrective Action Plan (CAP) which was implemented in 2011. The CAP reviewed and specified a battery of remediation and additional monitoring activities (covered in detail in previous years of this report). Studies to date have demonstrated that the selected remedies have been effective.

Since 2011, additional groundwater impacts have been observed at other groundwater locations beneath the site. On an interim basis, the county has initiated enhanced bioremediation at the affected areas, to address these groundwater impacts immediately. To date, the interim measures have been effective at reducing the constituents of concern associated with the new plumes.

It should be noted that while groundwater contamination is a concern wherever it occurs, the typical greatest concern is contamination of drinking water wells. There are no known drinking water wells threatened by groundwater leaving the I-95 landfill site.

I-95 Landfill Methane Capture and Control Programs

Typical of municipal landfills, the I-95 landfill materials decompose over time and produce off-gases comprised mainly of methane and carbon dioxide. Trace amounts of potentially toxic gases are also produced. Some toxic gases may be produced from the decomposition of personal care products. Landfill gas (LFG), if not collected, has a significant greenhouse gas impact from methane and the potential to impact the surrounding community with other off-gasses.

The I-95 Landfill operates a large LFG collection system, with over 350 installed wells extracting LFG for energy recovery. Approximately 2,300 cubic feet per minute of this gas is distributed to a variety of energy recovery systems, including the six-megawatt Landfill Energy Systems electric generating facility, and the three-mile landfill gas pipeline that provides fuel as a substitute for natural gas at the Noman M. Cole, Jr. Pollution Control Plant. SWMP staff also converted space heating at the landfill maintenance shop to use LFG as the fuel source (the original heating system used bottled propane gas). This conversion has historically saved approximately \$5,000 per year in heating costs, although depressed natural gas prices over the past two years has eroded this estimated value. The project received a national award from the U.S. Environmental Protection Agency for its positive impacts on greenhouse gas (GHG) emissions and climate change.

During this reporting period, the SWMP continued to face challenges with the aging landfill infrastructure systems that need to be upgraded. Approximately 85% of the landfill gas produced in the landfill is captured. To minimize GHG and other impacts, it is important for the LFG collection system to minimize leaks and capture as much gas as possible.

Recycling Markets and System Performance

Glass

As noted earlier in this report, there is currently no regional market for post-consumer glass (the glass recovered by municipal recycling programs), causing glass collected in the county to ultimately be disposed as a processing residue by the region's recyclables processors (i.e., it is not currently being recycled).

Glass constitutes an estimated 20 percent by weight of the recyclables collected by the county's residential programs. While the statutory means of calculating recycle rates allows the inclusion of this non-recycled glass, it is important to understand the impact of the lack of glass recycling. The county's actual recycle rate is reduced by about 10% overall (to 38% from 48%) due to the lack of glass recycling alone.

The loss of a sustainable local glass market is particularly frustrating as glass is one of a small number of recyclables that retains all of its natural qualities, no matter how many times it is recycled and re-processed. This means that glass recycling offers particularly high savings in terms of natural resource use, as well as savings in energy and emissions.

There are a number of options for addressing glass recycling including:

- Bottle bills.
- Market stimulation.
- County-initiated glass recycling.
- Education.

Bottle bills are in place in California, Connecticut, Hawaii, Iowa, Maine, Massachusetts, Michigan, New York, Oregon and Vermont. These states typically require a deposit on a range of beverage containers that may include glass, aluminum, plastic and bi-metals. Recycling is handled by recycling centers that may include stores.

For reasons that chiefly relate to the limited ability of a single municipality to influence a commodity market, institutional resistance by industry to bottle bills and the challenge of overcoming technical limitations related to the closest available users, it seems unlikely that the county can directly influence or stimulate the most beneficial end use, which is sale as feedstock to glass manufacturers.

However, a number of other, largely sustainable and highly-feasible alternate reuses for post-consumer glass should be evaluated by the county.

For example, post-consumer glass can be used as a feedstock to make mulch and road salt. Using simple and relatively low-cost equipment, glass can be transformed into sand-like dust, gravel, chips or mulch-like stone. The finished products are not jagged and will not cut. They can be used in many applications, including playgrounds, landscaping, soil stabilization and traction control on roadways. Sandy material can be mixed with road salt to treat icy roads, which in turn would allow the county to purchase less salt and cover more roads.



Credit: Andela Products Co. – glass crushing equipment

A larger 3/8-inch glass product could be used as landscaping material and also has uses in fish tanks and aquariums. Glass mulch lasts longer and, unlike regular mulch, will not fade, break down or become termite-infested.

Additionally, the county could explore the use of glass as a substitute for aggregate in a variety of civil engineering applications, including drainage layers in county construction and as “glassphalt” in road construction.

The county moved to single stream recycling in 2009. This approach resulting in higher recycle rates, principally due to the simplicity provided to the homeowner. However, it also has resulted in an increase of materials that are not recycled (such as glass) and other materials that contaminate the potentially recyclable material. With single-stream collection where glass is not recycled, the glass results in non-productive contamination of other recyclable products, reducing the overall true recycle rate. This contamination increases the reject material. It may be preferable to discourage single-stream glass collection in addition to providing an education program to help reduce the placing of inappropriate materials in the single stream recycle bin.

Food Waste Composting

The Prince William County Board of Supervisors authorized an agreement with Freestate Farms LLC, a local agricultural services and production company, to construct and operate a new facility to process yard waste, food scraps and wood waste at the county's Balls Ford Road composting facility. When fully developed, the Freestate facility will recycle over 80,000 tons per year of organic waste into compost, soil products and non-synthetic fertilizers. Fairfax County already has an agreement with Prince William County through which leaves and grass collected in the county are sent to its existing composting facility for yard waste. With the addition of food waste composting services, it is anticipated that larger generators of food waste in the county (institutional kitchens, large restaurants and grocery stores) will direct food waste to this facility when it comes online (planned for July 2017). As such, a regional facility will be developed by a neighboring community that the county has the opportunity to use.

It is the view of SWMP staff that large-scale generators of food waste will be the first to direct some of their waste to this facility. As such, natural market forces will evolve into a situation where food waste from the county will be composted.

Business Recycling

Chapter 109.1 of the Fairfax County Code, the county's solid waste management ordinance, requires businesses, schools and institutions to provide for recycling. For cardboard and mixed paper, however, there are no requirements to meet a recycling percentage goal. An outreach plan is being implemented to encourage expansion of recycling requirements beyond those currently mandated.

Electronics and Hazardous Waste Recycling

Electronics and household hazardous wastes can be dropped off daily at the Household Hazardous Waste areas at both the I-66 Transfer Station and the I-95 Landfill. Electronics are processed under a contract with Service Source, a sheltered workshop, and the components are recycled, sold or the residue disposed of. HHW is consolidated for shipment to various interim processors for recycling or disposal, as appropriate.

Recycling Revenue

In the past, the county's recycling contractors have been a revenue source to the county. For the last two years, this has no longer been the case, with county paying for recycling instead of receiving revenue.

Revenue has been falling due to a lack of market for glass and paper. In addition, the use of single bin recycling has deteriorated the quality of the recycled material. This has been happening to recycling programs all across the county.

Enforcement Overview and Priorities

The county's solid waste management ordinance, Chapter 109.1, is enforced by the SWMP. The enforcement unit doing this work consists of four inspectors, including the unit supervisor.

As part of a broad program of changes intended to promote greater operational efficiency, and to align enforcement priorities with direction from the Board of Supervisors, the priorities and focus for the SWMP enforcement program going forward can be summarized as follows:

- Maintaining detailed, available statistics on compliance and enforcement activities. Until recently, current county enforcement processes did not capture machine-readable data on complaints, compliance investigations or complaint outcomes.
- Expanding the regulated community to include homeowners associations (HOAs) and similar community associations, property management companies that manage waste at apartment complexes and solid waste brokers (a recent phenomenon, where typically out-of-state companies provide a for-fee waste management service on behalf of large commercial properties such as malls, office buildings and large residential apartment complexes).

- Establishing specific capacity and level-of-service requirements for recycling systems at multi-family and non-residential properties, so that adequate service can be provided to residents, employers and other system users.
- With few exceptions, establishing a clear prohibition on collecting refuse and recyclables in the same container, collecting less frequently than weekly, and collecting putrescible materials in an open-top container.
- While education and outreach to all sectors will likely occur, the focus for this activity over the next year will target apartment complexes, construction and demolition debris contractors, office buildings and eating and drinking establishments.

In 2015, EQAC received requests to address an illegal dump in the southern part of the county. EQAC does not involve itself in individual matters of this type. However, due to the public interest, at EQAC's July 2015 meeting, EQAC focused on how the various county agencies coordinate and respond to solid waste enforcement issues. A wide range of public agencies addressed the issue at the July EQAC meeting including:

- The County Executive's Office.
- The County Attorney's Office.
- The Department of Code Compliance.
- The Department of Public Works and Environmental Services-Solid Waste.
- The Department of Public Works and Environmental Services—Stormwater.
- The Fire and Rescue Department.
- The Health Department.
- The Sheriff's Office.

At the July meeting, the county staff explained how complaints are handled and enforcement is addressed. Each department explained its role. Typically, one department of the county will take the lead and coordinate with other departments. Where needed, the lead county department will coordinate with out-of-county agencies such as the Virginia Department of Environmental Quality. It was apparent to EQAC from this discussion that enforcement is being addressed but that communication protocols are informal. This can lead to delays in addressing issues that cross over departments. The county has initiated evaluation of coordination procedures to improve the process.

Supporting Programs and Institutions of Note

Alice Ferguson Foundation

The nonprofit Alice Ferguson Foundation was established in 1954. While chartered in Maryland, it has implemented programs throughout the Potomac River watershed, with benefits to the main stem of the river, as well as tributaries in Washington, D.C., Maryland, Pennsylvania, West Virginia and Virginia. As stated on its website, the foundation's mission is "to connect people to the natural world, sustainable agricultural practices and cultural heritage in their local watershed through education, stewardship and advocacy."

Other programs implemented by the foundation include the following:

- Trash Free Potomac Watershed Initiative.
- Potomac Watershed Trash Summit.
- Enforcement—In February of 2015, the foundation received unanimous support from the Police Chiefs of the Metropolitan Washington Council of Governments for its fifth annual Litter Enforcement Month.
- There are numerous other programs and initiatives that are implemented by the foundation that can be found on the foundation’s website at www.fergusonfoundation.org.

Clean Fairfax

Clean Fairfax Council, now known as Clean Fairfax, is a private, nonprofit (501(c)(3) corporation dedicated to educating residents, students and businesses in Fairfax County about litter prevention and recycling. Clean Fairfax focuses on environmental education provided to students and adults throughout the county. Clean Fairfax continues efforts of updating the educational and interactive programs for students, community service opportunities for students (i.e., support at the council’s office or organizing cleanups), classroom presentations and presentations to homeowner associations, church groups, small businesses and more.

Clean Fairfax continues to look for new opportunities to assist the county in litter reduction and enforcement and will continue to advocate and encourage participation in the State Police’s Cover Your Load campaign, which happens in the early spring.

Clean Fairfax is provided office space by DPWES, and the executive director works directly with many members of county staff on litter control and recycling education issues. The executive director also serves on the cross-agency Litter Task Force and the MS4 (Municipal Separate Storm Sewer System—see the Water Resources section of this report) Tactical Team on Public Outreach. The Memorandum of Understanding between the county and Clean Fairfax allows the organization to be deployed to assist on important tasks such as information dissemination in stormwater management, recycling, urban forestry and other crucial county environmental endeavors.

Clean Fairfax reaches thousands of Fairfax County residents, employees and businesses through e-newsletters, Facebook and Twitter as well as an environmental blog at www.cleanfairfax.org. The organization also provides the Fairfax County Visitors Center with thousands of auto litter bags each year plus informational bookmarks and brochures. This year, it will provide two Fairfax County Farmers Markets (the Workhouse Farmers Market and Town of Herndon Farmers Market) with branded reusable grocery and produce bags as part of the #PlasticFreeProduce pilot program.

2015 marks 35 years that Clean Fairfax has been an active partner in Fairfax County’s environmental mission. For more information, please visit the website at www.cleanfairfax.org or the SpringFest Fairfax website at www.springfestfairfax.org.

Clean Fairfax reports that the Report-a-Litterer program was dismantled due to the Fairfax County Police Department budget limitations. The Clean Fairfax website asks that litter reports be sent to both Clean Fairfax and to the county Board of Supervisors' office of the person observing the litterer.

Other Future Concepts and Challenges

As Fairfax County's population grows and the community becomes generally more urban, the potential to minimize commercial truck traffic within residential communities has become increasingly desirable. Specific to refuse and recyclables collection, it is noted that approximately 30 waste collection companies openly compete to provide service to individual homeowners, community groups such as HOAs, apartment buildings, and office and business parks. As a practical matter, this means that many companies each send their collection vehicles down the same streets, exacerbating traffic, associated pollution and public safety concerns.

A proven method for easing these congestion issues would be the use of franchise collection, through which the county would establish defined collection districts and the various licensed collectors would compete to serve each district. Only one or two companies would be allowed to service each collection district, dramatically reducing the number of trucks on the road in each neighborhood. Franchising has worked well in many communities, with proven benefits including consistency in cost to customers (everyone pays the same amount for the same level of service), fewer trucks on the road, improved ability to monitor and enforce compliance and associated environmental benefits.

It should be acknowledged that collection franchising has been considered by Fairfax County in the past. Concerns were raised that collection franchising limits competition and favors larger collection companies. However, these concerns can be addressed through careful establishment of franchise zones, and intelligent procurement processes that encourage diversity and provide set-aside opportunities for small and minority-owned businesses. Also, the establishment of franchise collection can allow the integration of additional progressive practices, such as a Pay-As-You-Throw program that would enable customers to pay less if they recycle more.

Previous Recommendation by EQAC

In 2014, EQAC recommended that opportunities to minimize redundant trash truck collection trips in the same neighborhoods be examined for implementation while not increasing cost. In response, county staff noted that a very similar recommendation had been considered by the county during the development of its 20-Year Solid Waste Management Plan in 2004. The concept of franchising raised significant community and industry objections, causing the Board of Supervisors to direct staff away from the concept. Consequently, no further action was recommended due to the negative reactions of residents and businesses, combined with the challenge of implementing certain requirements of Virginia Code as discussed below.

Legal Considerations

Section 15.2 - 930 of the Code of Virginia regulates the process that must be used by a jurisdiction to take control of waste collection activities conducted by the private sector. Key provisions of the process include:

- At least one public hearing must be held, with advance notice to private companies which collect waste in the county.
- Five years' notice must be provided to any companies that will be displaced by a franchising arrangement, or the governing body can accelerate the process by paying affected collectors an amount equal to their preceding twelve months' gross receipts for services in the franchise territory.

