

# 2024

# ANNUAL REPORT ON THE ENVIRONMENT



*Prepared by the:*

## **Environmental Quality Advisory Council**

*A Fairfax County, VA Publication*



*This report is available online at [www.fairfaxcounty.gov/eqac](http://www.fairfaxcounty.gov/eqac). To request information in an alternate format, contact the Office of Environmental and Energy Coordination at (703)-324-7136 TTY 711*

**The 2024 Annual Report on the Environment's cover is a long exposure photo of Great Falls Park, taken in the late afternoon from Overlook 3.**

**Cover design and photography by Joseph Tso, Student Member, Environmental Quality Advisory Council.**

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ANNUAL REPORT  
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ENVIRONMENT  
2024



Fairfax County, Virginia

Environmental Quality Advisory Council

December 2024

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## ACKNOWLEDGEMENTS

Producing the Annual Report on the Environment (ARE) truly is a team effort by all the members of the Environmental Quality Advisory Council (EQAC). Each chapter is compiled by one or more EQAC members, and all EQAC members have the opportunity to offer comments. Each recommendation in the *Scorecard* has been adopted by a vote of EQAC.

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Chapter 3, *Water*: Stella Koch, Kenneth Lanfear, and Clyde Wilber

Chapter 4, *Waste Management*: Clyde Wilber and Eric Goplerud

Chapter 5, *Parks and Ecological Resources*: Renee Grebe

Chapter 6, *Climate and Energy*: Larry Zaragoza, Ken Gubin, and Eric Goplerud

Chapter 7, *Air Quality*: Richard J. Healy

Chapter 8, *Wildlife Management*: Bryan Campbell

Appendix A, *Spotlight on Fairfax County Public Schools*: Richard Weisman

EQAC receives staff support from the Fairfax County Office of Environmental and Energy Coordination: John Morrill, Director; Neely Law, Deputy Director; Matthew Meyers, Division Manager; Sara Girello, Climate Mitigation Specialist; Kelly Zitzer, Administrative Assistant; Maggie Beetstra, Community Specialist. The staff and their managers are instrumental in providing EQAC support in obtaining the information needed to compile our Annual Report. We particularly want to recognize the heroic work of Kelly Zitzer in coordinating the drafts and ultimately compiling them into a complete online report.

Many Fairfax County employees supply chapter compilers with source materials, review draft sections, and generally help EQAC to accurately and independently address the environmental issues facing Fairfax County today. While the views in this ARE are EQAC's alone, the information provided and advice of the following county staff and managers is greatly appreciated (listed alphabetically): John Burke, Fairfax County Police Department (FCPA), Natural Resources Branch Manager; Thomas Burke, Fairfax County Department of Transportation (FCDOT); Maya Dhavale, CECAP lead planner; Michael Garcia, FCDOT; Christopher Herrington, Director, Department of Public Works and Environmental Services (DPWES); Bill Hicks, Director of Land Development Service (LDS); Allison Homer, Resilient Fairfax lead planner; Brian Keightley, Director, Urban Forest Management (UFMD), Stormwater Management; Adam Lipera, LDS, Forest Conservation Branch Chief; Douglas Miller, FCDOT; Arletta Thirus, FCDOT; Nicole Wynands, FCDOT. Fairfax County Public Schools: Ali Culhane; Paul D'Andrade; Cliff Pahlavaninejad; Paul Scott; Donna Volkmann.

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## In Memoriam: Diane Hoffman

Diane Hoffman's years of service to Fairfax County and Northern Virginia were quietly transformative. As long time Executive Director of the Northern Virginia Soil & Water Conservation District (NVSWCD), Diane worked seamlessly with local jurisdictions to improve and enhance the waterways that feed our rivers and the Chesapeake Bay. Whether working with elected officials in boardrooms or donning boots to evaluate the soils and maintenance of horse farms and stables, Diane always listened carefully and then made rational and implementable recommendations that would address the issues in a sustainable manner.



Diane always utilized the never-adequate NVSWCD funding in an efficient manner and found creative ways to find additional dollars at both the State and local levels. Her prowess in Richmond, working with the General Assembly and other SWCDs made her one of the most respected environmental leaders in the Commonwealth.

Diane was instrumental in the founding of the Potomac Watershed Roundtable (PWR) in 2000. The Roundtable brought together officials, state and local environmental staff, non-profit organizations and other stakeholders for regional meetings across the watershed. Urban, suburban, and rural participants were able to share successes and failures, observing firsthand both development and agricultural practices, always with a view to protecting and preserving the environment that she so treasured. The PWR is the most successful roundtable in the Commonwealth and an outstanding example of Diane's commitment to regional excellence.

Diane was an excellent manager of staff and her care and concern for everyone she worked with was well known. Her care was both profound and personal. It was not unusual for Diane to inquire about feelings and family, almost an "earth mother."

The Environmental Quality Advisory Council (EQAC) worked with Diane on many occasions. It was not uncommon for her to attend to listen past EQAC Annual Public Comment Meetings or other EQAC presentations on environmental issues. Members of EQAC frequently served on community task forces with Diane. The most recent being the Task Force for the Future of Accotink and this being one of the last community meetings Diane was able to attend. Diane was a knowledgeable resource that members of EQAC would consult on environmental topics. She was a friend and mentor to many current and past members of EQAC.

In the pantheon of environmental leaders in Fairfax County and Northern Virginia, Diane Hoffman's place is secure and untarnished, Thank you, Diane, for your example and dedication to future generations. Your foundation is firm.

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## EXECUTIVE SUMMARY

The Environmental Quality Advisory Council (EQAC) provides independent advice (e.g., Annual Report on the Environment (ARE) and memoranda) to the Fairfax County Board of Supervisors on environmental issues. The ARE – a requirement of EQAC’s charter – is intended to provide a big picture view of how environmental programs are working and identify areas that require attention. For 2024, the EQAC finds that residents and businesses can expect clean water, and good air quality. The county’s clean water and good air quality are largely attributable to the county’s past environmental investments. While the county has undertaken a number of initial investments to address climate change, the county will need to do more to address climate change and other environmental challenges to maintain a healthy environment and continue to improve our quality of life.

### EQAC Annual Report Priorities for 2024

While EQAC’s 2024 recommendations span many areas of the environment, EQAC continues to place a high priority (6 of 10 priority recommendations) on the county’s climate programs (i.e., Community-Wide Energy and Climate Action Plan (CECAP) and Resilient Fairfax). It is also clear that there are many interrelationships among recommendations (e.g., ActiveFairfax is common to both transportation and CECAP recommendations).

To direct the focus on urgent challenges, EQAC identifies two groups of priority recommendations in the Annual Report each year. The first are recommendations whose implementation is limited by budget constraints. The second will require coordination between EQAC and county staff to create an implementable solution. The Scorecard includes other recommendations that, though important, are not 2024 priority recommendations.

### Budget Priorities for the Board (listed in proposed priority):

- a) Incorporate adequate funding for both CECAP Implementation and Resilient Fairfax in the annual operations and CIP Budget. [*Recommendation: 6CE-2022.1; Important for both CECAP and Resilient Fairfax*]
- b) Provide the resources and funding needed to complete and implement the ActiveFairfax Transportation Plan in a timely manner, including providing a staff position for the Safe Streets for All Program. [*Recommendation: 2TRANS-2023.1; CECAP Transportation Strategy 8*]
- c) Increase funding for the stormwater program to adequately fund this program, including funding for the Updated Countywide Flood Reduction Policy. [*Recommendation: 3C-W-2022.1; Resilient Fairfax Climate Ready Communities Strategy 3a*]
- d) Set the fee rate collected for wastewater treatment to meet the documented upgrades and maintenance requirements for all the plants that serve the county and their respective wastewater collection system. [*Recommendation 3B-W-2021.1*]
- e) Seek more stable funding sources for Fairfax County Park Authority (FCPA) initiatives. [*Recommendation: 5PER-2021*]

Priorities requiring EQAC coordination with county staff (listed in proposed priority order):

- a) Given the extent of CECAP goals, identify those activities that are needed to achieve CECAP and Resilient Fairfax. Adopt a Climate Priorities Strategy for public consumption that identifies those activities that will be needed to achieve CECAP, Resilient Fairfax and other climate related goals, such as VCEA. [*Recommendation: 6CE2022.2; important for both CECAP and Resilient Fairfax*]
- b) Regularly, perhaps every 3 months, convene business leaders in the climate and energy area to share their successes and expertise with businesses leaders that are seeking to reduce their energy use and waste. [*Recommendation 6CE-2021.4; CECAP Energy Supply Recommendation 4 and Onsite Energy Supply Recommendation 5*]
- c) Plan and implement an EV charging network so that residents of buildings without EV charging and travelers will have options for charging their EVs. [*Recommendation 6CE-2021.5; CECAP Transportation Strategy 7*]
- d) Improve Policy Plan language to prioritize protection of fragile lands and enhance environmental benefits of redevelopment. [*Recommendation: 1LU-2019.3*]
- e) Address Illegal Dump Sites [*Recommendation: 4WM-2024.4*]

#### Successes!

EQAC thanks the Board and congratulates staff on their success of completing the three following recommendations from the 2023 ARE:

1. Update the State of the Plan and Concept for Future Development Map [*Recommendation: 1LU-2018.1*]
2. Wastewater operates an enterprise fund, and the department needs to be supported in creating a salary structure and pursuing benefit programs that will hire and keep adequate numbers of employees in these essential positions. [*Recommendation: 3B-W-2023.1*]
3. Make changes to zoning codes to grant exceptions for deer processing operations in Fairfax County to minimize impacts on participation in the deer management program. [*Recommendation: 8WIL-2023.3*]

Fairfax County is fortunate to have both a strong base of environmental policies and talented county staff to meet these challenges as directed by the Board. We thank the Board of Supervisors for their leadership on environmental issues. While EQAC has recommendations to adjust programs and undertake additional work, we see these kinds of recommendations as important feedback that the Board can use to inform adjustments to programs.

## INTRODUCTION

The Environmental Quality Advisory Council (EQAC) comprises 14 volunteer members who are appointed by the Board of Supervisors to advise the Board on environmental issues. The Annual Report on the Environment (ARE) – a requirement of EQAC’s charter – is intended to provide a big picture view of how key environmental programs are working and identify areas that require attention.



EQAC provides an independent review and advice on the county’s environmental programs. In the end, EQAC seeks to provide unbiased reviews and advice that will help the Board to improve environmental programs.


EQAC believes that it is important that the progress and completion and benefits of the county’s work be shared with residents and businesses so that progress can be appreciated. Providing the information on programs and funding to support environmental priorities is important so that residents and businesses can see county investments are improving the environment and quality of life. EQAC recommends that the county provide the following information on a user-friendly county website: the assignment of responsibility, a budget (which might be expended over multiple years), performance metrics with time frames, and deliverables. Without these basic project management components, it is difficult to assess the extent to which a project is a sound expenditure of tax dollars.


The 2024 ARE does not include Chapter 9, *Technology to Understand the County*. After discussion among EQAC members and staff, we decided we no longer need to have this chapter in the ARE. When we first included it years ago, our concern was, having invested heavily in building an outstanding GIS database, the County might be tempted to skimp on maintenance and upgrades. Fortunately, and no doubt thanks to the efforts of a fine GIS staff, that worry has not come true. GIS technology has become thoroughly integrated into County operations and likely will remain so into the future.



EQAC’s primary approach to information collection is through county staff. EQAC is routinely briefed by county staff, external organizations (generally nonprofit), and university researchers on environmental issues of concern in Fairfax County. EQAC also benefits from public comments offered during the public comment session in January on the Annual Report as well as comments offered to EQAC in meetings and contact with individual EQAC members. EQAC also coordinates with other county Boards, Authorities and Commissions that address environmental issues. In 2024, EQAC engaged with the Planning Commission’s Environmental Committee in reviewing the Environmental Policy of the Comprehensive Plan. EQAC also met with the Tree Commission and the Park Authority to better understand county environmental challenges.

## SCORECARD


	<p><b>Chapter 1. Land Use</b>  <i>Four Recommendations in 2024, all from previous years. One has been completed, one updated, one making progress, and one is stalled.</i></p>	<p><b>Status / EQAC Comments</b></p>
<p>1</p>	<p><i>Recommendation: 1LU-2018.1</i>  <b>Update the State of the Plan and Concept for Future Development Map</b>            EQAC recommends that the Board authorize an update to the State of the Plan document. The last State of the Plan covered 2000 to 2010. Since then, the county has seen significant growth and changes in process and technology. A review of the plan and the effects of the processes is timely.</p> <p>EQAC also recommends that the Board authorize the development of a Concept for Future Transportation, Development, and Green Infrastructure. The 1992 Concept for Future Development map has largely been realized and a future map that looks out 20 to 50 years is needed.</p> <p><b>Summary of Action Taken by Agency or Department</b>            This recommendation has been completed.</p>	<p>Completed / Recommended since 2018. (This recommendation will not appear in subsequent scorecards.)</p>  <p>The Concept for Future Transportation, Development, and Green Infrastructure will provide a long-term vision for large investment projects and holistic rejuvenation of the County environmental infrastructure.</p>
<p>2</p>	<p><i>Recommendation: 1LU-2019.3</i>  <b>Improve Policy Plan language to prioritize protection of fragile lands and enhance environmental benefits of redevelopment</b>  <i>(The language of this recommendation has been revised from earlier versions.)</i> As the county addresses build-out, it is important to prioritize environmental protection of increasingly valuable open space. EQAC has proposed extending the concept of net environmental benefit that is used to protect the RPA from unacceptable development be to all development in the County. In effect, open space or infill development where fragile lands that are unsuitable for development are under development pressure would have to show significant environmental benefit rather than meet minimum standards. This applies equally to redevelopment were new standards mandate improved environmental benefit.</p>	<p>Updated / Recommended since 2020</p>  <p>With the intense development pressure on natural space, this recommendation is increasingly important.</p> <p>On December 6, 2022, the Board of Supervisors authorized consideration of a Comprehensive</p>




	<p><b>Chapter 1. Land Use</b>  <i>Four Recommendations in 2024, all from previous years. One has been completed, one updated, one making progress, and one is stalled.</i></p>	<p><b>Status / EQAC Comments</b></p>
	<p>EQAC recommends directing Staff to develop sample comprehensive plan and zoning language that demonstrates how this concept could be implemented beyond the RPA.</p> <p><b>Summary of Action Taken by Agency or Department</b>                      This recommendation is discussed through Comprehensive Plan policies, which address the identification, preservation, protection, and enhancement of plant and animal life and the creation of an integrated network of ecologically valuable land and surface waters. The county seeks to balance the protection and enhancement of these resources while planning for the orderly development and redevelopment of the county.</p> <p>These efforts have focused primarily on Environmental Quality Corridors (EQCs), Resource Protection Areas (RPAs), floodplains, and steep slopes and tree preservation and tree cover. These areas contain valuable ecological resources and help create an ecological network. Resources within these areas are considered on a site-by-site basis as land use applications are reviewed by staff and evaluated by the Planning Commission and Board of Supervisors.</p>	<p>Plan amendment to update the Countywide Policy Plan.</p> <p>The environmental plan is the section to include these recommendations. The update needs to establish appropriate expectations for improved natural resource protection.</p> <p>There are many examples of inappropriate development, low environmental priority on land use decisions, and missed preservation opportunities of scarce natural lands.</p> <p>Examples: Auctioned Land along Accotink Creek near RPA and adjacent to the Cross County Trail, Road expansion along Route 7 in Great Falls.</p>
<p>3</p>	<p><i>Recommendation: 1LU-2021.4</i>  <b>Adopt Comprehensive Plan and zoning regulations to encourage private sector Green Building standards</b>  <i>(The language of this recommendation has been revised from earlier versions.)</i> EQAC commends the county for adopting strong green building standards for public facilities. With the recently accepted CECAP goal of net-zero energy by 2050, it is necessary to begin adopting Comprehensive Plan language and zoning regulations to encourage private sector land use to achieve the net-zero goals.</p>	<p>Making progress / Recommended since 2021</p>  <p>EQAC continues to encourage rapid adoption of policies to achieve the CECAP goals. The County has</p>


	<p><b>Chapter 1. Land Use</b>  <i>Four Recommendations in 2024, all from previous years. One has been completed, one updated, one making progress, and one is stalled.</i></p>	<p><b>Status / EQAC Comments</b></p>
	<p><b>Summary of Action Taken by Agency or Department</b>                      This recommendation is in the process of being addressed. Actions are currently underway to review existing policies and identify areas for CECAP implementation. As part of a future Plan or Zoning Ordinance Amendment, research and study will be required to determine anticipated growth, estimated energy consumption, and what measures should be recommended to attain net-zero energy. All actions necessary to address EQAC’s recommendation would be conducted during a future Plan or Zoning Ordinance Amendment.</p>	<p>adopted exemplary public sector green building standards. Private sector standards need to follow.</p>
<p>4</p>	<p><i>Recommendation: 1LU-2023.1</i>  <b>Conduct more tidal wetlands outreach</b>                      Conduct outreach to RPA and Tidal Wetlands Property Owners to convey the responsibility to protect these resources and obtain permits for modifications where required.</p>	<p>Making progress / Recommended since 2023</p> 




	<b>Chapter 2. Transportation</b> <i>Three Recommendations: two from previous years and one new in 2024</i>	<b>Status / EQAC Comments</b>
1	<p><i>Recommendation: 2TRANS-2021.1</i></p> <p><b>Develop a formal plan to increase light-duty electric vehicle (EV) registrations to at least 15% of total registrations by 2030.</b></p> <p><b>Summary of Action Taken by Agency or Department</b>                      Efforts to address this recommendation are being implemented and/or coordinated by the Office of Environmental and Energy Coordination (OEEC). For example, OEEC's Carbon-Free Fairfax program provides resources and campaigns promoting EV adoption including information on incentives. OEEC has made a Climate Action Dashboard available to the public showing progress toward achieving the CECAP goal to have at least 15% of all light-duty vehicle registrations in Fairfax County be EVs.</p>	<p>Making progress/ Recommended since 2021</p>  <p>Achieving the 15% goal will require further efforts than are currently in place. Having a better understanding of the funding needed to achieve the CECAP goal would be helpful.</p>
2	<p><i>Recommendation: 2TRANS-2023.1</i></p> <p><b>Provide the resources and funding needed to complete and implement the ActiveFairfax Transportation Plan in a timely manner, including providing a staff position for the Safe Streets for All Program.</b></p> <p><b>Summary of Action Taken by Agency or Department</b>                      The ActiveFairfax Transportation Plan continues to be under development with the county now targeting completion by mid-2025. The Safe Streets for All Program is a critical component of that plan and was unanimously endorsed by the Board of Supervisors on May 10, 2022. However, the Board has not budgeted any staff to implement it as a program.</p>	<p>Making progress/ Recommended since 2023/Budget implications</p>  <p>Adequate staffing and funding need to be provided by the Board to implement both the ActiveFairfax Transportation Plan and Safe Streets for All Program. The Board also needs to provide the resources to address</p>










	<b>Chapter 2. Transportation</b> <i>Three Recommendations: two from previous years and one new in 2024</i>	<b>Status / EQAC Comments</b>
		maintenance needs of non-motorized infrastructure in the county.
3	<p><i>Recommendation: 2TRANS-2024.1.</i></p> <p><b>Provide an action plan with proposed budgets for implementing the JET recommendations to replace the county connector diesel bus fleet with EVs by 2030, transition non-bus county vehicles to EVs by 2035, and develop the necessary charging infrastructure and EV maintenance capability.</b></p> <p><b>Summary of Action Taken by Agency or Department</b>                      Efforts to complete an EV Readiness Strategy (completion targeted for summer 2025) and to pursue available grants will be helpful to inform development of an action plan for meeting the timelines identified in the JET recommendations to replace the county connector diesel bus fleet to EVs, transition non-bus county vehicles to EVs, and develop the necessary charging infrastructure and EV maintenance capability.</p>	New this year. 




	<p><b>Chapter 3A. Water – Drinking Water</b>  <i>Three Recommendations in 2024, one of which combines two recommendations from 2021.</i></p>	<p><b>Status / EQAC Comments</b></p>
<p>1</p>	<p><i>Recommendation: 3A-W-2024.1</i>  <b>Continue and enhance the protection of the Occoquan Reservoir by developing a plan for managing threats such as PFAS and sodium. Fund monitoring and modeling of emerging contaminants such as PFAS and of the rising sodium levels in the Occoquan Reservoir. This effort should include an inventory of present and proposed pollution sources, such as data centers and other industrial facilities.</b>                      While salt concentrations are rising in freshwaters nationally, the trend is particularly acute in the Occoquan Reservoir. Sodium ion concentration in drinking water from the Griffith Plant is now higher than 93% of all Virginia Public Water Systems that rely on surface water for water supply. Occoquan water from the Griffith plant is slightly above recently-released standards for PFAS. The standards do not take immediate effect, but studies are needed to determine the specific sources of PFAS in the Occoquan watershed.  <b>Summary of Action Taken by Agency or Department</b>                      The Occoquan Watershed Monitoring Laboratory (OWML) has consistently monitored for nitrogen, phosphorus and sediment since the inception of monitoring in the Occoquan Basin. In addition, synthetic organic compounds (SOCs) have been monitored quarterly in the Occoquan Watershed since 1982. A large portion of the lab’s newer resources now are focused on chloride and sodium, with additional funding requests to increase monitoring salinization in the watershed.</p>	<p>New for this year/ Budget implications                         This recommendation combined and revised two older recommendations used since 2021.</p>
<p>2</p>	<p><i>Recommendation: 3A-W-2024.2</i>  <b>Continue to participate with the ICPRB in studying water supplies in the Potomac River. In particular, support ecological studies of low flows in the Potomac Gorge.</b>                      The <a href="#">Interstate Commission on the Potomac River Basin</a> (ICPRB) has the mission to protect and enhance the waters and related resources of the Potomac River basin through science, regional cooperation, and education. The ICPRB produces a <a href="#">water supply reliability study every five years</a>. The 2020 report indicated there is no immediate concern of water shortages, but by 2040 some regional actions may be needed.</p>	<p>New this year.  </p>

	<b>Chapter 3A. Water – Drinking Water</b> <i>Three Recommendations in 2024, one of which combines two recommendations from 2021.</i>	<b>Status / EQAC Comments</b>
	<b>Summary of Action Taken by Agency or Department</b> Fairfax Water already cooperates with the ICPRB. The recent drought illustrates this cooperation is more important than ever.	
3	<i>Recommendation 3A-W-2024.3</i> <b>If large data centers are approved with evaporative cooling, approval conditions must consider (1) Possible water cutoff during periods of drought; (2) Use of recycled wastewater where feasible; and (3) No return of any “blowdown” to the Occoquan Reservoir.</b>  Adding an expected 7,000 MW of capacity using evaporative cooling would introduce about 70 mgd of consumptive water use, almost doubling existing consumptive water uses in the Potomac River Basin. None of this increased usage is included in the 2020 ICPRB estimates. While this increase likely can be accommodated during normal Potomac River flows, the possible impacts during drought must be considered. Also, adding salt from “blowdown” to the Occoquan Reservoir would increase salt in a water source already stressed by salt.	New this year. 


	<b>Chapter 3B. Water - Wastewater</b> <i>One Recommendation in 2023 was completed and two from 2021 are continued.</i>	<b>Status / EQAC Comments</b>
1	<p><i>Recommendation: 3B-W-2023.1</i></p> <p><b>Wastewater operates an enterprise fund and the department needs to be supported in creating a salary structure and pursuing benefit programs that will hire and keep adequate numbers of employees in these essential positions.</b></p> <p><b>Summary of Action Taken by Agency or Department</b>                      The County’s personnel policies were adjusted to successfully complete this recommendation.</p>	Completed / Recommended since 2023. (This recommendation will not appear in subsequent scorecards.) 
2	<p><i>Recommendation: 3B-W-2021.1</i></p> <p><b>Set the fee rate collected for wastewater treatment to meet the documented needs of the necessary upgrades and maintenance requirements for all the plants that serve the county and their respective wastewater collection system. This may include the necessary increases to hire and retain adequate wastewater personnel on an ongoing basis.</b></p> <p><b>Summary of Action Taken by Agency or Department</b>                      Although personnel actions were taken to complete <i>Recommendation: 3B-W-2023.1</i>, the rate currently remains insufficient to meet all long-term needs.</p>	Stalled / Recommended since 2021 
3	<p><i>Recommendation: 3B-W-2021.2</i></p> <p><b>Continue aggressive public education and monitoring of the new alternate septic systems performance.</b></p> <p>To ensure these complex systems are functional for a long time, educational outreach to homeowners is critical.</p> <p><b>Summary of Action Taken by Agency or Department</b>                      Outreach can be provided by both the private and public sectors, to include Fairfax County Health Department and Department of Public Works and Environmental Services</p>	Making progress / Recommended since 2021 



	<p><b>Chapter 3C. Water – Protecting and Restoring Streams, Ponds, &amp; Lakes</b>  <i>Two Recommendations: One continued and one new.</i></p>	<p><b>Status / EQAC Comments</b></p>
<p>1</p>	<p><i>Recommendation: 3C-W-2022.1</i>  <b>Increase funding for the stormwater program by either an increase in the Stormwater Service District rate in FY 2025 by at least one-quarter penny, from a rate of 3.25 cents per \$100 assessed real estate value to 3.50 cents per \$100 or find an alternative means of increasing funding to this program. Additionally, this increase must include funding for the Updated Countywide Flood Reduction Policy and new staff positions necessary to increase project delivery capacity.</b></p> <p>The inventory of stormwater infrastructure continues to grow by approximately 500 stormwater management facilities and eight miles of pipe per year. In addition, much of the stormwater infrastructure in Fairfax County is reaching the end of its life cycle, and as the system ages it remains critical to maintain adequate inspection and rehabilitation programs to avoid infrastructure failures and ensure the functionality of stormwater treatment systems. and sustain current levels of service.</p> <p><b>Summary of Action Taken by Agency or Department</b></p> <p>The last rate increase from 3.00 cents to 3.25 per \$100 of assessed real estate value occurred in FY 2019; increases in program funding since that time are the result of rising property assessments.</p>	<p>Stalled/ Recommended since 2022/ Budget implications</p> 
<p>2</p>	<p><i>Recommendation: 3C-W-2024.1. Implement more stream restoration projects that are watershed-wide comprehensive efforts like the Long Branch Central effort.</i></p> <p>This will hopefully see significant measurable improvement over a shorter time frame.</p>	<p>New this year.</p> 


	<p><b>Chapter 4. Waste Management</b>  <i>Six Recommendations. The first three are such significant changes of previous recommendations that they are considered new. Two previous recommendations are making progress, and one is completely new.</i></p>	<p><b>Status / EQAC Comments</b></p>
<p>1</p>	<p><i>Recommendation: 4WM-2024.1</i>  <b>Create countywide solid waste collection districts.</b>                      Create single family, multi-family, and commercial sanitary collection districts (franchising) that allows Fairfax to manage contracts with collectors.</p>	<p>New this year.                        Subsequent recommendations concerning Zero Waste will be almost impossible to implement without this measure in place.</p>
<p>2</p>	<p><i>Recommendation: 4WM-2024.2</i>  <b>Fund the Zero Waste Plans.</b>                      Budget sufficient resources in the county’s operations budget and Capital Improvement Plan to develop and implement an accountable Zero Waste Plan for the public and private sector. The actual recycling rate has decreased since the BOS called for Zero Waste. A specific action plan with deadlines and realistic education targets for each action is needed. A re-evaluation of how waste is addressed is needed. Food waste diversion will be required on a large scale. Restaurants, commercial firms, and institutions will need to be required to implement specific actions. Practical means of recycling will be needed for multi-family residents. Haulers and recycling processors will need to be a part of the solution. Outreach alone will be insufficient to obtain the goal.</p>	<p>Making progress / Recommended since 2022 / Budget implications    </p>
<p>3</p>	<p><i>Recommendation: 4WM-2024.3\</i>  <b>Use or Obtain Authority for Zero Waste Implementation</b>                      Utilize existing County authority or obtain legislative authority to:                     <ul style="list-style-type: none"> <li>• Implement the Zero Waste Plan for all public and private waste.</li> <li>• Efficiently enforce solid waste regulations and policy</li> </ul> </p>	<p>New this year.  </p>


	<p><b>Chapter 4. Waste Management</b>  <i>Six Recommendations. The first three are such significant changes of previous recommendations that they are considered new. Two previous recommendations are making progress, and one is completely new.</i></p>	<p><b>Status / EQAC Comments</b></p>
	<ul style="list-style-type: none"> <li>• Modify existing ordinances as practicable</li> <li>• Collect Accurate Data Efficiently</li> </ul>	
4	<p><i>Recommendation: 4WM-2021.4.</i>  <b>Institute litter control.</b>                      Support Virginia law changes for a container redemption fee (“bottle bill”) and extended producer responsibility for hazardous and unnecessary waste in their products and packaging. • Enforce litter control requirements on Waste Haulers.</p>	<p>Making progress / Recommended since 2021</p> 
5	<p><i>Recommendation: 4WM-2021.5</i>  <b>Establish environmental purchasing numeric targets.</b></p>	<p>Making progress / Recommended since 2021</p> 
6	<p><i>Recommendation: 4WM-2024.4</i>  <b>Address Illegal Dump Sites.</b>                      A collaborative effort including DCC, DPWES, FCDOT, and the Police is needed. One of these agencies should be assigned the responsibility to lead the effort and be accountable. VDOT, though not a county agency, should be invited to participate in this collaboration.                      The solution to the problem of illegal dump sites likely will involve multiple aspects, including community engagement, signage, parking revisions, and enforcement.</p>	<p>New this year.</p>  <p>A coordinated effort with perhaps a little bit of funding can have a big impact in cleaning up an annoying problem.</p>






	<p><b>Chapter 5. Parks and Ecological Resources</b>  <i>Five recommendations are continued from previous years.</i></p>	<p><b>Status / EQAC Comments</b></p>
<p>1</p>	<p><i>Recommendation: 5PER-2021.4</i>  <b>Strengthen authority to address management of invasive species throughout the county</b>                      EQAC commends progress in this area and continues to encourage the county to explore what it can do to provide further support holistic and equitable solutions in the management of all invasive plant species. Ideas include:</p> <ul style="list-style-type: none"> <li>• Pursue state support for authority to create a special tax district to assist with funding invasive removal on private property.</li> <li>• Seeking ways to work with developers to avoid the use of non-native invasive plants in landscaping and to include a ban on homeowner use of non-native invasive plants, similar to Reston Association, in initial covenants of new developments.</li> <li>• Seeking authority to fund matching grants through Northern Virginia Soil &amp; Water Conservation District to treat invasive plants.</li> <li>• Supplementing any additional programmatic solutions with additional resources for public outreach and education about using native plants and avoiding non-native invasives.</li> </ul> <p><b>Summary of Action Taken by Agency or Department</b>                      The most significant progress made on this front was in 2022 when the Board of Supervisors adopted a new Running Bamboo ordinance, meant to help stop the spread of this invasive plant, which went into effect on January 1, 2023. There are no updates on other possible initiatives mentioned above.</p>	<p>Making progress / Recommended since 2021</p>  <p>While the implementation of the bamboo ordinance and subsequent funding investments are positive steps forward, additional measures will be needed to combat the significant backlog of management of invasives and to preserve the ecological integrity of our natural lands. Reducing invasive trees and vines may also ultimately impact the county’s tree canopy coverage, but will improve the ecological health of its tree canopy at the same time. Some progress here may require additional state authority and EQAC encourages the county to</p>




	<p><b>Chapter 5. Parks and Ecological Resources</b>  <i>Five recommendations are continued from previous years.</i></p>	<p><b>Status / EQAC Comments</b></p>
		<p>consider advocating for additional authority in its legislative agenda.</p>
<p>2</p>	<p><i>Recommendation: 5PER-2022.1</i>  <b>Support Additional Staffing for Urban Forest Management Division (UFMD)</b>                      As Fairfax County begins implementation of climate-focused initiatives related to natural resources, as identified by plans such as CECAP and Resilient Fairfax, UFMD’s role and leadership will no doubt also continue to grow. Full-time positions, rather than non-merit or contract positions, would provide the long-term sustainability needed to support these initiatives. An additional recommendation this year (via 5PER-2024.2, Invest in Authentic Community Connections to Achieve a Healthy, Equitable Tree Canopy) builds on this ask from 2022.</p> <p><b>Summary of Action Taken by Agency or Department</b>                      With staff turnover, such as recent retirements and staff moving to different county-related jobs, UFMD risks losing valuable institutional knowledge.</p>	<p>Making progress / Recommended since 2022</p>  <p>While some new staff was brought on, others have departed, and more capacity is needed.</p>
<p>3</p>	<p><i>Recommendation: 5PER-2021.</i>  <b>Seek more stable funding sources for Fairfax County Park Authority (FCPA) initiatives.</b>                      Budgeting challenges for FCPA result in instability over the long term, particularly in terms of maintenance for and management of the parks’ natural resources. EQAC is excited to see progress on this front and recommends the Board continue to work with staff and the FCPA Board to seek additional means of stable, long-term funding for FCPA’s natural resources maintenance activities. An additional Ecologist position is particularly needed. There is a pressing need an additional plan reviewer / Ecologist within the Natural Resource Branch’s Natural Capital Protection Program which would allow FCPA to conduct natural resources reviews of development projects impacting parkland.</p> <p><b>Summary of Action Taken by Agency or Department</b></p>	<p>Making progress/ Recommended since 2021</p>  <p>Over the past few years, the Board of Supervisors have provided notable increases to FCPA’s funding, both in one-time and recurring funding. This is a positive step</p>

	<p><b>Chapter 5. Parks and Ecological Resources</b>  <i>Five recommendations are continued from previous years.</i></p>	<p><b>Status / EQAC Comments</b></p>
	<p>The Board of Supervisors have approved notable budget increases for natural resources each of the past few years including \$751,000 for the Landscape Legacy and Sustainability Program in FY23, one-time funds of \$400,000 for multiple years for bamboo removal on Park property, \$800,000 collectively over the past two years in one-time funding to better address the forest management backlog of tree-concerns on Park property, and modest increases in the IMA program funding as well. Four additional full-time staff positions in FY24 funding, including one position to support bamboo mitigation (\$152,642) and three positions to support forestry operations (\$293,463), have also been welcome investments. However, with the County Executive’s request for FCPA, and all county departments, to explore 10% budget cuts for the FY26 budget, FCPA stands to not only not gain a much-needed Ecologist, but also lose an Ecologist, cut much needed forestry funds, reduce access to a nature center and a park, and several other detrimental actions.</p>	<p>forward, but FCPA funding is still insufficient. Funding for FCPA cannot be cut without compromising service, staff, or both. EQAC will be following the Board’s exploration of a Recreational Facilities Authority in terms of any potential impacts to FCPA’s current funding model or FCPA’s protection of natural resources.</p>
<p>4</p>	<p><i>Recommendation: 5PER-2023.1</i></p> <p><b>Ensure equitable investment in ecological restorations and corridors</b></p> <p>As the county considers initiatives to invest in ecological restorations and/or improving ecological corridors, EQAC encourages the Board to direct staff to balance priorities of working to preserve ecologically important and sensitive habitats while at the same time making equitable investments to expand green space and ecological corridors using the One Fairfax lens. For example, FCPA’s Landscape Legacy and Sustainability Program may inadvertently be deprioritizing more urbanized areas, resulting in further divestment in areas previously neglected. For restorations, particularly those in urban areas such as White Gardens, without sustained funding to maintain these areas, invasive plants quickly take over. Similarly, the county’s current definition of EQCs may be interpreted to be focused only on preserving currently healthy corridors which could similarly inadvertently deprioritize urbanized or channelized waterways given their low ecological value. EQAC</p>	<p>Making progress / Recommended since 2023</p>  <p>EQAC recognizes FCPA’s investments as a good first step in beginning to address this issue within FCPA properties. However, this issue is broader than FCPA. EQAC looks forward to additional actions over</p>


	<p><b>Chapter 5. Parks and Ecological Resources</b>  <i>Five recommendations are continued from previous years.</i></p>	<p><b>Status / EQAC Comments</b></p>
	<p>encourages a stronger focus on examining which programs out there today may need to be adjusted to ensure equitable investments.</p> <p><b>Summary of Action Taken by Agency or Department</b>                      FCPA’s Landscape Legacy and Sustainability Program is taking intentional action to identify areas across all magisterial jurisdictions which would benefit from ecological restoration. Identifying additional opportunities to equitably invest in restoration will be in addition to protecting rare natural resources.</p>	<p>time from relevant county departments to continue to see equitable investment in ecological restorations.</p>
<p>5</p>	<p><i>Recommendation: 5PER-2023.2</i></p> <p><b>Invest in Authentic Community Connections to Achieve a Healthy, Equitable Tree Canopy</b></p> <p>With a finalized Resilient Fairfax plan adopted in 2022 to complement CECAP and a focus on One Fairfax a key component of the plan, significant capacity will be needed to invest in authentic community connections as the county pursues the goal of a healthy, equitable tree canopy. Authentic engagement doesn’t happen overnight or as a one-off initiative and the county will benefit from further investment in this skillset and expertise to ensure trusted community connections are made in advance of tree plantings.</p> <p><b>Summary of Action Taken by Agency or Department</b>                      EQAC appreciates the partnership between UFMD and OEEC to plant hundreds of trees in 2024 on school and county sites which are urban heat islands and socioeconomically vulnerable.</p>	<p>Recommended since 2023 / Making progress.</p>  <p>EQAC encourages the county to explore opportunities for tree plantings and maintenance on private property, particularly through the additional authority granted to locales through HB459, and doing so through a One Fairfax lens. EQAC encourages the county to work with local community groups in key areas of the county where additional tree canopy is needed most in order to</p>




	<b>Chapter 5. Parks and Ecological Resources</b> <i>Five recommendations are continued from previous years.</i>	<b>Status / EQAC Comments</b>
		build trust and relationships <i>now</i> with an eye towards making on-the-ground projects there more feasible, community-specific, and sustainable in the future.