Comments

1. The new Covanta contract price is only good for five years. For this reason, it is important that the county continue to increase its recycling programs and continue to pursue other options such as food waste recycling and alternative glass recycling.
2. Improved metals recovery from Covanta ash is beneficial by increasing recycling and lowering the ash that consumes landfill space.
3. The county's education programs help support environmental stewardship.
4. Portions of the I-95 landfill predate modern landfill environmental protection requirements. As a result, the potential for groundwater contamination requires careful attention and remediation actions. The county has been exemplary in doing what is needed. This program should continue to be a priority for environmental protection.
5. The landfill gas recovery program assists in reducing methane release, an important action to ameliorate greenhouse gas emissions. However, the county faces challenges as the recovery infrastructure ages.
6. The county's solid waste recycling program is operating at a loss. This is a concern. Historically, recycling has returned revenue to the county. With recycling becoming a revenue burden, funds will have to be justified in the county budget process. Support for recycling is likely to be enhanced if the program can be returned to a source of revenue.

Recommendations

1. **Increase Recycling** - Additional means of increasing recycling should be investigated and implemented. In particular:
 - a. Recycling requirements for commercial properties should be enforced and additional specific numeric recycling goals requirements should be considered.
 - b. Move forward with a food waste recycling program.
2. **Minimize Redundant Trash Truck Traffic** – In 2004, the Board of Supervisors rejected the franchising approach to reducing trash truck traffic. However, it remains a safety and environmental issue that needs to be addressed. EQAC recommends that opportunities to minimize redundant trash truck collection trips in the same neighborhoods be examined for implementation while not increasing cost.

3. **Make Recycling More Cost Effective** - The county has moved to single stream recycling, through which all recyclable material is collected in a single bin. This has reduced the quality and value of collected recyclable materials. Changes to the recycling market have also reduced revenue and actual materials recycled. These are long term problems that will get worse if not addressed. It will take careful study, time and potentially changes in regulation and law to resolve. EQAC recommends the initial step of collecting data on the cost of recycling specific materials. With these data in hand, evaluate if changes should be made to what is recycled. Finally, consider alternatives to single-stream recycling. To implement these steps, consider also the following:
 - a. Develop estimates of the actual quantity, quality and cost of recycling specific materials. Estimate the true recycling rate and determine what materials should be recycled due to either being cost-effective, or because recycling of that material provides an important environmental benefit for a reasonable cost.
 - b. Revise the list of materials that are recycled from homes to remove glass and other materials that degrade the cost effectiveness of recycling. Conduct a public information campaign to inform residents on how best to recycle.
 - c. Support a statewide container redemption fee to reduce litter and increase the recovery of containers in a form that can be recycled.
 - d. Investigate the potential for increased county participation in recycling of materials. In particular, programs for glass recycling should be initiated.
 - e. Consider alternatives to single-stream recycling that preserve the quality of recycled materials and increase the true quantity of recycling.
4. **Solid Waste Enforcement Coordination for Illegal Dump Sites** – The county has initiated evaluation of coordination procedures to improve the process. EQAC supports this effort and recommends that written inter-departmental coordination enforcement procedures be developed.

Acknowledgement

Much of the narrative and illustrations were supplied by the Solid Waste Management Program of the Department of Public Works and Environmental Services. EQAC also acknowledges Clean Fairfax and the Alice Ferguson Foundation for the information each organization has provided.

VI. Hazardous Materials

Fairfax County is working on development of its MS4 Program Plan. While the primary focus is storm water management, discharge protection is included to locate and eliminate illicit discharges and improper disposal. Fairfax County already has many programs addressing illicit discharges and improper disposal that are included in the hazardous materials chapter.

There are additions to the chapter this year including expanded coverage on rail transport of hazardous materials such as ethanol and crude oil. While having chemicals and hazardous materials transported by rail keeps them off the highways, accidents or leaks have been, and continue to be, a cause for concern. Concerns introduced as a result of the September 11, 2001 terrorist attack and more recent terror attacks, new ethanol transfer stations, new methods to retrieve oil and gases, as well as shipments of radioactive nuclear waste throughout the country require vigilance for safe transportation.

In a 2013 train accident in Quebec, tanker cars carrying crude oil from North Dakota exploded and more than 40 people died. Afterwards, CSX reassured residents in Washington, D.C. that, in 2013, only three tank cars loaded with crude were transported by the 7,000 trains that traveled on the CSX rail line going through the city (and across the Potomac River, through Alexandria). That claim may have been accurate for crude oil shipments, but news stories at the time discussing risks of hazardous materials transport failed to address the number of rail cars loaded with ethanol or refined petroleum products traveling through Alexandria, Fredericksburg, Richmond, etc. Rail cars traveling through Alexandria will either travel through Fairfax County or be unloaded at the Van Dorn rail yard adjacent to Fairfax County.

An April 2014 train accident in Lynchburg, Virginia resulted in dramatic pictures of tanker cars burning along the city's downtown waterfront along the James River. The crude oil in those cars had come from the Bakken formation in North Dakota. That oil production region has surged due to the success of hydraulic fracturing ("fracking"). The supply exceeded available pipeline capacity, so Bakken crude was shipped by rail to refineries in the Northeastern United States.

A February 2015 train accident in West Virginia blocked transport of the oil trains running on the normal CSX route along the James River. Until the tracks were repaired at the accident site, CSX arranged with Norfolk Southern to transport Bakken crude on tracks that parallel the New River, and then go through Roanoke and Petersburg to reconnect with the CSX line. With the increase in number of rail cars moving Bakken crude oil, there have been additional train accidents and derailments that result in the rail cars being rerouted onto other rail lines through other communities.



Transferring ethanol from rail car to tank truck, for transport to a tank farm where ethanol will be blended with gasoline for final shipment by truck to gas stations. Map Source: City of Alexandria, Ethanol Transloading (presented to City Council, May 27, 2008)

Norfolk Southern operates an ethanol transloading terminal in the Van Dorn rail yard in Alexandria, from which trucks carry ethanol to gasoline tank farms in Springfield and in Fairfax City. The former Potomac Yard, where rail cars were classified and lined up into trains headed to various destinations for almost a century, has transformed into a mixed-use community with residential developments.

The Norfolk Southern railroad imports biofuels by train to Thoroughbred Bulk Transfer terminals in Alexandria, Petersburg and Roanoke. CSX has ethanol terminals in Norfolk, Portsmouth, Chesapeake, Richmond and Fredericksburg. CSX may also transport ethanol to the storage and distribution hub at the former oil refinery in Yorktown. CSX announced plans in 2012 to extend its line of ethanol terminals further north to Prince William County. As described by CSX: *With access to multiple rail providers and interstates, Prince William County is an ideal location from which to serve Mid-Atlantic markets.*

Industrial operations transferring a flammable, hazardous material from rail to truck are considered by the City of Alexandria to be an inappropriate use near communities such as Cameron Station. Tanker trucks carrying ethanol through city streets are considered safety risks and traffic impediments. As noted in Alexandria's lawsuit attempting to regulate activities at the Van Dorn ethanol transfer facility: *An accident on City streets involving a truck transporting ethanol would pose a serious risk of injury to persons and property, depending on the circumstances of the accident. An elementary school, playing fields, the Van Dorn Street Metro Station, and several businesses are all located within 1,000 feet of the facility. There is also a high-density residential neighborhood within 1,000 feet of the facility and another within one-half mile of the facility.*

The Federal Surface Transportation Board and a federal judge ruled in 2009 that local land use controls and truck-hauling permits are trumped by federal laws for interstate rail operations, so Alexandria could not require Norfolk Southern to obtain permits for operating the ethanol transfer facility at the Van Dorn rail yard. However, state air quality permits would be required for the railroad to increase transfer capacity from 14 to 30 tanker cars, as Norfolk Southern proposed in May 2013.

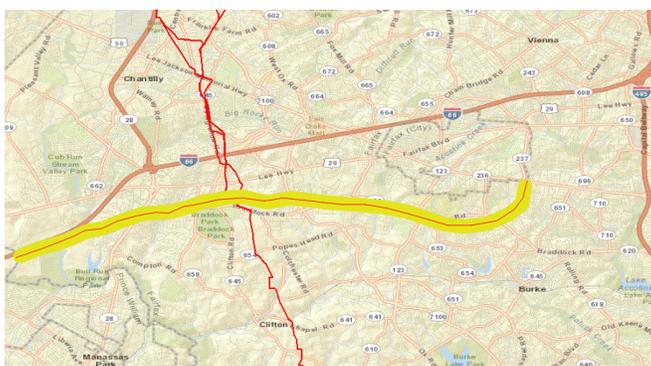
Biodiesel and ethanol for blending can also be shipped via barge/truck to customers, bypassing the constraints of transporting biofuels in pipelines. There are no ethanol pipelines in Virginia.

Ethanol is transported in bulk by rail and truck rather than by pipeline, because the alcohol-based ethanol absorbs water that can rust pipeline equipment. For the same reason, pipelines do not ship finished gasoline, because it contains ethanol.

Trains hauling crude from the Bakken region have been involved in multiple derailments in recent years, some causing fires. U.S. transportation officials recently extended an order for railroads to notify states about hazardous crude oil shipments.

Rail through Fairfax County is in the eastern and southern portions of the county and does not include tunnels. Residents are generally not located as close to the freight rails in Fairfax County as in other jurisdictions. However, some hazardous materials, alone or in combination, when released can affect areas up to miles from the initial site of the incident. It is conceivable that Fairfax County residents could be impacted with hazardous materials from a rail incident in another jurisdiction.

Pipelines traverse Fairfax County carrying refined petroleum products (for two companies) and natural gas (for three companies). The Office of Pipeline Safety in the U.S. Department of Transportation regulates pipeline design and the construction, operation and maintenance of pipelines to ensure safe transportation of hazardous liquids and natural gas.



A 22-inch wide pipeline (red line with yellow border) transports petroleum products from the main Colonial Pipeline to the tank farm on Pickett Road, near the intersection with Route 236. Source US Department of Transportation, National Pipeline Mapping System

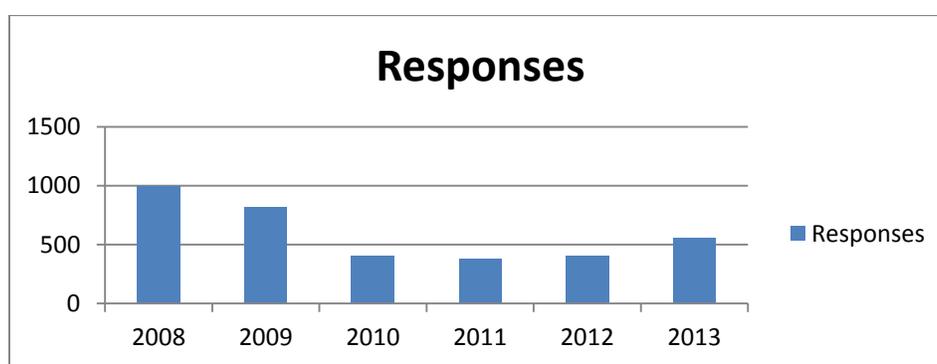
Pipelines are cost-effective for shipping large quantities of refined petroleum products to a few destinations, but not to end customers such as gas stations. Except for airports that receive jet fuel directly, most gasoline and distillates such as heating oil finish their journey in a truck.

The Fire and Rescue Department is using Tier II Manager Software for emergency and hazardous chemical reporting. This allows for Web-based entry of Tier II information by submitting facilities. The most significant advantage of this software is that it automatically generates the Hazardous Material Emergency Response Plan for the critical hazard facilities. Currently, over 500 total facilities are in the system. Tier II reviews were conducted for county facilities between January and March 2014.

The Fire and Rescue Department maintains a well-equipped hazardous materials response team for emergency response. The primary unit operates out of Fairfax Center Fire Station 40. There

are four satellite stations located throughout the county in support. These stations are located at Fire Station 1 in McLean, Fire Station 11 in Penn Daw, Fire Station 19 in Lorton and Fire Station 26 in Springfield. These units are strategically positioned to provide rapid response and adequate coverage throughout Fairfax County. Response personnel are trained and equipped to initiate product control and mitigation measures to prevent or minimize adverse environmental impact and damage. All units are staffed 24 hours per day, seven days per week. In recent past, the team responded to a myriad of incidents including methane/propane gas emergencies, transformer fires, overturned gasoline/ethanol tank trucks, weapons of mass destruction investigations for suspicious packages or white powder, mercury events, chemical odors or spills, petroleum releases, the dumping of hazardous materials and various other Department of Transportation HazMat-class events.

Hazmat Response Team Responses

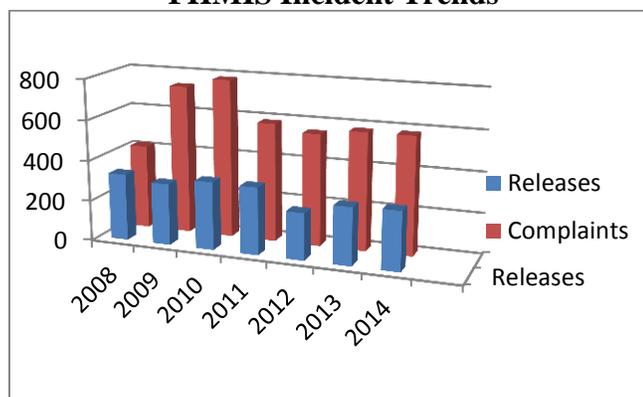


Recent Activities

The Fire and Rescue Department's Fire and Hazardous Materials Investigative Services (FHMIS) Section reported receiving 581 case entries into its Fire Files record management system in 2014. The actual spill, leak, or release of hazardous materials into the environment occurred in 289 of these cases. Of these 289 releases, 125 involved petroleum based products. There were 22 hydraulic oil spills/releases (mostly from trash trucks) 22 gasoline releases, 10 fuel oil or home heating oil releases and 40 diesel fuel releases. The remainder consisted of a variety of materials, including paint, antifreeze, cleaners, various gases and chemicals and mercury. There were 22 incidents where the release of hazardous materials did impact storm drains or surface waters. The section tracked eight sites for both short and long term remediation activities. The vast majority of these releases were small in scale. The section also staffs the Hazardous Materials and Fire Investigations Mobile Lab. The Mobile Lab was requested to respond to no hazmat incidents and eight fire events in 2014. The trend of such incidents is shown below:

Fire and Rescue Department's Fire and Hazardous Materials Investigative Services Incident Trends		
Fiscal Year	Complaints/Case Entries	Spills, Leaks, or Releases of Hazardous Materials
FY 2014	581	289
FY 2013	579	283
FY 2012	552	231
FY 2011	585	331
FY 2010	782	335
FY 2009	735	303
FY 2008	418	330

FHMIS Incident Trends



The Virginia Department of Environmental Quality (DEQ) report for 2014 Leaking Storage Tanks in Fairfax County included regulated (i.e. gas station) and unregulated (i.e. residential heating oil).

DEQ Storage Tank Leaks		
	Regulated	Unregulated
Total cases closed	1108	2036
Total cases open	16	46
Cases opened in 2014	7	82
Cases closed in 2014	14	75

Disposal of Hazardous Waste

The Household Hazardous Waste (HHW) program is one of the county's premier pollution prevention programs. The Fairfax County HHW Program accepts hazardous materials free of charge from residents and disposes or recycles these materials according to local, state and federal regulations. Residents can bring HHW to one of the county's two permanent HHW collection sites, located at the I-66 Transfer Station and the I-95 Landfill. In addition, four remote collections events were held throughout the county in 2015.

In FY 2015, 39,557 households participated in the HHW program, disposing of 636,422 pounds of HHW. Compared to FY 2014, this represents a 25 percent increase in the number of users and 15.6 percent increase in the weight of HHW disposed. The cost per household again reduced from the previous year. The trend for collection of Household Hazardous Waste is shown below:

Fairfax County Household Hazardous Waste Program: Record of Fiscal Year Disposal			
Fiscal Year	Participation (# of users)	HHW (pounds)	Cost per household
FY 2015	39,557 households	636,422	\$21.22
FY 2014	31,726 households	550,463	\$23.13
FY 2013	28,723 households	470,775	\$23.07
FY 2012	26,889 households	423,275	\$25.30
FY 2011	21,909 households	416,110	\$25.62
FY 2010	23,110 households	350,815	\$27.11

Source: Fairfax County Department of Public Works and Environmental Services, Solid Waste Management Program.

The operating hours at HHW collection sites were expanded on July 1, 2014. The new hours match the regular operating hours of the recycling and disposal centers. EQAC has long advocated for expanded collection capability at permanent sites for the growing amount of household hazardous waste and e-waste.

In FY 2015, materials deposited by residents for recycling or disposal primarily consisted of antifreeze, motor oil, lead-acid batteries, various acids, pesticides and oil-based paint. It is germane to note that none of these materials is regulated as hazardous waste, but the county collects them separately to minimize the potential environmental hazard that could be caused by improper disposal. Below are additional kinds of hazardous waste being collected:

E-Waste

E-waste contains constituents of concern that could cause long-term harm, if released into the environment. By removing e-waste from the solid waste stream, the county is effectively removing these potential contaminants from the fuel source that is used at the waste-to-energy facility. Currently, disposal of e-waste is free to county residents.

Daily collection of e-waste at the resident drop-off centers has successfully replaced other costly collection programs, resulting in a 16 percent increase in the amount of waste removed from the waste stream (almost 1.6M pounds in FY 2015). Further, the expanded access has reduced the unit cost for the program by 50 percent (from over \$.19 per pound to \$.095 per pound).

Rechargeable Battery Recycling

Non-rechargeable household batteries are not accepted by the program and can be safely thrown away as refuse, due to federal regulations which required the reformulation of batteries approximately 20 years ago.

A few years ago, rechargeable battery collection boxes were placed at the Fairfax County Government Center and each of the Board of Supervisors' offices, and program staff collects these batteries on a routine basis. A complete listing of collection locations is on the county website at: www.fairfaxcounty.gov/dpwes/recycling/mat-bat.htm.

Any person, business or other entity can use the services of Call2Recycle.org. This is an industry-funded product stewardship initiative through which the manufacturer of a product known to contain hazardous constituents pays for the collection and appropriate disposal of the item at the end of its useful life. Program users sign up on-line, and they will receive a cardboard box with a prepaid shipping label. The user fills the box with rechargeable batteries after the batteries are placed into individual plastic bags (to prevent arcing and potential fires in shipping). The user calls for pickup by UPS, which sends the container to a permitted hazardous waste disposal facility at no charge to the user.

Fluorescent Lights

Compact fluorescent light bulbs contain minute quantities of mercury, which causes them to be classified as HHW for disposal purposes. CFLs are therefore accepted from residents for disposal at the county's HHW facilities.

Small businesses that generate less than the regulated quantity of fluorescent lights may bring them to the Conditionally Exempt Small Quantity Generators (CESQGs) collection events. Other larger businesses that generate regulated quantities of these materials must comply with federal and state regulations regarding the proper disposal or recycling of the lights (40 CFR Part 273).

A brochure about the value of using fluorescent lights and how to recycle them is available on Fairfax County's website. The website also refers the consumer to an EPA website (at <http://www2.epa.gov/cfl>) for instructions on procedures for disposing of fluorescent light bulbs that have been broken.

Mercury Thermostat Recycling

In FY 2014-15, Fairfax County Government partnered with the Thermostat Recycling Corporation (TRC) in an effort to further mitigate the amount of mercury polluting our environment. TRC is a non-profit organization that facilitates and manages the collection and proper disposal of mercury-containing thermostats. TRC has an on-going commitment to raising awareness of the universal need to properly dispose of mercury-containing thermostats, and actively solicits program participation across the country. Through national and regional advertising, industry events, workshops and other outreach activities, TRC creates a dialog with industry stakeholders and consumers and actively promotes the need for safe and proper disposal of mercury-containing thermostats.

Participation as a collection site is simple: TRC provides storage and shipping containers and promotional materials to encourage participation. TRC charges a modest \$25 one-time fee (per

container) to participate. Fairfax County Government has extended this free service to its businesses and residents.

Cooking Oil Recycling

As an ongoing waste minimization initiative, and to prevent cooking oil from being disposed in storm water drains, Fairfax County Government partnered with Greenlight Biofuels, in a pilot program that began in January 2014, to recycle waste vegetable and cooking oil. The pilot was so successful that a new contract was awarded in February 2015. Approximately 3,720 gallons of oil were collected and recycled in FY 2015.

The recycled waste vegetable oil is converted into biodiesel, a clean-burning fuel that results in a significant net emissions decrease with lower SO₂ (Sulfur Dioxide) and NO_x (Nitrogen Oxides) emissions than heavy oils. Biofuels generally burn cleaner than No. 2 residual fuel oil, with little or no sulfur emissions.

Habitat for Humanity (HFH) Latex Paint Recycling Stewardship Pilot Program

The county has formed a partnership with Habitat for Humanity to reduce and reuse the amount of waste latex paint being generated by homeowners.

Through partnerships with various Habitat for Humanity ReStores throughout Virginia, the program redistributes usable latex paint delivered by residents to the HHW program, rather than sending it for disposal. Reusable paint will be donated to various participating Habitat for Humanity ReStores, allowing them to resell or reuse it.

It is important to note that while latex paint has historically been managed through the HHW program, it is not a hazardous waste. When residents deliver latex paint to the county for disposal, they create additional unnecessary expenditures for the county. The donation of usable paint to Habitat for Humanity will provide the following benefits:

- Reduce the volume of paint disposed by 20-30 percent annually.
- Reduce potential environmental impacts from paint disposal.
- Establish a sustainable waste management practice.

The primary mission of the Virginia-based Habitat for Humanity ReStores is to generate revenue for the homebuilding efforts of the Habitat for Humanity affiliates in local communities throughout Virginia. The Habitat ReStores aim to offer quality household goods and building materials to the public at reasonable prices and to divert unnecessary waste from disposal.

Commercial Hazardous Waste

The management of hazardous waste is regulated under 40CFR Part 261. In essence, any significant quantity of these wastes (defined by the regulation) generated under circumstances other than household use is subject to tracking, documentation of use and proper recycling or disposal. Businesses that fall below defined thresholds for how much waste they generate and

store are exempt from some of the substantive documentation and disposal tracking requirements (although they must dispose of this waste in a proper, responsible manner).

In Fairfax County, these Conditionally Exempt Small Quantity Generators (CESQGs, for short) typically consist of small Fairfax County-based businesses, government agencies, non-profits, schools, universities and places of worship. CESQGs are invited to bring their accumulated hazardous waste to one of three events held annually, where they pay a fee for disposal. In FY 2014, 101 companies participated in the three CESQG events, and in FY2015, a total of 91 companies took part. Details on the CESQG program and a list of permitted hazardous waste disposal companies are available on the county's website at www.fairfaxcounty.gov/dpwes/trash/disphazcomm.htm.

Storm Drain Anti-Pollution

Many residents in Fairfax County are unaware that storm drains lead to the local streams that eventually join in with other bodies of water. Pollution that enters our water resources through storm drains is called nonpoint source pollution because it comes from all our homes and communities. Nonpoint source pollution has been a leading cause of the water quality deterioration in the Chesapeake Bay. This includes what is put on yards and driveways as well as litter on streets that will wash off with the rain water into these drains. As big, if not a bigger, problem is the intentional disposal of items into the drains such as used motor oil, fertilizer, antifreeze, pesticides, herbicides and other hazardous materials as well as pet waste, grass and leaves.

In 2015, in addition to the ongoing storm drain marking and education, Virginia Cooperative Extension will be offering a special hazmat collection of pesticides, herbicides, fertilizers, and any yard chemical residents have that they no longer need or are past expiration dates. This program is held every five years. The last collection was in 2010 with 15,341 pounds of chemicals turned in. The next collection was to have been held in September 2015.

Print, video and Web-based products have been developed to aid in raising awareness about behaviors leading to nonpoint source pollution and the actions residents can take to protect local and regional water quality. Northern Virginia Clean Water Partners' recent TV Ad, "The Rubber Ducks: Cleaner Streets mean Cleaner Water" is available in English and Spanish. All of the organization's TV and radio ads are available to watch and listen to on its website: www.onlyrain.org.



Legislative Update

None

Stewardship

What is considered to be hazardous materials has changed in recent decades. Formerly, hazardous materials were primarily associated with industrial releases or the transportation of chemicals. Hazardous material then came to include some household chemicals used for cleaning and chemicals used for yard work. Now, hazardous material includes items that individuals use in everyday life, such as rechargeable batteries for cell phones and power tools, as well as compact fluorescent light bulbs. Proper management of discarded electronics has become an area of increasing concern. Fairfax County has implemented its E-cycling program, which has diverted significant quantities of electronics from disposal to recycling. Stewardship for the storage, use and disposal of hazardous materials is no longer solely an industry issue; it now belongs to individuals, and with more than a million individuals in Fairfax County, household hazardous waste volumes will continue to increase.

Comments

1. To continue the relative human and environmental safety of the past couple decades, attention should be on any future increase in the production and transport of hazardous materials to or through Fairfax County.
2. A trend that bears watching is the larger automotive stores that sell products that are immediately used in the parking lot by the consumer, sometimes with the assistance of the store employees who may or may not be trained in spill cleanup. These activities include adding or changing automotive fluids and changing batteries.

Recommendation

None

VII. Ecological Resources

Background

Open space and natural habitat continue to be reduced in Fairfax County, primarily because of development (both residential housing and commercial buildings) and road building. As this resource is reduced, increased emphasis must be placed on protecting, preserving and enhancing the remaining open space and natural habitat in Fairfax County.

Fairfax County contains a total of 227,952 acres (excluding roads and water). Of this total, 33,465 acres (14.7 percent) are in parks and recreation as of January 2014. Another 15,120 acres (6.6 percent) are vacant or in natural uses. This compares to the approximately 26,700 acres (11.7 percent) that were vacant or in natural uses as of January 2003. However, not all this acreage can be considered as open space that is valuable for natural habitat. First, the park acreage consists of active recreation (ball fields, etc.) as well as passive recreation (stream valley parks, nature centers, etc.) Ball fields, while greatly needed in Fairfax County, do not do much for protecting natural habitat. In a like fashion, much private open space consists of mowed areas and isolated trees (not woodlands). Again, this does little for protecting natural habitat. Both active recreation areas and private open space, however, if properly designed can help the environment by reducing storm water runoff (by allowing storm water to infiltrate into the soil).

Second, while vacant land is often wooded, this land is subject to development. Considering the continuing rapid pace of development in Fairfax County, much of this land will soon become residential space, office space, retail space, etc., and not provide much in the way of protecting natural habitat. In 1980, vacant land accounted for 32.2 percent of the total land in Fairfax County. By 1990, this had dropped to 19.5 percent and the figure was 6.0 percent as of January 2014.

Therefore, Fairfax County needs to undertake stronger efforts in order to protect, preserve, and enhance the environmentally sensitive open space in the county. These efforts should include the establishment of a countywide Natural Resource Inventory, followed by a countywide Natural Resource Management Plan. Additionally, the county needs an aggressive program seeking easements on privately owned environmentally sensitive land and, as opportunities arise, to purchase environmentally sensitive land.

In 2004, two significant efforts occurred that should help in the county's preservation and protection of natural resources. First, as reported in the 2004 Annual Report on the Environment, the Fairfax County Board of Supervisors adopted an environmental vision for Fairfax County – *Environmental Excellence for Fairfax County: a 20-Year Vision*. This vision cuts across all activities in Fairfax County and outlines guidelines that hopefully will be followed in future planning and zoning activities in Fairfax County.

Second, as also reported in the 2004 Annual Report on the Environment, the Fairfax County Park Authority approved the Natural Resource Management Plan for park properties. Park Authority staff began revision of its Natural Resource Management Plan in fall 2012. The Park Authority staff held a public review in fall 2013 and adopted the revised Natural Resource Management Plan in January 2014. If this plan is implemented, improved preservation and protection of environmentally sensitive land should be the result. However, without additional funding, the Park Authority is not able to implement significant portions of the plan.

EQAC continues to commend a number of organizations for their activities in protection, preservation and enhancement of environmentally sensitive areas. These organizations include: the Northern Virginia Soil and Water Conservation District, the Virginia Department of Forestry, the Northern Virginia Conservation Trust, Fairfax ReLeaf, the Fairfax County Restoration Project, the Fairfax County Department of Public Works and Environmental Services and the Fairfax County Park Authority and its staff. EQAC especially commends the Fairfax County Board of Supervisors for its vision and activities in environmental areas.

EQAC also commends those residents of Fairfax County who give donations and time to a number of county organizations involved in environmental activities. EQAC encourages such volunteer activity. The following paragraphs describing organizations' activities mention opportunities for such stewardship.