	<p><b>Chapter 6. Climate</b>  <i>Six Recommendations from previous years: four making progress and two stalled.</i></p>	<p><b>Status / EQAC Comments</b></p>
<p>1</p>	<p><i>Recommendation: 6CE-2022.1</i>  <b>Incorporate adequate funding for both CECAP Implementation and Resilient Fairfax in the annual operations and CIP Budget.</b></p> <p><b>Summary of Action Taken by Agency or Department</b>                      EQAC thanks the Board for funding climate work in the budget. However, significant funding is needed to implement climate and energy projects.</p>	<p>Making progress/                      Recommended since 2022</p> 
<p>2</p>	<p><i>Recommendation: 6CE2022.2</i>  <b>Given the extent of CECAP goals, identify those activities that are needed to achieve CECAP and Resilient Fairfax. Adopt a Climate Priorities Strategy for public consumption that identifies those activities that will be needed to achieve CECAP, Resilient Fairfax and other climate related goals, such as VCEA.</b></p> <p><b>Summary of Action Taken by Agency or Department</b>                      The Resilient Fairfax Implementation Roadmaps and the CECAP Implementation Plan identify priority strategies and climate action programs for implementation. In addition, the county has developed a Climate Action Dashboard to track progress and plans to improve and regularly update the information and data on the dashboard.</p>	<p>Making progress/                      Recommended since 2022</p> 
<p>3</p>	<p><i>Recommendation 6CE-2021.4</i>  <b>Regularly, perhaps every 3 months, convene business leaders in the climate and energy area to share their successes and expertise with business leaders that are seeking to reduce their energy use and waste.</b></p> <p><b>Summary of Action Taken by Agency or Department</b>                      While the county has relaunched the Green Business Partners program, the participation of businesses in the program is just beginning. Leadership from businesses that have successfully implemented programs to address climate and energy issues will be needed.</p>	<p>Stalled/                      Recommended since 2021</p> 
<p>4</p>	<p><i>Recommendation: 6CE-2021.5</i>  <b>Plan and implement an EV charging network so that residents of buildings without EV charging and travelers will have options for charging their EV's.</b></p>	<p>Making progress/                      Recommended since 2021</p>


	<b>Chapter 6. Climate</b> <i>Six Recommendations from previous years: four making progress and two stalled.</i>	<b>Status / EQAC</b> <b>Comments</b>
	<b>Summary of Action Taken by Agency or Department</b> The County is seeking funds from transportation infrastructure funding working through the Metropolitan Council of Governments that will, if awarded, support EV charging stations and fueling for alternative fuels. This should be an effective method to achieve the desired goal.	
5	<i>Recommendation: 6CE2023.1</i> <b>Collect energy consumption information on current and planned data centers in the county and determine the extent to which data centers obtain green energy in order meet the county’s carbon neutrality targets.</b>	Stalled/ Recommended since 2023 
6	<i>Recommendation: 6CE-2021.3</i> <b>Implement major Community Engagement and Educational campaign on the actions that businesses and residents can do to reduce GHG emissions</b>  <b>Summary of Action Taken by Agency or Department</b> At this point, substantial outreach will be needed to implement county climate programs with community support.	Making progress/ Recommended since 2021 



	<b>Chapter 7. Air Quality</b> <i>One Recommendation in 2024</i>	<b>Status / EQAC</b> <b>Comments</b>
1	<p><i>Recommendation: 7AQ-2021.1</i></p> <p><b>County officials should continue efforts to strongly encourage people to telework where possible, take public transit, and use alternative forms of transit.</b></p> <p>One of the key issues related to ozone and other air quality concerns in Northern Virginia is the use of motorized vehicles and their emissions. Implementing this recommendation is consistent with the recommendations of the Fairfax County Community-wide Energy and Climate Action Plan (CECAP) and the BOS’s Environmental Vision for Transportation. Many air quality issues are tied to federal and state actions over which the county has little or no control. This is one area where the county can take an active role to reduce single vehicle trips within the county and thus enhance air quality through a decrease in vehicle emissions, which are a major contributor to ground-level ozone formation and greenhouse gas emissions in the county.</p> <p><b>Summary of Action Taken by Agency or Department</b></p> <p>County staff concurs with this recommendation and is taking steps to implement it but more needs to be done to encourage a reduction in the number of single-occupancy vehicle trips in the county.</p>	<p>Making progress/ Recommended since 2021</p>  <p>This recommendation remains an important action in helping to achieve county goals.</p>

	<p><b>Chapter 8. Wildlife Management</b>  <i>One Recommendation from 2023 has been completed, two are continued from 2023, and one is new for 2024.</i></p>	<p><b>Status / EQAC Comments</b></p>
1	<p><i>Recommendation: 8WIL-2023.3</i>  <b>Make changes to zoning codes to grant exceptions for deer processing operations in Fairfax County to minimize impacts on participation in the deer management program.</b></p>	<p>Completed / Recommended since 2023. (This recommendation will not appear in subsequent scorecards.)</p> 
2	<p><i>Recommendation: 8WIL-2023.1   Status: 2nd year</i>  <b>Expand survey methods for deer population data collection.</b></p> <p>While estimates of population sizes and goals for deer reduction may be challenging to define, both the magnitude of the problem being addressed, and the effectiveness of the applied solutions can be better understood and communicated with data. Being able to present a strong base of information will be a benefit in bringing along stakeholders in the effort to grow various management programs, both in staffing and funding. With diminished opportunity of current methods of data collection, staff must be able to utilize other methods of data collection such as <u>drone surveys</u> such as is being done in <u>Montgomery County, Maryland and Arlington County, Virginia.</u></p>	<p>Stalled/ Recommended since 2023</p> 
3	<p><i>Recommendation: 8WIL-2023.2   Status: 2nd year</i>  <b>Add funding for a position in the wildlife biologist program to focus on expanding public outreach and education, for not just the county’s deer management program, but for the entire wildlife program.</b></p> <p>County staff has established education material to inform county residents of concerns regarding the impacts of over-populated deer populations and the Deer Management Program. However, due to resource limitations of dedicated staff, the sharing of that information is limited to individuals who are seeking that information instead of utilizing an outreach approach. This position would not only support the deer management program,</p>	<p>Making progress/ Recommended since 2023/ Budget implications</p> 

	<p><b>Chapter 8. Wildlife Management</b>  <i>One Recommendation from 2023 has been completed, two are continued from 2023, and one is new for 2024.</i></p>	<p><b>Status / EQAC Comments</b></p>
	<p>but the entire wildlife program with creation of outreach materials (brochures, info cards), community presentations, exhibit booths at outreach events, handling media inquiries with FCPD’s Public Affairs Bureau and Office of Public Affairs, social media, etc.</p>	
<p>4</p>	<p><i>Recommendation: 8WIL-2024.1</i>  <b>Conduct a comprehensive analysis on the potential impacts and benefits of the new model as well as robust outreach campaign to solicit comments from Fairfax County residents and other stakeholders.</b>                       This analysis with public comment should be captured in a report and presented to the Board to demonstrate how the new model supports One Fairfax, results in better outcomes for wildlife in the county, maintains safety for residents, reduces the budget, and provides greater efficiency.</p>	<p>New this year.  </p>

	<p><b>Appendix A. SPOTLIGHT ON FAIRFAX COUNTY PUBLIC SCHOOLS</b>  <i>One recommendation is included in this Appendix because it concerns a matter that has been discussed by both the FCPS Board and the Board of Supervisors.</i></p>	<p><b>Status / EQAC Comments</b></p>
<p>1</p>	<p><b>Recommendation FCPS 2024-1. Request that FCPS provides an update on the status for implementation of the JET recommendations.</b></p> <p>This Spotlight Appendix shows that efforts are ongoing related to selected recommendations made by the JET and accepted by the FCPS board in 2021 (i.e., about 3 years ago). Many of the commitments made by the FCPS board as related to the JET require achievements within a given time frame, several of which are in the near future. A comprehensive evaluation of the status for implementing each of the JET recommendations would be helpful. For example, the extent to which FCPS is providing specialized training or certificate programs, job shadowing, internships, and real-world workforce experience in fields such as electric vehicle maintenance, solar panel installation, LEED Green Associate Certification, and sustainable landscaping.</p>	<p>New this year.</p> 

# 1. LAND USE

## **Board of Supervisor’s Environmental Vision:**

*“The county will continue to refine and implement land use policies and regulations that accommodate anticipated growth and change in an economically, socially and environmentally sustainable and equitable manner while revitalizing older commercial centers, protecting existing stable neighborhoods, supporting sustainability and supporting a high quality of life. The development priority will be mixed use, pedestrian and bicycle-friendly transit-oriented development in activity centers. Policies and regulations will result, throughout the county, in the development and enhancement of vibrant and vital pedestrian and bicycle-friendly places where people want to live, work, shop, play, learn and thrive in a healthy environment, ensuring the protection, enhancement and restoration of natural resources, and the provision, in building and site designs, for the efficient use of resources.”*

## **INTRODUCTION**

Fairfax County covers approximately 395 square miles with over 1.185 million residents and 422,846 households<sup>12</sup>. As the population has grown and the county has transitioned toward a more urban environment, the [Fairfax County Comprehensive Plan](#) and the decision-making processes for how land is used have also evolved. When the first Environmental Vision was adopted in 2004, the county was fast approaching “build-out,” whereby little vacant or undeveloped land was available. To continue growing after build-out, the focus of land use across the county shifted from new development to revitalization and redevelopment. The county is now well into that transformation and significant development continues to provide new jobs and housing. These changes allow the county to continue to grow and prosper within a finite environmental footprint and have the potential to improve negative environmental impacts from older projects.

### Historical Perspective

Fairfax has gone through several generations of planning, from the original farmland into the complex county in which we live. The 2019 EQAC Annual Report on the Environment (ARE) documents the major steps starting with the 1970’s decision to “*thwart the negative effects of rapid urbanization by spending eighteen months and \$1.5 million on a planning program to control the rate and direction of future growth.*” The legacy continued into the 1980s when the Board took action to protect the Occoquan watershed. More than 38,500 acres of property were down-zoned from one-acre to five-acre development, “*citing a study that predicted the Occoquan reservoir could turn into a smelly swamp if some action is not taken.*” Through the 1990s and 2000s, the focus was the Chesapeake Bay Preservation Act and Ordinance that codified Resource Protection Areas (RPAs) and defined them using perennial streams as the ecological basis for protecting land from development.

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<sup>1</sup> [Demographic Reports 2023, County of Fairfax, Virginia](#)

<sup>2</sup> All hyperlinks in this chapter were accessed/checked on September 16, 2024 unless otherwise indicated.

With build-out, it has become more challenging to protect large parts of the county's ecosystem. The challenge for planning is most evident with the Tysons transformation that reimagined a primarily single-use shopping and work district into a 24-7 livable community. The Tysons plan is supporting future growth that supports "live, work, and play", as well as incorporating stream restoration and stormwater management to address stormwater runoff, along with equities such as access to natural spaces for parks and recreation. The key to creating a vibrant, desirable, and healthy future community is applying a holistic lens that equally values business, social, cultural, and environmental priorities.

### **CURRENT STATUS AND CONCERNS**

In 2024 the finite land of Fairfax is being stressed in dimensions not even imagined in the 1980s. Climate change is driving more efficient energy consumption as well as demanding higher resiliency of the built environment. Population growth is driving housing growth, development density, and urban amenities over open parkland. Economic growth is encouraging large data centers that bring industrial scale energy and water consumption with neighborhood concerns of noise, pollution, and attractiveness. The county is also focusing on equity through the [One Fairfax Policy](#) and the recommendations from the [Chairman's Taskforce on Equity & Opportunity](#).

These factors compete with traditional environmental concerns of clean air and water, storm water management, and natural biodiversity that dominated land use planning of prior generations. The tools used to make land use decisions are the Comprehensive Plan and in particular the Policy Plans. The County is in the midst of [Plan Forward](#), a comprehensive update to the Policy Plan. EQAC supports the Plan Forward goals to:

1. Review, update, and streamline existing Policy Plan elements.
2. Add new Policy Plan elements as needed; and
3. Ensure the Policy Plan is aligned with the Countywide Strategic Plan, the One Fairfax Policy, and other recently adopted policies and initiatives.

EQAC is also tracking changes in the Zoning Ordinance that are the detailed rules for building in the County. The Parking Reimagined update engendered significant debate and the results are just coming through the development pipeline, so it is too early to draw any conclusions about the impacts.

The harsh reality we face is that these many competing elements demand more complex decisions on how to grow into the future. The Comprehensive Plan and Zoning ordinance policies encode the values used for making decisions. In a sense the additional complexity means every factor has diluted importance, and there is debate about how to best prioritize competing values.

EQAC has long been a champion of holistic planning, whereby all factors are considered together to reach a decision. Over the past 4 years, EQAC has also recommended a new concept to consider environmental impacts of development: **net environmental benefit**. We continue to stress this concept as a first principle when considering the many factors

in land use planning. It is a way to cut across divergent factors that clearly states our desire to improve environmental benefit in all land use decisions.

#### Holistic Development Process

EQAC has long been an advocate for holistic planning processes that bring all county and private concerns together as changes to the Comprehensive Plan and new developments are considered. This approach is more effective than opportunistic plans based on single parcels that were effective before the county was fully built-out. The current [Site-Specific Plan Amendment \(SSPA\) Process](#) combines holistic planning with opportunistic development proposals. EQAC commends the County for completing 10-year review of the State of the Plan to assess the prior and current processes to make sure the planning process is delivering the vision for development across the county. The report was published in January 2024.

The holistic approach that evolved as the county approached build-out must now consider additional dimensions for conserving energy and align with an equitable and sustainable future. One of the first Comprehensive Plan updates to face this additional complexity was the [Reston Comprehensive Plan update](#)<sup>3</sup> which was adopted in September 2023. The Reston Task Force had to consider new business and lifestyle models necessitated by COVID-19 along with climate change and rapid technological changes. Sections in the Plan highlight environmental stewardship, equity, affordable housing, health, heritage, and art.

#### Net Environmental Benefit

The most important environmentally sensitive areas are called out specifically in the [Chesapeake Bay Agreement](#). These are the Resource Protection Areas (RPAs) defined by the stream valleys, the Resource Management Areas (RMAs) that border the RPA and have steep slopes and fragile soil, and Environmental Quality Corridors (EQCs). Development in these areas is highly constrained and any potential development must show a significant net environmental benefit. This approach has been very effective to protect land with high value in a natural state. EQAC has been advocating for a similar concept to be created for open and infill development and potentially for redevelopment.

Discussions with the Planning Commission and Staff about using net environmental benefit have been positive but raised concerns about how to realize such a policy. The current approach for new development is to define development standards and verify projects to be minimally compliant. While this is a clear standard, it does not align with improving our community. As the policy plans are being revised, they need to be designed to show improvement along the priority elements, not simply turned into minimum standards.

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<sup>3</sup>This link may have changed from previous years.

EQAC is recommending that the County initiate a process to understand net environmental benefit. The process should:

1. Define metrics to assess environmental performance. Some metrics are coming from the [Community-Wide Climate and Energy Action Plan \(CECAP\)](#) e.g. green buildings (see Climate Action Dashboard) and can be derived from the Fairfax Environmental Vision
2. Baseline those metrics across different land categories. Use the factors for RPA, RMA, and EQC as a model, but consider all types of open space and infill areas.
3. Pilot metrics to measure net benefit. These should assess the environmental quality of a project before and after implementation.
4. Explore ways for the Department of Planning and Development (DPD) to track metrics and compare across projects.
5. Explore options to incorporate net-environmental benefit into the policy plan update

It is also important to understand how current projects are performing. Not all projects simply follow minimal standards. The county should track projects and highlight when a development goes above and beyond current county standards for rezoning and special exception.

#### Development Pressures

The 2019 EQAC ARE included a discussion of development pressures that were having a negative effect on the environment. It also listed several cases where negative environmental effects occurred on fragile land that was approved for development. This is caused by land values increasing past the point where unsuitable land that is slated for development is engineered so that it meets the bare minimum of the Comprehensive Plan and Zoning regulations. However, this ignores the ecological significance of these fragile lands. When looked at holistically, there is no justification for allowing inappropriate development. However, staff have told EQAC the criterion for such cases is minimum compliance.

These development pressures apply to all open space, not just fragile ecological lands. In 2021, a complicated case arose at Justice High School in the Mason District. Justice High School is in desperate need of an expansion, and the county approved bond funding for the project. The proposal builds a new structure on an existing school parking lot. However, the school needs to replace the lost parking spaces. The neighboring Justice Park was proposed to transfer several acres from the Fairfax County Park Authority Board (FCPAB) to Fairfax County Public Schools (FCPS) replacing a public field with a parking lot. This proposal was made with token public outreach and after much conflict and public opposition, it was replaced with a parking waiver to be reviewed in five years. The plan ignored the [value of urban open space serving the community](#) in the zip code of highest socio-economic need<sup>4</sup>. It also highlighted the lack of investment in community parks that

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<sup>4</sup> Zip code 22041 surrounds Justice Park and ranks #1 in socioeconomic need in Fairfax County. See linked citation.

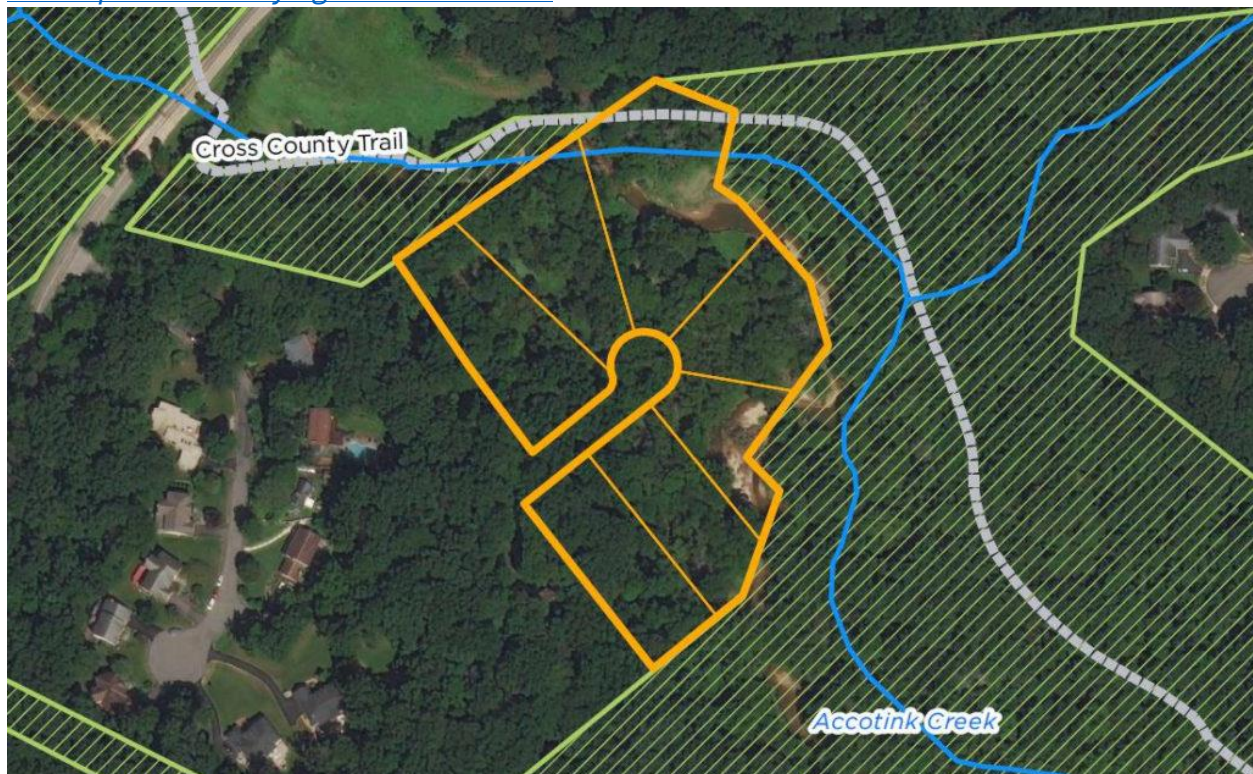


are frequently overridden by invasive plants and do not function effectively. Such environmental and equity issues will become more common as open space becomes scarcer and land values continue to increase.

Another example of development pressures and the inability to manage lands inappropriate for development occurred in the Accotink stream valley. Seven undeveloped properties that border the RPA and Cross County Trail were assumed by the county for back taxes. These properties are clearly unsuitable for development but could not be protected and had to be auctioned to the highest bidder. The Northern Virginia Conservation Trust tried to acquire them for transfer to the FCPA but bidding by developers was too high.

**Figure 1-1: Accotink Creek properties auctioned in 2022**

Source: [Annandale today, May 24, 2022: Environmental group hopes to prevent developers from buying Annandale land](#)



From the perspective of a net environmental benefit, these lands in good forested condition have the highest potential environmental benefit. The county needs the tools and resources to make decisions that protect these fragile lands as well as those that provide equitable benefit to all county residents and meet the future commitments made to address global climate change.

There are also development pressures for land not necessarily considered environmentally sensitive. One example allowing development in the Dulles Airport Noise Impact Overlay

District. This district allows [development that was deemed inappropriate in the past due to concerns with the loud airplane landing](#) noise. Specifically, as noted in the Staff [Report](#):

*“The FAA has adopted DNL 65 dBA as the threshold of significant noise exposure. ... The consideration of new residential uses within the 60-65 DNL airport noise contour area ..., could, with appropriate noise mitigation, enhance economic development opportunities, provide additional housing, and provide opportunities for residents to live and work in a mixed-use area with reasonable commutes along the Route 28, I-66, and Dulles Tollway corridors. Allowing new residential uses within the 60-65 DNL airport noise contour area would also allow the conversion of under-performing, single-use, non-residential uses, such as office parks, into residential and mixed-use developments with a mix of amenities that could keep these areas economically viable.”*

A final development pressure example involves the consideration of zoning criteria for data centers. These generate significant revenue, but also consume large amounts of space, energy, and water. These energy intensive industrial uses should be considered through the rubric of land use factors. In all these cases, net-environmental benefit would be a valuable tool to evaluate the efficacy of new projects.

#### Climate Change, Green Buildings, & Heat Islands

The county has made important commitments to address climate change and resiliency, many of which depend on changing the way land is developed, redeveloped, and used. Fairfax County has policies for both government and private properties. In 2021, the county approved the updated [Operational Energy Strategy](#), which is aligned with the Sustainable Building Policy for Capital Projects, setting a path for county government buildings in [design and construction beginning 2021 to be net-zero energy](#). The county is on track to meet the public sector commitment of the Carbon Neutral Declaration, as shown in Figure 1-2, with future construction meeting net zero standards. Net zero means the total energy used by the building is equal to the amount of renewable energy generated on-site or through offsite procurement.

**FIGURE 1-2. County Sustainable Development Policy delivering Net Zero for all future building designs and some currently under construction.** Source: [Staff Report on Climate Action Implementation](#)



- TOTAL Green County Buildings: **41** completed, **30** in progress

#	Site	LEED	Solar Ready	Net Zero	EV Ready	Post OES?	Status	#	Site	LEED	Solar Ready	Net Zero	EV Ready	Post OES?	Status
1	Police Heliport	Silver	No	No	Yes	No	5	16	Patrick Henry Shelter	Silver	Yes	No	Yes	No	3
2	Innovation Garage	n/a	Yes	No	Yes	No	5	17	Original Mt. Vernon HS	Gold	Yes	No	Yes	No	3
3	Reston Fire Station	Silver	Yes	No	No	No	5	18	Fairview Fire Station	Gold	Yes	Yes	Yes	Yes	3
4	Sully Community Center	Gold	Yes	No	Yes	No	5	19	Judicial Complex Building One	Gold	Yes	Yes	Yes	Yes	2
5	Woodlawn Fire Station	Platinum	Yes	No	No	No	5	20	Mason Police Station	Gold	Yes	Yes	Yes	Yes	2
6	Lorton Community Ctr & Library	Gold	Yes	No	Yes	No	5	21	Gunston Fire Station	Gold	Yes	Yes	Yes	Yes	2
7	Edsall Road Fire Station	Silver	Yes	No	No	No	5	22	West Annandale Fire Station	Gold	Yes	Yes	Yes	Yes	2
8	South County PS & Animal Shelter	Silver	Yes	No	Yes	No	4	23	Tysons Fire Station #29	Gold	Yes	Yes	Yes	Yes	2
9	Springfield CBC Commuter	n/a	Yes	No	Yes	No	4	24	Patrick Henry Library Garage	Gold	Yes	Yes	Yes	Yes	2
10	Stormwater Wastewater Facility	Gold	Yes	Yes	Yes	No	4	25	Willard Health Center	Gold	Yes	Yes	Yes	Yes	1
11	Operational Support Bureau	Gold	Yes	Yes	Yes	No	4	26	Audrey Moore Rec Center	Gold	Yes	Yes	Yes	Yes	1
12	Monument Garage **820 spaces	Parksmart	Yes	No	Yes	No	4	27	Penn Daw Fire Station	Gold	Yes	Yes	Yes	Yes	1
13	Seven Corners Fire Station	Gold	Yes	No	Yes	No	4	28	Eleanor Kennedy Shelter	Gold	Yes	Yes	Yes	Yes	1
14	Kingstowne Library/Franconia PS	Gold	Yes	No	Yes	No	4	29	Crossroads	Gold	Yes	Yes	Yes	Yes	1
15	Mount Vernon Rec Center	Silver	Yes	No	Yes	No	4	30	George Mason Library	Gold	Yes	Yes	Yes	Yes	1

The county commitment to net zero construction demonstrates the feasibility of high building standards across the public and private sector. The private sector goal is much broader and more impactful. The county cannot delay establishing specific policies and guidance that weave climate priorities and ecological protection into private sector developments and redevelopments.

EQAC is also concerned with the heat island effect caused by urban development. Research has shown that tree-covered surfaces and paved surfaces can differ by 40 degrees Fahrenheit<sup>5</sup>. New buildings should include landscaping standards to minimize the [heat island effect](#).

EQAC includes a recommendation to accelerate the creation of private development planning guidance and zoning regulations that will align with the Community-wide Energy and Climate Action Plan (CECAP) and Resilient Fairfax reports.

#### Resource Protection Areas (RPA) Outreach, Especially Tidal Wetlands

RPAs are regulated shorelines of streams, rivers and other waterways associated with environmentally sensitive land that lie alongside or nearby which [drain into the Chesapeake Bay and are a key component of resiliency](#). RPAs protect water quality, filter pollutants from stormwater runoff, reduce the volume of stormwater runoff, prevent

<sup>5</sup> Ziter, Carly D., et al. "Scale-dependent interactions between tree canopy cover and impervious surfaces reduce daytime urban heat during summer." *Proceedings of the National Academy of Sciences* [116.15 \(2019\): 7575-7580](#).



erosion, and perform other important biological and ecological functions. Development is generally not permitted even when there is sufficient buildable area. Accessory structures like sheds, gazebos, pools, etc. require approval via a public hearing and fees. Clear-cutting is not permitted. The county's Land Development Services (LDS) has engaged in outreach to RPA property owners by providing an annual mailer, dedicated webpage, and Channel 16 videos to help inform landowners of their responsibilities to protect the RPA land.

More specifically, Fairfax County also has extensive tidal wetlands, which are also in the RPA, that provide important ecosystem services, such as protection against flooding and erosion and serve as nursery and feeding grounds for waterfowl, fish, and shellfish. However, engagement with owners of tidal wetlands is not sufficient, particularly given a change in state law in 2020.

Since 1972, Commonwealth law and later County Code have called for tidal wetlands to be protected. The County Wetlands Ordinance was updated to coincide with the 2020 Commonwealth update to the law including a requirement that living shorelines be used for shoreline erosion protection wherever suitable. Living shoreline methods use natural elements to create effective buffers for absorbing wave energy and protect against shoreline erosion.

In 2022 the Fairfax County Wetlands Board developed specific county guidelines at the request of the Board of Supervisors to preserve and protect tidal wetlands. Concerns have been raised by the Mount Vernon Community Council and others about the impact of the new law, ordinance, and guidelines. Landowners of tidal wetlands would significantly benefit from additional clarity and targeted outreach on this topic.

### **COMMENTS AND/OR CONCERNS**

The following section summarizes some additional material covered in this chapter. While not rising to the level of recommendations, they nonetheless are deserving of thought as we move forward.

#### **1. Affordable Housing**

EQAC commends the continued focus on affordable housing in the [Communitywide Housing Strategic Plan](#) and the [Strategic Plan to Facilitate the Economic Success of Fairfax County](#). There are many development efforts underway allowing people to live and work nearby, reducing commuting pollution and development sprawl and decreasing pressure on natural areas.

#### **2. Holistic Comprehensive Planning Process**

EQAC is an advocate for holistic planning processes and supports the Site-Specific Plan Amendment (SSPA) Process. Holistic approaches align with the vision to consider economic, social, and environmental factors resulting in vibrant, healthy, and desirable

places. Prior reports elevated this topic to a recommendation. EQAC will continue tracking the process to ensure that SSPA continues to:

- a. Prioritize large study areas that encompass multiple projects.
- b. Include a robust screening process to ensure that the most appropriate projects are considered at a site-specific level.
- c. Develop Policy Plan amendments that improve environmental outcomes across all projects.

### **3. County Green Buildings Standards**

EQAC commends the county for adopting strong green building standards for public facilities that target net-zero over time and create aspirational examples for the private sector. EQAC urges the county to consistently hold private sector development to the highest building standards, both current standards and future ones that address climate change and adapt a policy of net-benefit to the environment when considering exceptions

## **RECOMMENDATIONS**

Four recommendations are made for this chapter, all from previous years. One has been completed, two are making progress, and one is stalled. Please see the Scorecard for further discussion of these recommendations.

### **1. Update the State of the Plan and Concept for Future Development map.**

*Recommendation: 1LU-2018.1 | Age: >5 years | Status: Complete*

### **2. Improve Policy Plan language to prioritize protection of fragile lands and enhance environmental benefits of redevelopment.**

*Recommendation: 1LU-2019.3 | Age: 5 years | Status: Updated, Making Progress*

### **3. Private sector green building standards.**

*Recommendation: 1LU-2021.1 | Age: 4 years | Status: Making progress*

### **4. Tidal wetlands outreach.**

*Recommendation: 1LU-2023.1 | Age: 2 years | Status: Making progress*

## 2. TRANSPORTATION

**Board of Supervisor’s Environmental Vision:**

*“A dependable, safe, efficient, accessible, and multi-modal transportation network is necessary to support the travel needs of Fairfax County residents now and into the future. The county will continue to develop policies and strategies that reduce the dependence on single-occupancy vehicle trips through smart development, efficient use of the transportation system, and by expanding the county’s bicycle, pedestrian and transit infrastructure. The county will pursue transportation strategies in support of regional attainment of air quality standards.”*

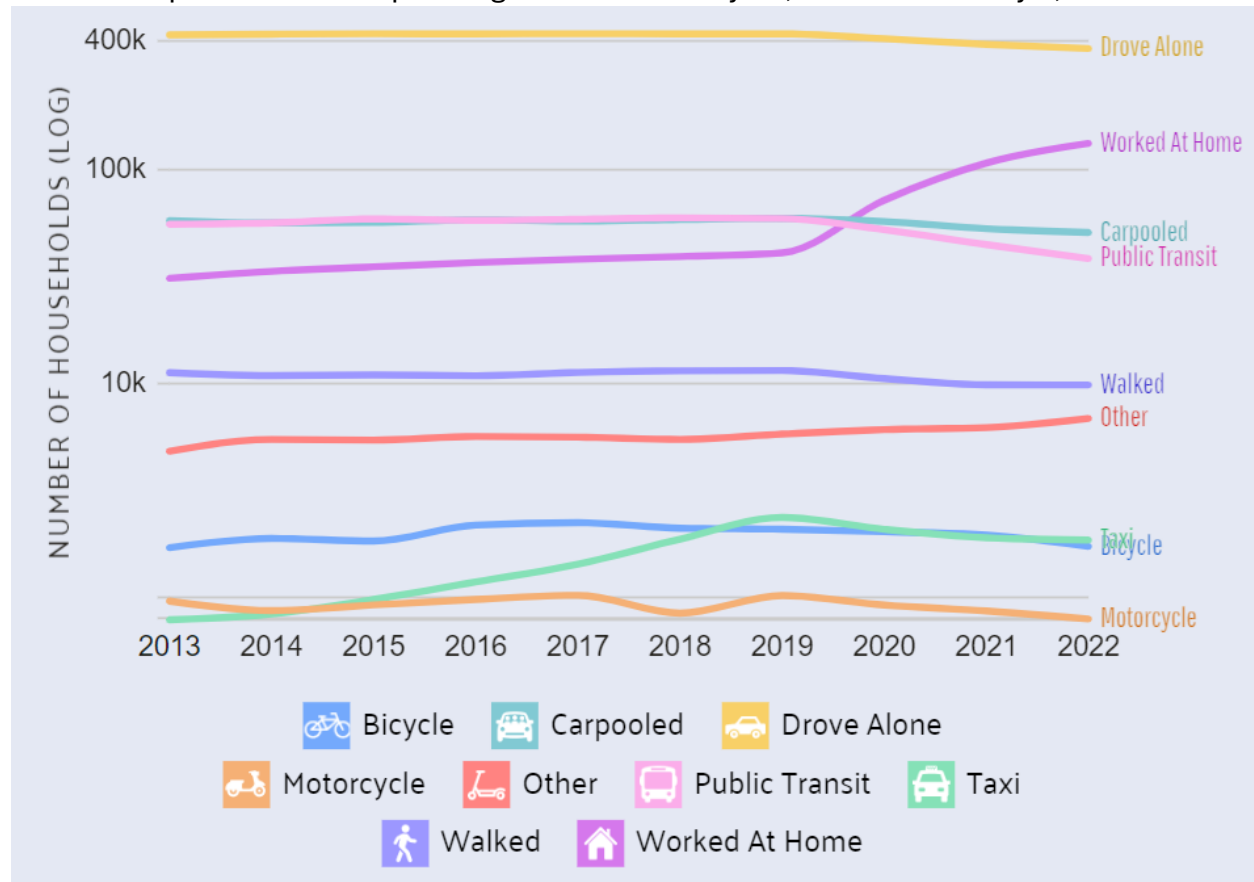
**INTRODUCTION**

Transportation is a key element impacting the quality of life for Fairfax County residents, and transportation planning choices must be made which balance a myriad of concerns, including but not limited to convenience, cost, efficiency, health, equity, and environmental impact. Fairfax County residents and visitors are overwhelmingly dependent on automobile transportation due to the long distances that often must be traveled, neighborhoods designed for cars, as well as the lack of convenient or safe (actual or perceived) alternative options such as mass transit, bicycling, or walking. Yet it is this heavy dependence on automobiles that has resulted in some of the worst traffic congestion in the United States, and with that congestion large amounts of wasted time and productivity, as well as added pollution from vehicle emissions that degrades our air quality and contributes to climate change.