Recent activities

Fairfax County Park Authority

- Between July 2014 and June 2015, the Park Authority added 33.6 acres to its parkland inventory. This brings the parkland inventory to a total of 24,809 acres as of June 2015.
- The Park Authority adopted a revised Natural Resources Management Plan in January 2014. This revised plan more closely focused on adaptive management of natural resources. However, the Park Authority lacks sufficient funding to fully implement the plan. Some funding has been secured through the Environmental Improvement Program plus a combination of proffers, bonds, telecommunications fees and others. Much more needs to be added to the budget to fully fund the plan. The Park Authority continues to seek funding to fill a vacant senior ecologist position. A long-term implementation strategy is planned for completion by end of FY 2016. FCPA staff estimates that full implementation would require approximately \$8 million per year and dozens of staff positions. This includes about \$3.5 million to focus on general natural resource management and \$4.5 million for a non-native invasive plant control program. A more phased approach to funding would allow FCPA to begin to manage 10 percent of parklands and set up the program to be phased in over time. Phase 1 with this approach would require \$705,000 and five positions.

- The creation of a natural resource protection zone and geodatabase model is complete. A more robust field data collection technique was successfully tested and is being expanded to all applicable field datasets. The new data collection technique uses tablet computers and mobile GIS combined with rapid assessment protocols to quickly and easily map natural resources data in the field and sync these data with a remote server. Applicable field datasets include Non-native Invasive Assessment Protocol (NNIAP) data, white-tailed deer browse impact (deer) data and community level vegetative classification (vegetative communities) data. The Park Authority secured funding for inventories of NNIAP and deer data collection efforts. It has not secured funding for the vegetative communities inventory, which is estimated to cost \$365,000. This inventory is needed in order map out the various vegetative communities and be a basis for future management of these communities.
- FCPA's invasive plant control projects occur at over 70 park sites throughout the county. The partnership with Earth Sangha, a local non-profit organization, to control invasive plants at both the Marie Butler Leven Preserve and Wilburdale Park continues. The partnership also provides local native plants for restorations. Other partnerships that continue to benefit invasive plant control include Northern Virginia Soil and Water Conservation District, Virginia Department of Forestry, Virginia Cooperative Extension, Fairfax ReLeaf, Northern Virginia Conservation Trust, the Virginia Native Plant Society, Pawtomack Chapter, Fairfax Master Naturalists, DPWES and others.
- The Invasive Management Area (IMA) program continues its operations at 41 sites, with 45 active volunteer leaders. In 2014, nearly 2,000 volunteers spent a total of 5,707 hours restoring habitat through the removal of invasive plants and the planting of native species. The IMA program began its ninth year by celebrating Take Back the Forest in April and May 2015. During those two months, over 850 volunteers logged 3,053 hours. Take Back the Forest was funded for a fourth year with a \$10,000 grant from REI. EQAC notes that this is a very successful, highly-leveraged program, through the large investment of labor by volunteers.
- The Huntley Meadows wetland restoration project was completed in March 2014. Park staff and volunteers now monitor, manage and maintain the restored wetland. Various monitoring and management projects are now under way. A partial list of survey and monitoring projects includes: water quality; water depth; flow; temperature; groundwater; weather stations; plant communities; bird, crayfish and amphibian populations; aquatic macroinvertebrates; and periodic aerial photography. The wetland and its flora/fauna have reacted how we expected they might in the first few years of managed water levels. Park staff and volunteers saw an increase in dabbling ducks (both in numbers and diversity) in the first winter, and marsh birds (bitterns, rails, grebes, coots) stayed longer in the spring, often several weeks past migration. To learn more about the project, the awards it has already received or to contact park staff with more questions, please visit the project website at www.fairfaxcounty.gov/parks/huntley-meadows-park/restorationproject.htm.

NOVA Parks (Northern Virginia Regional Park Authority)

- NOVA Parks owns and operates 31 regional parks and owns 12,031 acres of land throughout the region. It also holds conservation easements on 115 parcels covering more than 665 acres. NOVA Parks acquired the half acre Tinner Hill site straddling the boundary of Fairfax County and Falls Church, adding needed open space in a developed part of the county. This historic park was developed and opened to the public in January 2015.
- Tree planting efforts that are part of implementing NOVA Parks' 2012 Strategic Plan initiatives include the following activities: significant areas at Bull Run Regional Park, as well as areas of Occoquan Regional Park were replanted with riparian trees; and 14 new trees were planted at Occoquan Regional Park as part of SpringFest Fairfax.
- The W&OD Trail regularly offers invasive plant removal as a scout project option, and the W&OD Trail staff selectively applies herbicides to the park's fence lines for invasive vines and woody plants, such as tree of heaven, mile-a-minute vine and oriental bittersweet, allowing native species to have less competition. Invasive plant control efforts also continued at Occoquan Regional Park, Bull Run Regional Park and Bull Run Shooting Center, and at Meadowlark Botanical Gardens. Bull Run Shooting Center works on invasive vine removal through hand-cutting, pulling and clipping. At Hemlock Overlook Regional Park, NOVA Parks' site administrator, Adventure Links, controls invasive autumn olive by cutting. At Upton Hill Regional Park, volunteers work regularly on invasive plant removal. At Pohick Bay Regional Park, large patches of bamboo were removed from the golf course and water chestnuts were removed from the shoreline.
- NOVA Parks implemented a program that allows youth to access its fee-based park facilities through volunteer service. It has a wide variety of community partnerships in place that encourage groups to take advantage of the regional parks for environmental and historic education and service projects. More information can be found at www.nvrpa.org/park/main_site/content/volunteer. For current information about the Northern Virginia Regional Park Authority, visit its website, www.NOVAParks.com.

Fairfax ReLeaf

- Fairfax ReLeaf is a nonprofit (501(c)(3)), non-governmental organization of private volunteers who plant and preserve trees in Northern Virginia, preserve native habitat and educate the public about the benefits of trees. Fairfax ReLeaf planted and distributed 5,077 trees and shrubs in 2014. Over 1,000 volunteers spent a total of more than 2,500 hours planting tree seedlings, removing invasive species and maintaining planting sites. Highlights of Fairfax ReLeaf's 2012 plantings were: the planting of 746 trees and shrubs in riparian areas; the planting of 1,691 trees and shrubs on homeowner association and private property; and the planting of 772 trees

and shrubs in parks, including private, county and national parks. Volunteers removed invasive vines that were strangling mature trees within a Resource Protection Area (RPA).

- Fairfax ReLeaf provided many opportunities for community groups to serve Fairfax County in 2014. These included five school group plantings, two Lions Club plantings, two Boy Scout projects and an Eagle Scout project. ReLeaf led two corporate workdays, where employees from Winchester Homes and GAP Solutions gave their time to improve Fairfax County. Fairfax ReLeaf also conducted a workshop to prepare individuals to lead plantings.
- For further information on Fairfax ReLeaf, visit its website at www.fairfaxreleaf.org.

Northern Virginia Conservation Trust

- NVCT was founded in 1994 as the Fairfax Land Preservation Trust. In 1999, the trust changed its name to the Northern Virginia Conservation Trust to better reflect the regional scope of the service area. NVCT is a 501(c)(3) nonprofit land trust dedicated to preserving and enhancing the natural and historic resources of Northern Virginia. NVCT also has formed public-private partnerships with Arlington County and the City of Alexandria and owns properties or easements in Arlington, Fairfax, Fauquier, Loudoun, Prince William and Stafford counties and in the cities of Alexandria and Fairfax. NVCT was one of a handful of the first land trusts accredited throughout the country by the Land Trust Accreditation Commission.
- NVCT has several ongoing projects in Fairfax County and is currently pursuing over a dozen prospects for protecting land in partnership with interested landowners. These lands encompass diverse landscapes, from stream valleys and wetlands to historic properties and forested tracts in residential areas. NVCT added one new easement to its portfolio in 2014, a 5.5-acre wooded property along Indian Run that was zoned for industrial use. In total, the trust has now preserved over 700 acres through conservation easements, fee ownership and partnerships throughout Fairfax County. NVCT now holds 35 conservation easements and owns four parcels in Fairfax County. All of these properties are monitored at least annually to assure compliance with the terms and conditions of the easements and to preserve the conservation values.
- For more information on NVCT visit www.nvct.org.

Potomac Conservancy

- Potomac Conservancy was formed in 1993 by individuals concerned about inappropriate development, clear cutting and other activities that were beginning to have a negative impact on the unspoiled character of the Potomac gorge. This led to the formation of the nonprofit land trust now known as the Potomac Conservancy. The conservancy was incorporated on August 24, 1993 in Maryland as a nonprofit

corporation. The conservancy is registered in Maryland, Virginia and West Virginia and is an easement holder in Maryland's Conservation Reserve Enhancement Program.

- The Potomac Conservancy currently holds easements on four properties in Fairfax County. These properties total 13.46 acres, with 0.14 of that being river frontage. In 2014, thirty-three volunteers, spending 100 hours, collected 132 pounds of seeds. These included: Black Walnut, Shagbark Hickory, Chestnut Oak and Black Oak.
- Potomac Conservancy no longer pursues conservation easements in Fairfax County. However, whenever the conservancy receives an easement inquiry, they are happy to provide information about private land protection and forward them to the best organization to help with their needs.
- For further information on the Potomac Conservancy, see www.potomac.org.

Northern Virginia Soil and Water Conservation District

- Virginia's Phase II Watershed Implementation Plan recognizes a need for urban/residential stormwater management best management practices (BMPs) in its "Local Implementation Strategies for Urban/Suburban Source Sector," including a cost share program strategy. Funded through the Environmental Improvement Program and working with representatives from Fairfax County DPWES' Stormwater Planning Division and Maintenance and Stormwater Management Division and the Fairfax County Park Authority, NVSWCD implemented the first four urban cost-share projects in Fairfax County in spring 2015. These projects were implemented by homeowners associations (HOAs) and include: Loftridge HOA in the Cameron Run watershed, Lee District (Bioretention - rain garden); Chesterfield Mews Community association in the Accotink Creek watershed, Providence District (BayScraping, dry well/infiltration trench); Lake Braddock Community Association in the Pohick Creek watershed, Braddock District (Bioretention - rain garden, BayScraping); and Winding Ridge HOA in the Cub Run watershed, Sully District (BayScraping).
- NVSWCD performs site investigations and conservation planning for land owners interested in creating and renewing Agricultural and Forestal Districts and administers the Virginia Agricultural Best Management Practices Cost-Share and Tax Credit program in Fairfax County. To support these efforts, NVSWCD provides soil and water quality conservation planning to suburban horse farms, small farms, plant nurseries and golf courses. In 2014, NVSWCD prepared plans covering 31 parcels, totaling 491 acres and providing recommendations for the protection of approximately 33,556 linear feet of RPA.
- NVSWCD's annual seedling program emphasizes the role of vegetation in preventing erosion, conserving energy and decreasing and filtering stormwater runoff. Those planted in riparian areas also help to protect stream channel stability and stream water quality, as well as improving the surrounding habitat. This seedling program offered

residents a package of native tree and shrub seedlings for a small cost. The 2015 plants included River Birch, Willow Oak, Shortleaf Pine, Winterberry, Silky Dogwood, Eastern Redbud, American Witchhazel and Arrowwood Viburnum. The theme was well-received and resulted in over 380 customers purchasing a total of 6,080 seedlings, who in turn planted them across Fairfax County and surrounding areas. In addition to the benefits of the trees and shrubs to enhancing the region's native habitat, the plants are selected for their adaptability across the Piedmont and Coastal Plain provinces, and for many different growing conditions.

- NVSWCD interacts with residents in many ways through efforts such as: citizen science programs (Volunteer Stream Monitoring); the Green Breakfast series; Watershed Friendly Garden Tours; and build your own programs (rain barrels and composters).

Fairfax County Wetlands Board

- If you own property on the waterfront in Fairfax County, you may need a permit from the Fairfax County Wetlands Board before you build or make changes on your property. These activities, known as land-disturbing activities, often require a permit if done in an area that has been identified as a tidal wetland in state law and the Fairfax County wetlands ordinance. Land-disturbing activities that may require a permit from the Wetlands Board include the following: any construction project on or adjacent to a tidal body of water; any construction project in which fill material is placed in or near tidal wetlands; and projects designed to protect property adjacent to shorelines.
- The Center for Coastal Resources Management of the Virginia Institute of Marine Science estimates that Fairfax County's tidal shoreline is approximately 111.85 linear miles. The county's tidal shoreline within the Coastal Plain extends from Cameron Run on the north, traversing south along the Potomac River and extending to the Occoquan Reservoir on the south, where the tidal influence terminates at the dam.
- The Wetlands Board's jurisdiction is that area between mean low water and mean high water in non-vegetated wetland environment and between mean low water and the equivalent of 1 1/2 mean high water in a vegetated environment. Since 2010, after the Board of Supervisors adopted the beach ordinance, the Wetlands Board has also reviewed tidal projects which may involve beach. Beach can extend beyond or it can be contiguous with non-vegetated tidal wetland area.
- In an effort to assist localities to implement the state policy that requires localities in Tidewater Virginia to incorporate coastal resource management guidance and best practices into the locality's comprehensive plan, the Virginia Institute of Marine Science (VIMS) has developed a Comprehensive Coastal Resource Management Portal. VIMS also recommends the type of stabilization that would be most appropriate based on the shoreline conditions. The Comprehensive Coastal Resource Management Portal is available at <http://ccrm.vims.edu/ccrmp/fairfax/index.html>.

- The Wetlands Board welcomes VIMS guidance and has adopted a living shorelines policy, available at www.fairfaxcounty.gov/dpz/environment/finallivingshoreline.pdf. The Wetlands Board has also adopted a mitigation policy that can be found at www.fairfaxcounty.gov/dpz/environment/wetlands/mitigation_compensation_policy_adopted.pdf.
- During 2015, the Virginia Marine Resources Commission staff, with guidance from a citizen advisory group, drafted the state's first general permit for living shorelines, to implement a 2011 state law (Senate Bill 964, now section 28.2-104.1). The general permit was approved by the Virginia Marine Resources Commission on July 28, 2015 following a public hearing; it became effective on September 1, 2015. Carl Hershner, Jr., the Director of the Center for Coastal Resources Management and Associate Professor of Marine Science at the Virginia Institute of Marine Science, has noted the following to the Chairman of Fairfax County's Wetlands Board:

“Fairfax County was one of the first localities to formally adopt a wetlands mitigation policy and the first locality in Virginia to establish a living shorelines policy. The mitigation policy requires that first and foremost all reasonable measures to avoid wetlands impacts be taken before consideration of creating new wetlands. Fairfax County's groundbreaking Living Shoreline Policy was included in the Virginia Institute of Marine Science Shoreline Management and Wetland Sustainability Study submitted to the General Assembly, leading to the passage of Virginia's Living Shorelines legislation in 2011.”

“The Fairfax County Wetlands Board has been in the forefront of natural resource conservation by incorporating the latest scientific information in both their living shoreline and mitigation policies. We routinely point to their practices as a model for other wetlands boards in Virginia.”

- The Wetlands Board reviewed one permit application during the first half of 2015. The board approved the permit.
- For further information, contact the Wetlands Board at:
Fairfax County Wetlands Board Staff
Department of Planning and Zoning, Planning Division
12055 Government Center Parkway, Suite 730
Fairfax, VA 22035-5504
(703) 324-1210
www.co.fairfax.va.us/dpz/environment/wetlands.htm.

Virginia Department of Forestry

- The Virginia Department of Forestry (VDOP) has provided forestry related services in Fairfax County for over 60 years. VDOP is also participating in several efforts aimed at improving riparian areas. In these efforts, VDOP partnered with the Northern Virginia Soil and Water Conservation District, the Department of Public

Works and Environmental Services, the Fairfax County Park Authority and Fairfax ReLeaf.

- Each year, the Virginia Department of Forestry participates in the Fairfax County Arbor Day on the last Saturday in April. The county earned again, for the 32nd year, the Tree City USA award. The award is applied for by the Fairfax County Urban Forest Management Division and given through the Virginia Department of Forestry. Tree seedlings are distributed by VDOF to people attending the Arbor Day celebration. In 2014, 400 donated hardwood and shrub seedlings were distributed for planting by volunteers in their communities.
- The Virginia Department of Forestry sponsored a drop-off site in Fairfax County for the Growing Native project. This project involves the collection of tree seeds (acorns, hickory nuts, black walnuts, etc.) which are transported to VDOF nurseries where the seeds are planted and seedlings are grown. In 2014, approximately 1,200 pounds of seeds (mostly acorns) were collected. Each year, 500-700 seedlings are given to volunteers for planting on public lands in Fairfax County.
- The conservation of the forested land base in Fairfax County is a part of the VDOF plan. The Fairfax County office works closely with the Fairfax County Department of Planning and Zoning to review Agricultural and Forestal (A&F) District applications. A&F District forest management plans are prepared by VDOF; these efforts support the management of forested land for conservation purposes. Six A&F plans covering 236.2 acres were reviewed and updated in 2014. VDOF also wrote a Neighborhood Forest Management Plan for a homeowners association of some 250 homes and a fire management plan for another homeowners association. In addition, VDOF provided less formal advice to a number of homeowners associations, civic groups and residents. All plans and advice provided by the VDOF are informed by the water quality and conservation benefits of protecting and maintaining forests and street trees.
- The Virginia Department of Forestry also helps protect water quality and forest resources in the county by reviewing and commenting on rezoning applications and development plans. VDOF reviewed 45 applications and plans in 2014. In addition, VDOF annually inspects dry hydrants to make sure they are available to fight wildfires in the county.
- The department maintains an active public education and outreach program. Audiences range from school groups to adults. In 2014, VDOF conducted 62 talks on the general benefits of urban forests and riparian buffers.
- The Virginia Department of Forestry website (www.dof.virginia.gov) contains many pages on forest management and urban forestry. Topics range from tree identification to proper planting under power lines. The pages contain information developed by VDOF and links to many other sources of information on urban forestry and tree care.

Virginia Department of Transportation

- On April 10, 2008, the Environmental Protection Agency and the U.S. Army Corps of Engineers jointly issued a Federal Mitigation Rule giving preference first to mitigation banks, second to in-lieu funds and third to permittee responsible mitigation (i.e., preservation, enhancement and creation) as compensation for impacts to aquatic resources. The Virginia Department of Environmental Quality also supports this preference hierarchy presented in the rule. As a result, VDOT now purchases wetland and stream credits from approved mitigation banks to compensate for unavoidable impacts to wetlands and streams in lieu of constructing mitigation sites. For the 2013/2014 fiscal year, VDOT purchased one-tenth of a wetland mitigation credit as required compensation for unavoidable wetland impacts associated with VDOT projects within Fairfax County.
- The wetland and stream mitigation at the recently completed I-95/Telegraph Road interchange improvement project is one of that last remaining on-site mitigation sites under active permit-required success monitoring by VDOT staff over the next five years. The compensatory mitigation requirements included wetland enhancement/creation of 1.71 acres of tidal wetlands, 0.63 acre of non-tidal wetlands near the confluence of Taylor Run and Cameron Run and 0.36 acre of stream restoration to relocated tributary to Cameron Run.

Virginia Department of Environmental Quality

- In 2014 the Northern Regional Office of the Virginia Department of Environmental Quality received 19 applications to impact surface waters in Fairfax County. A total of 15 new Virginia Water Protection Wetland Permits were issued. Compensation for impacts to surface waters was proposed to be provided through the purchase of bank credits and on-site stream restoration or riparian buffer enhancement.

Urban Forestry

- In 2013 and 2014, the Urban Forest Management Division (UFMD), in cooperation with the county Geographic Information System (GIS) office, continued modeling on county watersheds to simulate the effects of changes in tree and impervious cover on stream flow and water quality. The selected modeling software is i-Tree Hydro, a part of the i-Tree suite of tools developed by the USDA Forest Service which analyzes urban and community forest benefits. The tree canopy analysis, along with field collected inventory data, hourly stream flow and weather data is used to quantify the value of trees on the watershed level. Theoretical gains or losses in tree canopy and/or impervious surfaces can be modeled to demonstrate the effects on water quality and stream flow.
- In fall 2012, UFMD entered a data exchange agreement with Casey Trees Foundation in order to obtain an updated remote sensing analysis that quantified countywide tree canopy levels based on 2011 high-resolution satellite imagery and LIDAR data. An

analysis of these data indicates that 53 percent of the county's landmass was covered by tree canopy in fall 2011 (the date of this most recent imagery acquisition). This figure is much higher than those produced by previous imagery. (However, EQAC notes that the new data are at a higher resolution than the old. At this time, we cannot say what the actual difference, if any, there is in the tree canopy since the two datasets cannot be compared directly.) UFMD presented this information to the board's Environmental Committee in October 2013. In light of the environmental, ecological and socio-economic pressures that currently threaten the county's tree and forest resources, UFMD is likely to recommend a shift away from solely quantitative canopy goals and more toward development and implementation of qualitative forest management goals and metrics, including watershed management goals and green infrastructure planning. These efforts will be critical to ensuring the long-term health and sustainability of our urban forest.

- Urban foresters provide expertise and comments on Comprehensive Plan amendments, rezoning case reviews, special permit applications, special exceptions, site plan and other development plan reviews, site inspections and final bond release of development projects. In addition, the Urban Forest Management Division provides consultations to various county agencies. A total of 1,228 requests for assistance by customers and partners were fulfilled by the Forest Conservation Branch in FY 2015.
- At the close of 2014, Fairfax County was recognized, for the 32nd consecutive year, for its excellence in urban forest management by the Arbor Day Foundation's Tree City USA Program. This milestone was followed in April 2015, when the county was again recognized for its efforts and awarded, for the sixth time, the Tree City USA Growth Award.
- Gypsy Moth Caterpillar: In fiscal year 2015, gypsy moth caterpillar populations remained very low. There was no measurable defoliation reported in Fairfax County or elsewhere in the Commonwealth of Virginia. The gypsy moth staff will continue to monitor populations, but no control treatments were applied in 2013 or 2014.
- Fall Cankerworm: The fall cankerworm (*Alsophila pometaria*) is an insect that is native to the eastern United States that feeds on a broader variety of hardwood trees than the gypsy moth. As a result of monitoring efforts in winter 2014, staff treated 66 acres by ground application of the biological control pesticide *Bacillus thuriangiensis* (Bt) in spring 2015.
- Thousand Cankers Disease of Black Walnut: In August 2010, a new disease was detected in black walnut trees (*Juglans nigra*) in Tennessee. During spring 2011, the same disease was observed near Richmond, Virginia. The disease complex called thousand cankers disease (TCD) is the result of an association of a fungus (*Geosmithia morbida*) and the walnut twig beetle, (*Pityophthorus juglandis*) native to the southwestern United States. This disease complex causes only minor damage to western walnut species. Eastern walnut trees, however, are very susceptible and

infested trees usually die within a few years. Urban foresters established monitoring sites for the walnut twig beetle during summer 2012. Walnut twig beetle and disease symptoms were found in the county, and the Virginia Department of Agriculture and Consumer Services (VDACS) was petitioned to include TCD in the list of organisms that can be controlled by service districts in Virginia. Following disease discovery, VDACS listed Fairfax County under quarantine that prohibited the transportation of walnut wood and its products. Forest pest staff will continue to monitor walnut tree health and educate homeowners on this condition.

- Emerald Ash Borer: The emerald ash borer (EAB), *Agrilus planipennis*, is an exotic beetle introduced from Asia and was first discovered in the state of Michigan in the early 2000s. This beetle only attacks ash trees and can cause mortality in native ash species in as little as two years. In 2014, researchers in Ohio also observed EAB attacking white fringetree (*Chionanthus virginicus*), a close relative of ash. In July 2008, two infestations of EAB were discovered in Fairfax County in the town of Herndon and the Newington area. On July 11, 2008, the county was put under federal quarantine for emerald ash borer. This meant that all interstate movement of ash wood and ash wood products from Fairfax County was regulated including all ash firewood, nursery stock, green lumber, waste, compost and chips.

In March 2015, the Board of Supervisors authorized staff to begin a control program for EAB on trees on publically-owned land, including fire stations, parks, schools and libraries. Forest pest staff conducted a survey to locate trees on county property for possible candidates for treatment. The results of this survey found 80 trees that qualify as candidates for control. Emerald ash borer control was accomplished using tree injection techniques, which delivered the insecticide directly to the tree's vascular system. Once injected, the insecticide was transported throughout the tree and has the potential to provide control for up to three years. The insecticide which was used contains the active ingredient of emamectin benzoate and is sold under the trade name TreeAge®; it is recommended highly by industry and academic professionals.

- Hemlock Woolly Adelgid: Hemlock woolly adelgid (HWA) (*Adelges tsugae*) is a sap-feeding insect that infests and eventually kills hemlock trees. In 2014, staff recommended that the board approve a limited pilot treatment program for HWA. Plans to conduct small scale treatment efforts on naturally occurring hemlock stands found on public property are under way. Staff will continue to inventory the County in order to identify the natural stands of eastern hemlock. For this year's program, staff identified two native stands in Dranesville and Springfield, districts for control.
- The Forest Pest Management Branch, in cooperation with VDACS, is monitoring for pests that are not yet known to exist in Virginia but would be problematic should they become established. Current trapping efforts include Asian longhorned beetle (*Anoplophora glabripennis*), oak ambrosia beetle (*Platypus quercivorus*) and sudden oak death disease (*Phytophthora ramorum*). Ongoing monitoring is conducted by

strategically placing traps throughout the County that contain lures that are unique to each pest.

Agricultural and Forestal Districts

- Landowners may apply to place their land in special Agricultural and Forestal Districts that are taxed at reduced rates. A&F Districts, which are created by the Commonwealth of Virginia, must have 200 or more acres. A&F Districts of local significance, governed by the Fairfax County A&F District ordinance, must have at least 20 acres and must be kept in this status for a minimum of eight years.
- In 2014, one local A&F District in the Sully District was withdrawn (the Fink-Butler district). This action resulted in the net loss of 28.66 acres in A&F districts.

Fairfax Chapter of the Virginia Master Naturalists Program

- Formed in 2006, the Fairfax chapter of the Virginia Master Naturalist (FMN) program provides local residents with naturalist training and then connects them with volunteer stewardship, citizen science and outreach opportunities in parks and natural areas. The process for becoming a certified Virginia Master Naturalist takes from six to 12 months. Master Naturalists are expected to provide much-needed support to the many environmental organizations striving to protect natural resources in Fairfax County. To be certified, graduates must provide 40 hours of volunteer service and receive eight hours of advanced training each year.
- In 2014, the FMN provided a total of: 1,575 hours of Education/Outreach; 1,988 hours of stewardship; 2,669 hours of citizen science; and 1,634 hours of administrative hours. The FMN chapter worked with a variety of sponsoring agencies, including the Virginia Department of Forestry, Virginia State Parks and the Virginia Department of Game and Inland Fisheries. These efforts included seed and acorn collection, invasive management and deer management.
- In addition to projects conducted in partnership with sponsoring agencies, the FMN chapter provided substantial volunteer hours in partnership with a variety of Fairfax County Park Authority locations. One example is the *Meaningful Watershed Educational Experience* held at the Hidden Oaks Nature Center/Hidden Pond Nature Center, where volunteers gave 150 hours to over 1,150 students.

Fairfax County Restoration Project (FCRP)

- FCRP has continued its coordination with the Virginia Department of Transportation and homeowners on reforestation efforts in areas cleared for the Capital Beltway Express Lanes project.
- In 2012, the I-495 HOT Lanes project, the original impetus for FCRP, was renamed 495 Express Lanes. Spring 2015 represents the end of the planting along the corridor.

The unfortunate occurrence of unauthorized mowing destroyed much of the growth that had taken place between Braddock Road and Gallows Road. However, VDOT rapidly responded and confirmed that the trees destroyed will be paid for by the errant contractor and those voluntary natives will be replaced if they fail to regenerate as they are expected to do. Nothing can be done about the eight years of growth that has been lost, but the area should ultimately recover. According to FCRP, VDOT has taken additional steps to prevent a recurrence of the mowing.

- Reforest Fairfax was launched on October 13, 2011. Reforest Fairfax is a tree-gifting program designed to help replenish the tree canopy and to help the county achieve its tree canopy goals. For each \$35 gift purchased, five seedlings are planted by Fairfax ReLeaf during a spring or fall planting season. An on-line locator is available so once the trees are planted the locations of the gifts can be identified. There is also an optional on-line registry for supporters of the program. The program can be accessed at www.fcrpp3.org/reforestfairfax/. In 2014, the total reached 95 gifts purchased and 475 trees planted.
- Additional FCRP activities are noted in the detailed report and on the project's website at www.fcrpp3.org/. Native tree fact sheets can be found on this website as well.

Stewardship

- The Fairfax County Park Authority offers a number of opportunities for volunteers, and EQAC encourages county residents to take advantage of these opportunities. Information about these opportunities is available at www.fairfaxcounty.gov/parks/volunteer. More information about FCPA and its programs is available at www.fairfaxcounty.gov/parks/resources.
- Fairfax County residents and other interested parties can donate to the Fairfax County parks through the Fairfax County Park Foundation. The Fairfax County Park Foundation is a 501(c)(3) not-for-profit organization and donations are tax deductible to the fullest extent allowed by law. The foundation's mission is to raise funds to support the parks and land under the stewardship of the Fairfax County Park Authority. Those interested in giving tax-deductible donations to the foundation can contact the foundation at:

Fairfax County Park Foundation
12055 Government Center Parkway
Fairfax, VA 22035
(703) 324-8581
SupportParks@aol.com
www.fairfaxparkfoundation.org.