There is a lack of reliable data available to fully understand the current use of different modes for transportation in Fairfax County. The main data source used to inform the understanding is the American Community Survey (ACS), which collects data for the means used by workers for transportation to work. The most recent time complete data was collected was in 2022 (i.e., 2 years ago, soon after the height of the COVID-19 pandemic). In 2022, approximately 60% of workers in Fairfax County drove alone to work, followed by those who worked at home (22%) and those who carpoolled to work (8%) (Figure T-1). This figure shows that the number of Fairfax residents who drove alone to work remained relatively constant over the 9-year period from 2013 to 2022, while those who worked at home substantially increased during the COVID-19 period. The ACS also found that employees in Fairfax County have a longer commute time (30.4 minutes) than the normal U.S. worker (26.7 minutes). Additionally, about 2% of the workforce in Fairfax County have "super commutes" in excess of 90 minutes. What are not included in this data are the many non-work trips taken in Fairfax County. Anecdotal information suggests that the number of trips made by single-occupancy vehicles in Fairfax County has greatly increased in the past year with the fraction of travel (work and non-work) made by single-occupancy vehicles significantly higher than the 60% value reported for 2022.

**Figure T-1. Number of Fairfax County Households Commuting by Mode of Transportation (2013 – 2022).**

**Source:** <https://datausa.io/profile/geo/fairfax-county-va>; downloaded July 8, 2024.



Fairfax County has significant transit and non-motorized infrastructure in place to build from. For FY 25, Fairfax County contributions to WMATA (Metrorail and Metrobus), Virginia Railway Express (VRE), and Fairfax Connector total approximately \$271 million, and range from about 3% (VRE) to 25% (Fairfax Connector) of operating budgets; Fairfax County contributions to WMATA are 12.7% for FY 25 (Table T-1).

**Table T-1. Summary of Fairfax County’s Contribution to Public Transit Organizations.**

**Source:** FCDOT, e-mail from Arletta Thirus; June 24, 2024.

Operating Budget	Fairfax County Contribution	Fairfax Percentage of Operating Budget
WMATA – FY 2025	\$223,000,000	12.7%
VRE – FY 2025	\$5,473,928	3%
Fairfax Connector – FY 2024	\$42,965,059	23%
Fairfax Connector – FY 2025	\$45,113,312	25%

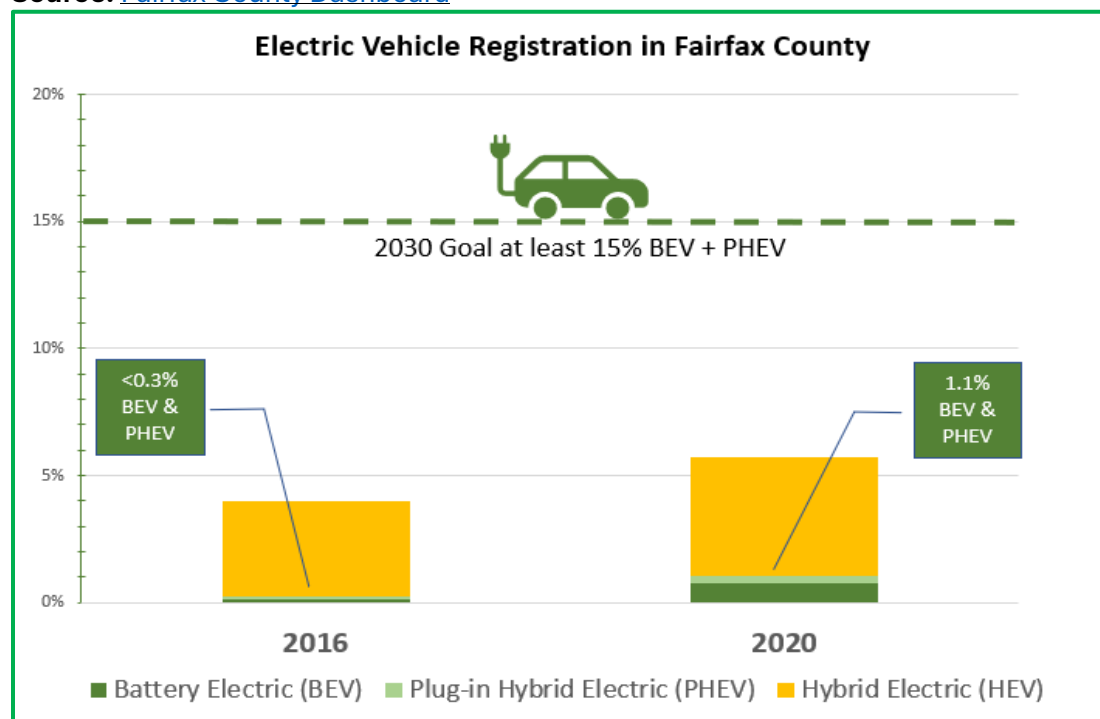
In 2021, Fairfax County published its [Community-wide Energy and Climate Action Plan \(CECAP\)](#) which lays out multi-sector greenhouse gas reduction strategies and identifies roles and responsibilities for federal, state and local stakeholders. CECAP focuses on actions that can be taken by the community (residents, business, and others) toward achieving a set of pre-defined emissions reductions goals. A review of [Fairfax County's Climate Action Dashboard](#)<sup>6</sup> shows that, despite reductions, transportation is the second-largest source of greenhouse gas emissions in Fairfax County (after buildings), contributing 44% of the emissions.

A key goal in CECAP for transportation is for increased use of electric vehicles (EVs) by 2030. Specifically, the goal is as follows: “Increase plug-in hybrid electric vehicles (PHEVs) and battery electric vehicles (BEVs) to at least 15% of all light-duty vehicle registrations by 2030”.

The Fairfax County dashboard shows that, as of 2020, a total of 1.1% of light-duty vehicles registered in Fairfax County are PHEVs or BEVs (Figure T-2). That number almost doubled to approximately 2% as of 2022, yet much lower than the 15% goal. The dashboard also shows hybrid electric as about 4% in 2016 and 5% in 2020. EQAC appreciates efforts by county staff to coordinate across departments (Office of Environmental and Energy Coordination with the Department of Management and Budget) to improve the quality of data about EV registrations.

**Figure T-2. Electric Vehicle Registration in Fairfax County.**

Source: [Fairfax County Dashboard](#)



<sup>6</sup> All hyperlinks in this chapter were accessed/checked on August 11, 2024 unless otherwise indicated.



EQAC is supportive of the county's efforts to develop an "EV Readiness Strategy" which is anticipated to be completed by summer 2025. The EV Readiness Strategy will include projections for EV adoption and siting recommendations for EV infrastructure throughout Fairfax County, including locational context (e.g. workplace, public, and home), and will be developed with stakeholder input. EQAC also is supportive of the county's efforts to pursue federal and other funding to address the CECAP goals for EVs. This includes the county's efforts to partner with the Metropolitan Washington Council of Governments (MWCOCG) in pursuit of the U.S. Department of Transportation's Federal Highway Administration Charging and Fueling Infrastructure (CFI) Discretionary Grant Program. Fairfax County submitted 25 sites in 2023 and is partnering again with MWCOCG on a resubmission of the CFI Round 1 application and an application for CFI Discretionary Grant Program Round 2. ([Funded September 12, 2024.](#))

In 2020, the [Joint Environmental Task Force \(JET\) published its report](#) on areas for collaboration between Fairfax County and Fairfax County Public Schools (FCPS) to further County efforts in energy efficiency and environmental sustainability. The following transportation-related recommendations were included in the JET:

- **Bus Fleet Replacement:** Transition the Fairfax Connector diesel bus fleet to electric alternatives by 2030, and the FCPS fleet by 2035 (also see Spotlight on FCPS).
- **Non-Bus Fleet Replacement:** Determine which vehicles have electric (or other non-carbon emitting) alternatives and transition them by 2035. Develop a plan for mitigating the carbon footprint of others.
- **Charging Infrastructure:** Necessary charging infrastructure will be installed to scale as fleets grow. Wherever possible, charging infrastructure will serve FCPS and the County.
- **Use 100% Clean Fuel:** Develop a plan to fuel these electric vehicles using non-carbon emitting fuels and carbon offsets with a complete transition to 100% clean fuel by 2030.
- **Coordination:** FCPS and the County coordinate electrification efforts and share charging and maintenance infrastructure whenever possible. Each should develop legislative packages for the General Assembly to help achieve these recommendations.

As of December 2023, EVs represented approximately 3.5% of the county fleet (including Fairfax Connector buses). According to a [July 2024 announcement](#) from the Federal Transit Administration, Fairfax County "will receive funding [\$50.6 million] to buy new low emission diesel-electric hybrid buses to replace older buses as part of its fleet replacement plan. The new buses will reduce greenhouse gas emissions and improve reliability and service while addressing the needs of disadvantaged communities." The extent to which this grant funding will help the county to transition the Fairfax Connector

diesel bus fleet (identified as 50 diesel buses in the JET report) to electric alternatives by 2030 was not provided.

In FY 24, Fairfax County purchased three heavy-duty battery-electric vehicles (and associated EVSE); these were partially offset by grant funding from the VA DEQ Clean Air Communities Program Project. Fairfax County also participated in the Dominion Energy Smart Charging Infrastructure Pilot Program and in spring 2023 received rebates for installing nine (9) smart EVCS. In FY 21, Fairfax County Department of Transportation (FCDOT) was awarded \$4.4M in grant funding from the Clean Air Communities Virginia state grant program that help offset costs to purchase battery electric buses (BEBs) for the Fairfax Connector, a solid waste truck and a box truck, plus associated EVSE. The county is also seeking IRA clean energy tax credits in the form of elective pay (AKA direct pay) for all EVs (fleet and buses) purchased in FY 24, plus EVSE installed at eligible county facilities. As part of its federal tax return (planned for November 2024), the county intends to file for direct payments every year as long as they are acquiring more eligible EVs and installing more eligible EVSE.

Overall, county vehicle fossil fuel consumption (diesel and gasoline) decreased 18% (1.2 million gallons) from FY 18 to FY 23. County vehicles consume almost twice as much diesel as gasoline, and most of the reduction from was due to reduction in diesel fuel consumption from use of more efficient diesel vehicles, operations, and routes, and replacing some diesel vehicles with electric alternatives.

Fairfax County's main planning effort related to non-motorized infrastructure is the [ActiveFairfax Transportation Plan](#), including the Safe Streets for All Program which the Board of Supervisors (BOS) unanimously endorsed on May 10, 2022. The ActiveFairfax Transportation Plan project is expected to be completed by mid-2025. Public engagement on the draft Active Transportation and Trail Network and draft Active Transportation Toolkit are planned for late summer and fall 2024. After project completion, the Comprehensive Plan will need to be amended with elements of the ActiveFairfax Transportation Plan – including the Active Transportation and Trails Network Plan map, which is replacing the Bicycle Master Plan, and updating the Countywide Trails Plan. FCDOT provided data for the average number of new bicycle paths, lane-miles and crosswalks constructed in Fairfax County (actual data for FY 21 – FY 23 and estimated data for FY 24 – FY 25) (Table T-2). These data are for projects managed/implemented by FCDOT and do not include those constructed by the Virginia Department of Transportation (VDOT), developers, or other entities. Much of the work to construct non-motorized infrastructure is performed by VDOT. However, estimates of the infrastructure constructed by VDOT or private developers were not made available to EQAC. Recently, portions of the east-west trail being constructed parallel to I-66 that will connect Gallows Road to Centreville were opened to the public.

**Table T-2. Summary of Average Number of New Bicycle Paths, Lane-miles, and Crosswalks Constructed in Fairfax County.****Source:** FCDOT, e-mail from Arletta Thirus; June 24, 2024.

	<b>FY21 Actual</b>	<b>FY22 Actual</b>	<b>FY23 Actual</b>	<b>FY24 Estimate</b>	<b>FY25 Estimate</b>
New Roadway Lanes (LF)	1,899	3,085	700	31,095	5,879
# Intersections Improved	59	25	19	26	36
# Crosswalks Improved	30	18	31	81	42
# of New Pedestrian Crossing Signal Heads	23	21	19	80	28
Conc. Sidewalk (LF)	16,720	11,929	5,978	11,618	9,001
Asphalt Trails/Shared Use Paths (SUP's) (LF)	5,709	2,166	8,204	27,753	10,045
Cycle Track/On-Road Bike Lanes*	6,600	5,460	0	0	1,700
Bus Stop Improvements**	35	19	13	21	45

# of Intersections – includes any intersection where new/improved crosswalks, curb ramps, and/or ped signals, were installed.

# Crosswalks – new/improved crosswalks at signalized and unsignalized intersections.

\* Cycle Tracks/On-Road Bike Lanes – emphasis on Bicycle facilities has shifted from “on-road” to being separated from the roadway (cycle tracks and shared use paths (SUPs)).

Data for FY21 and FY22 is for on-road bike lanes.

\*\* Bus Stop Improvements include improvement for ped/bike access to the bus stop, bus loading pads, benches, and/or shelters.

EQAC also is following the approach being used by FCDOT to reduce the impact of transportation projects on native trees and natural areas (e.g., in Environmental Quality Corridors [EQCs], resource protection areas [RPAs], and the Occoquan Watershed). To do this, FCDOT refers to [Section 4\(f\)<sup>7</sup> of the U.S. Department of Transportation Act of 1966](#) to minimize impact to parkland (on federal-aid projects) and the Chesapeake Bay Preservation Ordinance/RPAs. Section 4(f), now codified in 49 U.S.C. §303 and 23 U.S.C. §138, is implemented by all USDOT agencies, including the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), through the regulation 23 CFR 774.

<sup>7</sup> Section 4(f) is part of [The Department of Transportation \(DOT\) Act of 1966](#). Section 4(f) specifies that FHWA cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless there are no existing feasible and prudent alternatives to the use of the land and the proposed action includes all possible planning to minimize harm to the property.

Title 9 of the VAC (9VAC25-8/30-150) allows public roads to be located within the Chesapeake Bay Preservation Ordinance (CBPO) in RPAs subject to certain conditions. Construction, installation, operation, and maintenance of public roads and the roads' appurtenant structures are exempt from the CBPO if in accordance with:

- Regulations promulgated pursuant to the Erosion and Sediment Control (ESC) Law and the Virginia Stormwater Management (SWM) Act;
- An ESC plan and a SWM plan approved by VDEQ; or
- Local water quality protection criteria at least as stringent as the above state requirements.

The exemption of public roads is further conditioned on the following:

- Optimization of the road alignment and design, consistent with other applicable requirements, to prevent or otherwise minimize encroachment in the RPA; and
- Prevention or otherwise minimization of adverse effects on water quality.

With regard to tree preservation, FCDOT reports that, while transportation/linear projects are exempt from RPA, Occoquan Watershed and other restrictions, they attempt to minimize impacts to areas outside of existing right-of-way by the following methods:

1. Convert roadway to curb and gutter with closed drainage systems to minimize grading outside of existing right-of-way (RW).
2. Reduce required buffer strip between roadway (curb) and sidewalk/trail (where appropriate) to minimize grading and tree clearing, while maintaining a safe buffer between pedestrians/bicyclists and roadway traffic.
3. Use underground stormwater detention/water quality treatment facilities and place them within existing RW as much as possible.
4. Compensate property owners for loss of landscaping/trees, which allows them to replant after our project is complete (noting property owners are not required to replant).
5. Abide by State/Federal Laws and regulations (4(f) of the U.S. Department of Transportation Act of 1966 and 6(f)<sup>8</sup>) of the Land and Water Conservation Fund Act of 1965 to minimize and mitigate impacts to natural resources including streams and wetlands.

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<sup>8</sup> Section 6(f) is included in the [Land and Water Conservation Fund Act \(LWCF\) of 1965](#). The LWCF is a federal program that was established by Congress in 1964 to provide funds and matching grants to federal, state and local governments for the acquisition of land and water, and easements on land and water, for the benefit of all recreating Americans. The income for the LWCF comes largely from Outer Continental Shelf mineral receipts. The LWCF is administered by the Department of Interior's [National Park Service \(NPS\)](#). The NPS oversight pertains to projects that would cause impacts on or the permanent conversion of recreational property acquired with LWCF monies. Under Section 6(f), it is prohibited to convert property acquired or developed with LWCF grant money to non-recreational purposes without approval from the NPS. Section 6(f) is discussed with Section 4(f) because, in some cases, Section 4(f) resources have received assistance from the LWCF.

Further, FCDOT reports that, while they do not do landscaping on a routine basis, there are instances where it will occur. For example, at Fort Belvoir, they will be replacing cleared trees with new trees at a ratio of 2:1. They note that all landscaping along the Bus Rapid Transit (BRT) route is ‘unique’ to BRT. Also, there are instances where alignment (probably of a trail) was shifted to preserve a large “specimen” tree.

### **CURRENT CONCERNS**

An [evaluation of traffic congestion for 2023](#) ranked Washington, D.C. as 18<sup>th</sup> worst in the world and 7<sup>th</sup> worst in the United States, with each driver losing an average of 63 hours to congestion, corresponding to a cost of \$1,095 for wasted fuel per driver. There is no doubt that the COVID-19 pandemic has significantly impacted commuting patterns in Fairfax County and elsewhere throughout the U.S. In addition, it is likely that the situation in mid-2024 as this report is being written is very different from that which is reflected in the 2022 ACS data, since those data were collected soon after the height of the pandemic when many offices and other businesses were experiencing significant use of telework. Since that time, there has been a substantial return to pre-pandemic norms, though transit ridership remains depressed and work-from-home numbers remain elevated. Data is not available to inform a current understanding of the relative use of different transportation modes in Fairfax County.

WMATA is continuing to indicate they are anticipating a substantial shortfall in their operating budget. Fairfax County is planning to provide 12.7% of WMATA’s overall operating budget for FY 25, and county staff are expressing optimism that the General Assembly and the Governor’s office will come to an agreement to fund 50% of the funding gap. County staff reported that the county will cover its 50% through increases to the General Fund and State Aid contributions. If no agreement is reached, it is suspected the county will have to tap into additional state aid, but this is not guaranteed. In addition, county staff and others throughout the region are examining possible sources of revenue, in the event that the jurisdictions are asked to take on a larger share of the burden (e-mail from Arletta Thirus, FCDOT; June 24, 2024).

Anecdotal information suggests that, as of mid-2024, traffic congestion has substantially returned to Fairfax County with single occupancy vehicle (SOV) use still the predominant mode used in the county. Such information suggests that traffic congestion is also no longer limited to traditional rush hour times but occurs throughout the day. In addition, safety issues such as aggressive driving (e.g., speeding well in-excess of the speed limit) and distracted driving (e.g., driving while looking at a cell phone or other mobile device) are considerable problems. Anecdotal information also indicates that county residents are continuing to adopt one or more of the many micro-mobility options such as bike share and scooters and that E-bike sales also expanded. FCDOT is taking several steps in their efforts to reduce SOV use in the county, including use of transportation demand management strategies. EQAC appreciates the county’s efforts to support public transit and micro-mobility options and to try to reduce SOV use but is concerned about the

impacts of traffic congestion and the predominant use of SOVs in Fairfax County; impacts include contributions to greenhouse gas generation and impaired air quality.

Taking actions to achieve the transportation-related goals in the CECAP and JET reports is critical given that transportation is the second-largest source of greenhouse gas emissions in Fairfax County, and, unlike buildings, transportation showed relatively fewer decreases in greenhouse gas emissions on the Fairfax County Dashboard. Efforts to have at least 15% of all light-duty vehicle registrations in Fairfax County be EVs by 2030 will be helpful for decreasing greenhouse gas emissions. Such efforts will also need coordination with activities described in the Climate and Energy Chapter such as increased availability of charging stations and activities in the Air Quality chapter about improving ground-level ozone. Information was not provided about the county's plan to implement the JET recommendations about bus fleet replacement, non-bus fleet replacement, charging infrastructure, and use of clean fuel.

Another transportation-related goal in the CECAP report is to increase use of transit and non-motorized commuting to at least 30% (including teleworking) by 2030. While the dashboard shows that this goal of 30% was met for the D.C. metro area by 2022 (a total of about 57%), EQAC suggests that a conclusion to say that this goal has been achieved may be premature.

Much of the achievement is related to the substantial increase in telework associated with the COVID-19 pandemic (which account for about 80% of the transit and non-motorized commuting) and are likely to drop as the pandemic recedes. Also, EQAC is concerned that an examination of data limited to commuting omits the substantial number of non-work trips in Fairfax County, of which anecdotal information suggests are predominantly made by SOV.










Ongoing efforts are needed to complete the Active Fairfax Transportation Plan in a timely manner, including the [Safe Streets for All Program](#), and to provide the resources and funding needed for implementation. The Safe Streets for All program would be helpful for people walking, biking, and using other forms of active transportation, and was unanimously endorsed by the Board of Supervisors on May 10, 2022. However, the Board of Supervisors has not budgeted any staff to implement Safe Streets for All as a program. FCDOT unsuccessfully requested a new staff position to manage the program in FY 23 and FY 24, and plans to re-submit the request for FY 25. Given the lack of a staff person, other FCDOT staff continue to work on safety through their regular work, taking their time away from other needed activities. Further, there is insufficient maintenance of the non-motorized facilities and a need for the county to provide dedicated funding to support such maintenance.

EQAC recognizes the efforts by county staff to evaluate and consider climate vulnerability concerns for roadways, public transit, and bicycle & pedestrian routes in Fairfax County (Figure T-3). EQAC is concerned, however, about the extent to which equity concerns, as

articulated through One Fairfax, are included in actions taken to achieve the transportation-related goals in the CECAP report and in efforts to consider adaptation measures to address climate vulnerability. FCDOT staff did not provide input about the ways that One Fairfax was being used in county efforts to increase light-duty EV registrations or address climate vulnerability.

**Figure T-3. Summary of Climate Vulnerability for Roadways, Public Transit, and Bicycle & Pedestrian in Fairfax County**

Source: [Fairfax County Dashboard](#)

Transportation Sector   Climate Vulnerability Summary Fairfax County, Virginia				
				
		Roadways	Public Transit	Bicycle & Pedestrian
	Extreme Heat	Moderately High	High	Moderately High
	Inland Flooding	High	Moderately High	Moderate
	Severe Storms	High	Moderately High	Moderately High
	Extreme Cold	Low	Low	Low
	Coastal Flooding	Moderate	Low	Moderate
	Drought	Very Low	Very Low	Very Low

**RECOMMENDATIONS**

Three recommendations are made for this chapter. Two from previous years are making progress, and there is one new recommendation. Please see the Scorecard for further discussion of these recommendations.

- 1. Develop a formal plan to increase light-duty electric vehicle (EV) registrations to at least 15% of total registrations by 2030.**

*Recommendation: 2TRANS-2021.1 | Age: 4 years | Status: Making progress*



- 2. Provide the resources and funding needed to complete and implement the ActiveFairfax Transportation Plan in a timely manner, including providing a staff person the Safe Streets for All Program.**

*Recommendation: 2TRANS-2023.1. | Age: 2 years | Status: Making progress*

- 3. Provide an action plan with proposed budgets for implementing the JET recommendations to replace the county connector diesel bus fleet with EVs by 2030, transition non-bus county vehicles to EVs by 2035, and develop the necessary charging infrastructure and EV maintenance capability.**

*Recommendation: 2TRANS-2024.1 | Status: New this year*



### 3. WATER

**Board of Supervisors Environmental Vision:**

*“Fairfax County considers the protection, restoration and enhancement of environmental quality through the sustainable management of its water resources to be one of its highest priorities. Through its policies, regulations, and outreach to the community, the county will implement the best available technology, including advanced and innovative practices to protect and restore streams, wetlands and associated aquatic resources, promote water conservation and ensure the most effective stormwater management, advanced wastewater treatment, and the safest, most reliable drinking water supply for future generations.”*

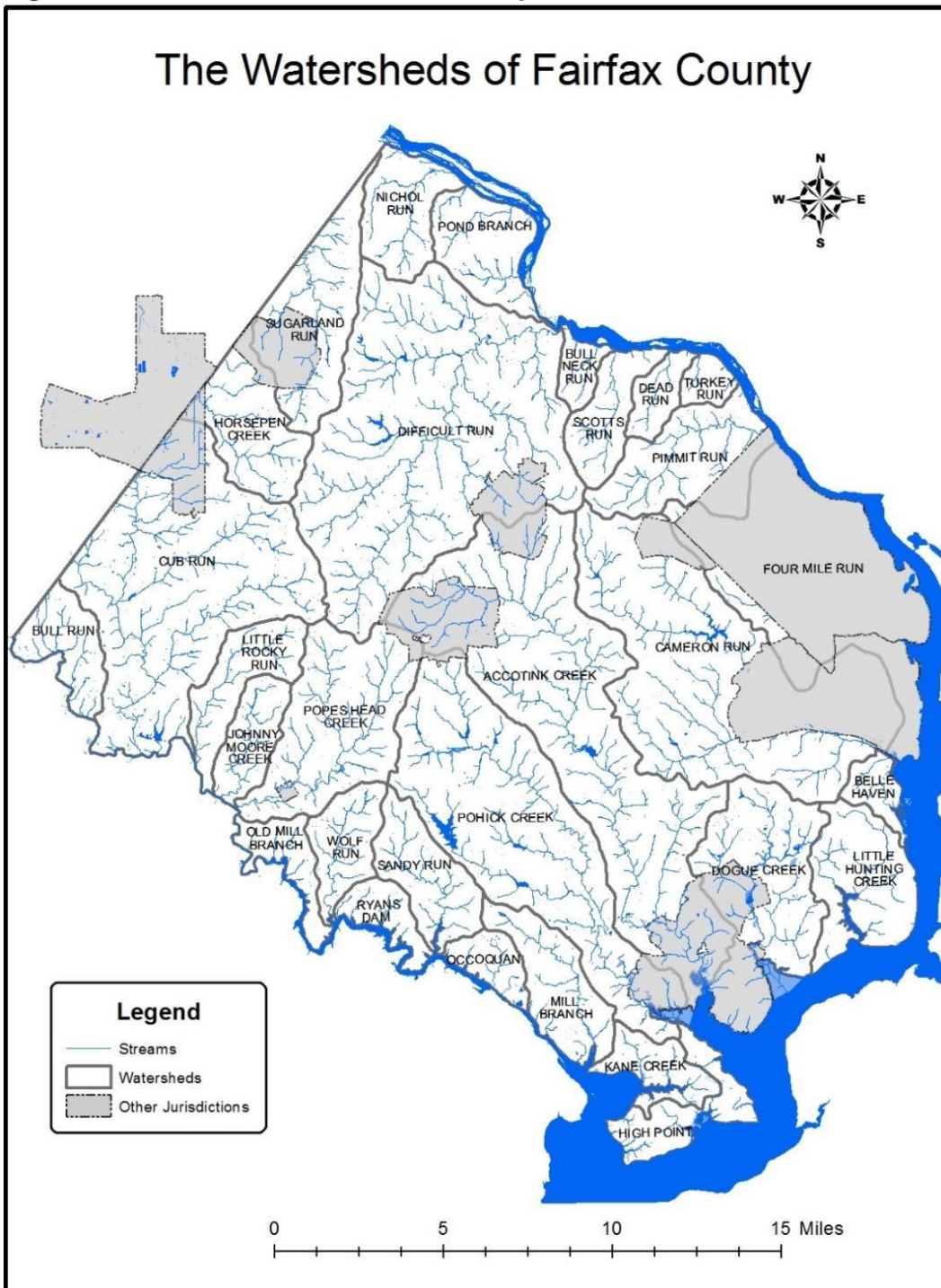
**INTRODUCTION**

Fairfax County’s 30 watersheds encompass over 900 miles of perennial streams along with myriad wetlands, tidal marshes, lakes, ponds, reservoirs, and riparian corridors. All of Fairfax County ultimately drains to the Potomac River, which drains to Chesapeake Bay. The largest watershed in the county is Difficult Run (58 square miles). The Potomac River watershed (14,600 square miles) is a sub-watershed of an even larger watershed, the Chesapeake Bay watershed, which has an area of 64,000 square miles and includes portions of the states of New York, Pennsylvania, Delaware, West Virginia, Maryland and Virginia as well as the District of Columbia.

While the natural world does not draw distinct lines for water movement throughout the ecosystem, human management of water does fall into three separate management systems:

- 1. Drinking water** – We obtain water from surface waters and groundwater, and then treat the raw water to drinking water standards.
- 2. Wastewater management** – The collection and treatment in closed systems of sewage from homes and business to return it to surface waters or groundwater.
- 3. Protecting and restoring streams, ponds and lakes, and tidal and freshwater wetlands** – Stormwater management includes the maintenance/restoration of those resources to ecologically healthier systems. Stormwater management also involves protecting homes and infrastructure from flooding.

Figure 3-1. Watersheds of Fairfax County



Ultimately the health and condition of our drinking water, our rivers, streams and ponds are a reflection of how we have managed our drinking water needs, and our wastewater and stormwater management.

There are four areas of significant concern addressed in this chapter that merit recommendations or comments.

1. Continued regional cooperation to ensure the adequacy of our water supplies in terms of quantity and quality, and to ensure environmental flows.
2. Preserving and in some cases restoring our streams to provide a viable aquatic ecosystem and meet our obligations to protect Chesapeake Bay.
3. Protecting our community against flood losses.
4. Collecting and treating our wastewater to meet all discharge standards, and recycling wastewater where feasible.

### **I - DRINKING WATER**

The majority of the county's drinking water is provided by [Fairfax Water](#)<sup>9</sup>. About two-thirds comes from the Potomac River and one-third from Occoquan Reservoir. For a small number of residents, community wells and private wells provide drinking water.

An overview of drinking water must include a discussion of water treatment facilities and the depth of monitoring and modeling within the system. It must also include a discussion of emerging contaminants; regional and local policies for land use/source water protection; and water allocation agreements, especially during droughts.

#### **CURRENT CONCERNS**

EQAC believes that, overall, Fairfax County has an adequate supply of good quality drinking water. Like everyone else in the U.S., we need to keep a wary eye on new and emerging contaminants that may need further treatment. The more local Occoquan supply in particular bears watching because of threats to its quality and quantity.

#### **Fairfax Water – Potomac River and Occoquan Reservoir Supply**

[Fairfax Water](#) withdraws water from the Potomac River near the James J. Corbalis Water Treatment Plant and from the Occoquan Reservoir at the Frederick F. Griffith Water Treatment Plant. Fairfax Water provides about 167 million gallons per day (mgd) of drinking water to nearly two million people in Northern Virginia, including most residents of Fairfax County. 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 the City of Falls Church systems were incorporated into Fairfax Water's system. In addition, Fairfax Water purchases treated water from the U.S. Army Corps of Engineers, Washington Aqueduct Division, treated at plants in Washington, D.C.

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<sup>9</sup> All hyperlinks in this chapter were accessed/checked August 6-10, 2024 unless otherwise indicated.

Fairfax Water meets all state and federal regulatory requirements. In addition, analyses are performed to monitor the quality of Fairfax Water's raw water sources, water within the treatment process and water within the distribution system. Water undergoing the treatment process is continuously monitored for pH, turbidity, coagulation efficiency and disinfectant residuals using technically advanced online monitoring systems. Chlorine, pH and temperature testing also is performed at sample sites throughout the system using portable instrumentation.

Fairfax Water provides highly advanced treatment for the water served to its customers. Fairfax Water uses both ozone and biological activated carbon at both of its treatment plants as part of its multi-barrier water treatment approach that also includes coagulation, sedimentation, filtration and disinfection. This combination is very effective in removing broad categories of pharmaceuticals and personal care products (PPCP's) and endocrine-disrupting chemicals.

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. [Fairfax Water's current Water Quality Report](#) is available for review on its website.

Although Fairfax Water produces safe and high-quality drinking water that meets all current standards, some water-quality concerns are appearing at the National level. For example, the U.S. Environmental Protection Agency (EPA) recently released [final national primary drinking water standards for six types of poly- and perfluoroalkyl substances \(PFAS\)](#). According to [Fairfax Water's Statement on EPA's Final PFAS Standards for Drinking Water](#), released April 10, 2024, Potomac water from the Corbalis plant is below (i.e., meets) the standards while the Occoquan water from the Griffith plant is slightly above standards. The standards do not take immediate effect, but Fairfax Water is evaluating treatment processes to ensure that our water will meet these standards. Also, more studies are needed to determine the specific sources of PFAS in the Occoquan watershed.