- NOVA Parks (the Northern Virginia Regional Park Authority) also has opportunities for volunteers. These environmental stewardship opportunities for volunteers are available at Meadowlark Botanical Gardens, Potomac Overlook Regional Park, Upton Hill Regional Park, Pohick Bay Regional Park and various other parks on occasion. More information can be found at www.nvrpa.org/park/main_site/content/volunteer.
- Fairfax ReLeaf offers a number of opportunities for stewardship. For further information on Fairfax ReLeaf, visit its website at www.fairfaxreleaf.org. The organization can be reached at:

Fairfax ReLeaf
12055 Government Center Parkway
Suite 703
Fairfax, VA 22035
Telephone: (703) 324-1409
Fax: (703) 631-2196
Email: trees@fairfaxreleaf.org

- The Northern Virginia Conservation Trust offers many stewardship opportunities for Fairfax County residents. Additional information on NVCT can be found on its website, www.nvct.org. Landowners whose property contains environmentally sensitive land such as wetlands, stream valleys and forests can also participate in environmental stewardship. If these landowners grant easements to NVCT, they will not only protect sensitive land, but can realize some financial benefits. A perpetual easement donation that provides a public benefit by permanently protecting important natural, scenic and historic resources may qualify as a federal tax-deductible charitable donation. Under the Virginia Land Conservation Act of 1999, qualifying perpetual easements donated after January 1, 2000 may enable the owner to use a portion of the value of that gift as a state income tax credit. Fairfax County real estate taxes could also be reduced if the easement lowers the market value of the property.
- For stewardship information on the Potomac Conservancy, see www.potomac.org.

Comments

1. The Fairfax County Board of Supervisors has endorsed the goals and actions within the Tree Action Plan and adopted a tree conservation ordinance to strengthen tree preservation policies and procedures. In addition, trees were identified as a special area of interest in the FY 2008 Environmental Improvement Program. An analysis of high-resolution satellite imagery and LIDAR data indicates that 53 percent of the county's landmass was covered by tree canopy in fall 2011 (the date of this most recent imagery acquisition). This figure is much higher than those produced by previous imagery. (However, EQAC notes that the new data are at a higher resolution than the old. At this time, we cannot say what the actual difference, if any, there is in the tree canopy since the two datasets cannot be compared directly.)

EQAC commends the Board of Supervisors for its progressive approach to improving the retention and expansion of this valuable ecological resource. It is imperative that these programs not be allowed to weaken or be given less priority in future years. EQAC believes that continued emphasis of tree actions in the Environmental Improvement Program document is necessary to assure continued emphasis and eventual meeting of goals.

2. In past Annual Reports, EQAC recommended that the Board of Supervisors emphasize public-private partnerships that use private actions such as purchase of land and easements by existing or new land trusts to protect forests and other natural resources, including champion/historic trees. With the signing of a Memorandum of Understanding between the Board of Supervisors and the Northern Virginia Conservation Trust, such a public-private partnership came into being. Thus, EQAC's recommendation has been satisfied. EQAC continues to commend the Board of Supervisors for this action and recommends continued support for this partnership.
3. In past Annual Reports, EQAC recommended that the Board of Supervisors develop and implement a countywide Natural Resource Management Plan – an ecological resources management plan that can be implemented through the policy and administrative branches of the county government structure. Two necessary tasks should be accomplished: first, prepare and adopt a unified Natural Resource Conservation Policy; and second, complete a countywide Baseline Natural Resource Inventory.

EQAC notes that progress is being made in this area by the Fairfax County Park Authority staff in its efforts to establish a natural resources baseline inventory. FCPA has developed a countywide green infrastructure map that appears to be a basis for a natural resource inventory.

Additionally, the Urban Forest Management Division is continuing efforts to devise a countywide map for use as a layer on the county's GIS that will delineate the distribution of naturally occurring and landscaped vegetation. However, FCPA must supplement these efforts with an inventory of the county that accounts for flora and fauna. The creation of a natural resource protection zone and geodatabase model is complete. A more robust field data collection technique was successfully tested and is being expanded to all applicable field datasets. The new data collection technique uses tablet computers and mobile GIS combined with rapid assessment protocols to quickly and easily map natural resources data in the field and sync this data with a remote server. Applicable field datasets include Non-native Invasive Assessment Protocol (NNIAP) data, white-tailed deer browse impact (deer) data, and community level vegetative classification (vegetative communities) data. In the future, the datasets should be expanded to include all flora and fauna.

EQAC also notes the accomplishment of the Park Authority in preparing and publishing a revised Natural Resources Plan (in January 2014) for management of the

county's parks and urges the Park Authority to fully implement this plan. Additionally, EQAC notes that the Park Authority has taken some steps in implementing the plan, but much more needs to be done. EQAC fully supports these efforts, urging that they culminate in a countywide Resource Management Plan. EQAC's intent is that Fairfax County should have all the tools in place (the policy and the data) to create a plan that will support the active management and conservation of the county's natural resources.

4. While recurring funding to implement the Natural Resource Management Plan has not been secured, progress has been made in identifying positions within the Park Authority; however, one position is not yet funded. The Park Authority continues to be successful in obtaining project specific funding for some resource management. Some funding has been secured through the Environmental Improvement Program plus a combination of proffers, bonds, telecommunications fees and other sources. Much more needs to be added to the budget to fully fund the plan.
5. On January 21, 2015 (as clarified on March 11, 2015), EQAC passed a resolution to the Board of Supervisors expressing agreement with the county's program for controlling the fall cankerworm. See Appendix B for the correspondence to the Board of Supervisors.

Recommendations

1. The Fairfax County Park Authority has an approved merit Ecologist position. However, this position is vacant and will remain vacant until funding is provided. EQAC recommends that the Board of Supervisors provide sufficient funding so that this position can be filled.
2. The Fairfax County Park Authority approved a Natural Resource Management Plan in 2004. This partially fulfilled a long-standing EQAC recommendation to develop and implement a countywide Natural Resource Management Plan. In 2014, the Park Authority adopted a revised Natural Resource Management Plan that more closely focused on adaptive management of natural resources. However, full funding to implement the plan is not yet in the Park Authority budget. The Park Authority has managed to secure some funding from several sources but lacks most of the amount to implement fully the plan. FCPA staff estimates that full implementation would require approximately \$8 million per year and dozens of staff positions. This includes about \$3.5 million to focus on general natural resource management and \$4.5 million for a non-native invasive plant control program. A more phased approach to funding would allow FCPA to begin to manage 10 percent of parklands and set up the program to be phased in over time. Phase 1 with this approach would require \$705,000 and five positions. EQAC strongly feels that the Natural Resource Management Plan needs to be fully implemented. Therefore, EQAC recommends that the Board of Supervisors provide sufficient funding to implement an initial phase for natural resource management efforts and that the Fairfax County Park Authority Board apply this funding accordingly. EQAC further recommends that, over time, the full plan be funded.

VIII. Wildlife Management

Impacts of Deer in Fairfax County

Overview

The deer population in Fairfax County has reached critical proportions. This fact has been conclusively documented by the Virginia Department of Game and Inland Fisheries (DGIF). As a consequence, DGIF has relaxed the rules for and considerably extended the hunting season for Fairfax County only. The season extension has been even greater for archery, which is of special benefit for areas where firearms are prohibited.

Background

Adult deer consume some six to seven pounds of vegetation per day. This coupled with the growth in the number of deer in the county has resulted in unacceptable destruction of residential landscaping and the understory of our parks and woodlands. The loss of understory has, in turn, cost us many of our birds and small animal species. The Board of Supervisors implemented the Deer Management Program in 1999 in accordance with recommendations that had been developed by the county executive's Deer Management Committee and established the position of county Wildlife Biologist to lead many of the program activities.

The two methods found most effective in reducing the county's deer herd to more acceptable levels are managed hunts and sharpshooters. Due to state law limitations on the discharge of firearms in or near residential neighborhoods, both of these methods have been conducted primarily in parkland. Managed hunts require participants to be qualified beforehand and be provided supervision during events. Sharpshooter events are conducted by the Tactical Teams of the Fairfax County Police Department Operations Support Bureau. In situations close to residences, archery is the preferred method, since the projectiles travel relatively short distances and are correspondingly less hazardous.

In parks where these measures have been used for three successive years, the understory has shown considerable regeneration. With moderate annual attention to limit the size of the local deer herd, these efforts can achieve full restoration of a biodiverse habitat.

Important Scientific Data Needs

There is an urgent need for scientific data that is not currently being collected. The main areas are:

- Field studies of deer density, including impact on plant communities.
- Game camera and aerial infrared (FLIR) surveys for accurate estimates of deer densities in county parkland.

- Deer browse surveys to assess impact on native vegetation and forest understory in county parkland.
- Monitoring data to guide deer management decisions and to assess effectiveness of deer management efforts.

Recent Activities

- The county Wildlife Biologist position became vacant in 2008 and there was a considerable lapse in program activities until a suitable replacement could be identified and brought aboard. At the same time, the nationwide recessionary environment severely impacted the county budget and caused additional reductions in program activities. The county Wildlife Biologist position was filled by a highly qualified individual who conducted a thorough assessment of the wildlife management programs and introduced some additional activities. The position again became vacant in 2014. During the interim, the program was overseen by Animal Control Services Division, Fairfax County Police Department. A new Wildlife Management Specialist was brought on board in summer 2014. This position now reports to the Director of Fairfax County's Animal Shelter.
- However, despite these difficulties the deer management program was able to conduct some managed hunts and sharpshooter events.
- The Wildlife Management Specialist and the Director of Animal Services have conducted an extensive program review in order to maximize the ongoing effectiveness of the program and the most efficient application of fiscal resources.
- An archery program has been implemented, which will make it possible to address deer control in residential areas where discharge of firearms is prohibited.

Issues of Note

EQAC feels that it is essential to maintain the programs for controlling the deer population. Otherwise, each year we will lose ground and the damage to key vegetation will increase; and the diet of the excessively large deer herd will become less adequate and the health of the individual members of the herd will suffer.

Comments

1. The Virginia Department of Game and Inland Fisheries has identified Fairfax County as an area for deer population reduction based on the abundant status of deer herds within the county. Thus, DGIF has set liberal regulations to assist population control efforts, including no daily or season bag limits and an extended eight month deer season. DGIF has authorized an early archery season on private lands within Fairfax County through which qualified bow hunters may hunt from the first Saturday in September through the last Saturday in April.

2. While limited program activities were conducted during the vacancy in the position of the county's Wildlife Biologist, it is apparent that there was considerable additional damage to the vegetation of the vital understory throughout the county.
3. Due to the recessionary environment in which the county has been operating, it was necessary to cancel the Assistant Wildlife Management Specialist position that had been authorized but not yet filled. In an attempt to meet the most urgent needs of the Wildlife Program, a limited-term part-time assistant specialist has been made available through the end of 2015. If the Wildlife Program is not to be seriously impaired, the previously authorized Assistant Wildlife Management Specialist position should be filled as soon as possible.
4. Public understanding and perceptions of the deer management program were assessed through a survey conducted in mid-2010. The results of the survey are available on the county website www.fairfaxcounty.gov/living/wildlife/deer-management/fy-2011-deer-management-survey-results.pdf.
5. From 1998-2015, 8,085 deer have been harvested through the Fairfax County Deer Management Program. Harvests have been increasing annually and can be attributed to expansion of the program onto additional county lands and implementation of the archery program in 2010. Since archery was approved as a management tool, 69 percent of deer harvests have been through this method. Since 2010, managed hunts and sharpshooting operations have yielded 11 percent and 20 percent, respectively. In 2015, 65 parks have been included in the program and a total of 1,122 deer have been harvested, with 66 percent being does.

Recommendations

1. Managed hunts should be continued as they have become both cost-effective and efficient in reducing excesses in the deer herd.
2. The sharpshooter events should be continued because they are both humane and cost-effective.
3. The archery program should be continued and significantly enhanced as a means of controlling deer depredation of vegetation on residential properties where firearms cannot be used. Archery is particularly cost-effective, relying on hundreds of qualified volunteers contributing thousands of hunt hours to the program at no cost.
4. The previously authorized Assistant Wildlife Management Specialist position should be filled as soon as possible.

Impacts of Geese in Fairfax County

Background

Canada geese, once almost exclusively migratory, have to an increasing extent become year-round residents in Fairfax County. Wildlife biologists estimate that the Canada goose population is increasing at about 15 percent annually, which indicates that problems associated with resident goose populations soon will increase to critical levels unless remedial actions are undertaken. The problem is not so much the animals *per se* but rather the fecal contamination they bring to our water bodies and watercourses and their fouling of grassy open areas. This pollution creates significant public health risks. Geese wastes are a well-documented source of fecal coliform bacterial contamination, which has reached alarming levels in many ponds, lakes and reservoirs, even those forming part of our domestic water supply. An additional problem is the damage resident geese cause to our marshes, where they feed on sprouting plants so voraciously that some once-plentiful botanical species have all but disappeared. Addressing these problems inevitably requires reducing the goose population, but this is complicated, because geese are protected by federal migratory waterfowl laws.

Issues in Addressing the Problem

Geese, and to a lesser extent ducks, are primary polluters of our streams and ponds. While federally protected as migratory waterfowl, increasingly they have become permanent residents and thus a year-round problem in many areas of the county and constitute a major environmental nuisance and public health risk.

Methods for Goose Population Management

Under federal laws, the main control measure has been coating the eggs with corn oil and replacing them in the nests. The oil coating prevents oxygen from penetrating the shell and thus the eggs from hatching; replacing them in the nest makes the goose think they are okay and prevents more eggs from being laid. The county and the Fairfax County Park Authority (FCPA) have been conducting egg-oiling at some sites for more than ten years.

The Fairfax County Park Authority has recently held exploratory discussions to examine the feasibility of using managed shotgun hunts for reduction of resident goose populations and the regulatory limitations that may be applied to this approach. An initial pilot test has been conducted on a county-owned privately-managed golf course. The shot size was carefully selected and the powder load in the shells was reduced in the interest of safety. Hunt locations were designed to comply with the requirements of Appendix J of the Fairfax County Code. This approach was deemed quite successful and has considerable promise for efficiently meeting FCPA control needs and should be expanded where possible and fully supported.

Public Education and Awareness Needs

More intensive public information campaigns and community outreach efforts are badly needed to actively involve a larger number of individuals and community organizations in goose population control programs.