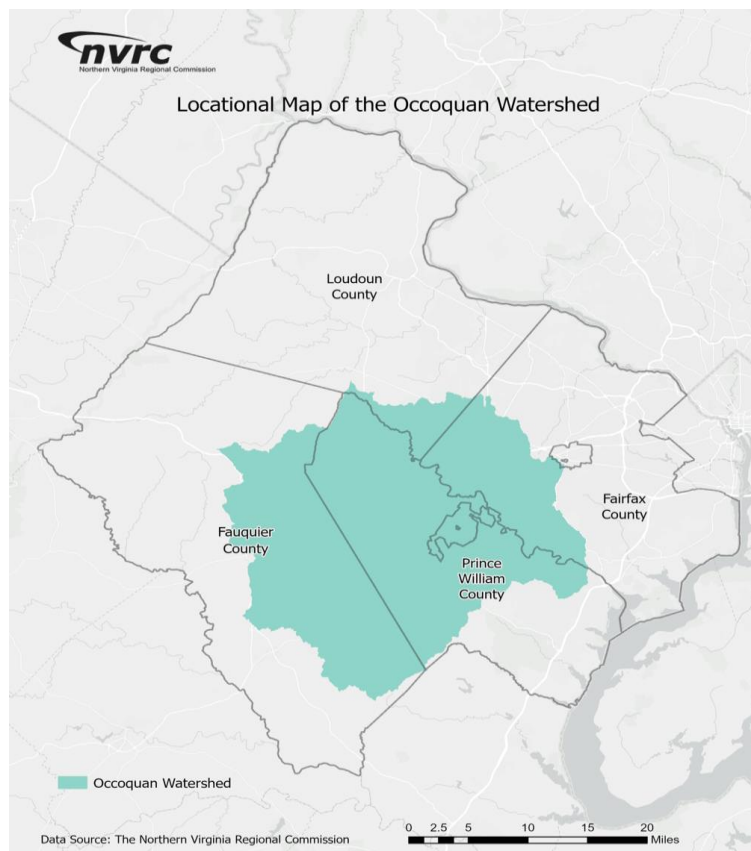
Fairfax Water does not explicitly differentiate the Corbalis and Griffith service areas. The boundaries vary depending upon pumping and demand. Nevertheless, if future concerns arise about either plant's output, it may be necessary, in the interests of transparency, to provide a map of approximate service areas.

### **Occoquan Reservoir**

The Occoquan Watershed covers about 590 square miles and includes the Occoquan Reservoir, which serves as the boundary between Fairfax and Prince William counties. Unlike the vastly larger Potomac Watershed, the Occoquan water supply is very susceptible to pollutants introduced in local jurisdictions.

### Figure 3-2: Locational Map of the Occoquan Watershed

Source: *The Northern Virginia Regional Commission*



During the latter part of the 1960s, the Occoquan Reservoir exhibited signs of advanced eutrophication, such as frequent and intense algal blooms (including cyanobacteria), periodic fish kills and taste and odor problems. All these issues threatened the health of the reservoir as a water supply source. Although the reservoir is only partially drained by Fairfax County streams (about 17 percent of the watershed is located in Fairfax County), the county has provided leadership in the region for land use modifications to protect water quality:

- Occoquan Policy (1971) and [Upper Occoquan Service Authority](#) (1978).
- Fairfax County [New Millennium Occoquan Watershed Task Force Report \(2003\)](#).

The Occoquan Watershed Monitoring Laboratory (OWML) has consistently monitored for nitrogen, phosphorus and sediment since the inception of monitoring in the Occoquan Basin. In addition, synthetic organic compounds (SOCs) have been monitored quarterly in the Occoquan Watershed since 1982. Water samples at stream and reservoir stations and sediment samples at reservoir stations are monitored quarterly. Fish samples are taken at three reservoir stations semi-annually. Generally, monitored 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. OWML continues to access near-real-time field data at various stream sites. Overall, results of the SOC monitoring in 2016 show that the watershed condition with regard to SOCs continues to be excellent. A large portion of the lab's newer resources now are focused on chloride and sodium, with additional funding requests to increase monitoring salinization in the watershed.

While salt concentrations are rising in freshwaters nationally, the trend is particularly acute in the Occoquan Reservoir. According to Dr. Stanley Grant, Director of the OWML<sup>10</sup>, sodium ion concentration in drinking water from the Griffith Plant is now higher than 93% of all Virginia Public Water Systems that rely on surface water for water supply. At the present time the [EPA guidance](#) level for sodium in drinking water is 20 mg/L. (This value was developed for those individuals restricted to a total sodium intake of 500 mg/day and should not be extrapolated to the entire population.) More than 90% of samples collected in the past 5 years from Griffith's finished drinking water exceed 20 mg/L sodium.

The Northern Virginia Regional Commission's (NVRC) Occoquan Basin Nonpoint Pollution Management Program maintains the [Occoquan Basin Computer Model](#). For the 2015 Land Use Update, NVRC developed a new land use tracking methodology that focuses on impervious and pervious surface area. NVRC will continue to update the land use for the Occoquan Watershed every five years, now using the updated methodology. EQAC is concerned that land use alone may be insufficiently predictive of pollution: an inventory of present and proposed pollution sources, such as data centers and other industrial facilities, also may be needed.

### **Wells and Groundwater Monitoring**

As the County continues to urbanize, groundwater supplies will come under increasing stress. There is no indication of any regional problem so far, but continuing monitoring efforts are prudent.

There are approximately 15,000 family residences and businesses that are served by individual well water supplies in Fairfax County. The Fairfax County Health Department offers private well evaluations, and the application [can be accessed on the county's website](#). The Virginia State Health Department Office of Drinking Water regulates the 44 public well water supplies in Fairfax County. The operators of these systems are required to conduct quarterly water sampling and analysis. On January 1, 2014, the [Eastern Virginia Groundwater Management Area was expanded](#) to include the areas of Fairfax County located east of Interstate 95.

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<sup>10</sup> Email to Stella Koch, EQAC, May 23, 2023.



## **Minimum Flows**

Fairfax County and neighboring jurisdictions store only a few days of local supplies of water, and thus rely on a continuous (“run of the river”) flow of Potomac River water from upstream sources and reservoirs. Major water systems in the Washington, D.C. region interconnect to some extent and have worked under cooperative agreements since 1982<sup>11</sup>. The [Interstate Commission on the Potomac River Basin](#) (ICPRB) has the mission to protect and enhance the waters and related resources of the Potomac River basin through science, regional cooperation, and education. The ICPRB produces a [water supply reliability study every five years](#). The 2020 report indicated there is no immediate concern of water shortages, but by 2040 some regional actions may be needed.

The 1,900-acre [Potomac Gorge Natural Area](#) spans two states: Maryland and Virginia. Due to its location along the Fall Line between the Piedmont Plateau and the Atlantic Coastal Plain, the Potomac Gorge is one of the most biologically diverse places on Earth. Its location downstream of most water intakes would arguably make the gorge the most critical natural area effected by any major water shortage. Unfortunately, though the area has been the subject of many studies, there is yet no firm scientific consensus on what minimum flow must be maintained to avoid major ecological damage.

## **Data Center Impacts**

According to a recent Wall Street Journal Report<sup>12</sup>, roughly 250 existing data centers in Northern Virginia use about 4,000 MW of electric power, and another 7,000 MW could be added. Older data centers typically range from 10 MW to 50 MW in size and use conventional commercial air conditioners for heat dissipation. Newer data centers are larger, around 300 MW; requiring this much cooling capacity makes evaporative cooling, like that often used for power plants, an attractive option. A 300 MW data center would need to evaporate about 3 mgd of water to the atmosphere. Adding 7,000 MW of capacity using evaporative cooling would introduce about 70 mgd of consumptive water use, almost doubling existing consumptive water uses in the Potomac River Basin. None of this increased usage is included in the 2020 ICPRB estimates.

All evaporative cooling systems concentrate any solids in the input water and must discharge highly saline “blowdown” water. This is particularly worrisome in the Occoquan basin, where sodium levels already are of some concern.

At present, it is not known if new data centers will actually request water for evaporative cooling, nor is it known if mitigation, such as interruptible water service, would be acceptable. Recycled water from wastewater treatment – the Noman M. Cole Jr., Pollution

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<sup>11</sup> Sheer, Daniel P., 1985, “Managing Water Supplies to Increase Water Availability.” In *National Water Summary 1985 – Hydrologic Events and Surface-Water Resources*, [U.S. Geological Water-Supply Paper 2300](#), pp. 101-123. DOI: 10.3133/wsp2300.

<sup>12</sup> Wall Street Journal, April 15, 2024, “AI Is Fueling a Data Center Boom. Can the Power Grid Keep Up?:

Control Plant currently treats about 40 mgd – may be another option. Clearly, any use of evaporative cooling for new data centers must be considered carefully as a regional issue.

Considering their potential impacts to water supplies, EQAC recommends, if large data centers are approved with evaporative cooling, conditions must consider (1) Possible water cutoff during periods of drought; (2) Use of recycled wastewater where feasible; and (3) No return of any “blowdown” to the Occoquan Reservoir.

### **RECOMMENDATIONS – DRINKING WATER**

The Scorecard for this ARE contains the following recommendations pertaining to this subchapter. Please see the Scorecard for details.

Two recommendations (*3A-W-2021.1 and 3A-W-2021.2*) were continued in 2023. These recommendations are retained but combined for 2024, to better reflect specific needs.

- 1. Continue and enhance the protection of the Occoquan Reservoir by developing a plan for managing threats such as PFAS and sodium. Fund monitoring and modeling of emerging contaminants such as PFAS and of the rising sodium levels in the Occoquan Reservoir. This effort should include an inventory of present and proposed pollution sources, such as data centers and other industrial facilities.**

*Recommendation: 3A-W-2024.1*

Two new recommendations are made for 2024.

- 2. Continue to participate with the ICPRB in studying water supplies in the Potomac River. In particular, support ecological studies of low flows in the Potomac Gorge.**

*Recommendation: 3A-W-2024.1*

- 3. If large data centers are approved with evaporative cooling, approval conditions must consider (1) Possible water cutoff during periods of drought; (2) Use of recycled wastewater where feasible; and (3) No return of any “blowdown” to the Occoquan Reservoir.**

*Recommendation 3A-W-2024.2*



## **II – WASTEWATER**

Nearly all wastewater in Fairfax County is collected from homes and commercial sites and carried through the county-maintained sanitary sewer pipe system to one of five advanced regional treatment facilities (county’s own Noman M. Cole Jr., Pollution Control Plant (NMCPCP), Upper Occoquan Service Authority, DC Water’s Blue Plains Advanced Wastewater Treatment Plant, Alexandria Renew Enterprises, and Arlington Water Pollution Control Plant) that release the treated waters into local waterways. A small amount (about 20,000 gallons per day) of the county’s wastewater is treated at the Prince William County Service Authority’s plant. The only small treatment plant remaining in the county serves the Harborview subdivision of Mason Neck. About 5% of homes are served by septic systems.

### **CURRENT CONCERNS**

EQAC recognizes Fairfax County is served by an excellent wastewater conveyance and treatment infrastructure. However, we must not rest on our laurels. Facilities will require continued maintenance and upgrades as they age, and hiring qualified staff remains a continuing challenge.

The treatment of sewage is a complex and shared responsibility among neighboring jurisdictions. Of the 100 million gallons per day (mgd) collected daily through the sanitary sewer system, approximately 40 percent is treated by the county-owned Noman M. Cole, Jr. Pollution Control Plant (NMCPCP) in Lorton, Virginia. The remaining 60 percent of the wastewater is conveyed for treatment, under inter-jurisdictional agreements with DC Water (approximately 30 percent), the Upper Occoquan Service Authority (UOSA—13 percent), Alexandria Renew Enterprises (15 percent), and Arlington Water Pollution Control Plant (two percent). The combined Fairfax County allocated capacity of these five treatment plants is 157 mgd (which includes one mgd reserved capacity with Loudoun Water’s Broad Run Treatment Plant). Fairfax County pays a pro rata share of the cost of these facilities. Fairfax County has representatives on UOSA, DC Water, and Alexandria Renew Enterprises governing boards.

Wastewater produced within the County’s Approved Sewer Service Area, which covers approximately 290 square miles of the county’s total of 400 square miles, is conveyed by the county’s 3,380-mile-long collection system to the above-mentioned five plants for advanced wastewater treatment including nutrient removal. Two of the five treatment facilities are in Fairfax County; the county’s NMCPCP and the independent UOSA. An overview can be found [here](#).

The Wastewater Management Program within the county is managed as an enterprise fund which means the fees collected for hookups and for service fund the system. The Board of Supervisors sets the fee rate.

For approximately 5% of Fairfax County residents, wastewater is treated on-site via septic systems through which the water infiltrates into the ground and ultimately reaches groundwater.

### **Fairfax County Noman M. Cole Jr. Pollution Control Plant**

The NMCPCP, located in Lorton, Virginia, is a 67 mgd advanced wastewater treatment facility that incorporates preliminary, primary, secondary, and tertiary treatment processes to remove

pollutants from wastewater. The plant is owned by the county and operated by the Fairfax County Department of Public Works and Environmental Services - Wastewater Management. The original plant, which began operation in 1970 at a treatment capacity of 18 mgd, 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 NMPCP continues to more than meet the performance standards for the limits of parameters monitored. Additional information is available on the [Fairfax County website](#). This advanced treatment facility for wastewater in Fairfax County should be commended for its leadership in producing treated water for reuse. The facility's [YouTube video](#) does an excellent job of explaining the process. This water can be safely used to water lawns, in commercial car washing businesses, in construction and for other industrial uses.

The Water Reuse Project uses cleaned wastewater from the NMPCP for irrigation and industrial purposes. Reusing the treated water reduces 1 mgd of water demand on the county's drinking water system. In addition, 0.25 mgd is reused on the plant site. This equals a total of 2 billion gallons of reused water annually. A pipeline supplies reuse water to Covanta Fairfax, Inc., the Resource Recovery Plant, the Laurel Hill Golf Course, and the South County ballfields.

Recommendation 3B-W-2023.1 of the 2023 ARE addressed a 38% vacancy rate in positions within wastewater. It suggested review of compensation and benefit levels be conducted to maintain competitiveness in hiring and retaining skilled employees. This matter has now been addressed.

#### Wastewater Treatment and Gunston Cove Recovery

The improved water quality of Gunston Cove (which receives effluent from NMPCP), the Occoquan Reservoir (which receives effluent from UOSA) and the Potomac River (which receives effluent from Blue Plains) are testament to the high standards of treatment in the last decades by these facilities.

Since 1984, Fairfax County, with assistance from George Mason University, has been monitoring water quality and aquatic life in the Gunston Cove area. As a major discharger of treated wastewater into the tidal Potomac River from the Noman M. Cole Jr., Pollution Control Plant, Fairfax County has been proactive in decreasing nutrients, a major cause of water quality impairment, since the late 1970s. Due to the county's commitment to advanced wastewater treatment at the Noman M. Cole Jr., Pollution Control Plant, nitrogen and phosphorus loadings in Gunston Cove have reduced dramatically over the study period. Chlorine and solids in treated water have also been reduced or eliminated. The reduction in loadings has been achieved even as flow through the plant has remained high. Fairfax County has demonstrated how effective wastewater management can improve water quality, and thereby restore the aquatic ecosystem. The [Gunston Cove study](#) has proven to be an extremely valuable case study in ecosystem recovery for the Chesapeake Bay region and internationally.

### Maintenance of the Wastewater Conveyance System

The Wastewater Collection Division (WCD) of the Department of Public Works and Environmental Services is responsible for: the operation, maintenance, and overall management of the gravity sewers, force mains pipelines, pump stations and metering stations; leading the asset management program; and overseeing the planning, design, and construction of collection system's Capital Improvement Program (CIP) projects.

Fairfax County gravity sewers consistently have fewer occurrences of backups and overflows than the median level, established in a study conducted by the American Water Works Association and Water Environment Foundation. This is due to WCD's aggressive maintenance and rehabilitation program. As part of the collection system's asset management program, CCTV inspection of the gravity system identifies defects in the sewer system for repair and maintenance recommendations. These recommendations are incorporated into WCD's maintenance programs as well as the Capital Improvement Program (CIP). An imperative highlight from the CIP is the use of trenchless technologies to rehabilitate pipes throughout the system. This technology provides significant cost savings over traditional open cut repairs, and reduced disruption to residents, the surrounding environment and traffic.

The sewage pump stations' supervisory control and data acquisition (SCADA) system provides remote monitoring, alarm management, and limited control capabilities for the pump stations' operations. To ensure continued operation of pumping stations during power outages, 60 backup power generators, located at pumping stations throughout the county service area are maintained. WCD is currently implementing a new geographic information system (GIS) centric computerized maintenance management system (CMMS) to replace and modernize its current system. In addition, WCD is monitoring and investing in new technology such as artificial intelligence to introduce efficiencies, improve effectiveness and service delivery to the residents of Fairfax County.

The collection system which includes 63 wastewater pumping stations, two stormwater pumping facilities, one water reuse system, 57 permanent flow metering stations, 11 rain gauge stations and 135 grinder pump and associated pressure sewer systems, is aging. The costs for replacement of older infrastructure and increased maintenance have risen. In February of 2014, the Wastewater Management Program (WWM) Asset Management Team was formed to develop a dynamic asset management program for prioritizing and optimizing the operation, maintenance, and capital asset reinvestment of the linear assets. Several phases of the Asset Management program have been completed. Funding the wastewater program by increasing sewer fees is essential to successful operation and maintenance of the sewer system.

### Fairfax County's Pretreatment Program

Fairfax County has an effective and enforceable [pretreatment program](#) to protect the county's wastewater collection, conveyance, and treatment infrastructure, and to prevent

certain pollutants from passing through the wastewater treatment facilities to receiving waters. The pretreatment program is in full compliance with all applicable requirements.

#### Septic Systems and On-site Disposal

Over 21,000 homes and businesses are served by on-site sewage disposal systems in Fairfax County. About 5% of these systems are alternative sewage disposal systems, which require more extensive maintenance than conventional systems. All septic systems are required to be pumped out every five years. The operation and maintenance of all onsite sewage disposal facilities is regulated by the county's Health Department. Permits are issued for residents to utilize pump and haul because of a failing on-site sewage disposal system. About 195 homes in the Town of Clifton and the Gunston and Wiley communities are on community pump and haul systems. These locations are outside of the ASSA and the county's central sewer system and cannot be extended to these locations.

Areas of the county that have been deemed unbuildable in the past (due to the inability of the property to support a conventional septic system) are now being considered for development using alternative on-site sewage disposal technology. Developers, because of the need to maximize land development potential, are using alternative systems as one tool to achieve this goal. Unlike conventional systems, alternative systems require advanced, prescribed, and regular maintenance to ensure systems adequately handle wastewater. Key to ensuring these systems work properly is homeowner knowledge of how they generally operate and considerable involvement in ensuring maintenance is performed. All alternative systems require an annual maintenance inspection to ensure proper function of the system and homeowners may not be aware of their critical role for maintaining these systems through these inspections. To ensure these complex systems are functional for a long time, educational outreach to homeowners is critical. Outreach can be provided by both the private and public sectors, to include Fairfax County Health Department and Department of Public Works and Environmental Services.

#### Upper Occoquan Service Authority (UOSA)

UOSA is an independent authority that operates an advanced water reclamation facility in Centreville, Virginia and serves the western portions of Fairfax and Prince William counties, as well as the cities of Manassas and Manassas Park. UOSA's [Drinking the Water](#) video shows individuals comfortably drinking the treated water from the plant and showcases the high degree of treatment. This system was one of the early pioneers of indirect potable reuse in the country. UOSA discharges upstream of the Occoquan Reservoir. UOSA continues to meet its performance criteria. Additional information can be found on the [UOSA website](#). The Director of the Wastewater Planning and Monitoring Division at Fairfax County serves as the chair of the UOSA Board.

#### Monitoring the Success of Improved Treatment

The [Occoquan Watershed Monitoring Laboratory](#) (OWML) has administered a comprehensive hydrologic and water quality monitoring program in the Occoquan

Watershed since 1972. The program is jointly funded by Fairfax Water and the six jurisdictions within the watershed. OWML operates automated stream monitoring and flow gauging stations located on the major tributary streams of the watershed. These stations record stream flow and automatically collect flow-weighted composite water samples during storm events. There are concerns with emerging contaminants and increased sodium and chloride in the Occoquan Reservoir.

### **RECOMMENDATIONS – WASTEWATER**

Recommendations include one completed recommendation from 2023, and two continued from 2021. See the Scorecard for details.

- 1. Wastewater operates an enterprise fund and the department needs to be supported in creating a salary structure and pursuing benefit programs that will hire and keep adequate numbers of employees in these essential positions.**

*Recommendation: 3B-W-2023.1 | Status: Completed*

- 2. Set the fee rate collected for wastewater treatment to meet the documented needs of the necessary upgrades and maintenance requirements for all the plants that serve the county and their respective wastewater collection system. This may include the necessary increases to hire and retain adequate wastewater personnel.**

*Recommendation: 3B-W-2021.1 Age: 4 years | Status: Stalled*

- 3. Continue aggressive public education and monitoring of the new alternate septic systems performance.**

*Recommendation: 3B-W-2021.2 Age: 4 years | Status: Making progress*

### **III - PROTECTING AND RESTORING STREAMS, PONDS & LAKES**

#### **INTRODUCTION**

Stormwater management is the art and science of managing the potential damaging effects of polluted and excessive runoff on our natural environment (streams, ponds, lakes, and rivers) and on our built environment (bridges, roads, and buildings). This is achieved by attempting to manage both the quality, quantity, and timing of runoff.

The dispersed and intermittent nature of rainfall makes runoff pollution difficult to control. Excessive nutrients, including nitrogen and phosphorus (organic matter, fertilizer) can stimulate excessive algal growth in ponds, streams, and rivers. Other runoff pollutants are sediment (from erosion, construction sites, eroded stream banks and road sand), salts from winter deicing of impervious surfaces, toxics (from oil, paint, pesticides, chemicals, and metals), pathogens including bacteria (such as animal waste, failing septic systems and leaking sewer systems) and litter. In areas with buildings, roads and parking lots, the water flows over these surfaces into storm drains directly to streams.

As development and redevelopment occurs, natural areas that once had vegetative cover capable of absorbing water and filtering pollutants are replaced by impervious surfaces such as roads, driveways, parking lots, and buildings. With no chance to infiltrate into the ground, and with surfaces often designed to minimize water retention, increased runoff flows into streams more quickly. This “flashier” runoff results in scouring, downcutting and loss of streamside vegetation. When stream channels become incised from downcutting, they become disconnected from their floodplains. Water cannot overflow banks onto the adjacent floodplain where flows can be dissipated and drop their sediment loads. Silt and sediment from erosion smother the stream bottom and destroy in-stream habitat for sensitive benthic macroinvertebrates. Loss of shade results in increased water temperatures. During summer storms, runoff from heated impervious surfaces also raises water temperatures further stressing aquatic life. Over time, increased erosion, flooding, and sediment deposition lead to habitat loss, water quality problems and damage to homes, utilities, and infrastructure. Collectively, this phenomenon is known as “urban stream syndrome” and is typical of many Fairfax County streams (Figure 3-3).



**Figure 3-3: Examples of a healthy stream (left) well-connected to its floodplain, and an incised stream (right) separated from its floodplain.**

**Source:** Photos provided by the Fairfax County Department of Public Works and Environmental Services.



The purpose of stormwater management is to manage both the quality and quantity of water coming off sites because of increased impervious surfaces. Stormwater runoff is treated by constructing facilities that capture the rainfall on site and infiltrate it into the ground or by conveyances and facilities such as detention ponds that treat and release the water more slowly into streams or lakes. “Best Management Practices” for stormwater reduce pollutants and control volume to reduce flooding and the erosive quality of increased water flow on stream banks and bottoms.

Stormwater management requires a complex integration of public and private facilities, differing choices for restoration and protection of streams, ongoing inspections and maintenance for all facilities and public education and involvement in handling runoff. Enforcement and enhancement of regulations based on current science to reflect future conditions to minimize impacts on our streams and ecosystems should be pursued. It requires inspections of development sites for adequate stormwater protection. Imperative in all this is monitoring, not only the receiving streams, but also the effectiveness of stormwater facilities and treatment practices in protecting natural and built conveyance systems and improving water quality.

The results of these combined efforts should lead to healthier, protected, and restored streams, and increased resilience from the more frequent intense storm events accompanying climate change. These efforts result in cleaner local streams, a healthier Occoquan Reservoir and Potomac River, and ultimately, an improved Chesapeake Bay ecosystem.

## **CURRENT CONCERNS**

### **Monitoring Streams and Lakes**

Several stream monitoring programs are ongoing within Fairfax County and county streams have been the subject of several studies. EQAC believes current stream monitoring efforts present an accurate picture of stream conditions within Fairfax County, and recommends these efforts be continued. Stream quality, as noted below, bears watching but does not call for expanded monitoring at this time.

The Fairfax County Department of Public Works and Environmental Services (DPWES), Fairfax County Park Authority (FCPA), Virginia Department of Environmental Quality (VDEQ), U.S. Geological Survey (USGS), Fairfax Water, and 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 citizen volunteer water quality monitoring programs. The [Fairfax County Interactive Map Gallery](#) provides many maps dealing with water resources. All these data help provide a comprehensive understanding of the condition and health of Fairfax County's water resources.

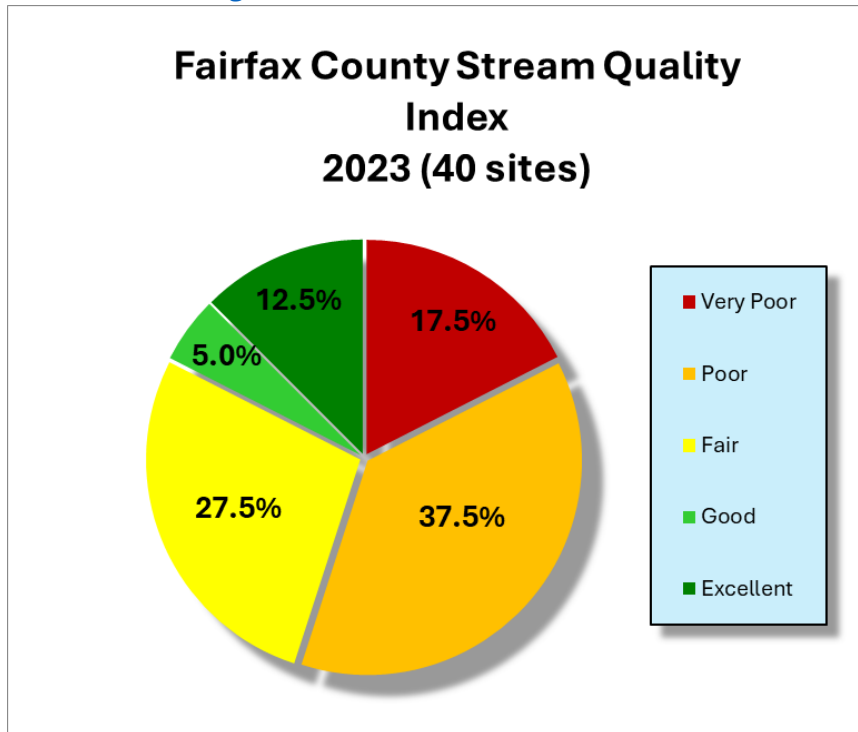
The county collects extensively both system-wide and specific watershed data; the county also collects data that focuses on some specific stormwater treatment methods to monitor their effectiveness.

### **DPWES Stream Quality Assessment Program**

Born from the 2001 Stream Protection Strategy Baseline, this [program](#) has been assessing conditions in the streams of Fairfax County annually. This comprehensive monitoring program uses a statistically valid methodology called probabilistic monitoring to annually evaluate the physical, chemical, and biological conditions of streams on a countywide basis. The Stream Quality Index (SQI) is based on annual data collected on resident populations of stream benthic macroinvertebrates. As benthic macroinvertebrates are excellent indicators of water quality, the SQI is used to evaluate long-term trends in the overall health of streams. The index rates the composite conditions of stream sampled each year on a 1-5 numerical scale, with an index of 1 indicating "very poor" average stream health, and a score of 5 indicating "excellent" stream health countywide.

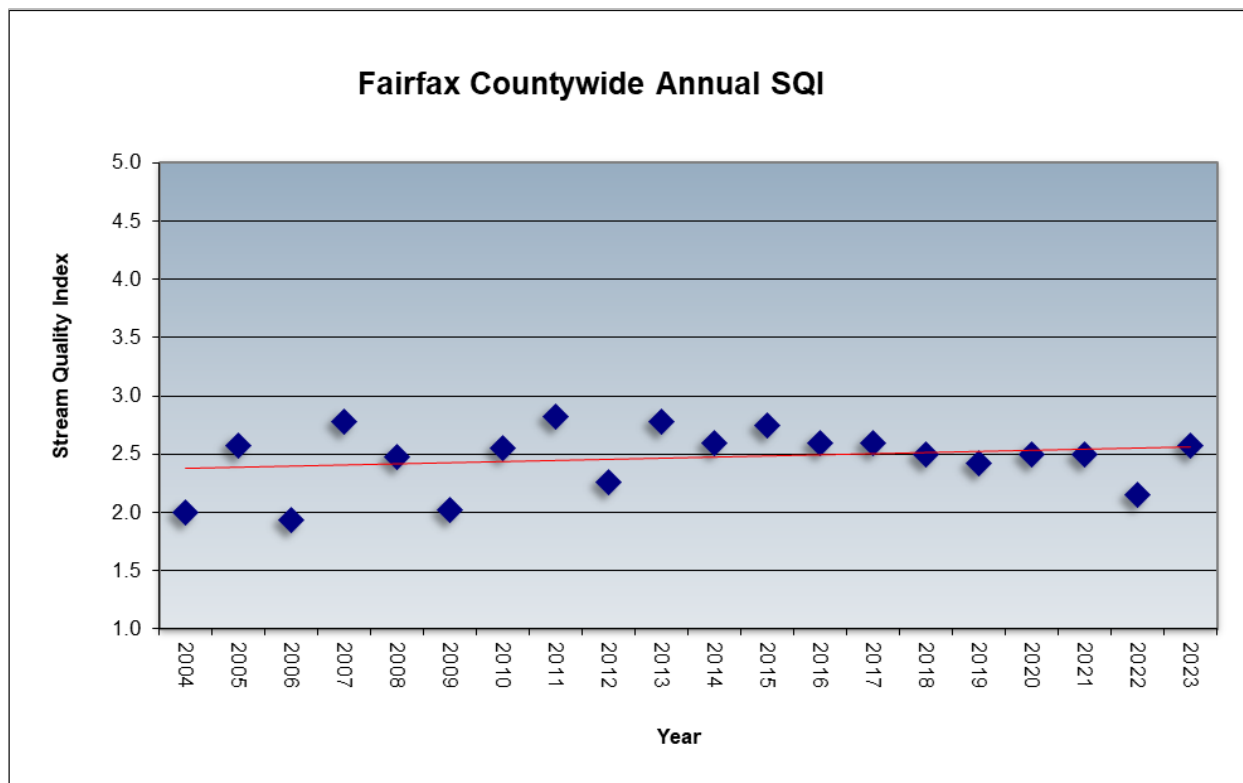


**Figure 3-4. 2023 Fairfax County Stream Quality Index.** Source: [Stream Quality Assessment Program](#).



This biological monitoring effort continues to indicate that approximately 55% of the county's waterways are in "Poor" or "Very Poor" condition (Figure 3-4). However, Fairfax County streams have shown a slight improvement since 2004, when the current monitoring program began (Figure 3-5). Although the changes have been relatively minor, it is important to note that they have occurred against a backdrop of continued urbanization and population growth. In 2022, the index dipped from 2.5 to 2.2. This dip was also seen in the high-quality, "best condition" reference sites located outside of the county – suggesting a common influence (such as weather). Annual fluctuations in the SQI are expected due to annual climatic variability and the nature of the randomized sampling trend framework. The 2023 results, however, are right on the trend line.

**Figure 3-5. Countywide Stream Quality Index (SQI) 2004-2022.** Source: [Stream Quality Assessment Program](#).



#### DPWES Bacteria Monitoring Program

This annual probabilistic monitoring provides information on the general levels of bacteria in streams and is used as a screening tool that can identify areas of concern for further, more intensive investigations of potential sources (e.g., sewer leaks). In addition, the potential human health risk associated with wading or swimming in streams is assessed based on analyses of *E. coli* bacteria found in streams. Based on these results, recreational direct contact with surface waters is discouraged and additional information can be viewed [online](#).

#### DPWES Stream Protection Strategy Baseline Study

Published in 2001, [this study](#) provides a holistic initial ecological baseline assessment of county streams and management recommendations.

#### DPWES 2005 Stream Physical Assessment

[This study](#) provided countywide baseline field reconnaissance data including information on habitat conditions, impacts on streams, general stream characteristics and geomorphic classification of stream type. This information was used as the basis for the development of countywide Watershed Management Plans. The county has recently developed an updated stream physical assessment program.

### USGS Watershed Study Partnership

[This partnership](#) was established in 2007 as a collaborative, long-term trend study to evaluate watershed scale changes in water quality and quantity in response to the large-scale implementation of watershed capital improvement projects (e.g., stream restorations, stormwater management retrofits, green infrastructure, etc.). This is accomplished through a network of jointly operated stream gages that collect high-density monitoring data throughout the county. To date, three USGS extensive scientific reports have been published from this work, including a [recent 2023 publication](#). These findings will inform the County's Stormwater Management Program and promote strategies for watershed restoration.

### Ponds and Lakes

Since 2014, four large, county-managed water control impoundments in the [Pohick Creek watershed](#) have been monitored by DPWES. These lakes (i.e., Barton, Huntsman, Woodglen and Royal) were built in the 70s and 80s by NVSWCD and Fairfax County as flood and sediment control facilities. By monitoring the lakes over time, it has been shown that dissolved oxygen concentrations strongly stratify during the growing season, and that dredging can lower nutrient, chlorophyll, and suspended solid concentrations (in the water column) but that these concentrations tend to trend back up over time, post dredge.

The Reston Association, the homeowner's association for the planned community of Reston, has an active watershed and lake management program. Four lakes, Audubon, Anne, Thoreau, and Newport, as well as two ponds, Bright and Butler, are monitored. This report and other information about Reston's lakes can be obtained from [its Lake Report](#).

### Watershed Management and Restoration

Protecting environmental assets is an essential part of resiliency planning in the face of climate change. EQAC urges the county to enhance environmental policies and ordinances where possible.

The county has developed a series of policies and ordinances to protect receiving waters, stream valley lands and other environmental assets to include the Floodplain Regulations of the Zoning Ordinance, the Environmental Quality Corridor (EQC) Policy of the Comprehensive Plan, the Chesapeake Bay Preservation Ordinance, the Occoquan Reservoir protections, and the Stormwater Management Ordinance.

The county has added and proposed additional programs that integrate green infrastructure and nature-based solutions. These practices provide multiple benefits to reduce flooding, heat island effect and greenhouse gas emissions, improve water and air quality, and provide human health and ecological benefits. Resilient Fairfax recommended strategies include:

- Develop a Consolidated Natural Resources Management Plan
- Pursue Green Infrastructure Projects That Provide Climate Resilience Benefits

- Inventory and Update to the Comprehensive Plan to Enhance Resilience
- Expand Targeted Tree Plantings
- Pursue and Implement a Flood-Risk Reduction Plan for the Fairfax County Community
- Encourage Heat-Resilient Design, Development, Upgrades, and Practices
- Update Capital Improvement Program Process to Include Climate Resilience Considerations.

These regulations and policies have supported the creation of stream valley parks and stream valley trails and support the attainment of goals established within the county's watershed management plans. These protections should remain in place.

Of note is Fairfax County's Long Branch Central Project in the Accotink watershed. This project is a collaborative effort of the Department of Public Works and Environmental Services, the Fairfax County Park Authority and the Northern Virginia Soil and Water Conservation District. The primary goals of the project are to meet the sediment waste load reductions requirements in the TMDL, improve water quality in the entirety of the watershed, improve habitat in the uplands/headwater and restore the floodplain and in-stream habitat. To meet these goals, the county will restore about six and a half miles of stream and 75 stormwater outfalls in the 3.75 square mile watershed. This is a more comprehensive approach than taken in other restoration efforts. [USGS has added a fixed long-term gage station](#) which will hopefully provide data to really evaluate these comprehensive efforts over time. It also sets a template for further comprehensive wholistic stream restorations.

#### Watershed Management Plans

Between 2003 and 2011, a total of 13 watershed management plans, which cover [all 30 county watersheds](#), were developed and adopted by the Fairfax County Board of Supervisors. From this planning effort, more than 1,700 structural and non-structural projects were identified as opportunities to help restore and protect our vital natural resources.

#### Fairfax County Watershed Projects and Stream Restorations

Data shows that the most cost-effective means of achieving nutrient (total nitrogen and total phosphorous) and sediment reduction goals (total suspended solids) is through stream restorations using natural channel design (NCD) techniques. The county has completed 262 stormwater projects treating about 64,980 acres and restored over 144,300 linear feet (27.3 miles) of degraded streams and outfalls since July 2009. The county often leverages resources and has obtained over \$48 million in grant funding from the Virginia Department of Environmental Quality (VDEQ) through the Stormwater Local Assistance Fund (SLAF) for 38 projects.

#### Clean Water Act designated impaired streams and Total Maximum Daily Loads (TMDLs)

As required by the federal Clean Water Act, every two years the VDEQ prepares a list of water bodies in the Commonwealth that have been listed as "impaired" for specific designated uses such as swimming, fishing, recreational contact, aquatic life use, and others. Many bodies of water in Fairfax County have been designated as being "impaired" under the federal Clean Water Act. For most of these bodies of water, a "Total Maximum Daily Load" (TMDL) must be prepared to identify pollutant load reductions that would be needed to remedy the impairment. To date, several TMDLs have been established for streams and embayments in the county. Impairments identified include bacteria (fecal coliform and/or E. coli); sediment (benthics); polychlorinated biphenyls (PCBs) and chloride. Through the requirements of the County's Municipal Separate Stormwater System (MS4) discharge from these TMDL designated streams must have action plans developed which outline the measures the county will take to improve the conditions. The list of current TMDL action plans, which include the impaired waters associated with each pollutant, is available [online](#).

For more information on impaired waters and the TMDL program, including an interactive map of TMDL and impaired waters in the county, please visit the [VDEQ's water quality web page](#) and look for the [integrated report](#).

#### Salt (Chloride) TMDL

There is growing regional and local concern about the amount of salt accumulating in our soils and entering our waterways and negatively impacting our water ecosystems. Data collected by DPWES Stormwater Planning along with other partners in the region show increasing salinity in county streams and water supplies. In 2018, Fairfax County, other Northern Virginia localities, organizations, and community groups, assisted VDEQ with the development of the Salt Management Strategy to reduce the amount of salt entering our waterways. The county is working with the Metropolitan Washington Council of Governments (MWCOCG) and Northern Virginia Regional Commission (NVRC) to [distribute educational materials regarding salt application and management](#). The Salt Management Strategy will help Fairfax County to develop a chloride TMDL action plan for Accotink Creek as part of the county's next MS4 permit renewal. For additional information on salt, please visit the Metropolitan Washington Council of Governments webpage on [Winter Salt Smart](#).

#### Reston Stream Mitigation Bank

Beginning in 2008, over 11 miles of streams in Reston have been restored as part of a private stream mitigation bank. This is an ongoing project independent of county efforts. Additional information can be viewed [online](#).

#### Flood Remediation/Reduction Programs in Belle Haven and Huntington

The New Alexandria, Belle View, and Riverview neighborhoods are susceptible to tidal flooding. Notably, tidal surges from Hurricane Isabel in 2003 caused extensive damage to the communities and posed a significant risk to the residents' safety. In 2022, the United States Army Corps of Engineers (USACE) completed the Metropolitan Washington Coastal

Storm Risk Management Study and identified flood mitigation measures to protect the region. The Tentatively Selected Plan (TSP) included a levee and floodwall to reduce flood risk in the Belle Haven community. The USACE TSP completed a public and agency comment period. Due to the lack of community support the USACE will not be moving forward with TSP for the Belle Haven Community.

#### Flood Risk Reduction Program

The county has several active flood risk reduction activities and an ongoing interdepartmental effort to develop a comprehensive countywide flood risk reduction plan. [DPWES currently manages](#) 16 active flood mitigation projects, modeling and mapping approximately 813 stream miles with county-regulated floodplains of 70 acres or more and is working with the Federal Emergency Management Agency to provide outreach on the updated Flood Insurance Rate Maps. Land Development Services (LDS) developed a localized flooding mitigation policy for infill lot development and supported the creation and enhancement of GIS-based tools to help identify flood prone properties during the plan review process. Fairfax County Department of Planning and Development continues to encourage stormwater management practices above the regulatory requirements on properties going through the zoning application and development review process that are located upstream of known drainage issues. LDS issued a letter to industry about residential infill. Detention is now being [required on single residential lots that are generating certain levels of runoff](#).

In July 2022, county departments presented to the Board of Supervisors Environmental Committee on recommended options to reduce flooding risks for existing and future development. In that presentation it was noted that the county's flooding and drainage service requests indicate that urban flooding outside of the county's floodplains is a concern across many of the areas of the county; 97% of the service requests were urban flooding requests (located outside of floodplains). It is essential to consider both the delineation and protection of floodplains along with the flood mitigation efforts addressing urban flooding. The strategies in the [Resilient Fairfax plan](#) address the issues of both floodplains and urban flooding. There is an April 23 Countywide Flood Risk Reduction Policy Update that provides recommendations for projects. There is a need for additional funding and new staff positions to support this work. The work to address documented structural flood risk is important as climate change, deteriorated county infrastructure, and nearby development with impervious surface is needed to address flood risks to at risk properties.

The county often leverages resources and has obtained \$15.4 million in funding for four flood mitigation projects from the VA Department of Conservation and Recreation through the [Community Flood Preparedness Grant Program](#).

#### Stormwater Management Facilities and Infrastructure Maintenance and Repair

There are approximately 8,200 public and private stormwater management facilities in Fairfax County's inventory. Much of the inventory consists of ponds, manufactured

(proprietary) devices, infiltration trenches, underground and rooftop detention facilities and sand filters. Other practices like bioretention gardens, swales, tree filters, permeable pavement and green roofs are referred to as green stormwater infrastructure (GSI). GSI requires a greater level of maintenance to ensure functionality. The county inspects county-owned structures biannually and public ones every five years. These inspection rates are consistent with the Municipal Separate Storm Sewer System (MS4) program requirements.

The Maintenance and Stormwater Management Division (MSMD) performs preventative maintenance on county-maintained stormwater facilities and inspections of 20 state regulated dams that are operated by DPWES. Critical items such as the stability of the dam embankment and the function of the water control structures are addressed on a priority basis. Routine items such as mowing are scheduled up to seven times per year. More information can be found at the [DPWES website](#).

The county's storm drainage systems, valued at more than \$1 billion, includes over 1,400 miles of pipes, 200 miles of constructed open conveyance channels, and almost 68,000 storm structures, some up to 80 years old. Approximately 7,000 county stormwater outfalls are regulated under the MS4 permit. MSMD continued implementation of its storm drainage condition assessment program consistent with the MS4 program requirement to inspect 100 percent of the county's storm drainage system once every five years and at least 15 percent annually. Restoration and rehabilitation of the system is ongoing. Information pertaining to the MS4 Program Plan and annual reports is [online](#).

The Board of Supervisors initially authorized one penny of the real estate tax to be dedicated to the stormwater management program in FY 2006 and established a [Stormwater Service District](#) in FY 2010 that is currently funded at 3.25 cents per \$100 of assessed real estate value. Stormwater funding has increased from the original amount of \$17.9 million for FY 2006 to \$100.8 M in FY 2024. The Board of Supervisors' actions to provide for annual quarter cent increases in the Stormwater Service District Tax rate have 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. The last rate increase from 3.00 cents to 3.25 per \$100 of assessed real estate value occurred in FY 2019; increases in program funding since that time are the result of rising property assessments.

The inventory of stormwater infrastructure continues to grow by approximately 500 stormwater management facilities and eight miles of pipe per year. In addition, much of the stormwater infrastructure in Fairfax County is reaching the end of its life cycle, and as the system ages it remains critical to maintain adequate inspection and rehabilitation programs to avoid infrastructure failures and ensure the functionality of stormwater treatment systems. and sustain current levels of service. It also is 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. Additional funding is needed for maintenance dredging of publicly maintained lakes to sustain their environmental and recreational benefits.

In addition to supporting infrastructure reinvestment, the capital program funds critical capital projects from the watershed management plans including increasing number of 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 MS4 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. Additionally, they support the county's Environmental Vision and Strategic Plan.

Older suburban neighborhoods that were developed before the establishment of effective stormwater management regulations, including the requirements of stormwater conveyance, detention, and overland relief, may experience storm drainage issues. Lot-by-lot residential infill redevelopment, where an existing home is replaced by a larger home with more impervious area, generates additional stormwater flow that impacts the already inadequate stormwater management system. Over the next century, precipitation events are expected to become more intense, which is predicted to lead to more frequent flooding. Additional funding is needed to address neighborhood drainage improvement projects to reduce localized flooding and obtain water quality benefits in older neighborhoods that were developed without or with limited stormwater management controls.

For the reason explained above, EQAC is concerned the amount of funding available to the stormwater management program may not be keeping up with the many demands on the program. Thus, a further increase beyond the 3.25 cents per \$100 of assessed real estate value, or an alternative source of funding may be required.

Erosion and Sediment Control Inspections, Stormwater Compliance Inspections  
Erosion and sediment control (E&S) permits are issued by Fairfax County Department of LDS, authorizing disturbance of acres of land each fiscal year. Erosion and sediment control violation notices and stormwater violations are issued, and usually are resolved. For more information on how many inspections were conducted during the fiscal year, please [see the MS4 Annual Report](#).

Virginia Department of Transportation Stormwater Treatment

Nearly 1,000 acres of impervious road surface area runoff are treated through a system of more than 200 stormwater basins and other measures throughout the county under the Virginia Department of Transportation's (VDOT's) Virginia Pollutant Discharge Elimination System (VPDES) General Permit (for discharge of stormwater from small MS4s within the urbanized areas of Virginia). TMDLs have been developed for sediment, nitrogen, and phosphorus by the VDEQ. Fairfax County continues to explore ways to partner with VDOT on potential stormwater management enhancements that go beyond minimum state regulations and better reflect the county's more stringent stormwater management requirements. Under the County Safety and Operation Improvement Fund (CSOI), VDOT partners with DPWES Stormwater Planning to address maintenance level stormwater drainage projects. Recently, on the VDOT 495 Express Lanes Northern Extension project, VDOT provided funding to support the county's restoration of a segment of Scotts Run stream that will be impacted by the transportation improvements.

#### Outreach Activities

The county has numerous, award-winning watershed education and outreach programs and materials that are regularly utilized by the Fairfax County public school system and others. These programs include the Revitalize Restore, Replant! Program (R3), Stormy the Raindrop education campaign and Create a Caddisfly (for our younger residents), and the Stream Crime Investigation (SCI) and geomorphology labs designed for high school students. More information about these and many other programs can be found on the [Stormwater Management website](#).

Staff from the Stormwater Planning Division, Solid Waste Management Program, Wastewater Management Program, Fairfax County Park Authority and the NVSWCD support large and small-scale volunteer cleanups coordinated by the Alice Ferguson Foundation, Clean Virginia Waterways and Clean Fairfax.

In 2019 a new partnership was initiated between DPWES and the Office to Prevent and End Homelessness (OPEH) to benefit the environment and provide assistance for individuals experiencing homelessness. [Operation Stream Shield](#) (OSS) provides part-time, temporary work experience to guests of four of the county's homeless shelters to help improve the water quality of local streams. The program helps the county meet its mandate by keeping streams clean through the removal of litter and non-native invasive plant species, maintaining the county's pedestrian trail system, providing assistance to the county's Noman M. Cole, Jr., Pollution Control Plant, I-66 Transfer Station, and the I-95 Landfill Complex, and engaging in assigned special projects as they become available.

#### Northern Virginia Soil and Water Conservation District Support Programs

- Review and approve Soil and Water Quality Conservation Plans (SWQCPs) to renew existing Agricultural and Forest (A&F) Districts.
- Assist homeowner associations, civic associations, and places of worship in resolution of drainage and erosion concerns as well as the promotion of energy

efficient practices. Also, with funds provided by DPWES provides ongoing technical assistance to private property owners with funding from the Virginia Conservation Assistance Program and the Conservation Assistance Program to implement the proposed water quality solutions.

- Organize storm drain marking efforts with colorful and watershed-specific labels stating, “No Dumping, Drains to [the nearby stream].”

### **RECOMMENDATIONS – PROTECTING AND RESTORING STREAMS, PONDS, AND LAKES**

The Scorecard for this ARE contains the following two recommendations pertaining to this subchapter. Please see the Scorecard for details. The first is continued from 2022, the second is new for 2024.

- 1. Increase funding for the stormwater program by either an increase in the Stormwater Service District rate in FY 2025 by at least one-quarter penny, from a rate of 3.25 cents per \$100 assessed real estate value to 3.50 cents per \$100 or find an alternative means of increasing funding to this program. Additionally, this increase must include funding for the Updated Countywide Flood Reduction Policy and new staff positions necessary to increase project delivery capacity.**

*Recommendation: 3C-W-2022.1 Age: 3 years | Status: Stalled*

- 2. Implement more stream restoration projects that are watershed-wide comprehensive efforts like the Long Branch Central effort.**

*Recommendation: 3C-W-2024.1 Age: New*

## 4. WASTE MANAGEMENT

### Board of Supervisors Environmental Vision:

“Fairfax County will use integrated waste management principles to ensure future system capacity and sustainability. The county will promote policies and practices that maximize resource conservation and pollution prevention. The objective is an increase in water reuse, diversion, and recycling. Furthermore, the county will strive to decrease the amount of material disposed of; reduce greenhouse gas emissions by managing landfill gas; encourage the development of renewable energy and alternative fuels for buildings and vehicles; and preserve open space, green space, and wildlife habitats.”<sup>1</sup>

### INTRODUCTION

This chapter provides an overview of the county’s solid waste management (MSW) system and discusses a range of waste management issues. Far and away the most significant development this year is the Department of Public Works and Environmental Services (DPWES) laying the foundations for a county-wide Zero Waste Plan. The [Communitywide Energy and Climate Action Plan \(CECAP\)](#) <sup>[1]</sup> commits to “Achieve zero waste by 2040, defined as at least 90% waste diverted from landfill/ incineration.” Complementing the CECAP zero-waste goal is the [commitment by the Board of Supervisors \(BOS\) to reduce waste generated by government operations by 25 percent \(from 2018 levels\) and diverting 90 percent of generated waste from landfilling by 2030](#) .

This chapter describes the county’s current MSW and recycling efforts, the extent of the challenge of achieving zero waste in county operations and communitywide, the steps being undertaken to develop a zero-waste plan, and EQAC recommendations of policies and programs to achieve this important climate and environmental goal.

### Fairfax DPWES Solid Waste Management Program (SWMP) Operations

SWMP’s Operations Division oversees the collection, transfer, and disposal of solid waste and recyclables within the county. There are two county-owned disposal facilities; the I-66 Transfer Station and the I-95 Landfill Complex. Most of Fairfax County’s Municipal Solid Waste (MSW) is processed from Waste-To-Energy (WTE) at the WTE facility owned by ReWorld Fairfax (formerly Covanta Fairfax) and is located on the I-95 Landfill Complex. The SWMP also provides curbside collection services for refuse, recyclables, and bulky items collection services to approximately 10% (about 44,000 single family homes) and most county-owned properties and buildings. Private haulers cover the remaining 90% and commercial clients. The county requires single stream recycling of paper, cardboard, some plastics, and metal. Glass is no longer permitted in recycling. The county provides nineteen drop off “purple can” locations, a DPWES innovation that has been extended to more than 40 drop off sites throughout the region.

DPWES has a community outreach program called the Four Touch Points (4TP) initiative. Starting in March of 2023, all private haulers are required to provide at least one piece of

<sup>[1]</sup> All hyperlinks in this chapter were reviewed/checked on September 3, 2024 unless otherwise indicated.

waste reduction and/or recycling outreach/education material to their residential customers at least four times per year. As demonstrated by the data presented below, it appears these communications and outreach efforts have not increased recycling.

Household hazardous waste can be dropped off at the I-66 and I-95 facilities. A pilot food waste diversion program permits drop-off at the I-66 and I-95 facilities and 10 markets. A standalone SWMP enforcement unit responds to complaints, conducts scheduled and unannounced compliance inspections, and may initiate enforcement actions, when necessary, on solid waste haulers. Since January 1, 2022, Fairfax has required grocery stores, convenience stores and pharmacies to charge a 5-cent fee on disposable plastic bags provided at point of sale. The purpose of the tax is to curb the use of disposable plastic bags and cut plastic litter.

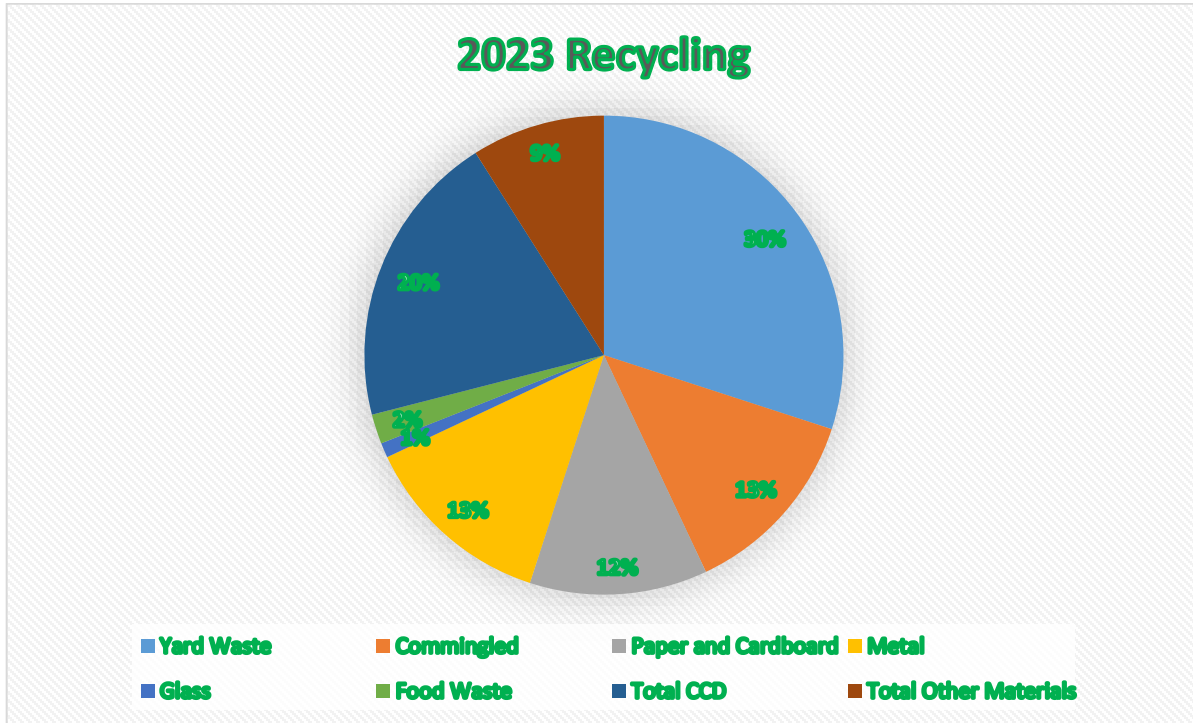
### **CURRENT STATUS AND CONCERNS**

#### **Recycling Data**

Both commercial firms and residents are required under the county code to separate recyclables from their municipal solid waste for recycling. Data on recycled material is collected from a variety of sources and reported to the Virginia Department of Environmental Quality (VDEQ). The system for reporting to VDEQ contains complex credits and adjustments. The data reported below does not contain these modifications to the raw data. These data are shown here because they are the only data available. EQAC recognizes the data shown herein have a great many limitations, and thus urges some degree of skepticism in using them in future planning.

**Figure 4-1. Recycled Material**

Figure 4-1 shows the percentage composition of waste categories in recycled materials. Yard waste and construction demolition debris (CCD) account for about half of the total recycled material. Commingled recycled materials which includes both residential curbside recycling and mixed recyclables from commercial operations comprised only 13% of the total recycled material.



**Table 4-1 Recycle, MSW and Construction Debris Data from 2012-2023 SWMP Reports to Virginia DEQ**

		Historical (2012-2023), tons	Historical (2012-2023), tons	2023 Comparisons	2023 Comparisons	
Recycled Material	2023, tons	Average	Maximum	2022-2023 Change	2023 % historical max	2023 item % of total recycled
Yard Waste	150,700	202,387	243,927	-29%	62%	30%
Commingled	68,245	92,908	157,038	0%	43%	13%
Paper and Cardboard	61,497	82,800	116,547	28%	53%	12%
Metal	64,741	61,054	77,637	-6%	83%	13%
Glass	4,717	2,147	5,197	-3%	91%	1%
Food Waste	8,737	8,402	14,379	-36%	61%	2%
Total CCD	102,423	71,735	125,471	10%	82%	20%
Total Other Materials	47,747	40,084	74,346	-56%	64%	9%
Total Recycled	508,807	559,227	647,450	-10%	79%	100%
Household MSW	255,266	252,023	255,266	2%	100%	50%
Commercial MSW	382,900	375,034	382,900	4%	100%	75%
Total MSW	638,166	627,050	665,509	3%	96%	125%
Total MSW and Recycled	1,146,973	1,189,757	1,312,959	-3%	87%	225%
Recycled Percent of Total	44%	47%	49%	-7%	90%	0%
<b>Commingled +Glass % of total Household</b>	22%	27%	39%	-0.4%	57%	0%

Table 4-1 includes more details on current and the last 11 years of recycling. Significant 2023 Recycling changes include the following:



- Yard Waste was down 30%, reflecting the county’s decision to no longer require yard waste collection.
- Paper and cardboard recycling was down 28%,
- Food waste was down 36%.
- CDD (Construction materials) was up 10%.
- With these decreases, total recycling is at 44%, below the 2022 rate of 47% and the historic average of 47%.

Commingled waste is primarily the single stream recycling materials collected from County residences. Information is not available on the proportion of commingled waste that is recycled and the proportion that is “contaminated,” that is, cannot be commercially recycled and is sent to landfill or incineration. Of the MSW, less than a quarter was recycled in 2023, including the county’s glass recycling program. While not directly comparable to Fairfax County, the Montgomery County single family recycle rate is 63% and the commercial recycling rate is 29%.<sup>13</sup>

#### **Fairfax Waste Characterization Study<sup>14</sup>**

In preparation for its Zero Waste Plan, DPWES this year conducted a waste characterization study which examined waste disposed by two distinct sectors:

1. Residential (Single-family) – residential waste primarily collected in rear and side loading trucks.
2. Commercial – waste generated by businesses and institutions, including schools, office buildings, retail, and apartment buildings, primarily collected in front-end loading trucks or compactors.

A total of 87 waste samples from residential and commercial waste routes that deliver waste daily to the I-66 transfer station were collected for characterization. Of the 87 samples collected, 45 were samples of commercial waste, and 42 were samples of single-family residential waste. Approximately 18,000 lbs. of waste was sorted and characterized in total. To ensure samples were representative of Fairfax County, multiple samples of residential and commercial waste were sampled from each Magisterial District, with at least 3 samples each.

Figure 4-3 shows the results of this first ever study of Fairfax MSW. The table below indicates the amount and proportion of potentially divertible recyclable waste that is in the county’s current MSW. The table suggests that nearly half of the recyclable

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<sup>13</sup> Aiming for Zero Waste Montgomery County Maryland Baseline Review and Current State Assessment Technical Memorandum #1 December 2018, <https://www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/baseline-review-current-state-assessment-executive-summary.pdf>

<sup>14</sup> Fairfax County et al, July 2024, Fairfax County Waste Characterization Study

materials collected in the county are not recycled and are not counted in the recycling shown in the above pie chart.

#### Table 4-2 Rates of MSW and commingled recycling

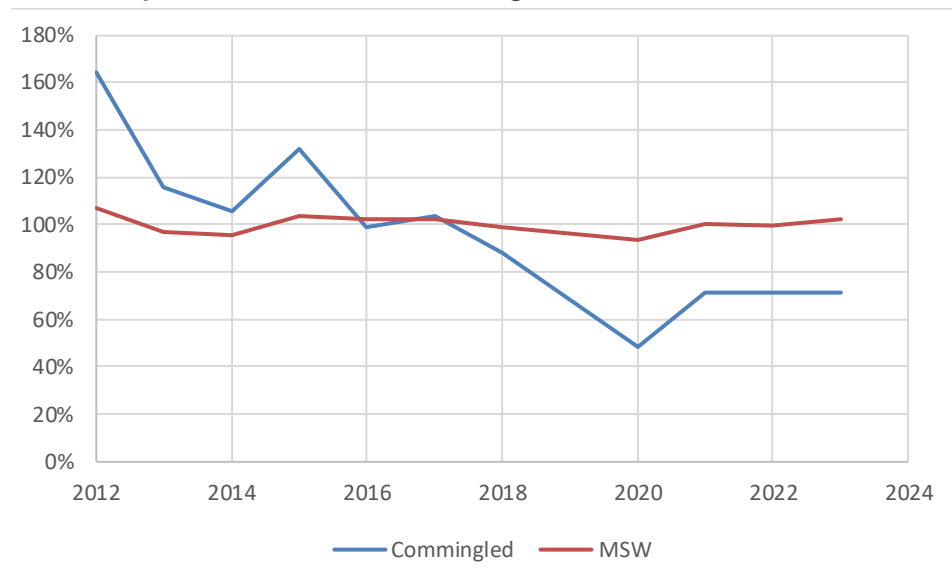
Table 4-2 shows twelve categories of waste that could be diverted from ReWorld. Half of these are fully divertible, half are partially divertible. Of the fully material fully divertible MSW, less than half is actually diverted.

Recyclable Material	Divertability of MSW from waste stream	% of MSW from 2023 waste characterization study	Estimated tons of MSW from waste characterization study	Tons MW actually recycled	% not recycled
Paper	Divertible	14.7%	932,331	84,136	53%
Metal	Divertible	0.3%	1,903	46,239	4%
Plastic	Partially	11.4%	72,302	832	99%
Glass	Divertible	1.7%	10,782	4,861	69%
Commingled	Partially	9.8%	62,154	98,750	39%
Yard Waste	Divertible	7.9%	50,104	177,298	22%
Waste Wood	Divertible	4.8%	30,443	6,920	81%
Textiles	Partially	4.1%	26,003	100	100%
Batteries	Partially	0.0%		1,895	0%
Electronics	Partially	2.0%	12,685	2,146	1%
Food Waste	Divertible	15.4%	97,671	6,391	94%
Total CCD	Partially	23.2%	33,408	115,833	22%

The results indicate that construction debris, metal and yard waste are recycled at high rates. Food waste, which accounted for 15% of divertible waste, plastics, which accounted for 11% of divertible waste, and electronics generally fail to be recycled.

**Figure 4-2 Historic MSW and Commingled Recycled material as a percent of the 11-year average.**

Figure 4-2 indicates that the amount of MSW has remained constant over the past decade, while the amount of commingled waste from households has declined precipitously to less than half the peak tonnage. This trend will need to be reversed if the county is to reach its zero waste goals.



Source Reduction Fairfax County Government and Schools Zero Waste Plan

In 2021, the Fairfax County Board of Supervisors approved a [Zero Waste Plan](#) for Fairfax County government and schools to achieve zero waste by 2030 through the implementation of twenty-four optimal strategies. It is two years since the goals for this plan were established and much of the progress appears to focus on planning, voluntary actions, and outreach. Although many of the 24 optimal strategies appear worthwhile, the heavy dependence on outreach is a concern.

The County's SWMP has been attempting to increase rates of recycling and to reduce MSWW for more than 10 years using outreach strategies. Recycling data indicates outreach to date is not effective, yet the zero waste plan for county operations relies heavily on outreach and education. Based on the SWMP experience, more aggressive action is needed if the Supervisors' goals are to be met. Ten percent of the zero-waste implementation time has passed and in 2023 county recycling of solid waste decreased.

The Zero Waste Plan for county operations is laudable and could be used as a motivating example to energize the private sector. It is helpful for county government to "walk the talk" before asking more from the private sector. However, success in cutting waste and increasing recycling in County operations has not yet materialized. County and school operations represent less than 2% of the total MSW generated. It will take bold leadership, policies, and programs to move to zero waste in county operations and communitywide.

Both the County's Government and Schools Zero Waste Plan<sup>15</sup> and the CECAP communitywide implementation plan set goals to divert 90% of generated waste away from landfills or incinerators. Those goals will be challenging to achieve.

### Trash Collection Service Issues

Trash Collection and Recycle processing companies will play important roles in extending the county's zero waste goals to all of Fairfax County. While the current county ordinances can be used to make progress toward the goal, zero waste actions by these firms will be required.

Approximately 25,000 customers receive vacuum leaf collection service from Fairfax County's Department of Public Works and Environmental Services (DPWES). The county leaf collection program has had multiple difficulties in recent years. From an environmental perspective, keeping leaves and yard waste on site by not collecting grass or leaves at all or by composting on-site, provides an environmental benefit to the soil and reduces waste that must be processed. This action supports the zero waste goals of the county. However, county residents who receive leaf collection voted for this service and pay for it. County staff have proposed reassessing vacuum, providing more data for analysis about the environmental impact pros and cons of the service.

### Environmental Preferable Purchasing

The Department of Procurement and Material Management (DPMM) manages the Environmental Preferable Purchasing (EPP) Policy through the Green Purchasing Program. DPMM is also charged with implementing the Zero Waste Plan. They have conducted their own waste characterization studies and are encouraging recycling in County Facilities. While DPMM has invested considerable time and effort in communicating the county goals to county departments, it is difficult to track actual progress as there are no numeric criteria and no schedule with accountable milestones. Despite repeated requests by EQAC for quantitative data, none has been supplied. Nearby jurisdictions, e.g., Washington DC<sup>16</sup> and Montgomery County<sup>17</sup> provide such quantitative performance data.

### Litter and Illegal Dumping

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<sup>15</sup> Fairfax County Government and Schools Zero Waste Plan (October 2021).

<https://www.fairfaxcounty.gov/procurement/sites/procurement/files/assets/fairfax%20county%20government%20and%20schools%20zero%20waste%20plan%20v2.pdf>

<sup>16</sup>

[https://ocp.dc.gov/sites/default/files/dc/sites/ocp/page\\_content/attachments/Fiscal%20Year%202023%20Sustainable%20Purchasing%20Report.pdf](https://ocp.dc.gov/sites/default/files/dc/sites/ocp/page_content/attachments/Fiscal%20Year%202023%20Sustainable%20Purchasing%20Report.pdf)

<sup>17</sup> [https://www.montgomerycountymd.gov/DGS-](https://www.montgomerycountymd.gov/DGS-OES/GreenPurchasing.html#:~:text=About%20Green%20Purchasing&text=Montgomery%20County%20prioritizes%20purchasing%20green,select%20green%20products%20and%20services.)

[OES/GreenPurchasing.html#:~:text=About%20Green%20Purchasing&text=Montgomery%20County%20prioritizes%20purchasing%20green,select%20green%20products%20and%20services.](https://www.montgomerycountymd.gov/DGS-OES/GreenPurchasing.html#:~:text=About%20Green%20Purchasing&text=Montgomery%20County%20prioritizes%20purchasing%20green,select%20green%20products%20and%20services.)

The County's Watershed Management Plans have specific projects for addressing dumpsites. One example is Project AC9913 for the Accotink Watershed<sup>18</sup> calling for addressing dumpsites as the second highest priority for the Watershed.

There are multiple volunteer organizations addressing litter including the Alice Ferguson Foundation Clean Fairfax and Friends of Accotink Creek. In addition, the Department of Code Compliance (DCC) receives and investigates code complaints covering a wide range of issues, including zoning complaints, signs, noise, lighting, and illegal dumping. DCC receives but does not record and track litter and illegal dumping complaints, which are estimated by DCC to be less than ten in the last year. Although the complaint data does not show significant complaints, actual dump sites continue, particularly in low-income neighborhoods.

The county experimented with structural controls in Little Hunting Creek and concluded that Operation Stream Shield (OSS) is more beneficial. OSS provides part-time, temporary work experience to guests of the Eleanor U. Kennedy Shelter, Bailey's Crossroads Community Shelter, and The Lamb Center, to help improve the water quality of local streams. The program includes the removal of litter and non-native invasive plant species, maintenance of the county's pedestrian trail system, providing assistance to the county's Noman M. Cole, Jr. Pollution Control Plant, I-66 Transfer Station, and the I-95 Landfill Complex, and engaging in assigned special projects as they become available.

#### VDOT ROW Dump Sites

There are active dump sites along Fairfax County roads in VDOT ROW. In 2021, The Fairfax Health Department produced a report<sup>19</sup>, that identified public health and other issues associated with dumping in the VDOT ROW. Numerous recommendations were made, but not implemented.

Unacceptable dumping is occurring on VDOT ROW land impacting residents of lower social economic status and other categories of the One Fairfax Policy. Areas with One Fairfax residents should be free of roadside trash as are other areas of the County. Neither VDOT nor Fairfax County Government take responsibility for effectively clearing dump sites in Fairfax VDOT ROWs. Control of Illegal dumping requires complaint tracking, responsibility assignment, follow up on trash not expediently addressed, public outreach with education, clear signs indicating fines at known dump sites, and police monitoring with continued enforcement of parking and dumping laws. A County Approved Policy with a lead agency that assigns responsibility for these actions to the various County Departments to eliminate illegal dumping is needed.

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<sup>18</sup> [Fairfax County Va, 2010, Accotink Watershed Management Plan](#)

<sup>19</sup> Fairfax County Health Department, August 2021, Illegal Dump Survey, Americana Drive Annandale,



A volunteer cleanup of the Americana Drive VDOT ROW this spring collected about 3,000 pounds of trash and dumped debris including that shown in Table 3. Figure 4-3 includes pictures of these materials.

**Table 4-3 Inventory of Material Dumped on Americana Drive VDOT ROW**

163 Bags of Trash	53 Tires	A Stroller
A Car Bumper	A Swing Set	3 Mattresses
Chairs	Pallets	Skateboards
A Scooter	A Bathroom Sink	Rolls of Carpet

**Figure 4-3 Americana Drive Trash Photos**



Prince George’s County Maryland has a program to place hidden cameras at known dumping sites (similar to Americana Drive) to record people illegally dumping, and then tracking them down. In one Upper Marlboro case, an offender received \$17,916 in fines and restitution, a 1-year suspended jail sentence, 3 years’ probation, and 100 hours of community service for dumping tires. This strong response sends a message: Prince George’s County is taking the health and safety of its residents and environment seriously and jeopardizing that will not be tolerated as it currently is tolerated in Fairfax County. While Fairfax Police have applied hidden cameras elsewhere, such cameras have not been used on the VDOT right-of-way.