Program Implementation Activities

Goose management programs have been implemented at a number of locations in Fairfax County, many of 10 or more years' duration. Fourteen major locations around the county where goose control measures were formerly under the blanket county permit are now under individual permits. All of these programs have demonstrated reasonable degrees of success in stabilizing populations. In some cases, populations have actually declined over time due to efforts to discourage geese from further attempts to nest there. The Fairfax County Park Authority on its separate federal permit was able to oil substantial numbers of goose eggs.

The Fairfax County Park Authority recently held a pilot test of using managed shotgun hunts for reduction of resident goose populations. The initial pilot test was conducted on a county-owned privately-managed golf course. This approach was deemed quite successful and has considerable promise for efficiently meeting FCPA control needs and should be expanded where possible and fully supported.

While the programs currently in place to address these problems are good, they need to be replicated much more widely in additional areas of the county.

Comments

1. The Fairfax County Park Authority has recently held exploratory discussions to examine the feasibility of using managed shotgun hunts for reduction of resident goose populations and the regulatory limitations that may be applied to this approach. An initial pilot test has been conducted on a county-owned privately-managed golf course. The shot size was carefully selected and the powder load in the shells was reduced in the interest of safety. The hunt location was designed to comply with the requirements of Appendix J of the Fairfax County Code. This approach was deemed quite successful and has considerable promise for efficiently meeting FCPA control needs and should be expanded and fully supported.
2. It is noteworthy that some migratory geese elect to remain resident, thereby increasing the number requiring control.

Recommendations

1. EQAC strongly recommends that the Geese Management Program be continued, particularly the public outreach and training activities so that a cadre of volunteers can be created to provide the labor to do the actual egg-oiling that is the principal control measure.

2. The shotgun hunt for geese pilot test conducted by the Fairfax County Park Authority should be expanded into an established program for those parks that can comply with Appendix J of the Fairfax County Code, and consideration should be given to limited amendment of Appendix J so additional parks could be included.
3. Due to the current scarcity of staff resources, the Geese Management Program is below an acceptable level of activity. Staff allocation to the program should be increased.
4. The previously authorized Assistant Wildlife Management Specialist position should be filled as soon as possible, in order to alleviate the current staffing inadequacy in the Geese Management Program.

Coyotes in Fairfax County

Comment

1. A small number of coyotes are becoming resident in Fairfax County. Currently, the potential advantages and disadvantages seem about evenly balanced. Thus, there are no recommendations at this time except that the county Wildlife Management Specialist should monitor the situation and keep the relevant county agencies and the public informed.

Wildlife Borne Diseases of Concern in Fairfax County

Comments

1. EQAC commends the Board of Supervisors for providing continued active support to the following ongoing programs:
 - The Stream Monitoring Program in which the Stream Protection Strategies Program of the DPWES performs sample collection and field testing and the Health Department performs laboratory testing and analysis functions.
 - Enhanced public education programs and initiatives in key areas, such as control of rabies and of wildlife contributing to pollution of surface waters, epidemiology and abatement of insect borne diseases such as West Nile Virus and Lyme Disease.
 - EQAC commends the Health Department for its excellent public education programs and advocates posting of advisories on the county website when polluted waters are identified.

2. EQAC feels that the Board of Supervisors should monitor these programs by scheduling periodic reports to its Environmental Committee by county staff.
3. Recently, there was an incident of a feral cat that bit both an adult and child and when apprehended by Fairfax County Animal Control was found to have rabies, which necessitated rabies treatment for the victims. Since feral cats often live in small groups they should be closely monitored as a potential rabies hazard.

WILDLIFE AND THE ENVIRONMENT IN FAIRFAX COUNTY: SUMMARY OF RECOMMENDATIONS

Impacts of Deer in Fairfax County

1. Managed hunts should be continued as they have become both cost-effective and efficient in reducing excesses in the deer herd.
2. The sharpshooter events should be continued because they are both humane and cost-effective.
3. The archery program should be continued as a means of controlling deer depredation of vegetation on residential properties where firearms cannot be used. Archery is also particularly cost-effective, relying on hundreds of qualified volunteers contributing thousands of hunt hours to the program at no cost.
4. The previously authorized Assistant Wildlife Management Specialist position should be filled as soon as possible.

Impacts of Geese in Fairfax County

1. EQAC strongly recommends that the Geese Management Program be continued, particularly the public outreach and training activities so that a cadre of volunteers can be created to provide the labor to do the actual egg-oiling that is the principal control measure.
2. The shotgun hunt for geese pilot test conducted by the Fairfax County Park Authority should be expanded into an established program for those parks that can comply with Appendix J of the Fairfax County Code, and consideration should be given to limited amendment of Appendix J so additional parks could be included.
3. Due to the current scarcity of staff resources, the Geese Management Program is below an acceptable level of activity. Staff allocation to the program should be increased.

4. The previously authorized Assistant Wildlife Management Specialist position should be filled as soon as possible, in order to alleviate the current staffing inadequacy in the Geese Management Program.

Impacts of Coyotes in Fairfax County

There were no specific recommendations for Coyotes.

Impacts of Wildlife Borne Diseases in Fairfax County

There were no specific recommendations for wildlife borne diseases.

IX. Noise, Light Pollution and Visual Pollution

The final chapter of the Annual Report on the Environment addresses a series of environmental concerns that may be considered by some to be byproducts of our lives in a populous urbanizing locality and by others as avoidable (or at least mitigatable) intrusions on our health and quality of life.

Noise, and transportation-generated noise in particular, can have a variety of adverse impacts on individuals and communities. The Annual Report focuses on noise from aircraft operations, noise from motor vehicle traffic on highways and noise from a Metrorail maintenance yard.

Improperly designed lighting can have adverse effects on safety and quality of life. The trespass of light from one property to another, excessive brightness (“glare”), urban sky glow and excessive energy use are all avoidable results of improper lighting.

Our quality of life can also be degraded by a variety of visual pollutants. Previous Annual Reports have reported on signs, billboards, telecommunication towers and utility transmission lines; this year’s report focuses largely on illegal signs.

As is the case with all of the issues addressed in this summary report, EQAC has prepared overviews of these issues and concerns in considerable detail in the larger report that is available electronically through EQAC’s website (www.fairfaxcounty.gov/eqac/report).

Noise

Background

While transportation-generated noise impacts cannot be eliminated from the urban or suburban environment, they can be minimized through careful planning and through mitigation efforts. For example, there may be opportunities for air traffic controllers to route aircraft operations over commercial and industrial areas as opposed to residential areas. Further, local governments with land near airports can encourage, through planning and zoning measures, noise-compatible uses in areas with high projected noise exposures. Noise from highways can be mitigated to a certain degree through the use of noise barriers, and noise sensitive structures that are built near highways or airports can incorporate building materials with acoustical properties that reduce substantially the amounts of noise that are transmitted into interior spaces.

Recent Activities—Airport Noise

Airport Operations

- While flight operations at Reagan Washington National Airport remained almost steady in 2014 relative to 2013, Dulles continued to lose flights and operations dropped 6 percent. Total operations at both airports dropped 5 percent, from 600,500 to 572,500.

Noise Monitoring

- The Metropolitan Washington Airports Authority (MWAA), which operates both airports, has monitored noise at 35 locations throughout the Washington metropolitan area, including 14 sites in Fairfax County, since 2008. By 2014, however, three of the original monitors placed in Fairfax County were decommissioned because of vandalism, and funds are not available to replace them.
- MWAA introduced a new noise monitoring system in 2014 called IAD WebTrak and DCA WebTrak for Dulles and Reagan Washington National Airports, respectively. Using the same monitors in place since 2008, this system displays aggregate noise measurements as airplane icons fly over the monitors in their flight paths displayed on an interactive map, with a one-hour delay. This aggregate noise level is then recalculated to distinguish between aircraft noise and community noise presented as DNL dBA¹. All three noise measurements – aggregate aircraft, and community – for each of the noise monitors were previously provided by MWAA on a quarterly basis in the Annual Aircraft Noise Report. MWAA is not yet reporting on the noise information compiled by the new technology, as it is currently reviewing reporting options. EQAC recommends that MWAA continue to report the three measurements on a quarterly basis, and that they be made available with less delay on the MWAA website.

Issues of Interest at Washington Dulles International Airport

- Construction of a new north-south runway has been completed, and since 2012, all four runways have been operational.
- Rail to Dulles continues to be under construction.

Issues of Interest at Reagan Washington National Airport

- In early 2008, the Federal Aviation Administration completed its review of the Part 150 Noise Compatibility Study for Reagan Washington National Airport. Only four of the eight proposed noise abatement measures in the study were approved, as were all six of the mitigation measures, with the acknowledgment that these measures were beyond the authority of the Federal Aviation Administration (FAA). The four measures that were disapproved were done so because there are “no present or forecasted incompatible land

¹ For information about A-weighted noise and the DNL noise metric, see the county’s “Noise Basics” website at www.fairfaxcounty.gov/dpz/environment/noise/noisebasics.htm.

uses within the DNL 65 dB” noise contour. While FAA rejected noise abatement measures that were proposed outside the DNL 65 dBA impact area associated with Reagan Washington National Airport, EQAC feels that noise impacts do not stop at DNL 65 dBA and that areas beyond the DNL 65 dBA noise contour both north and south of the airport continue to be affected by noise associated with operations at the airport.

Noise Complaints

- Concerns regarding airport noise issues for commercial flights should be directed to MWAA. MWAA maintains an on-line tracking and reporting system, as well as a telephone number, for airport noise complaints for [Reagan Washington National](#) and [Dulles](#) Airports.

Recent Activities—Highway Noise

Highway Noise Barriers

- As part of the I-495 Express Lanes Project, nine new sound barrier systems were constructed, along with the replacement/enhancement/extension of eight previously existing sound walls. Sound walls have been constructed to protect almost all residential areas on both sides of the highway adjacent to the 14-mile stretch of the project. Barrier heights range from seven to 39 feet.
- Four new noise barrier systems on the I-95 Express Lanes have been completed.
- Four new noise barriers on the Dulles Connector Road have been completed.
- Two replacement and three new noise barriers have been completed for the I-66 Spot Improvement Project.
- Traffic noise studies are under way to assess impacts and determine whether noise barriers are warranted for the following VDOT projects:
 - Jones Branch Drive Connector over I-495 (administered by Fairfax County).
 - Route 7 bridge replacement and widening over the Dulles Airport Access and Toll Rd.
 - Route 7 corridor improvements from Reston Avenue to Jarrett Valley Drive.
 - Route 28 corridor improvements from I-66 to Westfields Boulevard.
 - I-66 corridor improvements from I-495 to U.S. Route 15 in Prince William County.
- Noise barriers are also under consideration for the Richmond Highway improvement project between Telegraph Road and Mount Vernon Memorial Highway (VDOT Project No. 0001 029 938, P101/UPC 99181). A final noise analysis is currently pending to determine if they will be warranted.

Tysons Corner Noise Study

- A contract was awarded in June 2011 to Phoenix Noise and Vibration to complete a study of transportation-generated noise for the Tysons Corner Urban Center. The Tysons Corner Areawide Urban Center Transportation Noise Study was completed by the consultant in December 2012. The study focused on all major roadways, within and bordering the urban center, with a posted speed limit of 35 mph or greater. The study provided noise contours for both ground level and vertical estimates of existing and projected transportation-generated noise in this area. Staff continues to rely on the findings of this study as a resource for determining the need for more detailed, site-specific noise studies.

Recent Activities—Rail Noise

Metro Yard Noise

- As part of the proposed expansion of the Metro Service and Inspection Yard located near the West Falls Church Metro station, a sound box was built over the noisiest portion of a loop track at the site to protect residents from noise generated from the tracks. The sound box was completed in summer 2014 and satisfied all of the development conditions and requirements relating to noise.
- Residents have complained about loudspeaker noise and wheel squeal from another loop, and the Department of Planning and Zoning is working with the Washington Metropolitan Area Transit Authority to resolve some outstanding issues.

Fairfax County Noise Ordinance Revisions

- The Board of Supervisors requested staff to review and revise the Noise Ordinance to better address noise measurement methodology, to consider requiring separate daytime and nighttime noise levels and to address other objective criteria to regulate noise. Staff presented a draft, which received extensive and conflicting comments from the public that provided no clear consensus on the issues, with two of the more controversial issues being noise from dog parks and athletic activities on Fairfax County Public Schools (FCPS) grounds. Staff then presented options on how the board could advertise the proposed amendment, given the diversity of the public comments. A second public hearing was held in May 2015, and in June staff proposed text that would potentially address some of the issues raised by the speakers. Additional information about dog parks and efforts to reduce noise from athletic events on school property was also provided by staff. It was the consensus of the Board of Supervisors' Development Process Committee that additional time was needed to address the issues, and a workshop to discuss the proposed ordinance was held in September 2015. With this additional information, the board was scheduled to make its decision on the proposed Noise Ordinance at its November 17, 2015 meeting. EQAC will report further on the revision of the county's Noise Ordinance in its next Annual Report.

Stewardship

- The Fairfax County Restoration Project (FCRP), a public-private partnership, launched in spring 2010 with its initial focus on restoration of areas negatively impacted by the I-495 Express Lanes Project. FCRP is working with VDOT to modify VDOT's landscaping plans to include restoration of cloverleaf areas and areas inside and outside the sound walls. Vegetation planted inside and outside the sound walls will provide many benefits, including reduction in stormwater runoff, habitat for pollinators, birds and small mammals and visual relief for both motorists and residents. In recognition of its many projects already under way in different parts of the county, FCRP was awarded a 2011 Environmental Excellence Award (see Appendix C of the detailed version of this report). Anyone interested in joining the efforts should contact FCRP at info@fcrpp3.org

Comments and Ongoing Concerns

1. Continue to support airport noise-compatible land use planning near airports in the county through the implementation of policies and regulations that reference the most current airport noise contour projections for the airports and that are at least as stringent as federal noise compatibility guidelines.
2. Staff should continue to review all airport and highway studies that require Environmental Assessments or Environmental Impact Statements under the National Environmental Policy Act for consistency with county policies addressing transportation-related noise and mitigation and report its findings to the board. In turn, the Board of Supervisors should, when appropriate, adopt resolutions with specific requests and/or recommendations and transmit these to the Metropolitan Washington Airports Authority, Federal Aviation Administration, Commonwealth Transportation Board, Virginia Department of Transportation and other state and federal agencies as applicable.
3. Encourage the retention and planting of noninvasive vegetation to provide visual shielding of residents from highways. Where possible, support the provision of vegetated areas adjacent to highways that are wide enough and dense enough to provide noise reduction benefits to residential areas near the highways. Where feasible and appropriate, pursue such approaches in lieu of noise walls.