20 Year Solid Waste Management Plan – Developing a communitywide Zero Waste Plan

Starting in early 2024, Fairfax County Solid Waste Management Program began undertaking an update to the community wide 20 Year Solid Waste Management Plan.

This update is focused on reaching the CECAP goal of communitywide Zero Waste, or 90% diversion from landfills or incineration, by 2040. Fairfax County has selected a consultant and is currently developing a plan to deliver to the Department of Environmental Quality by April of 2025.

As part of this effort, Fairfax County is currently reviewing several strategies that will help them reach their CECAP goal. The items being considered are:

- Unified Sanitation Districts (Franchising) + Pay-as-you-throw models.
- Mandatory Organics Recycling for All
- Expansion of Education, Engagement, Evaluation, and Enforcement
- Comprehensive Commercial and Multi-Family Programs
- Zero Waste Centers
- Construction and Demolition Recycling

Additionally, the plan development process has included targeted focus group feedback sessions, will include a community wide survey, and a public hearing before adoption by the Board of Supervisors in April.

## **RECOMMENDATIONS**

The Scorecard for this Annual Report on the Environment (ARE) contains the following recommendations pertaining to this chapter. Please see the Scorecard for details.

### **1. Create countywide solid waste collection districts.**

Create single family, multi-family, and commercial sanitary collection districts (franchising) that allows Fairfax to manage contracts with collectors.

*Recommendation: 4WM-2023.1 | Status: New*

### **2. Fund the Zero Waste Plans**

Budget sufficient resources in the county's operations budget and Capital Improvement Plan to develop and implement an accountable Zero Waste Plan for the public and private sector.

*Recommendation: 4WM-2023.2 | Status: Making Progress*

### **3. Use or Obtain Authority for Zero Waste Implementation**

Utilize existing County authority or obtain legislative authority to:

- Implement the Zero Waste Plan for all public and private waste.
- Efficiently enforce solid waste regulations and policy
- Modify existing ordinances as practicable.
- Collect Accurate Data Efficiently

*Recommendation: 4WM-2023.3 | Status: New*



**4. Institute litter control.**

- Support Virginia law changes for a container redemption fee (“bottle bill”) and extended producer responsibility for hazardous and unnecessary waste in their products and packaging.
- Enforce litter control requirements on Waste Haulers (*Two year*)

*Recommendation: 4WM-2021.4 | Age: Four years | Status: Making progress*

**5. Establish environmental purchasing numeric targets.**

*Recommendation: 4WM-2021.5 | Age: Four years | Status: Making progress*

**6. Address Illegal Dump Sites.**

A collaborative effort including DCC, DPWES, and the Police is needed. One of these agencies should be assigned the responsibility to lead the effort and be accountable.

*Recommendation: 4WM-2024.6 | Status: New*

## 5. PARKS AND ECOLOGICAL RESOURCES

### Board of Supervisors Environmental Vision:

*“Parks, trails, and green space provide habitat and other ecological resources that promote the physical and mental well-being of residents through supporting healthy lifestyles and allowing for interaction with our natural environment... Ecological resources that include the soil, water, air, plants, animals, ecosystems and the services they provide are considered natural capital and green infrastructure. The public, or ecosystem, services provided by this green infrastructure are often more cost-effective than the engineered alternatives, and thus are managed as any other infrastructure or capital asset through deliberate inventory, planning, maintenance, enhancement, and restoration to ensure healthy, high functioning, and resilient ecosystems and environment. Maintaining healthy, natural ecosystems is a priority of Fairfax County.”*

### INTRODUCTION

Fairfax County contains roughly 226,624 acres of developable land. The county’s ecological resources, owned by different entities, are dispersed across this acreage. This chapter will focus on the health of the county’s natural ecosystems with an emphasis on the plant and tree components of green infrastructure described above in the Board’s Environmental Vision (whereas Water and Wildlife Resources are addressed in other chapters). The topic of trails, as it relates to the environment, is generally covered by the Land Use and Transportation chapters.

#### How Land is Used

As the county seeks to maintain healthy, natural ecosystems, the way land is used and developed is a critical aspect to consider. The following three classifications of land use account for nearly 80 percent of the land in the county:

- **Parks and recreation** (15.3 percent; 34,588 acres)<sup>20, 21</sup>
  - Most of this acreage is owned and managed by the Fairfax County Park Authority (FCPA) (23,854 acres in 2024<sup>22</sup>) and the Northern Virginia Regional Park Authority (NOVA Parks) (8,591 acres in 2024<sup>23</sup>).
- **Vacant or natural** (5.5 percent; 12,437 acres)<sup>2</sup>
  - This land decreased by 1,365 acres between 2017-2023 due to growth pressures within the county as it is zoned for residential, industrial, or

<sup>20</sup> All hyperlinks in this chapter were accessed/checked on September 4, 2024.

<sup>21</sup> [2023 Land Use and Zoning Data, Acres of Land by Existing Land Use Category](#) (Planning District, Supervisor District & Human Services Region); Acreage does not include areas of roads (which generally increase each year as land is developed and therefore county acreage decreases), water, or small areas of land unable to be zoned or developed.

<sup>22</sup> [FCPA acres as listed in the FY25 budget.](#)

<sup>23</sup> [NOVA Parks acres as listed in the FY24 budget.](#)

commercial uses and continues to be developed.

- **Residential** (59.2 percent; 134,245 acres)<sup>2</sup>
  - This significant percentage underscores the impact that private property can have on our environmental services and natural capital. Residential property in the county increased by 1,301 acres between 2017-2023.

While not all the acreage described above can be considered equally valuable as natural habitat, all areas—including active recreation areas, private open space, county and school properties, and residential areas—can each enhance the environment (e.g., by reducing stormwater runoff, adding trees) if properly managed and/or designed. Furthermore, the many economic, social, and health benefits that ecological resources provide cannot be overlooked.<sup>24</sup>

#### Organizations of Note

A wide variety of organizations and programs impact Fairfax County’s ecological resources with a broad set of stakeholders including federal, state, local, non-profits, and private landowners. This chapter provides a reference list of organizations in the “Additional Information” section.

#### Ecological Resources on Non-Park Land

With most land in Fairfax County classified as “non-park” land (e.g., residential, government-owned, and commercial), the linkage between regulations, land use decisions, and the county’s broader ecological resources is a critical consideration for the ecological health of the county.

[Doug Tallamy](#), professor of Entomology and Wildlife Ecology at the University of Delaware and author of [Bringing Nature Home](#)<sup>25</sup>, addresses the potential of private land to be an ecological resource: *“Lawn should not be our default landscaping practice. If we cut the 45.6 million acres of lawn [in the U.S.] in half, we could create the equivalent of a new national park that is 20 million acres in size. That alone would create the biggest natural area in the nation, bigger than most of our national parks combined.”*<sup>26</sup>

A variety of ordinances and policies provide guidance for private property owners on topics which directly impact Fairfax County’s ecological resources. This chapter provides a reference list in the “Additional Information” section.

### **CURRENT STATUS AND CONCERNS**

As the county continues to develop land, it is important to actively preserve, protect, enhance, and expand its current park land and tree canopy, not only for the enjoyment of

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<sup>24</sup> [Green Cities: Good Health \(washington.edu\)](#)

<sup>25</sup> Tallamy, Doug, 2009. *Bringing Nature Home*, Timberland Press, ISBN-13: 978-0-88192-992-8.

<sup>26</sup> [High Country Gardens website.](#)

residents but also as a climate and resiliency strategy. County government plays an important role in preserving and protecting ecological resources, particularly on private land, through its site planning process. In all these efforts, it is important to consider the quantity, quality, and equity of the county's tree canopy to improve air and water quality as well as to help mitigate climate crisis impacts, such as heat island effects and increased stormwater runoff.

### Tree Canopy

#### *Fairfax County Trees Community of Practice*

For the past several years, the Urban Forest Management Division (UFMD) has been hosting meetings twice a year to bring together Fairfax County staff, local non-profits, local advocates and others working on tree canopy related issues. The resulting relationships and connections have resulted in several successful partnerships and continue to help raise awareness of and engage the public on, the importance of tree preservation and planting.

#### *Reporting on Tree Canopy Coverage*

UFMD released a summary of results of the 2012-2021 tree cover analysis done by Casey Trees via a memo to the Board of Supervisors in May 2024. This analysis, using National Agriculture Imagery Program (NAIP) 0.6-meter land cover data, showed an **overall increase** in tree canopy from 52% to 55%, and an increase reported in every district in the county.

Conversely, the [Chesapeake Tree Canopy Network did a tree canopy analysis](#) of Fairfax County using different data comparing 2014-2018 canopy coverage showed an **overall loss** of 737 acres of tree canopy and a total canopy coverage of 55.4%. Updated data based on 2021/2022 imagery are anticipated later in 2024.

While these two different data sets cannot be compared directly, the conflicting nature of these two different studies underscores the complexity of, and the need for ongoing, tree canopy analysis.

#### *A Note About Reporting on Tree Canopy Coverage*

One note of concern about tree canopy reporting is the limitation of the current technology. Current imagery can be interpreted to measure canopy coverage (quantitative), but it cannot today report on canopy *quality*. For example, invasive vines (which threaten tree canopy) and invasive trees such as Callery pears and Tree of Heaven show up as tree canopy coverage the same as a native oak tree. As such, interpretation of current and future reports must be carefully considered. A high quantity of tree canopy may not reflect a high quality of tree canopy and we appreciate the mention that “staff remain cognizant that changes in forest composition, loss of mature trees, and increased abundance of invasive plants, are not fully accounted for in the study” in the May 2024 memo. The 2017 i-Tree Eco Urban Forest Assessment reported on field study data from 2009-2010 of 204 plots

across the county. This on-the-ground sample data can help the county extrapolate quality; however, this data too must be kept current to be most useful.

### *Tree Canopy Concerns*

EQAC commends the county for tree canopy being an important component of the Community-wide Energy and Climate Action Plan (CECAP) as well as Resilient Fairfax. One of CECAP's sector goals proposes that Fairfax County expand the tree canopy to 60% with a minimum of 40% tree canopy coverage in every census tract by 2030 and a minimum of 50% tree canopy coverage in every census tract by 2050, prioritizing areas of highest socioeconomic need first<sup>27</sup>. Similarly, in Resilient Fairfax, the goals incorporated in "Adaptive Environments Implementation Roadmaps"<sup>28</sup> include a focus on enhancing the county's tree canopy. The following are three top concerns regarding tree canopy:

- *Healthy, equitable tree canopy*

Without regular data updates *and* analysis, the county lacks a critical tool needed to achieve a healthy, native tree canopy that, in the spirit of One Fairfax, is equitably distributed across the county to ensure all residents reap the benefits of tree cover. EQAC appreciates that Strategy IAP.2f of Resilient Fairfax calls for the county to "Continue to Collect Tree Canopy Data" – analysis of this data is equally important.

In 2021, staff in the Department of Public Works and Environmental Services (DPWES) put together an initial map<sup>29</sup> (Figure 5-1) overlapping areas of existing tree canopy coverage with a vulnerability index that help identify areas with the greatest need of increased tree canopy. The County should seek new tree canopy data and analysis as frequently as possible to ensure maps such as these can help drive decision making.

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<sup>27</sup> Page 56: [CECAP implementation plan](#); county staff noted that where this plan says "block" it should be "tract":

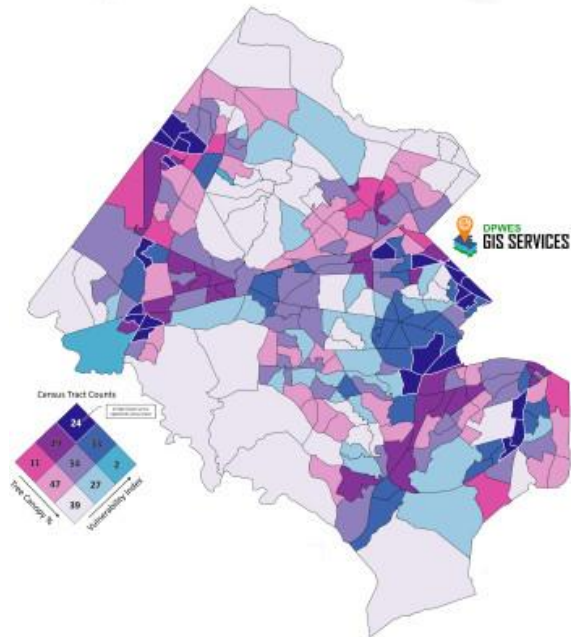
<sup>28</sup> [Resilient Fairfax](#)

<sup>29</sup> Tree canopy & vulnerability map of Fairfax County developed by DPWES staff Yeoanny Venetsanos and Juan Reyes, 2021.

### Figure 5-1: Tree Canopy and Vulnerability Index Mapping Areas of Greatest Tree Canopy Need.

These data show the areas of greatest need are in the vicinities of Centreville, Chantilly, Herndon, Seven Corners, Bailey's Crossroads, Springfield, and along the Route 1 corridor.

Source: [Tree canopy & vulnerability map of Fairfax County](#) developed by DPWES staff Yeoanny Venetsanos and Juan Reyes, 2021



- *Authentic community connections*  
Outreach and engagement with communities, in areas where additional tree canopy can provide the greatest impact, is critical to the long-term [success of tree plantings](#). We appreciate UFMD's partnership with Fairfax County's Office of Environmental and Energy Coordination (OEEC) to plant hundreds of trees in 2024 at school and county sites, with a focus on areas that are both urban heat islands and socioeconomically vulnerable. Authentic community connections, through an increase in staff and/or partnerships with community organizations, are integral to this kind of community tree planting effort with additional successful plantings within privately held communities.
- *Improving land development*  
As properties continue to develop and re-develop, well-designed land use can contribute to a healthy ecology. This topic is addressed in the Land Use chapter in greater detail, but it is worth noting here that concepts such as [biophilic designs](#) (designs of buildings aiming to increase occupant connectivity to the natural environment) can significantly enhance an area's natural resources. The following are key areas for consideration:
  - While the county has a 10-year tree canopy requirement, without analysis of its effectiveness, it is not possible to know if we are achieving the tree canopy proposed in development plans. A graduate student at Virginia Tech is working

- with Casey Trees, using data from Fairfax County, to analyze development plans from 2012 versus current conditions on the ground to see if the county has achieved the canopy coverage proposed. The results of this master's thesis is expected to be completed in 2025, and it is expected that the data and findings will be publicly available.
- In late 2022, UFMD's Forest Conservation Branch (comprised of thirteen foresters) was moved out of UFMD and into Land Development Services (LDS). This move has allowed UFMD to focus on urban forestry (and not development) which could help better to achieve the goals of new policies such as Resilient Fairfax and CECAP. We urge Fairfax County to monitor this change to be able to see what the outcomes have been.
  - In late 2022, the [Mount Vernon Infill Development Task Force](#) put forth a slate of recommendations which could positively affect tree canopy. EQAC encourages the Board of Supervisors to provide directions for staff for implementation of those recommendations (e.g. more rigorous tree condition assessment, tree-related updates to the Public Facilities Manual).
  - EQAC supports the [Tree Commission's July 11, 2024 memo to the Board](#) encouraging exploration of the additional authority provided via the state regarding tree canopy via HB459.
  - Creating a resource, such as an interactive GIS map, which provides a comprehensive look at the county's natural resources could further inform the land development process. In that vein, EQAC appreciates Strategy AE.1a of Resilient Fairfax which calls for the county to "Develop a Consolidated Natural Resources Management Plan".

### FCPA Funding Model

The current funding structure for FCPA continues to create challenges in supporting the long-term health of FCPA's natural resources. One-off funding sources, such as funds from proffers, donations, [Environmental and Energy Program \(Fund 30015\)](#), and project-based bond funds, are critical under the current structure. However, project-based funding means that once a project, such as an ecological restoration, has been completed, the long-term maintenance and upkeep—managing for invasive plants, for instance—must be funded through different means. Underscoring the discrepancy in funding versus need, [FCPA's 2016 Needs Assessment](#) reported that an additional \$2,350 per acre of annual funding (for all 17,000 acres of natural area owned by FCPA--close to \$40M/year) would be needed to perform the necessary maintenance activities for the county's natural resources. Today's funding falls significantly short of that goal.

EQAC commends the continued allocations in the budget, beginning in FY23, in FCPA's Landscape Legacy and Sustainability Program. This recurring program funding is a good start and plays a critical part in maintaining the integrity of some of FCPA's key areas in the long-term. EQAC appreciates FCPA's focus on restoring areas with rare natural resources,



such as Poplar Ford and Ellick, but also pro-actively identifying restoration projects in every district in the county to ensure more equitable investments in restorations.

Particularly challenging in the current funding structure is hiring people to lead longer-term initiatives. Disparate funding avenues lead to instability and lack the long-term security needed to effectively protect natural resources. While the current funding has challenges and funding levels are not sufficient for maintaining FCPA's natural resources as documented above, these initial investments are a good start to begin to address the underfunding issue.

One topic EQAC will be watching in the coming year as it relates to FCPA and potential impacts to natural resources is the Board's exploration of a Recreational Facilities Authority.

### Ecological Corridors

The county's [Comprehensive Plan](#) contains strong language in support of the Board's Environmental Vision, particularly in the [Environment](#) section. A key objective the county should continue to focus on is identifying, protecting, and enhancing an integrated network of ecologically valuable land and surface waters for present and future residents of Fairfax County such as designating Environmental Quality Corridors (EQCs).<sup>30</sup> While EQCs are a strong concept, it should be noted that a comprehensive, countywide GIS layer of approved and/or potential EQCs does not exist. As mentioned above, Strategy AE.1a of Resilient Fairfax (Develop a Consolidated Natural Resources Management Plan) would produce a resource to document EQCs and other ecologically important areas.

Ecological resources on private property are also worth noting here as well, as individual properties have the opportunity to be "habitat stepping stones" linking public lands as part of ecological corridors. Fairfax County may wish to consider how policy changes or incentives for private landowners may help further this goal.

One aspect that the county should consider is the equitable distribution of ecological corridors. A network of interconnected green spaces and increased tree canopy where it is lacking today would benefit residents and wildlife alike, such as in some of the county's more urban settings.

Relatedly, EQAC has engaged in, and will continue to engage in, Fairfax County's Plan Forward work to update the Policy Plan.

### Natural Threats

The relationship between our excessive native white-tailed deer populations and non-native invasive plants is an important one to highlight in terms of how they degrade our ecological resources. When deer populations [rise above the carrying capacity](#) of an area,

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<sup>30</sup> [Objective 9 of the Environment section of the Comp. Plan discusses EQCs.](#)

they can strip an area of native vegetation, including tree seedlings, up to a height of six feet, destroying the understory layer of the forest and preventing forest regeneration. Invasive plants, which deer do not generally eat, expand rapidly by their nature, putting further pressure on understory and forest regeneration.

- *Deer*

This topic is addressed in the Wildlife Management chapter in greater detail. Fairfax County is the only jurisdiction in Virginia with an active deer management program, with adjacent jurisdictions not having a program or relying on the public to manage deer populations.

- *Non-native invasive plants*

The problem of invasive plants is systemic: many plants which would otherwise be classified as [noxious weeds](#) are permitted to be sold in the landscaping trade<sup>31</sup>. Landowners then purchase them, dispersing them throughout the county. Unmanaged natural lands are especially impacted as wind, birds, and other forces distribute invasive plant material far and wide, disregarding property lines. EQAC appreciates the General Assembly's passage of [HB 2096](#) which requires commercial landscapers to label invasive plants.

FCPA's [Invasive Management Area \(IMA\) program](#) leverages the power of volunteer site leaders to lead invasive plant removals on FCPA property, providing the county hundreds of thousands of dollars in value each year. The [Early Detection Rapid Response \(EDRR\)](#) program, as part of the IMA program, finds new populations of certain invasive species and aims to eradicate them before they cause serious ecological harm. The IMA program is the strongest of its kind in Northern Virginia, and yet it only focuses on a small subset of the 10 percent of land owned by FCPA.

Effectively addressing this threat requires collective action between public and private landowners. Specific needs include encouraging private landowners to address these problems on their land, facilitating improvements, and encouraging long-term management to ensure continued ecological benefits. Reston Association has set an example for others in their 2016 banning, through the covenant process, of the use of any plant on the [Virginia Department of Conservation and Recreation list of invasive plants](#).

EQAC commends the Board's FY25 budget investments in support of the IMA program, Operation Stream Shield (which helps fight invasives), and water chestnut management. EQAC also commends the Board's new Running Bamboo ordinance which went into effect on January 1, 2023, the budget for an additional FCPA staff to

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<sup>31</sup> [Virginia's law defining noxious weeds](#) includes an exception for any plant "commercially viable or such living plant is commercially propagated in Virginia".

manage a bamboo eradication program on FCPA properties, and the one-off funding in consecutive years to fund actual bamboo removal on FCPA properties.

- *Non-native insects and disease*

Additionally, non-native insects (e.g., Hemlock Woolly Adelgid, Emerald Ash Borer) and disease (e.g., Thousand Cankers Disease) are added or potential stressors to our native, ecological resources. Of emerging concern is the [Spotted Lanternfly](#) which was [found in Fairfax County in May 2022](#). The invasive Tree of Heaven is problematic both as the Spotted Lanternfly's preferred host and as a generally invasive tree. Fairfax County [UFMD's Forest Pest Management Branch](#) addresses the wide range of invasive forest pests that pose a threat to the county's urban forest.

## **RECOMMENDATIONS**

The Scorecard for this Annual Report on the Environment (ARE) contains the following recommendations pertaining to this chapter. Please see the Scorecard for details.

- 1. Strengthen authority to address management of invasive species throughout the county.**

*Recommendation: 5PER-2021.4 | Age: 4 years | Status: Making progress*

- 2. Support additional staffing for Urban Forest Management Division (UFMD).**

*Recommendation: 5PER-2022.1 | Age: 3 years | Status: Making progress*

- 3. Seek more stable funding sources for Fairfax County Park Authority (FCPA) initiatives.**

*Recommendation: 5PER-2021.3 | Age: 4 years | Status: Making progress*

- 4. Ensure equitable investment in ecological restorations and corridors.**

*Recommendation: 5PER-2024.1 | Age: 2 years | Status: Making progress*

- 5. Invest in authentic community connections to achieve a healthy, equitable tree canopy.**

*Recommendation: 5PER-2024.2 | Age: 2 years | Status: Making progress*

## **ADDITIONAL INFORMATION**

### List of Organizations Impacting Ecological Resources

Various organizations and programs impact Fairfax County's ecological resources.

This list is provided to demonstrate the distributed nature of our county's ecological resources and to provide context to the wide variety of entities involved in influencing their preservation:

#### *Key County Organizations / Departments*

- Fairfax County Park Authority (FCPA)
- NOVA Parks
- Urban Forest Management Division (UFMD)
- Office of Environmental and Energy Coordination (OEEC)

*Other Governmental Agencies, Programs, and/or Properties*

- Local
  - [Agricultural and Forestal Districts](#)
  - Fairfax County Public Schools (FCPS)
    - Policy for Environmental Stewardship ([Policy #8542](#))
    - [Get2Green](#) program
  - [Fairfax County Wetlands Board](#)
  - [Fairfax County Stormwater Management Program](#)
  - Land Development Services (LDS)
    - [LDS administers the Public Facilities Manual](#) which covers several important environmental topics, including a section for Tree Conservation.
  - [Northern Virginia Soil & Water Conservation District \(NVSWCD\)](#)
- State and Federal
  - [Gunston Hall](#) (553 acres on the Mason Neck Peninsula in Fairfax County)
  - National Park Service
    - As of June 2015, the National Park Service held 38 conservation easements covering 326 acres in Fairfax County.
  - [Virginia Department of Conservation and Recreation](#) (1,856 acres in Fairfax County)
  - [Virginia Department of Forestry \(VDof\)](#)
  - [Virginia Department of Environmental Quality](#)
  - Virginia Department of Transportation (VDOT)
  - Virginia Outdoors Foundation (VOF)
    - VOF holds seven easements covering 127 acres in Fairfax County.
  - [US Bureau of Land Management](#) (800 acres in Fairfax County)
  - [US Fish and Wildlife Service](#) (2,350 acres in Fairfax County)

*Non-Profits, Homeowner Associations (HOAs), and related initiatives*

- [Earth Sangha](#)
- Fairfax Chapter of the Virginia Master Naturalist Program
- [Fairfax County Restoration Project \(FCRP\)](#)
- [Fairfax ReLeaf](#)
- [Metropolitan Washington Council of Governments \(MWCOG\)](#)
- [The Nature Conservancy \(TNC\)](#)
  - TNC owns the 233-acre Fraser Preserve on the Potomac River.
- [Northern Virginia Conservation Trust \(NVCT\)](#)
- [Plant NOVA Natives \(PNN\)](#)
- [Reston Association \(RA\)](#)
  - Beginning in 2017, RA published the Reston Annual State of the Environment Report (RASER) which evaluates the state and management of Reston's 1,300+ acres of open space, including 800 acres of woodlands, four lakes, four wetlands, three ponds, and 50 meadows.

### Ordinances and Policies

[Various Fairfax County ordinances and policies](#) provide guidance for private property owners on topics including, but not limited to:

- Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) located within the unincorporated areas of Fairfax County ([Chapter 118, Chesapeake Bay Preservation Ordinance](#))
- The conservation (i.e., preservation and planting) of trees during the land development process ([Chapter 122, Tree Conservation Ordinance](#))
  - While this ordinance sets standards such as ten-year tree canopy requirements, it should be noted that, by law, LDS *can* allow development plans to take precedence over the requirements. Deviations, in whole or part, from the tree preservation target may be requested under certain conditions. Similarly, where strict application of the requirements would result in unnecessary or unreasonable hardship to the developer<sup>32</sup>, exceptions to the tree canopy requirements can also be granted. In practice, it should be noted that the Urban Forest Management Division has been given the responsibility for the review and approval of any deviations to the tree preservation target and any modifications to the 10-year tree canopy requirement.
  - The [Tree Conservation section of the Public Facilities Manual](#) provides support for the ordinance mentioned above. It provides incentives for planting native tree species and disincentives for planting invasive tree species, to meet tree canopy requirements in all development projects.
- Mitigating the harmful effects of erosion and sediment during land-disturbing activities ([Chapter 104, Erosion and Sediment Control](#))
- Floodplains and Environmental Quality Corridors (EQCs) for the conservation of stream valleys as well as the broader health of our contiguous natural properties (the [Floodplain Ordinance](#) is codified as part of the zoning ordinance; EQC Policy<sup>33</sup>)
- Grass or lawn areas located within Fairfax County for property other than those zoned for or active in farming operation ([Chapter 119, Grass or Lawn Area](#))

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<sup>32</sup> [Chapter 122, Section 122-2-6. - Exemptions and Modifications](#)

<sup>33</sup> [Objective 9 on p. 14](#)

## 6. CLIMATE AND ENERGY

### **Board of Supervisors Environmental Vision:**

*“The county will continue its leadership and commitment to promote and encourage energy efficiency and conservation efforts and renewable energy initiatives by employees, employers and residents. The county will work with local authorities, businesses, and residents to encourage sustainable reductions of the county’s geographical emissions that will contribute to achieving the targets as identified by the Cool Counties Climate Stabilization Declaration and the Metropolitan Washington Council of Governments. The county will also continue to support attainment of air quality through regional planning and action.”*

### **INTRODUCTION**

The main cause of climate change is the release of greenhouse gases (GHG) emissions resulting from human activities. While controlling GHG emissions is a worldwide challenge, [the United States has led the world in cumulative GHG emissions](#)<sup>34</sup>. Moreover, [the United States emits significantly more GHG than any other country per capita \(including China\)](#). Underdeveloped and developing countries legitimately argue that rich countries, like the USA and the European Union, countries that historically emitted most of the world’s GHGs, should make greater cuts in their emissions and allow them to develop their economies. Given the history of the United States in contributing to GHG emissions, it is important that the United States show leadership in reducing GHG emissions and it is appropriate that Fairfax County join national and state partners in reducing GHG emissions. Moreover, some populations recognize the wealth that the United States has and are reluctant to dedicate their limited resources to climate change initiatives when they could be building their economies and wealth.

Greenhouse gas GHG emissions from human activities are largely a result of the combustion of fossil fuels, which can persist in the atmosphere for many years. Once GHGs reach the atmosphere, they capture the energy from sunlight that would otherwise radiate out into space. This heat is redirected back to the lower atmosphere, raising the temperature of the earth’s surface. Carbon dioxide concentrations have [risen from an average of 280 parts per million \(ppm\) in the 1700’s to 417 ppm in 2021](#). To limit global warming to 1.5°C, [greenhouse gas emissions must peak before 2025 at the latest and decline 43% by 2030](#). In 2023, [the world reached that limit for the first time since before the last ice age](#). The summer of 2024 set [record high temperatures worldwide](#) and the Washington Metropolitan area, including Fairfax County. The Fairfax County website notes that the summer of 2024 observed higher temperatures that indicate that [our climate is changing](#) with hotter temperatures.

To limit the adverse impacts of global warming, the Paris Agreement of 2015 was adopted by 196 parties at the United Nations Climate Change Conference. The [agreement](#) calls for

<sup>34</sup> All hyperlinks in this chapter were accessed/checked September 26, 2024.

limiting global warming to 1.5°C above pre-industrial levels. Major reductions in GHG emissions will be required to meet the goal of limiting an increase in temperature to 1.5°C. Scientific experts find that [current efforts will not be sufficient to limit the increase in temperature to 1.5° C. Many scientists fear that we may not be able to limit temperature increases until we have experienced an increase of 3°C or 7.4°F.](#)

Efforts to reduce GHG emissions within the United States include national, state and local efforts. At a national level, there are multiple initiatives to electrify transportation, shift away from fossil fuels to renewable energy, deploy energy efficient buildings, and other actions. States are undertaking programs to reduce GHG emissions, which can include initiatives such as adoption of California vehicle standards and targets for reaching carbon neutrality.

#### Federal Investment in Reducing Climate Impacts

The Inflation Reduction Act of 2022 (IRA) provides federal income tax credits and incentives to encourage energy efficiency by homeowners, home builders and commercial building owners. In particular, homeowners and commercial building owners can receive [federal tax credits and deductions](#) through 2032 to include up to 30 percent for installing renewable energy and upgrading the energy efficiency of their buildings. Fairfax County residents will further benefit from IRA funding as the Virginia Department of Energy is expected to launch additional incentive programs in 2025 for [home energy rebates](#) and [solar for all](#). Fairfax County has also established a website for county residents that includes energy efficiency resources and incentives for [homeowners](#), [businesses](#) and [organizations](#).

#### Virginia Actions Related to Climate Change

The Virginia Clean Economy Act encourages a number of actions to address climate change, including provisions that will require that [Dominion Energy achieve carbon neutrality by 2045](#). However, as a result of some actions at the state level, funding for climate related work is decreasing. Virginia is no longer a participant in the [Regional Greenhouse Gas Initiative \(RGGI\)](#) and [Virginia is the first of 13 states to opt out of California's vehicle emissions ban on gas-powered vehicles](#). Since its inception, emissions from power plants in RGGI states have declined by more than 50 percent and nearly 6 billion dollars that has been invested in local communities in RGGI states from 2020 to 2023. State lawmakers added 2 major provisions to RGGI:

1. 50 percent of the money needed to be spent on energy efficiency programs for low-income communities and
2. Another 45 percent had to go toward helping communities adversely affected by sea-level rise and flooding.

Virginia received over \$827 million from the RGGI initiative from 2020 to 2023 Fairfax County has received \$14.5 million as of September 2023. Under RGGI power plant emissions dropped almost 17 percent.



The California vehicle emissions ban called for 22% of the new vehicles sold in 2025 to be electric. The percentage would increase to 35% in 2026 and 100% by 2035. Exiting these programs, in combination with the move to use more fossil fuels for Virginia power plants will all increase the GHG emissions for the state.

The [Virginia Clean Cars Act of 2021](#) calls for increasing levels of electric and advanced low-emission vehicles, which will be critical to reducing transportation emissions. [Virginia is the first of 13 states to opt out of California’s vehicle emissions ban on gas-powered vehicles](#). This action will slow adoption of EVs and highly fuel-efficient vehicles in Fairfax and the rest of Virginia.

#### Fairfax County Efforts to Reduce Climate Change Impacts Community-Wide Energy and Climate Action Plan

Fairfax County climate change work largely augments and fills gaps that national and Virginia programs. County efforts to address climate change are organized around either emission reduction efforts or resiliency. Communitywide Energy and Climate Action Plan (CECAP) outlines the county’s plan for reducing GHG. The Resilient Fairfax provides the county’s plan for addressing resiliency. The [County Climate Action Dashboard](#) houses the county’s climate plan, milestones, updates and other information.

CECAP sets a goal for the county to reach carbon neutrality by 2050 and a reduction in GHG emissions of 50% by 2030. According to the most recent GHG inventory by the Metropolitan Washington Council of Governments (MWCOC), Fairfax County community-wide GHG emissions decreased by 30% between 2005 and 2020, despite a 12% growth in [population](#). Countywide GHG emissions come from transportation (44%), residential and commercial buildings (49%), air conditioning and refrigerant escaped gases (5%), and waste (2%).

Cutting GHG emissions from transportation can be achieved by increasing the percentage of electric vehicles on the roads, significantly increasing gas-powered vehicles average miles per gallon (MPG), increasing use of mass transportation, biking and walking, and cutting the number of vehicles and trips made. An [EPA calculator](#) that incorporates the mix of energy sources used to generate electricity finds that a gas-powered vehicle must get at least 70 miles per gallon to have a lower carbon footprint than an electric vehicle. This EPA estimate is based on a mix of energy sources from 2021.

Building energy use which accounts for 49% of countywide GHG emissions can be drastically cut if public utilities (Dominion Energy, NOVEC and others) meet the requirement of the [Virginia Clean Economy Act](#) to produce only carbon-free energy by 2045. It will be necessary to reduce or eliminate buildings’ use of natural gas (methane) and other GHG fuels for heating, cooling and other uses. Constructing and renovating buildings to be much more energy efficient will lower overall energy demand. Accordingly, EQAC supports adoption of “green” building code provisions that increase building energy efficiency and conservation.

The emission reduction metrics on [County Climate Action Dashboard](#) show interim goals that are needed to meet the 2050 carbon neutrality goals and progress towards meeting these goals. The updated dashboard makes significant progress in fulfilling recommendation 6CE2022.2 (i.e., Adopt a Climate Plan for public consumption that shows how CECAP, Resilient Fairfax and other climate related efforts, such as VCEA, are being implemented and the progress being made towards achieving goals). The dashboard tracks implementation efforts associated with new and expanded existing community-facing programs to include Charge Up Fairfax, Energy Conservation Assistance Program, Green Business Partners Program and HomeWise to inform and/or incentivize action by homeowners and businesses to reduce their greenhouse gas emissions. However, it is not possible to tell if the actions being taken are sufficient to achieve emission reduction goals. It is also unclear if the most cost-effective approaches are being employed, or that other county goals such as incorporating equity, are being incorporated.

The county established the [Going Solar in Fairfax County](#) website to encourage businesses and residents generate carbon-free power on their own properties. In addition, the website includes information on [Solar Switch and Solarize Virginia](#). Participants in these programs can receive a free virtual assessment to determine if their home or business is well-suited for solar energy, gain access to qualified solar installers and financing, get lower costs for purchasing solar and battery storage, and purchase and install EV charging stations along with their solar purchase. As of July 15, the Solarize NoVA campaign has resulted in 60 solar arrays for 576.2 kW and \$1,780,063 in contract value. Contracts for towns are part of the total for their sister county. With 250 outstanding projects to be evaluated these numbers will be updated in September.

Encouraging residents and businesses in Fairfax County to install solar and other alternative energy sources is a priority, which is included in CECAP. Rural counties are increasingly resistant to approving large solar installations, due to [concerns over the loss of prime agricultural and forested land](#). Siting solar panels on buildings, parking lot roofs, parking lots, and other appropriate locations in urban and suburban areas is therefore increasingly important. We appreciate the installation of solar canopies above parking lots, such as Metro is doing in several locations. Siting solar farms on brownfields and abandoned mines, which are already environmentally impaired, is generally well suited to this purpose.

As outlined in the [Climate Plans 2023 Progress Update](#), GHG emissions from county operations constitute only about 5 percent of the county's total GHG emissions. The county's efforts to address climate change are available on the recently redesigned [Operational Energy Strategy website](#), which is an excellent source of information. The county's efforts will likely serve as a model for others as the county installs renewable energy, deploys electric vehicles and chargers, and prioritizes energy efficiency in new construction and major renovations. EQAC is disappointed that [Dominion Energy is now imposing 100 percent of the costs of grid interconnection equipment needed for mid-sized solar installations on individual solar installers. This action is undercutting the economic](#)

[viability of solar panels on several Fairfax County buildings, including schools](#). Information on the progress of Fairfax County Public Schools to address climate change is summarized in the Spotlight on schools.

### Climate Resilience

The [Resilient Fairfax Plan](#) provides strategies to adapt to the [impacts](#) of climate change to ensure the community is prepared, while reducing the risks to climate-related hazards. Implementation of the plans began once they were adopted by the Board of Supervisors in October 2022. To inform residents and encourage actions to prepare for climate change, the county has established a [Resiliency Checklist](#).

There are already areas in Fairfax that are at high risk of flooding due to heavy rainstorms and increased tidal flooding that are exacerbated by climate change. Fairfax County has hundreds of heat islands where residents and visitors are subject to higher heat exposure. Additionally, an increase in extreme heat days and average temperatures increases the risk for heat-related illnesses such as respiratory difficulties, heat cramps, heat exhaustion, and heat stroke. Residents without sufficient access to air conditioning, such as certain residents of the county's eight manufactured housing parks are at extreme risk of [heat related illnesses](#) during periods of prolonged extreme heat, as was experienced in summer 2024.

Fairfax County has reported that there are about 1,700 mobile homes in Fairfax are located in 8 mobile home parks. Mobile home parks often have lots of heat-absorbing concrete with little shade. Temperatures inside mobile homes without air conditioning can exceed 100°F and present a danger to inhabitants. Many, especially older model homes are often poorly insulated, and many residents frequently can't afford their utility bills or air conditioners. Since the mobile homes residents typically don't own the land, residents cannot plant trees or perhaps even put in grass to cool the area, and they're typically not eligible for utility assistance when they pay their landlord for power.

During the 2024 summer of persistent extreme heat, Fairfax County's Office of Environmental and Energy Coordination (OEEC) partnered with the Faith Alliance for Climate Solutions, Rebuilding Together, Daniels Run Peace Church and staff from Hybla Valley Community Center to bring relief to residents of Harmony Place Mobile Home Park who were without sufficient air conditioning (AC), or no AC at all. Within just a few days of being notified of the urgent situation at Harmony Place, Fairfax County and non-profit partners across the county came together to create an innovative pilot project to provide window and portable AC units to these families. This effort to "fill the gap" and enhance access to extreme heat-related services is part of the county's Resilient Fairfax Plan. EQAC appreciates the efforts that OEEC undertook to partner with other organizations to address an urgent problem. A systematic assessment of abating heat island effects in mobile home parks and the needs of residents for AC, heating and energy efficiency should be priorities to avoid similar emergency heat crises in the future.

The county’s resiliency work has identified multiple strategies and actions that should be taken to address resiliency. While it is important to address the causes of climate change through actions that reduce GHG emissions to mitigate against future impacts, more work to reduce or mitigate the impacts of climate change is needed. We are already experiencing the consequences of climate change, such as flooding and higher temperatures that threaten the health of vulnerable populations. The resiliency work is important to improve the lives of county residents by reducing the risk of flooding, threats from heat related illness, and other climate change impacts.

### **CURRENT STATUS AND CONCERNS**

Climate change affects many County actions. There are several EQAC recommendations in other chapters that address climate change. A list of these recommended actions is included below in Table 6-1 along with the status.

**Table 6-1. Climate Related Recommendations from other Chapters and their Status in Terms of Adoption**

Chapter	Recommendation	Status
Land Use	<i>1LU-2018.1</i> Update the State of the Plan and Concept for Future Development Map.	Making Progress
Land Use	<i>1LU-2018.1</i> Improve Policy Plan language to prioritize protection of fragile lands and enhance environmental benefits of redevelopment.	Making Progress
Land Use	<i>1LU-2021.4</i> Adopt Comprehensive Plan and zoning regulations to encourage private sector Green Building standards.	Making Progress
Transportation	<i>2TRANS-2021.1.</i> Develop a formal plan to increase light- duty electric vehicle (EV) registrations to at least 15% of total registrations by 2030.	Making Progress
Transportation	<i>2TRANS-2023.1.</i> Provide the resources and funding needed to complete and implement the ActiveFairfax Transportation Plan in a timely manner, including providing a staff position for the Safe Streets for All Program.	Making Progress
Transportation	<i>2TRANS-2024.1.</i> Provide an action plan with proposed budgets for implementing the JET recommendations to replace the county connector diesel bus fleet with EVs by 2030, transition non-bus county vehicles to EVs by 2035, and develop the necessary charging infrastructure and EV maintenance capability.	New
Spotlight on Schools	<i>FCPS 2024-1.</i> Request that FCPS provides an update on the status for implementation of the JET recommendations.	New

### Planning and Implementation

The county adopted both the [CECAP Implementation Plan](#) and [Resilient Fairfax](#) in October of 2022. Although the overall plans are in place, additional detailed operational plans will be needed. Progress is being made. For example, as of the summer of 2024, the County Executive outlined a number of actions to address flooding for the Board of Supervisors. This work is expensive but needed.

Although the [Climate Action Dashboard](#) notes areas where the county is making progress, EQAC believes that much more specific information is needed by the public. Needed information includes what county office is responsible, a budget, performance metrics with timeframes and deliverables. EQAC believes that priority programs like CECAP and Resilient Fairfax should provide specific information to the public so that their progress is clear. This information should include the assignment of responsibility, a budget (which might be expended over multiple years), performance metrics with time frames, and deliverables. Without these basic project management components, it is difficult to assess the extent to which a project is a sound expenditure of tax dollars. EQAC recommends that such information would be helpful for the public to see progress on county expenditures, especially for priority county projects like CECAP and Resilient Fairfax. EQAC has often said to county staff that it is not sufficient to do good work, it is important that the progress and completion and benefits of the county's work be shared with residents and businesses.

While new county buildings may all achieve LEED Gold, county operations reflect only a small part of the county's overall emissions. Demonstrating that county buildings can be built to LEED Gold and that solar installations on county buildings can cut energy-related GHG emissions can serve as models for businesses and residents. But what is essential is progress that is made in the commercial and residential sectors of the county. The Dashboard does not show measures of commercial and residential building energy performance or renewable energy installation.

The Climate Action Dashboard also describes how Resilient Fairfax is placing an emphasis on equity (see the Climate Action Dashboard for details). Lower income populations are more likely to lack the resources to provide air conditioning to prevent heat-related illnesses when temperatures rise and remain excessive. Moreover, areas lacking trees are likely to be heat islands where temperatures can be 10 or even 20 degrees Fahrenheit hotter than areas with more trees. Analyses by OEEC of tree canopy found that 72% of census tracts in the county have [40% or more tree coverage](#). Of the remaining 28% of census tracts that have low tree coverage, about one-third ([24/71](#)) [also have highly vulnerable populations](#).

EQAC applauds the efforts of Resilient Fairfax to help neighborhoods at risk of flooding, extreme heat, and other climate related risks. Resilient Fairfax has made progress in providing the public with important information on the county website, in the periodic webinars that they host, and through periodic email messages to inform interested parties.

### Budget

In 2022, the Board directed county staff to work with EQAC to concentrate on a limited number of highest priority recommendations that would have the greatest environmental impacts.

The top priority, in support of *Recommendation 6CE2022.1*, EQAC recommends that the county develop a climate budget each year in the county's annual operations budget and 5-year Capital Improvement Plan (CIP) budget that provides adequate funding to meet schedules for all components of CECAP and Resilient Fairfax. Although the annual operations budget includes some funding for CECAP and Resilient Fairfax, too many climate-related activities are still funded through one-time, end-of-year allocations or not funded at all. Reliance on year-end funding makes planning and programming uncertain, delaying effective climate-related priorities. Annual and multi-year CIP budgets generally lack sufficient detail about what CECAP and Resilient Fairfax strategies are being funded. Even though the Climate Action Dashboard provides some information on progress, the CECAP implementation plan, Resilient Fairfax and the county budget documents all lack necessary detail about the amounts of funding needed and the amounts provided to meet the county's ambitious climate objectives. Explicit and detailed information about funding needed to accomplish each strategy should be provided to the Board and made accessible on the Climate Action Dashboard. EQAC agrees with Board of Supervisors comments that the activities that are needed to achieve county and state climate goals should be explicitly identified along with their funding needs.

### Community Engagement and Communications

Communications between the county and residents, businesses and other stakeholders can take two paths. First, outreach is important to disseminate information to the community. However, this one-way communication is often inadequate to help communities understand how decisions and policies will affect their lives, and how they can participate in making changes. Second, community engagement requires more work from county staff to meet, talk and share ideas and plans with community members. Community engagement includes a meaningful dialogue with an exchange of ideas to build a common understanding and create climate champions. Attitudes and behaviors change through meaningful and sustained engagement. EQAC strongly supports community engagement. In the absence of a rich dialogue that provides an exchange of ideas, CECAP and Resilient Fairfax initiatives will be less likely to have the support of county residents and businesses. Generally, the county is making progress on EQAC Recommendation 6CE-2021.3, "Implement major Community Engagement and Educational campaign on the Actions that Businesses and Residents can do to reduce GHG Emissions."

EQAC has recommended that the county engage the business community to outline climate goals and partner with the business community to meet these goals. There are two reasons to engage businesses in the effort to meet climate goals. First, obtaining the cooperation and support of businesses in meeting climate goals will likely be more effective. Second, at least some businesses will take the time to study options and identify

creative and cost-effective ways to meet goals. While businesses vary in their sophistication on ways to address environmental concerns, some businesses are often more familiar with the options to reach climate goals that will be helpful to other businesses.

[The Green Business Partners \(GBP\) website](#) outlines the program, which has grown to 36 businesses. Staff have shared activities of the Green Business Partners, which include:

- “Spotlight” videos from business Leaders sharing their sustainability actions. Posted on the GBP public website and shared via OEEC’s social media (new video per quarter)
- GBP bi-monthly newsletters
- Annual Forum (every 2 years)
- GBP Networking social events (plan 2 per yr)
- Hospitality Climate Champions Roundtable and Pilot
- Webinars (2 per year)

EQAC believes that the Green Business Partnership should be used by Green Business Partners to identify best practices, especially those best practices that are cost-effective practices that both minimize cost and maximize progress towards climate goals.

Some county businesses already employ strategies to cut their energy use, have deployed renewable energy and strengthened their resiliency to environmental stress. Fairfax County should seek out these business leaders to share their successes and inspire others. The county should engage business leaders in the county that have demonstrated their ability to successfully implement practices to address climate change and other environmental priorities. These business leaders can inspire other businesses to adopt practices that reduce their companies' GHG emissions and identify barriers that the county can help to resolve. EQAC assesses that Recommendation 6CE-2021 has stalled. The county has made progress engaging some in the business community through the Green Business Partners program, but so far the program has primarily consisted of the county providing information, not supporting an active forum where businesses share green practices and create momentum to support the environment in the business community. The GHG footprint of the business community is significantly more than that of the county and engaging the business community provides a significant opportunity to reduce GHG emissions.

#### Supporting the Development of Electric Vehicles (EVs)

The county has taken steps to [promote EVs](#). Their efforts include:

1. Assisting several Community Residential Associations in installing EV charging stations through the Charge Up Fairfax grant reimbursement program.
2. Waiving permitting fees for the installation of residential charging stations.
3. Installing EV charging stations at county facilities that are available to the public.



The county's work to plan and implement an EV charging network for residents of buildings without EV charging and travelers shows progress. Thus, recommendation 6CE-2023.5 continues to make progress.

Progress is being made to electrify county and FCPS bus systems. Fairfax County received \$50.5 million federal grant for new low emission buses and supporting EV infrastructure. FCPS received a [grant](#) for \$16.59 million in the Environmental Protection Agency's Clean School Bus program. This award will enable the county to purchase 42 electric buses. Thanks to this award, Fairfax County Public Schools officials have indicated that they expect to have 73 electric school buses in operation by the 2025-2026 school year. FCPS has a fleet of about 1,600 buses, Fairfax Connector operates around 360.

### Data Centers

[Northern Virginia has the highest concentration of the world's data centers](#). Data centers are appreciated for the significant local taxes that they can bring to a community. While data centers are known for their significant electrical consumption (Virginia's energy consumption [is expected to increase by 85% over the next 15 years](#) largely due to data centers) and [significant water use](#), data centers increase computational efficiency and reliability. Moreover, the major corporations that use data centers have made [strong environmental commitments](#) to be carbon neutral and minimize water consumption. Until companies are required to disclose information like energy use, water use, and wastewater characteristics, the county should encourage businesses to share their environmental goals and progress publicly.

In 2023 the Virginia Department of Environmental Quality proposed a [variance](#) that would allow emergency generators to operate during times when a "maximum Generation Emergency/Load Management Alert" was posted. The proposal would have suspended [short-term emission limits](#). The emergency would also suspend county noise ordinance compliance requirements. While the initial proposal included Fairfax, Loudon, and Prince William counties, the proposal was scaled back to only Loudon. An issue that prompted the request for the variance was a concern for the electric transmission capability of the region, which is a national problem because the aging electrical grid is in need of updating. Recognizing the need to address the aging electrical grid the Federal Energy Regulatory Commission (FERC) issued [Order no. 1920](#), which provides requirements for electrical infrastructure planning.

As indicated above, the substantial energy demands of data centers could result in brownouts or blackouts in high demand summer days. While Dominion Energy's will need to bring on some fossil fuel power plants to meet demand, mostly natural gas, Department of Environmental Quality staff state that [Virginia is on target to meet its VCEA requirement to reduce its carbon emissions to zero by 2045](#). Several of the major corporations that are major users of data centers have adopted environmentally oriented goals, such as Amazon's "[Driving Climate Solutions](#)." Given that the major corporations that use data centers have strong environmental commitments, it would seem that they would want the

public to see the efforts that they make to reduce GHG emissions and water use so the county could this information and publicly share it and also seek this information as a part of the zoning special exception process. As of the time that this chapter has been drafted, a change to the zoning ordinance has been drafted but it does not address reporting of GHG emissions or water utilization. As such, there has been no action on recommendation 6CE2023.1, this recommendation is stalled.

## **RECOMMENDATIONS**

The Scorecard for this contains the following recommendations pertaining to this chapter. Please see the Scorecard for details.

**1. Incorporate adequate funding for both CECAP Implementation and Resilient Fairfax in the annual operations and CIP Budget.**

*Recommendation: 6CE-2022.1 | Age: 3 years | Status: Making Progress*

**2. Given the extent of CECAP goals, identify those activities that are needed to achieve CECAP and Resilient Fairfax. Adopt a Climate Priorities Strategy for public consumption that identifies those activities that will be needed to achieve CECAP, Resilient Fairfax and other climate related goals, such as VCEA.**

*Recommendation: 6CE2022.2 | Age: 3 years | Status: Making progress*

**3. Regularly, perhaps every 3 months, convene business leaders in the climate and energy area to share their successes and expertise with business leaders that are seeking to reduce their energy use and waste.** *Recommendation 6CE-2021.4 | Age: 4 years | Status: Stalled*

**4. Plan and implement an EV charging network so that residents of buildings without EV charging and travelers will have options for charging their EVs**

*Recommendation: 6CE-2021.5 | Age: 4 years | Status: Making progress*

**5. Collect energy consumption information on current and planned data centers in the county and determine the extent to which data centers obtain green energy in order meet the county's carbon neutrality targets.**

*Recommendation: 6CE2023.1 | Age: 1 year | Status: Stalled*

**6. Implement major Community Engagement and Educational campaign on the actions that businesses and residents can do to reduce GHG emissions.**

*Recommendation: 6CE-2021.3 | Age: 4 years | Status: Making progress*

## 7. AIR QUALITY

**Board of Supervisors Environmental Vision:**

*“The county also will continue to support attainment of air quality through regional planning and action.”*

### **INTRODUCTION**

Fairfax County is part of a federal-state-regional-local partnership, which has worked for the last several decades to improve air quality. While air quality is a regional issue that is beyond the control of any one state or local government, governments at all levels play important roles in identifying measures that are needed to improve air quality and in implementing related strategies.

In the metropolitan Washington, D.C. region, air quality planning efforts have been focused on regional strategies to bring the area into attainment with federal air quality standards (i.e., the National Ambient Air Quality Standards, or NAAQS). The Metropolitan Washington Council of Governments (MWCOG), through the Metropolitan Washington Air Quality Committee (MWAQC), has coordinated, and continues to coordinate, these efforts.

The county’s major responsibilities in the partnership involve participation and coordination with regional and state organizations on plans intended to reduce air pollution and improve air quality as well as the implementation of local programs that help to minimize or eliminate air pollution.

Over the past three decades, the region has made significant progress in improving air quality. All six pollutants (Ground-level Ozone, Fine Particulate Matter, Nitrogen Dioxide, Sulfur Dioxide, Carbon Monoxide, and Lead) regulated by the federal Clean Air Act have shown a downward trend in the region, and all are at or below federal air quality standards. Overall, the number of unhealthy air days has significantly decreased over the past 25 years, but the number of unhealthy air days in 2023 was a cause for concern.

The region has made tremendous progress in its air quality thanks to actions at the federal, state, and local government levels, including new regulations to reduce emissions from power plants, passenger vehicles, and heavy-duty diesel engines as well as programs to improve energy efficiency and renewable energy use.

Fairfax County does not have an air quality monitoring program; it works with MWCOG to assess air quality in the region. The Virginia Department of Environmental Quality (DEQ) is responsible for air quality monitoring in Fairfax County in addition to air quality facility inspections. It provides current air quality and forecast data for Northern Virginia and other regions at [VA DEQ Current Air Quality and Forecast](#).

### **CURRENT STATUS AND CONCERNS**

Air quality, as measured by unhealthy air days, has fluctuated significantly in the past several years. The COVID-19 pandemic had an impact on air quality in 2020, with a number

of the actions taken to limit virus transmission contributing to lower emissions. This resulted in fewer unhealthy air days, with just two such days being recorded in 2020. However, that decrease was temporary. As the region reopened, data from MWCOG registered eight unhealthy air days in 2021. While data from 2022 showed a decrease in unhealthy air days compared to 2021, that reduction was again short-lived. The region recorded 15 unhealthy air days in 2023.

#### Fine Particulate Matter

The major source of air quality concern in 2023 was wildfire smoke. Canadian wildfire smoke descended across the Midwestern and eastern regions of the United States, including the Washington, D.C. metropolitan region beginning in late spring 2023. This wildfire smoke brought the worst air quality seen in the region in more than a decade. Components of this wildfire smoke are small air particles, known as fine particulate matter.

Fine particulate matter (PM<sub>2.5</sub>) is particulate matter that is 2.5 microns in diameter and less. Fine particulate matter contains microscopic solids or liquid droplets that are so small that they can be inhaled and cause serious health problems, especially for people with respiratory conditions. Fine particles are also the main cause of reduced visibility (haze) in parts of the United States. This haze from the wildfire smoke was readily apparent in the Washington, D.C. metropolitan region on the unhealthy air days in 2023.

On February 7, 2024, the U.S. Environmental Protection Agency (EPA) strengthened the federal air quality standard for fine particulate matter by setting the level of the primary (health-based) annual PM<sub>2.5</sub> standard at 9 micrograms per cubic meter. The previous standard was 12 micrograms per cubic meter. The Washington, D.C. metropolitan region already meets this new standard, having recorded PM<sub>2.5</sub> levels below 9 micrograms per cubic meter since 2019.

#### **EMISSIONS FROM MOTOR VEHICLES**

There is extensive use of motor vehicles in Fairfax County and vehicle emissions are the largest single source of toxic and smog forming air pollution in Northern Virginia. Vehicle emissions are a major contributor to ground-level ozone formation and greenhouse gas emissions in Fairfax County and those impacts, combined with climate change, present a threat to the county's future air quality because rising temperatures speed up the formation of ground-level ozone.

Ground-level ozone, colloquially called "smog" can cause breathing problems for sensitive persons, especially those with asthma. It is formed by chemical reactions between oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOCs) as they combine in sunlight and heat. Ground-level ozone is considered a summertime pollutant.

Nitrogen dioxide (NO<sub>2</sub>) is a gaseous pollutant formed during the high-temperature combustion of fuels in vehicle engines and industrial facilities (primarily electric generating

power plants). NO<sub>2</sub> is also a factor in the production of ground-level ozone. It can irritate the lungs and lead to respiratory problems.

Vehicle exhaust also contains sulfur dioxide (SO<sub>2</sub>), which is a gas that forms when sulfur-bearing fuels, mainly oil and coal, are burned. High concentrations of SO<sub>2</sub> can result in difficult breathing and respiratory illness. SO<sub>2</sub> can also have damaging effects on the foliage of trees and agricultural crops.

The [Community-wide Energy and Climate Action Plan \(CECAP\)](#) contains several climate action goals involving vehicle use in the county. These include increasing the use of electric vehicles in the county; reducing vehicle miles traveled; and increasing fuel economy and access to low-carbon fuels.

In addition, as an alternative to the 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.

### **RECOMMENDATION**

The Scorecard for this ARE contains the following recommendation pertaining to this chapter. Please see the Scorecard for details.

- 1. County officials should continue efforts to strongly encourage people to telework where possible, take public transit, and use alternative forms of transit.**

*Recommendation: 7AQ-2021.1 | AGE: 4 years | Status: Making progress*

## 8. WILDLIFE MANAGEMENT

### **Board of Supervisors Environmental Vision:**

*“Actively manage urban ecological stressors such as overabundant white-tailed deer, non-native invasive vegetation, forest pests, urban stormwater flows, soil compaction and erosion, and others.”*

### **INTRODUCTION**

The [Fairfax County Sustainability Initiatives](#)<sup>35</sup> document provides good context about the need for active management of the county’s ecological resources:

“Until a few decades ago, land management consisted of benign neglect, with areas left alone under the assumption that they were self-sustaining. Land management professionals now understand that there are tremendous pressures on remaining natural areas, that their conditions are declining, and that active management is necessary to restore their health.

Today, natural resources are considered natural capital... Natural capital is not self-sustaining; instead, deliberate care and investment are required to enhance, protect and preserve it.”

As with other natural capital, such as land, water, and vegetation, wildlife must also be actively managed to varying degrees to achieve and maintain sustainable population levels within a suburban landscape, which generally presents less suitable habitat that is more fragmented, has fewer natural predators for certain species, and has increased chances of negative human-wildlife interactions. Within the county, the two species that present the most significant challenges to attaining this sustainable balance are white-tailed deer and Canada geese, with uncontrolled deer populations by far posing the greatest risk. While both species are native to our region, the anthropogenic changes within a suburban landscape like Fairfax County result in a situation where each has the potential to cause significant negative impacts on the county’s ecological resources and negatively impact public health and safety as well.

The Fairfax County Park Authority (FCPA) has a progressive, stepwise [Wildlife Conflict Policy \(Policy 202\)](#) used to guide actions in addressing human-wildlife conflicts. EQAC commends the Fairfax County Police Department (FCPD) for continuing to fund and staff the [Deer Management Program](#) and the [Canada Geese Management Program](#). While both programs are equally as important to achieving the Board of Supervisor’s (Board) Environmental Vision, this year’s Wildlife chapter will focus on the needs of the Deer Management Program.

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<sup>35</sup> All hyperlinks in this chapter were accessed/reviewed on August 8, 2024 unless indicated otherwise.

## **CURRENT STATUS AND CONCERNS**

### Animal Services Consolidation Proposal

As part of a Board of Supervisors FY2025 budget proposal the Department of Animal Sheltering (DAS) and the Fairfax County Police Department (FCPD) proposed to unite animal care and control functions under DAS. In a March 26, 2024 memo from EQAC to the Board, EQAC was not supportive of this proposal stating that the proposal threatened the county’s excellent wildlife services team, as the public outreach conducted by staff did not provide a clear vision of how the wildlife management program would remain unimpacted in relation to this proposed restructure.<sup>36</sup>

On May 7, 2024, the Board adopted the FY25 Budget with the Animal Service Consolidation plan included. While the Board agreed with the [staff proposal to consolidate animal control services into the Department of Animal Sheltering \(DAS\)](#), they also acknowledged the concerns from the public and staff regarding how this new model would impact service delivery. Given the concerns voiced by residents, the Board requested additional clarification from staff on how this consolidation will be operationalized and a clear timeline of implementation strategies needed to provide further transparency. Furthermore, staff is directed to return to the Board as part of a Safety and Security Committee meeting to provide additional details regarding the roles of DAS staff and police officers under this new structure and any changes to the philosophical approach to wildlife and other services.

EQAC supports the request made by the Board. As part of this effort, EQAC recommends staff conduct a comprehensive analysis on the potential impacts and benefits on wildlife via this new model. This information should be shared with community stakeholders and Fairfax County residents through a robust outreach campaign to solicit public comments. This analysis with public comment should be captured in a report and presented to the Safety and Security Committee meeting to discuss how the new model accomplishes the position of staff claiming the new model supports One Fairfax, results in better outcomes for wildlife in the county, maintains safety for residents, reduces the budget, and provides greater efficiency.

### White-tailed Deer Management

The high population of white-tailed deer in Fairfax County adversely affects public safety, public health, and the ecological sustainability of the county’s natural resources. Increased habitat modification, loss of natural habitat, reduced hunting pressures, and a loss of natural large predators contribute to this problem. The road to an acceptable deer management solution, however, is not so easily determined. Some of the factors essential to a solution are subject to strenuous debate and attract a wide spectrum of opinion, such as determining the optimum “cultural carrying capacity” (the number of deer a region can support while avoiding unacceptable levels of human-wildlife conflict) and means to control populations, when needed. The sport hunting community, recreational nature

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<sup>36</sup> [Memo](#) from Larry Zaragoza, EQAC Chair, to Fairfax County Board of Supervisors, March 26, 2004.



lovers, residential property owners, wildlife biologists/managers, environmental preservationists, and animal rights/welfare groups have widely differing viewpoints on these issues. However, most residents recognize the need to act due to the numerous and severe impacts of overabundant deer.

The Board is ultimately responsible for determining the county's policy on deer management and should work with staff and stakeholders to create and implement a safe, effective, and humane deer management program. The county's Deer Management Program is only operated in a small subset of FCPA properties, select parks and other open spaces. Given that deer management only occurs on a small portion of the total acreage within the county, it is acknowledged that the coordination of hunting on both public and private lands will be necessary to effectively reduce overall deer densities to more sustainable levels and to minimize instances of negative human-deer interactions.

#### *Data Collection to Strengthen the Program*

EQAC encourages the FCPA and FCPD to continue to collect and integrate data into discussions about wildlife management. While estimates of population sizes and goals for deer reduction may be challenging to define, both the magnitude of the problem being addressed, and the effectiveness of the applied solutions can be better understood and communicated with data. Being able to present a strong base of information will be a benefit in bringing along stakeholders in the effort to grow various management programs, both in staffing and funding. Data will be a key component in supporting any proposed recommendations to strengthen its current Deer Management Plan or a Comprehensive Wildlife Management Plan program.

The Deer Management Program currently includes multiple different strategies to assess and manage Fairfax County's current population of white-tailed deer. Harvest counts from the archery program is just one method of data collection. Deer browse surveys is a method used in assessing deer management within park properties but has been utilized to evaluate level of impact from over population of deer not in assessing deer population. Deer Density Camera Surveys is another method that has been utilized by staff to assess deer populations within the county. However, the camera survey method, which utilizes bait, is no longer permitted due to the county being added to a Chronic Wasting Disease (CWD) Management Area 2 (DMA2) by the Department of Wildlife Resources (DWR). [More information on the positive identification and Chronic Wasting Disease can be found on the county's website.](#) With diminished opportunity of current methods of data collection, staff must be able to utilize other methods of data collection such as drone surveys such as is being done in Montgomery County, Maryland and [Arlington County, Virginia](#). Staff report that research on preliminary estimates for drone surveys indicate a minimum of \$10,000 as a baseline cost (includes equipment, labor, authorizations, data collection, analysis, and reporting) and cost would increase as more parks are included. EQAC recommends that consistent, dedicated funding be allocated to the wildlife biologist program to support alternative survey methods such as drone surveys to establish humane methods of data collection that will be a key component in supporting any proposed

recommendations to an updated Deer Management Plan or Comprehensive Wildlife Management Plan.

#### *County Zoning Ordinance update to provide processing*

With the inclusion of Fairfax County within the CWD DMA2, restrictions on transporting deer carcasses, in particular brain and spinal cord parts, outside of the CWD management area present a new challenge for participants in the program. For residents of Fairfax County participating in the deer management program, this presents an issue of finding local meat processing establishments that are willing to process deer. During FY 2024, the Wildlife Management Specialist contacted the county's Zoning Administration Division and requested an interpretation to determine how deer processing (either commercial or non-profit) affiliated with the Deer Management Program could be permitted, or [where it could take place](#)<sup>37</sup>. This type of operation had been considered a heavy industrial, production or processing use, but following changes to the zoning ordinance in 2023, it would now be most similar to small scale production. Additionally, it could also potentially be considered a public use if it was a function of the Deer Management Program. However, a formal determination would need to be made based on a detailed business proposal and would likely require a 2232 application to establish a new public use on County owned property.

#### *Proactive Public Education and Outreach*

County staff has established education material to inform county residents of concerns regarding the impacts of over-populated deer populations and the Deer Management Program. However, due to resource limitations of dedicated staff, the sharing of that information is limited to individuals who are seeking that information instead of utilizing an outreach approach. There is an opportunity to increase this outreach to focus on all areas of the county, including areas with less access to natural resources.

The archery program is the largest contributor to managing the deer population in Fairfax County, accounting for approximately 91% of the total deer harvested in FY 2024 as shown in Figure 8-1.

#### **Figure 8-1: Fairfax County Deer Management Program Harvest by Strategy**

*Source: Dr. Katherine Edwards, Fairfax County Wildlife Biologist, June 2024*

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<sup>37</sup> Once on this site, you will need to select the *Record Info* tab and then select *Attachments* in the drop-down menu to view the dialogue/documents submitted on the matter.

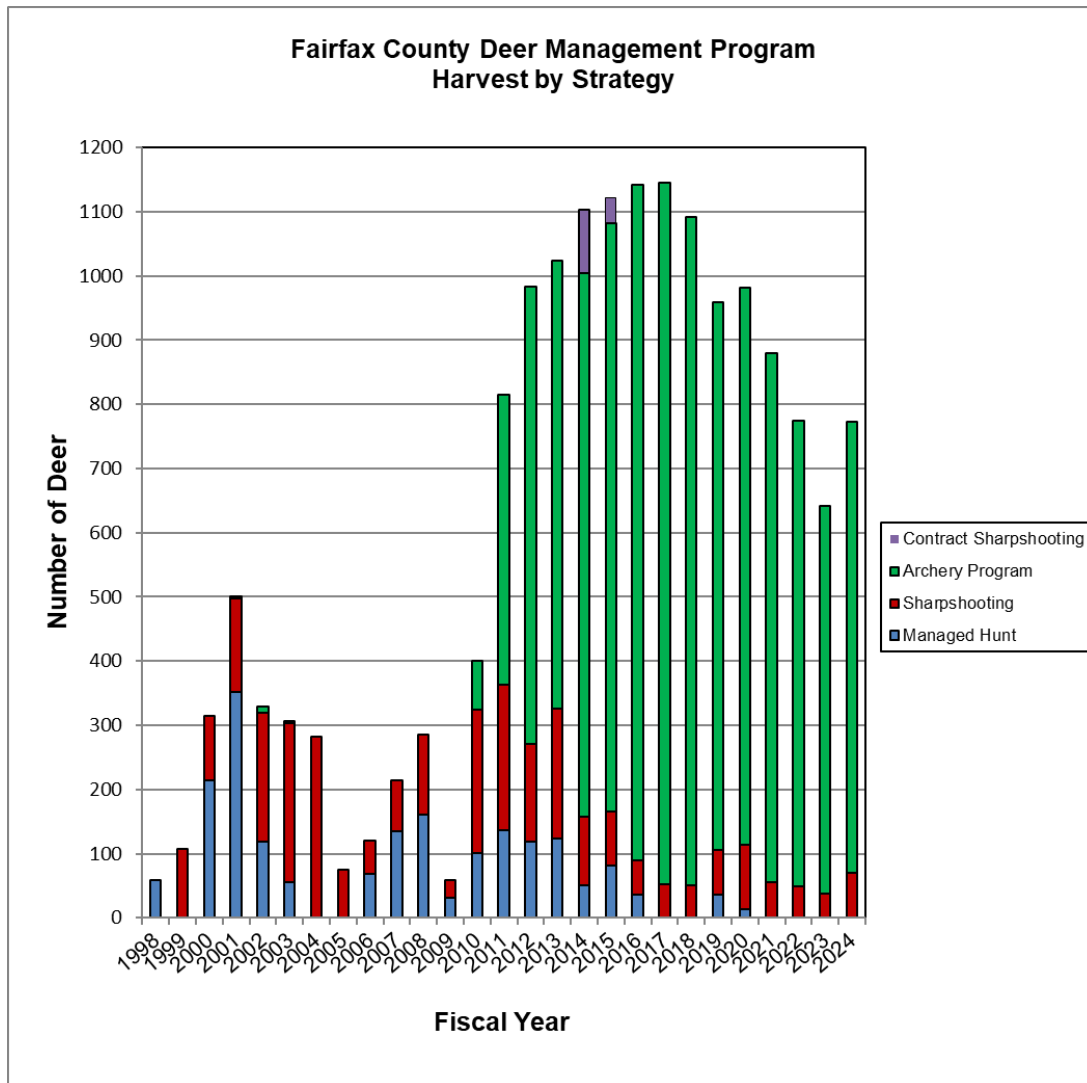


Figure 8-1. Shows the number of deer harvested for each County strategy from 1998 through 2024 ranging from 60 deer in 1998 to 773 deer in 2024, with a maximum of 1,145 deer in 2017. The archery program was introduced in 2010 which made a significant impact on the total deer harvested per year, nearly doubling the number of deer harvested in its second year of implementation and now accounting for approximately 91% of the total harvest numbers (703 of 773 deer harvested in 2024).