Recommendation

1. EQAC recommends that the Board of Supervisors request to MWAA that quarterly summaries from MWAA's WebTrak system be displayed in three formats (Total DNL, Aircraft DNL and Community DNL), together with the interactive data, on the MWAA website. The quarterly summaries should be provided as promptly as possible, ideally within a month of the quarter's end (e.g., by the end of April, July, October and January).

Light Pollution

Background

Light pollution is a general term used to describe light output, primarily from exterior (outdoor) sources, in commercial, residential and roadway settings, that is excessive in amount and/or that causes harmful glare to be directed into the path of travel or into residential neighborhoods. Light pollution is thus both a safety issue and a quality of life issue. A major effort was undertaken in 2002 to write a totally new and modern Outdoor Lighting Ordinance. This highly successful effort came to fruition in early summer 2003 with the adoption of the new Outdoor Lighting Ordinance. However, there were a few areas that could not be addressed adequately by the new ordinance, since suitable standards and convenient measurement technology were not available at that time. This report can now focus on the most pressing of these areas.

Issues and Problems

The main issues of exterior lighting and light pollution may be summarized as follows:

1. Glare

Glare falls into three main categories:

- Disability glare, which is blinding.
- Discomfort glare, which produces significant discomfort.
- Nuisance glare, which causes annoyance and complaints.

2. Light Trespass

Light crosses property lines to invade a neighboring property.

3. Security

Much outdoor lighting is used in the interest of providing security. These safety concerns often result in bad lighting rather than real security. The debate as to whether or not additional light provides more safety has been emotional rather than factual. The few rigorous studies that have been done reveal no connection between higher lighting levels and lower crime rates. Thus, the supposed correlation between a high level of security lighting and reduced crime appears to be nothing more than a popular myth.

4. Energy Usage

Smart lighting techniques, which direct all of the light generated onto the target area, reduce energy consumption and hence the use of fossil fuels. Several engineering estimates suggest that at least 30 percent of outdoor lighting is being wasted through light energy spilling upward and outward rather than being directed downward onto

the target area. Also, many installations are greatly over-illuminated as well as being lighted for unnecessary durations.

Current County Standards and Regulations

The Fairfax County Outdoor Lighting Ordinance (2003) prescribes limits for the maximum wattage of light sources and for the amount of illumination and glare in commercial and residential districts. However, existing installations that were noncompliant under the new ordinance were allowed under state law to continue until such time as the fixture required replacement. The Policy Plan volume of the Fairfax County Comprehensive Plan (2013 Edition) recognizes the nuisance of light emissions arising from increasing urbanization and recommends that efforts be made to avoid creating sources of glare that interfere with residents' and/or travelers' visual acuity. To put this into practice, the county's Zoning Ordinance contains standards for illumination limits. However, the issue of glare has only recently been addressed adequately by special task forces.

EQAC sees a need for improvement to the county's lighting ordinance to address multiple lighting fixture arrangements and work lights on the open floors of buildings under construction. The first two of EQAC's recommendations below address these concerns.

Public Agency Responsibilities

The responsibility for ensuring compliance with glare and illumination standards for residences and other private properties lies primarily with the county's Department of Code Compliance. Enforcement activity dealing with light is complaint-driven and amounts to about 0.5 percent of total complaints. Complaints are either filed by individuals directly with the Department of Code Compliance or are forwarded by the staff of a member of the Board of Supervisors. The causes of the complaints have usually been fast food or other commercial establishments, security lighting for residences, athletic facilities (e.g., ball fields, driving ranges) or churches. The inspectors typically resolve violations with informal enforcement such as a verbal warning that there is a violation and how it may be remedied. A written notice of violation or civil action can be used if needed. Beyond the general glare standards, the county frequently is able to impose additional "before-the-fact" restrictions through development conditions when rezoning, special permit and special exception processes come into play.

Public Education and Awareness Needs

The general public needs awareness of the sources and problems of light pollution and of the methods by which these can be best addressed. The county staff has prepared an excellent and very informative 16 page booklet to explain the Outdoor Lighting Ordinance (available at www.fairfaxcounty.gov/DPZ/Zoning/lightingbrochure.PDF). It can also be made available in printed version to individuals, homeowners groups and community associations directly through appropriate county offices and through the district offices of the members of the Board of Supervisors. The complete ordinance in convenient form is available on the

Fairfax County website at
www.fairfaxcounty.gov/DPZ/Zoningordinance/articles/Art14.PDF.

Recent Activities of Note

- There have been several revisions to the Outdoor Lighting Ordinance that were needed to address specific problems. There have been several task force meetings to define the scope of additional revisions and amendments with tentative drafts of the revision being prepared.
- The Fairfax County Park Authority's efforts to achieve more efficient usage of its athletic fields is both commendable and highly cost-effective despite the presence of some problems with lighting disturbance in residential neighborhoods. EQAC has noted these problems and has worked closely with the Planning and Development Division of the Park Authority to address the problems of light spill and the problem of glare from the high-intensity, pole-mounted athletic field lights.
- EQAC has collaborated with the Park Authority in preparing an extensive report, sometimes known as a "white paper," on the problems of athletic field lighting including the limitations on solutions of the glare problem and a detailed set of technical specifications for design of field lighting that will, insofar as possible, minimize problems for surrounding neighborhoods. Extensive tests at sites for which complaints have been received have shown that Park Authority specifications for lighting spill are being well met in all cases. Thus, light spill appears to have become a non-problem.
- Recent Park Authority beta tests of light emitting diode (LED) lights along paths and walkways in McLean Central Park have been extremely successful and indicate that this technology should become the Park Authority standard.

Comments and Ongoing Concerns

1. In response to recommendations in earlier EQAC Annual Reports on the Environment, the Fairfax County Park Authority commissioned several studies of sports field lighting design and technology. The Park Authority issued a set of specifications, dated November 2006, for new athletic field lighting installations that addressed most of the issues adequately except for glare. The Park Authority then commissioned a special study of the glare problem. The Park Authority Director of Planning and Development requested EQAC to collaborate with his staff to develop this study. The final document, based on the underlying science, reveals that much of the glare problem is dependent on source-to-background contrast ratio, which is a fundamental law of nature and not under the control of humans.
2. The earlier EQAC Annual Report recommendations that the Department of Planning and Zoning undertake some needed revisions of the Outdoor Lighting Ordinance has come to fruition in the form of several meetings of a task force of stakeholders to develop specifications for such revisions.

3. The scheduled revisions have been expanded to include consideration of light emitting diode lamps. The Park Authority has recently begun to use these for walkway lighting due to their much lower operating and maintenance costs. Some of these revisions are soon to be in final form.
4. EQAC continues to support that the Board of Supervisors work with VDOT and Virginia elected officials to eliminate unnecessary roadway lighting and whenever possible to accelerate replacement of existing poorly designed fixtures under the control of VDOT with full cut-off fixtures.
5. Adherence to four principles will do much to mitigate or eliminate lighting problems:
 - Always illuminate with properly shielded fixtures that prevent the light source, and the resultant glare, from being directly visible.
 - Never use more illumination than needed for the task at hand.
 - Always aim lighting downward, keeping its distribution within property lines and below the horizontal plane so it is not a source of glare.
 - Do not burn lighting all night long to provide security; instead use motion detector lighting, which burns only for motion in the designated area.
6. Ongoing evaluation of the Fairfax County Outdoor Lighting Ordinance, supported by extensive field observations, has identified four areas where the ordinance is in need of additions or amendments. These items are summarized in the recommendations below and drafting of the necessary revisions should be included in the Zoning Ordinance Amendment Work Program.
7. It should be noted that residential communities desire that schools and parks be located convenient distances from residences in order for children to have convenient pedestrian access to such facilities. Thus, it will never be possible to completely avoid some lighting problems.

Recommendations

1. The number and spacing of lighting fixtures, either as long lines or grids, may create unacceptable illumination. The county's lighting ordinance should therefore be amended where such unacceptable levels of illumination would constitute violations under the ordinance. Examples would be a string of lights along a driveway or walkway, an array of drop lens lights, or excessive lights in a parking lot.
2. The commonly used work lights placed in buildings under construction, especially before exterior walls are in place, are a serious annoyance to nearby local residents and a definite safety hazard to motorists on nearby roadways. It is EQAC's view that ordinance amendments are urgently needed to correct this problem.

3. Security lighting utilizing motion detectors need to be provided with an automatic cutoff following a brief period after motion has ceased. An amendment to the county's lighting ordinance should be pursued to address this problem.
4. Security lighting at schools needs to be carefully re-evaluated since it is often excessive, is usually operating from dusk to dawn and constitutes a serious impairment for the quality of life to the adjacent neighborhood. EQAC recommends that the Board of Supervisors request that the School Board address this concern.

Visual Pollution

Overview

Historically, the term “pollution” has referred primarily to the fouling of air, water and land by wastes or from the byproducts of human activities. In recent years it has come to signify a wider range of disruptions to environmental quality. This section focuses on visual pollution and urban blight issues, with an emphasis on roadside signs (i.e., signage that is excessive in amount and inappropriate in placement). Additional aspects of visual pollution include such things as proliferation of billboards, litter, dumps, junkyards and the like.

Roadside Signs

Unnecessary roadside signs, almost always placed as some kind of advertising, have been called "visual pollution," "sky trash," "litter on a stick" and "the junk mail of American roadways." Uncontrolled signs are examples of the types of visual pollution that can destroy the distinctive character of our communities and countryside.

Signs in the public rights-of-way have been around for as long as there have been public rights-of-way, but the numbers have spiraled out of control in recent years. Between fields of “popsicle-stick” signs for homebuilders and politicians and signs for weight loss, work-at-home businesses, painting, hauling and other signs plastered on every available traffic sign and utility pole, everyone in Fairfax County has something to dislike about the proliferation of signs.

Communities can regain control of their visual environment, preserve their distinctive character and protect natural beauty and the environment by enacting and enforcing ordinances that control signage. Reducing sign blight helps communities reclaim local beauty and character. Excellent alternatives to large intrusive signs, such as wayfinding signs, logo signs and tourist-oriented directional signs, can help people locate local businesses and are minimal in their visual impact.

Sign regulations developed with community input encourages business owners to erect less intrusive signs that reflect an area's spirit, contributing to civic pride and helping to revitalize commercial districts. Regulations should encourage signs that quickly communicate their message, complement their surroundings and enhance the visual

character of the community. Attractive on-premise signs can help encourage residents and business owners to work together to improve and revitalize local appearance.

For many years, EQAC had issued recommendations regarding illegal signs, including support for an agreement between Fairfax County and the Virginia Department of Transportation (VDOT) regarding removal of illegal signs from highway rights-of-way.

In February 2013, the Board of Supervisors (BOS) directed the county executive to enter into an agreement with the Commonwealth of Virginia allowing for the removal of illegal signs in the public rights-of-way by the county. That agreement included an initial phase and a second phase of an enforcement program. During the initial phase, county staff was to educate the public and business groups about the sign removal agreement. This effort had the Department of Code Compliance working in coordination with the Sheriff's Office, Office of Public Affairs and VDOT's public affairs staff.

On July 1, 2013, the Community Labor Force of the Sheriff's Office began a countywide cleanup of illegally posted signs in the rights-of-way on the major roadways in the county. Details of this program are available at <http://www.fairfaxcounty.gov/signs/signremovalprogram.htm>.

It was estimated that the cost of this program will be \$150,000 on an annual basis. Community Labor Force crews will remove all signs located in the designated public rights-of-way between Tuesdays and Fridays. Special event signs are only permitted from Saturday through Monday. If they are present during the weekdays, they will be subject to removal. These signs will then be stored at a county facility for five days, which will allow the owner of each sign to reclaim it, as required by Va. Code Ann. §33.1-375.1(D). After this five day period, unclaimed signs would be destroyed.

Feedback from the BOS to staff at its Development Process Committee meetings in both September 2014 and June 2015, after both the first and second full year of operations, continued to be positive. At those meetings, staff's evaluations of the program indicated that collection operations were at capacity for the one Community Labor Force crew being utilized. Based on a request by the BOS to evaluate of the feasibility of expanding the current program, in June 2015 staff advised the board that current resources were available to create a second collections crew. The BOS approved that expansion option and requested that staff: review current collection and complaint trends; develop a strategy for both increasing major road segments for collection and increasing collection frequency on problematic roads; and further advise the BOS as the second crew operation is implemented. The BOS also endorsed a pilot "robo-call" program to advise violators by phone, but asked staff for further details prior to implementation.

At the June 2015 Development Process Committee Meeting, county staff noted that the community labor force removed 14,000 signs in the first year of operations and is on pace to remove over 22,000 signs within the second year. With the committee's concurrence, staff will prepare a portfolio response to be sent to the committee to further address these matters.

Related Information

The Fairfax County Department of Code Compliance provided the following information for 2014:

- Total number of zoning complaints received in 2014: 3,393 (2013 data: 3,607)
- Number of sign-related zoning complaints received in 2014: 234 (2013 data: 343)
- Number of lighting-related zoning complaints received in 2014: 27 (2013 data: 27)

The Fairfax County Police Department provided information about littering and related complaints that were handled by the department during 2014 (data for 2013 provided for comparison):

Table IX-1: Littering and Related Complaints Fairfax County Police Department, 2013 and 2014 data		
Citations	Number in 2013	Number in 2014
Dumping: Dump trash/etc. on hwy./private property	1	1
Traffic: Leaking contents; uncovered loads	37	36
Z-dump trash on hwy./right of way	1	1
Arrests		
Dumping trash, comp. animal, etc. on hwy./property	15	40
Dumping: Dump trash/etc. on hwy./private property	141	109

The Alice Ferguson Foundation provided information about the 27th Annual Potomac River Watershed Cleanup with 16,521 volunteers removing 285 tons of trash from 411 sites throughout the watershed. In Fairfax County, 1,643 volunteers removed 37.5 tons of trash from 77 sites. Additional activities of the Alice Ferguson Foundation are highlighted in the Solid Waste section of this summary report and in the Solid Waste chapter of the detailed version of this report.

For over 30 years, Clean Fairfax has been working to make Fairfax County clean, green and sustainable. In the last three years, its community cleanups have yielded 975 cubic yards of trash. In addition, the organization has presented sustainability workshops to over 50 groups and has visited 39 schools. All of this was accomplished by the equivalent of 1.25 full time employees and upwards of 7,000 volunteer hours.

Comment

1. EQAC applauds the county’s efforts to enter into, and begin to implement, a legal agreement with the Virginia Department of Transportation that addresses removal of illegal signs from highway rights-of-way. Further, EQAC supports the plan noted by the county to increase the number of crews performing collections. EQAC intends to follow the results from this program and to provide further input regarding both the county staff’s analysis of its successes and/or failures and staff’s recommendations about retention of and possible modifications to the program.