The success of the program relies on the willingness of qualified volunteers to participate. In the Summary Data of Archery Program Per Fiscal Year From 2015-2024 (Table 8-1), 518 volunteers participated in the program in FY 2024, contributing 34,178 hours.

**Table 8-1. Summary Data of Archery Program Per Fiscal Year From 2015-2024**

Source: Dr. Katherine Edwards, Fairfax County Wildlife Biologist, May 2024

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total Volunteers	568	594	627	588	578	596	605	545	521	518
Total Volunteer Hours	31,329	37,071	44,881	43,688	42,735	40,105	47,413	37,778	32,832	34,178
Average Hours Per Volunteer	55	62	71	74	74	67	78	69	63	66
Deer Harvested	916	1,052	1,092	1,041	854	868	823	726	604	703
Percent Female Deer Harvested	75%	71%	65%	65%	68%	64%	64%	58%	59%	54%
Average Hours Per Deer	34	29	41	38	45	42	50	45	47	42
Total Archery Clusters	24	22	18	18	18	18	18	18	18	18
Total Parks	56	81	97	98	99	102	104	103	111	113
Total Acres	13,680	16,084	19,125	19,359	19,385	19,931	21,013	21,236	21,528	21,569
Deer per mi <sup>2</sup> Harvest	43	42	37	34	28	28	25	22	18	21

For the program to remain successful, it must continue to encourage volunteers to participate and offer programs that can educate experienced and novice hunters on best management practices to harvest deer populations safely and humanely. County wildlife staff, who operate the Deer Management Program, have hosted classes for deer processing (field to table) and International Bowhunter Education Program (IBEP) courses. These events are not advertised for the public due to staffing constraints but have only been offered for members of the Deer Management Program and individuals who have contacted staff with interest in joining the county program. EQAC recommends that the wildlife program be funded for an additional position to support public outreach. This position would not only support the deer management program, but the entire wildlife program with creation of outreach materials (brochures, info cards), community presentations, exhibit booths at outreach events, handling media inquiries with FCPD's Public Affairs Bureau and Office of Public Affairs, social media, etc.

### Wildlife Borne Diseases of Concern in Fairfax County

There are a number of zoonotic diseases (those in which wildlife serves as a reservoir) that affect humans. Four such diseases of greatest concern in Fairfax County are West Nile virus, Lyme disease, rabies, and the complex of diseases caused by fecal coliform bacteria. The causative agents, modes of transmission, and means of prevention are briefly discussed below. This year's chapter will focus solely on Lyme Disease, but for more information on this and other wildlife diseases, visit the [Fairfax County website](#).

### *Tick-Borne Illnesses*

Lyme disease, transmitted via the bite of an infected *Ixodes scapularis* (commonly known as a deer tick or blacklegged tick) is the most commonly reported vector-borne disease in Fairfax County. However, there are several other tick-borne illnesses to be aware of as well, such as Rocky Mountain Spotted Fever and Ehrlichiosis, both transmitted via an infected *Amblyomma americanum* (commonly known as a lone star tick). The most current information regarding tick-borne illnesses and the tick species that carry them can be found online [here](#).

There are preventative measures that can be taken to reduce the risk of tick-borne illnesses:

- The same repellents recommended for mosquitoes are also highly effective for ticks. See the insect repellent guidance in the [Choose the Right Repellent section](#) on Fairfax County's website.
- When engaged in activities that might result in exposure to ticks, proper clothing is a must, preferably long pants tucked into boot tops or spraying the lower legs, trouser bottoms, and sock tops with insect repellent, since most ticks are encountered close to the ground.
- Do a full-body tick check after returning from potentially tick-infested areas and shower. Use a hand-held or full-length mirror or have someone help you check parts of your body that are hard to see.

According to TickCheck.com which receives data from the Center for Disease Control and Prevention, reported cases of Lyme disease in Fairfax County have gradually decreased in recent years, from an average of 196 cases in the five-year period from 2011 – 2015 to an average of 139 cases over the five-year period from 2016 – 2020.

**Reported Cases of Lyme Disease in Fairfax County from 2000 to 2022**

**Figure 8-2: Reported Cases of Lyme Disease in Fairfax County from 2000 to 2022**

*Data Source: CDC.*

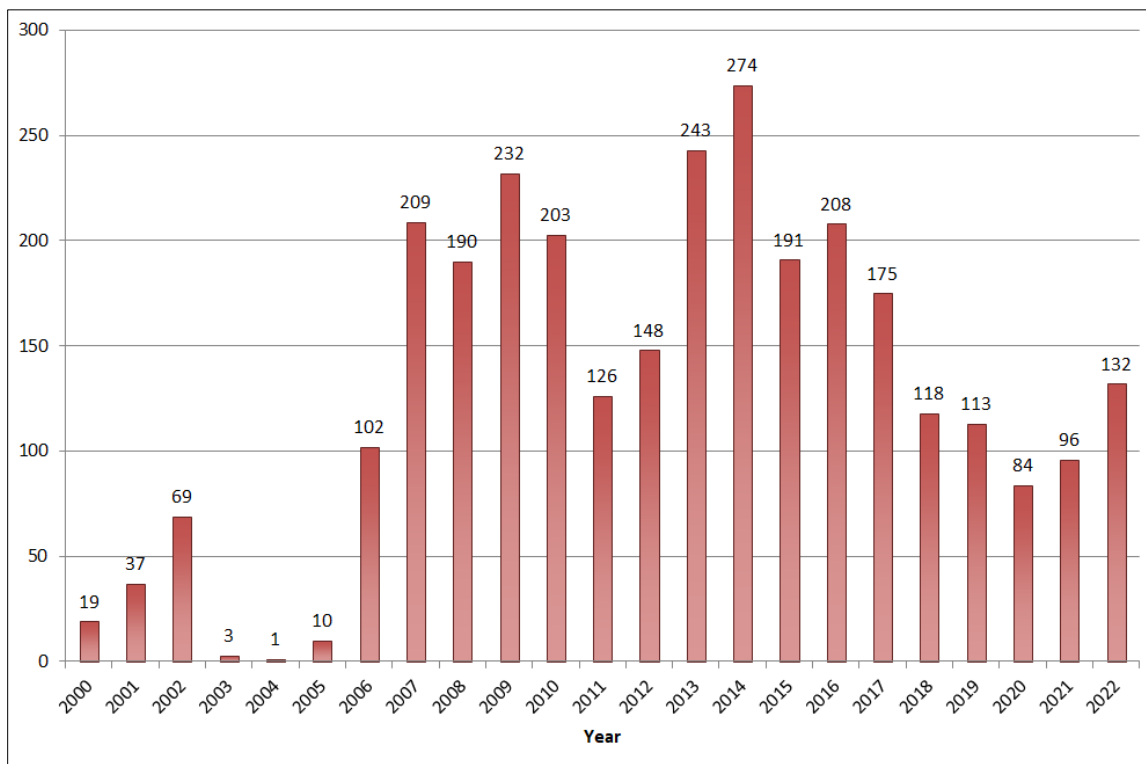


Figure 8-2. Shows the number of reported cases of Lyme disease in Fairfax County from 2000 through 2020 ranging from 19 cases in 2000 generally trending to a peak of 274 cases in 2014 trending down to 84 cases in 2020. Due to the COVID-19 pandemic, there is no additional data available for Fairfax County for subsequent years posted.

**RECOMMENDATIONS**

The Scorecard for this ARE contains the following recommendations pertaining to this chapter. Please see the Scorecard for details.

This prior recommendation has been completed.

- 1. Make changes to zoning codes to grant exceptions for deer processing operations in Fairfax County to minimize impacts on participation in the deer management program.**

*Recommendation: 8WIL-2023.3*

The following recommendations are continued.

- 2. Expand survey methods for deer population data collection.**

*Recommendation: 8WIL-2023.1 | Status: 2nd year*

- 3. Add funding for a position in the wildlife biologist program to focus on expanding public outreach and education, for not just the county's deer management program, but for the entire wildlife program.**

*Recommendation: 8WIL-2023.2 | Status: 2nd year*

- 4. Conduct a comprehensive analysis on the potential impacts and benefits of the new model as well as robust outreach campaign to solicit comments from Fairfax County residents and other stakeholders.**

*Recommendation: 8WIL-2024.1 | Status: New this year*



## Appendix A

### Spotlight on Fairfax County Public Schools



#### **OVERVIEW**

This Spotlight describes recent achievements by Fairfax County Public Schools (FCPS) and upcoming plans for Get2Green; energy; transportation; and potable water. As available, it identifies specific schools and facilities where achievements have taken place. The Spotlight includes comments and recommendations about opportunities to improve environmental performance for FCPS.

FCPS is one of the largest school divisions in the United States, serving a diverse community of more than 183,000 students with 199 schools and centers. FCPS has multiple departments and offices that have activities relevant to environmental topics. These include Facilities and Transportation Services; Food and Nutrition Services; Instructional Services; Office of Design and Construction; Office of Facilities Management; and Office of Safety and Security. In July 2021, the [FCPS Board accepted recommendations from the Joint Environmental Task Force \(JET\)](#)<sup>38</sup> surrounding energy, transportation, waste reduction, and workforce development for the school division.

#### **Commitments by the FCPS Board include:**

- Being energy carbon neutral by 2040.
- Achieve 50% emissions reductions by 2030, as compared to a 2019 baseline.
- Produce 25% of the county energy use from in-county renewable energy generation by 2030, and 50% by 2040, using 2019 energy use as the baseline.
- Decrease total energy usage from all county facilities by 25% by 2030, and 50% by 2040, as compared to the 2019 baseline.
- All new county buildings and major renovation projects beginning planning and design in 2021 and after must achieve Net Zero Energy (NZE) performance as defined below, unless county staff advises the Board prior to the 30% design phase why a project cannot meet the NZE standard. The JET defines an NZE building as one that is highly energy-efficient and produces onsite, or procures offsite as necessary, carbon-free renewable energy in an amount sufficient to offset the annual energy use associated with operations.
- Transition to electric or zero-carbon alternatives for school buses and eligible fleet vehicles by 2035; and to develop a plan to fuel the electric vehicles using non-carbon emitting fuels and carbon offsets with a complete transition to 100% clean fuel by 2030.
- FCPS and the County coordinate electrification efforts and share charging and maintenance infrastructure whenever possible.
- Achieve Zero Waste in county and school operations by 2030.

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<sup>38</sup> All hyperlinks in this Appendix were accessed/checked on September 25, 2024 unless otherwise noted.

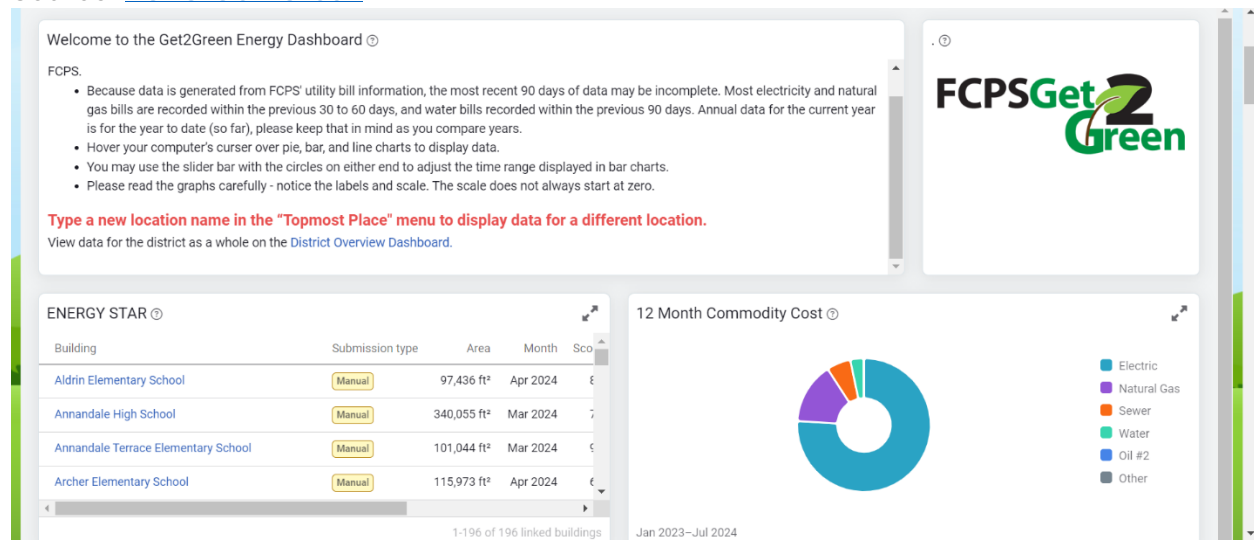
- Equip FCPS guidance counselors and career center staff with a standardized tool kit for talking with students about the range of green careers and the background necessary to enter those careers. Ensure the presence of green career professionals in career days and student interview days.
- Develop a comprehensive plan to offer one or more green career/economy-related programs for high school students to encourage participation in this emerging job market.

### Get2Green

Get2Green is the environmental stewardship program for FCPS. It supports division-level policies and projects that complement school-based sustainability work based on a foundation of equity. Get2Green offers guidance and resources for classes and eco-teams implementing hands-on environmental action in their school and community. The [Get2Green website](#) provides a variety of dashboards with school-specific and county-level data on energy use and recycling (see example on energy use in Figure B-1 and recycling in Figure B-2). Get2Green staff has developed a comprehensive garden guide, *Together We Grow*, that will be available for SY2024-2025 to support schools in working with students to design, plant and maintain garden spaces.

### Figure B-1. Example of Energy Dashboard from Get2Green.

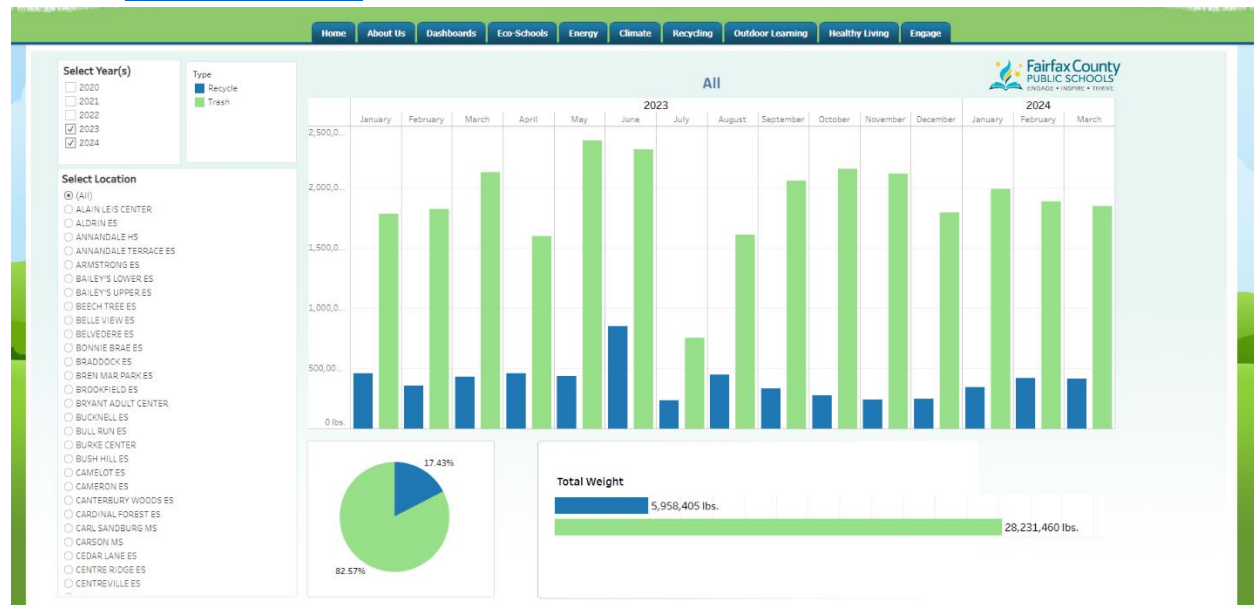
Source: [FCPS/Get2Green](#)<sup>39</sup>.



<sup>39</sup> Downloaded July 8, 2024

**Figure B-2. Breakdown of Use of Recycling and Trash by FCPS in Years 2023 and 2024.**

Source: [FCPS/Get2Green](#)<sup>40</sup>



Get2Green expanded their programs in FY 23, FY 24, and FY 25. In FY 23, Get2Green added a support specialist and program manager. In FY 24, they added 4 resource teachers and provided a salary supplement for a Get2Green leader in every K-12 school and center. In FY25, Get2Green added a fifth resource teacher, is hiring a Business Operations Assistant, and is providing schools with dedicated funding to support their outdoor learning spaces and gardens. Overall, Get2Green has 1 staff member in Facilities and 9 in Instructional Services. The Get2Green staff collaborates with county and community partners, serves on committees supporting sustainability in FCPS and across Fairfax County including the joint County and Schools Zero Waste team, applies for and manages grants to support schools, and hosts programs such as Earth Week to expand engagement in environmental stewardship. Get2Green provides professional development opportunities for educators and administrators to ensure all students have opportunities to develop as ethical and global citizens. However, it does not appear that FCPS has developed a plan to act on the JET recommendation to prepare students to contribute to the range of green careers including technical jobs such as for solar installation and maintenance.

**Energy**

The FCPS Energy Education Team includes all students, staff, parents, and other community members who make up the totality of individuals who use FCPS sites. Energy Education Specialists are the FCPS employees tasked with involving all members of the FCPS Energy Education Team and focusing team members’ efforts towards accomplishing

<sup>40</sup> Downloaded July 8, 2024

their goals. FCPS has 10 full-time and four hourly Energy Education Specialists to perform energy management, conservation, and educational services.

In FY 2023, FCPS spent about \$41,000,000 on its electric, oil, gas, and water utilities. A review of data on energy costs presented in the [FCPS Get2Green Dashboard](#) shows a cost increase of approximately 24% when comparing 2019 to 2023. Electricity use between 2019 and 2023 was virtually unchanged, and natural gas use declined by 3%. The Office of Facilities Management is tasked with keeping this bill as low as possible through development and implementation of conservation programs. To contribute to enhancing the pace of energy-related improvements at existing FCPS schools and other facilities, the Office of Facilities Management is in the process of planning Energy Savings Performance Contracts. Such contracts will enable the completion of urgently needed energy improvement projects that have been unfunded due to budget constraints including replacing inefficient HVAC equipment still in use beyond its useful life (e.g., chillers and boilers), old inefficient structural components (e.g., single pane, metal framed windows with no thermal breaks), and inefficient and poor quality fluorescent and High Intensity Discharge lighting. FCPS is currently not using Energy Savings Performance Contracting. Should this change, FCPS will use the [Virginia Department of Energy Contract](#). Further, FCPS reports that they had 5 buildings audited last fiscal year and are in the process of meeting with vendors related to saving energy.

FCPS currently has ten schools with solar installations. Roof-mounted photovoltaic solar arrays paid for through grants and fundraising are located at Rachel Carson Middle School, Frost Middle School, Canterbury Woods Elementary, Bailey's Elementary School, and Thomas Jefferson High School. Roof-mounted solar installations for solar thermal heating of potable (drinkable) water can be found at Glasgow Middle School, West Springfield High School, and Thomas Jefferson High School. Franklin Sherman Elementary has a ground-mounted photovoltaic array. Experimental instructional projects integrating technology include a solar powered wind turbine at Lanier Middle School and a chicken coop with solar panel heat at Twain Middle School. Although these projects do not supply large amounts of energy to the schools, they serve as valuable educational tools. This year, Riverside ES and Jackson MS were selected for the Dominion Energy Solar for Students program. Centreville ES won the award in 2019.

Solar Purchase Power Agreements (PPAs). FCPS is continuing the process of pursuing solar PPAs. No PPA infrastructure has yet to be installed, but two agreements have been signed: one at Mason Crest Elementary School with Sun Tribe, and one at Annandale High School with Ipsun. The two projects are currently on hold due to issues with Dominion interconnection. As we move forward with the redesign, we will need to address these interconnection challenges in the future. Dominion Energy Virginia Interconnect requirements, which have caused us to limit solar installations to no more than 250KW AC per building, are stopping projects due to economic infeasibility all around the state including the FCPS project at Mason Crest. Vendor requests to modify the agreement have delayed the FCPS project at Annandale HS – it has not yet met the interconnect requirements problem due to contract negotiations. Uncertainly in the outcome of

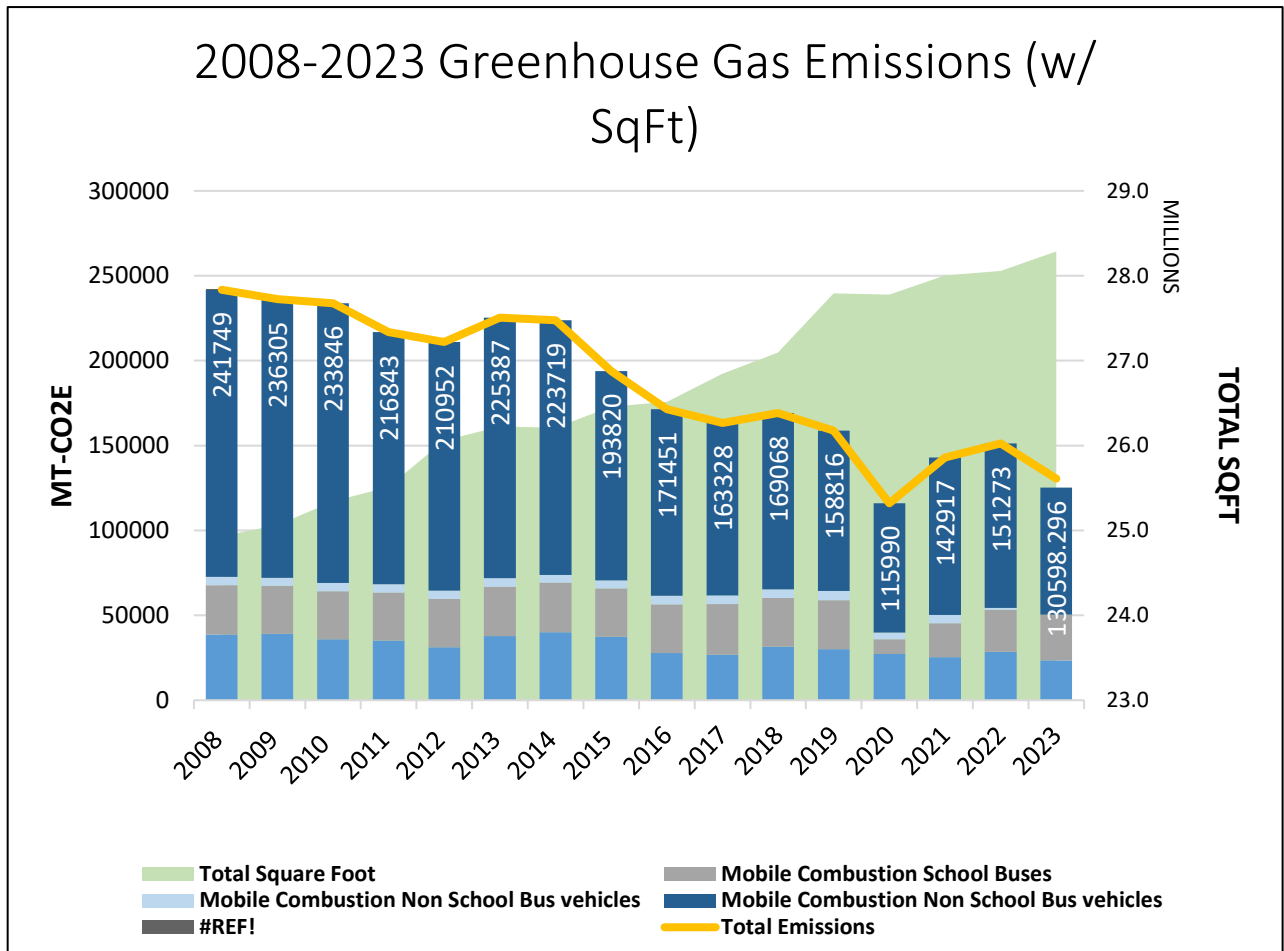
challenges to the interconnection rules, pending with the State Corporation Commission (SCC), has contributed to the delays. Dominion must file a response about the requirements to the SCC by 11/15/24. Solar PPAs for 9 additional sites have been awarded to Suntribe and are anticipated to be completed within the next 18-24 months (i.e., by July 2026). These are at Annandale Terrace ES, Cherry Run ES, Franklin Sherman ES, Lutie Lewis Coates ES, Mount Vernon Woods ES, Newington Forest ES, Olde Creek ES, Silverbrook ES, and Waynewood ES. These sites are under 250KW each and are not affected by the SCC ruling. In addition, FCPS staff continue to look at renewable energy including participation in weekly discussions. FCPS has picked 5 groups of 5 schools per group to get PPA estimates for these renewable energy projects. They have started to install LED in parking lots and are replacing fluorescent lights with LEDs in large areas such as gyms, cafeterias, and media areas.

### **FCPS Facilities**

FCPS maintains approximately 28 million square feet of occupied space for education, support, and administration functions. As shown on Figure B-3, Greenhouse Gas (GHG) emissions per unit of occupied space has generally decreased for FCPS over the past 13-year period, with an uptick in 2021-2022 and a decrease in 2023 (i.e., the most recent year with available data). This uptick may have been due to the impacts of the COVID-19 pandemic which greatly reduced school usage in 2020. Further, the declines in energy use may be due to changes in Dominion Energy's fuel for its power stations, reducing coal and increasing natural gas, which likely accounts for much of the 38% reduction in greenhouse gas emissions over the period from 2019-2023. As of 2023, FCPS had GHG equivalent emissions (CO<sub>2</sub>e) of approximately 130,598 metric tons, the majority of which were due to indirect emissions from electricity use.

**Figure B-3. Greenhouse Gas Emissions and Occupied Space in FCPS Facilities**

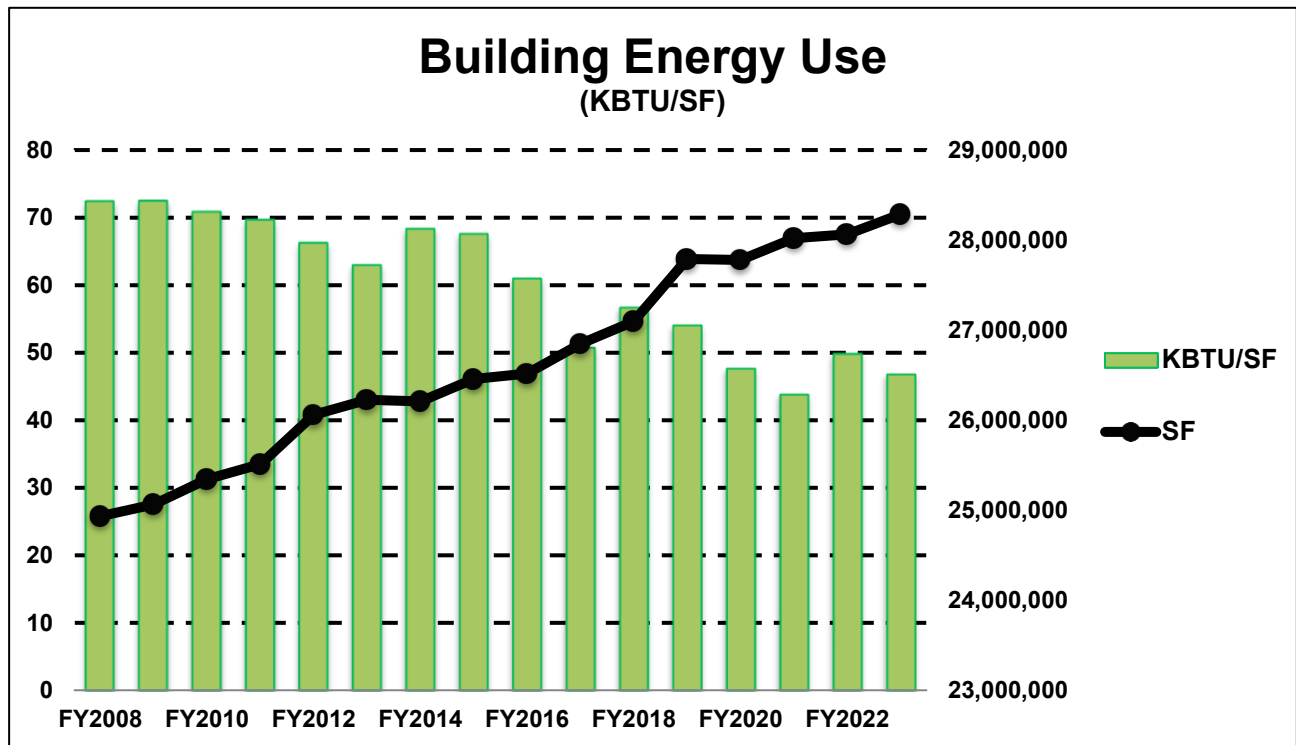
Source: E-mail from Cliff Pahlavaninejad and Paul Scott, FCPS, September 11, 2024.



Energy Use Intensity (EUI), the energy use of a building per square foot, has generally been declining across all FCPS facilities over the past 14 years, as shown in Figure B-4. In FY 2023, the EUI of FCPS was approximately 47 kilo British thermal units per square foot (KBtu/SF), compared to 72 KBtu in FY 2008, a 35 percent reduction. These energy reductions (total and per square foot) have been achieved despite the addition of school building space to accommodate increasing student membership. As with Figure B-3, the uptick in FY22 may be due to the impacts of the COVID-19 pandemic.

**Figure B-4. FCPS Energy Use per Square Foot and Number of Square Feet.**

Source: E-mail from Cliff Pahlavaninejad and Paul Scott, FCPS, September 11, 2024.



As required by School Board Policy 8542 (Environmental Stewardship), FCPS has prepared an annual GHG Inventory report; the most recent report is for 2022. ([Reports for years 2013 through 2022 are available online.](#)) In its 2022 report, fugitive refrigerant emissions were removed from GHG reports for FCPS. This was done because it was determined that these data had not been collected in a meaningful way and FCPS does not have a process in place for accurate collection of this type of data (historical reports will remain as previously published).

Mason Crest ES, a repurposed administrative building, uses geothermal energy for heating and cooling. This geothermal system, which began operation in 2012, consists of a well field located under the ball fields near the playground. The geothermal system moves heat from the earth into the building in the winter and pulls heat from the building and discharges it into the ground in the summer.

In SY 24, FCPS continued to replace gasoline powered equipment with diesel powered equipment adhering to EPA’s Tier 4 emission standard when equipment is due for replacement. They anticipate having more than 50 blowers in operation within a year, and more as the machinery finishes its useful life cycle. They plan to continue replacing gasoline powered hedge clippers to battery powered as they end their useful life cycle.

The reforestation of areas on school sites helps mitigate stormwater runoff by absorbing water. Drought-resistant trees and plants native to this region are used because they are



suited for this climate and do not require irrigation. The trees absorb carbon dioxide and assist with improved air quality around the schools. Over 1,500 trees and over 4,100 shrubs were planted by FCPS in 2022 and 2023 (staff reported they are in the process of getting improved estimates of such plantings). With few exceptions, only native and non-toxic fruit bearing vegetation was planted. No invasive species were planted, and in most cases, existing invasive species were removed using procedures prescribed by Fairfax County's Urban Forest Management Department.

### **Transportation**

FCPS has a fleet of 1,625 diesel buses; also 896 cars, vans, and trucks. In school year 25-26, FCPS will have 73 electric school buses in operation. These 73 buses were funded as follows: 8 buses and 4 vehicle-to-grid charging stations by a grant from Dominion Energy (located at the FCPS Stonecroft Transportation Center); 20 buses by grants (two separate grants of 10 each) from Virginia's Department of Environmental Quality (located at the Lorton facility, with charging infrastructure provided by Dominion Energy); 42 buses by the EPA's Clean School Bus Grant (FCPS was notified it had been awarded \$16,590,000 for the 42 school buses on January 2, 2024) (infrastructure and related costs to be provided by Dominion Energy); and 3 buses by FCPS to support the Training Center for training new and existing drivers on electric school bus operation. EQAC notes that the extent to which FCPS is on track for meeting its objective of transitioning to electric or zero-carbon alternatives for school buses and eligible fleet vehicles by 2035 is unclear.

Beginning in 2023, FCPS and the County have installed EV infrastructure locations with other planned locations to be in operation by the end of 2024. The following locations are anticipated to have EV infrastructure in operation by the end of 2024: Stonecroft Transportation Center, Lorton Transportation Center, and Sideburn Support Facility. Staff from both FCPS and the County are actively planning and mapping out future locations that can be built together to share and to keep costs down where possible. The chargers at these locations for both the County and FCPS are the same manufacturer so all EV vehicles can be charged at all locations.

FCPS' EV program will replace one internal combustion engine vehicle for one electric vehicle so no additional vehicles will be added to the fleet total. Needed infrastructure will be placed in existing parking spaces so no additional parking will be required due to the EV replacement program. A hub box will be added at the end of each charger row for future chargers to be installed saving time and money. FCPS staff have met with vendors and power company for future charging locations at FCPS administration buildings.

A total of 70 FCPS diesel buses have been removed from the fleet and their engines destroyed permanently so they cannot release additional CO<sub>2</sub> gases into the atmosphere. At the end of the life of the EV buses, the lithium batteries will be removed, and Dominion Energy will take ownership of the old batteries. Dominion will use the batteries in a solar energy field. These batteries will be charged by solar panels and the power will be stored and used during high energy peak times.

**Potable Water**

FCPS' Office of Safety and Security (OSS) successfully completed the first round of comprehensive testing for lead in drinking water (all drinkable sources in each school tested at least once) in early summer 2023. [Virginia Code §22.1-135.1](#) was amended in July 2020 to require notification to parents when sampling results of 10 parts per billion (ppb) or greater are obtained. From 2019 through the spring of 2023, OSS tested 13,538 fixtures at potable sources in 199 FCPS schools. Of the fixtures sampled, a total of 132 (0.98%) yielded results above 10 ppb, requiring parental notification. Twenty-seven (27) of the fixtures with elevated results were science faucets fitted with backflow prevention devices, which contain trace amounts of lead due to brass parts. If correcting for the science laboratory fixtures (which should not be used as drinking water sources), the total number of potable water sources with results above 10 ppb drops to 105 (0.78%). Each non-laboratory fixture with results above 10 ppb was remediated, resampled, and placed back in service when passing results were received or, in rare instances when remediation is not feasible due to building age or plumbing configuration, permanently removed from service. (All science classrooms now have "DO NOT DRINK THIS WATER" signage placed near laboratory faucets, and science staff have been reminded of good laboratory hygiene practices, which prohibit eating or drinking in laboratory environments.)

Additionally, the EPA Lead and Copper Rule has a [pending revision](#), with an expected publication date of October 16, 2024. This revised rule will require additional testing at approximately 111 FCPS schools. As such, OSS is currently collaborating with Fairfax Water to comply with additional testing requirements and create a sampling plan and has already submitted data and a draft sampling schedule for this project.

**RECOMMENDATION**

One recommendation is included in this Appendix because it concerns a matter that has been discussed by both the FCPS Board and the Board of Supervisors.

*Recommendation FCPS 2024-1.* Request that FCPS provides an update on the status for implementation of the JET recommendations.