

**FAIRFAX COUNTY PLANNING COMMISSION
ENVIRONMENT COMMITTEE
WEDNESDAY, APRIL 19, 2017**

PRESENT: James R. Hart, Commissioner At-Large, Chairman
Ellen J. Hurley, Braddock District
John C. Ulfelder, Dranesville District
Frank A. de la Fe, Hunter Mill District
Phillip A. Niedzielski-Eichner, Providence District
Timothy J. Sargeant, Commissioner At-Large
Janyce N. Hedetniemi, Commissioner At-Large

ABSENT: Ellen J. Hurley, Braddock District
Julie M. Strandlie, Mason District

OTHERS: Noel Kaplan, Planning Division (PD), Department of Planning and
Zoning (DPZ)
Kambiz Agazi, County Executive Office
John W. Cooper, Clerk, Planning Commission

ATTACHMENTS:

- A. Environmental Excellence: A 20-Year Vision, Draft Proposed Update – February 2017
- B. Fairfax County Board of Supervisors Environmental Vision, Draft – February 1, 2017
- C. Sustainability Initiatives FY 2017

//

Vice Chairman Frank A. de la Fe called the meeting to order at 7:07 p.m. Board Conference Room, 12000 Government Center Parkway, Fairfax, Virginia, 22035, pursuant to Section 4-102 of the Commission's Bylaws & Procedures. He indicated that the first order of business was to elect a Committee Chairperson.

Commissioner Hedetniemi MOVED TO NOMINATE JAMES R. HART AS CHAIRMAN OF THE 2017 ENVIRONMENT COMMITTEE.

Vice Chairman de la Fe seconded the motion which carried by a vote of 7-0.

//

Commissioner Ulfelder MOVED THAT THE FOLLOWING ENVIRONMENT COMMITTEE MINUTES BE APPROVED:

- JANUARY 21, 2016
- MAY 26, 2016
- SEPTEMBER 29, 2016
- OCTOBER 19, 2016
- JANUARY 26, 2017

Commissioner Hedetniemi seconded the motion which carried by a vote of 7-0.

//

Kambiz Agazi, County Executive Office, gave a presentation on the update to the Fairfax County Board of Supervisors Environmental Vision document wherein he highlighted the following topics:

- Importance of the document;
- Environmental Vision – 2004 (revised 2007);
- Board directive to review and update vision;
- Approved processes, schedule, structure and community outreach; and
- Draft vision highlights.

//

The meeting was adjourned at 8:02 p.m.
James R. Hart, Chairman

An audio recording of this meeting is available in the Planning Commission Office,
12000 Government Center Parkway, Suite 330, Fairfax, Virginia 22035.

Minutes by: Inna Kangarloo

Approved: April 25, 2019




Teresa Marie Wang

Jacob Caporaletti

Jacob L. Caporaletti, Clerk to the
Fairfax County Planning Commission

ATTACHMENT A




Environmental Excellence: A 20-Year Vision

DRAFT Proposed Update – February 2017

Kambiz Agazi, Environmental Coordinator

April 19, 2017



Today's Presentation

1. Why is a Vision necessary?
2. Environmental Vision – 2004 (revised 2007)
3. Board Directive to Review and Update Vision
4. Approved Process, Schedule, Structure and Community Outreach
5. Draft Vision Highlights
6. Discussion/Questions
7. Next Steps

Why is the Vision Important?

1. Articulates the County's overarching vision, in a single go-to document, which is to attain a **quality environment that provides for a high quality of life and is sustainable for future generations.**
2. No real change is possible without a vision. The establishment of complex long-term environmental strategies and plans require a new and comprehensive vision supported by Board policy and values.

3


Environmental Vision

- Adopted by the Board on June 21, 2004; revised March 26, 2007
- Broad vision—not a plan
- The Board shaped its Vision to protect and enhance the environment around two principles:
 - 1) Conservation of our limited natural resources must be interwoven into all government decisions.
 - 2) The Board must be committed to provide the necessary resources to protect our environment.

Six Themes



4



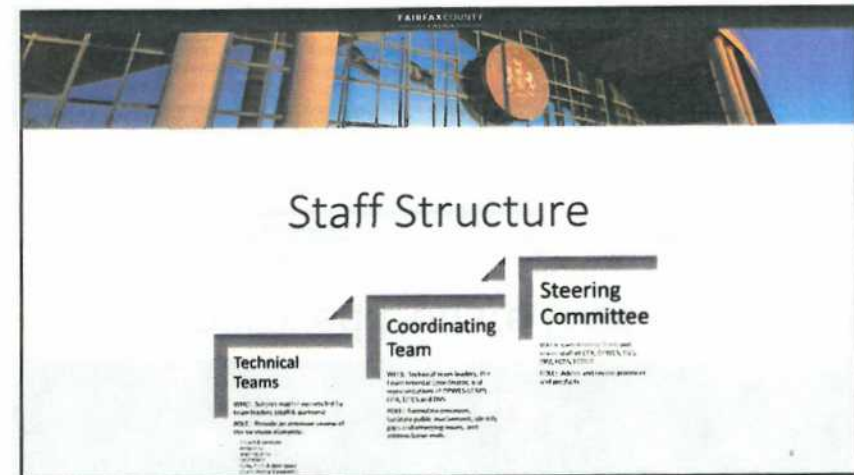
BOARD MATTER - October 6, 2015
Environmental Excellence: A 20-Year Vision


- Review the existing vision and report back to the Board of Supervisors (Board) with suggestions and a timeline for community and Board involvement.



Approved Update Process

- October 6, 2015 Board Matter
 - Review the existing vision and report back to the Board of Supervisors (Board) with suggestions and a timeline for community and Board involvement.
- May 24, 2016: BOS Environmental Committee Review and Endorsement
- June 7, 2016: Kick-off w/Extensive Outreach
- June 2016: Online Public Survey – More than 200 participants
- July 2016: Public Meetings – Sixty six participants
- November 2016: Initial Draft Vision
- December 2016 – January 2017: EQAC/Board Member Office Review
- February – March 2017: Public Comment on Draft Vision – Over 600 individual comments
- March-April 2017: Revise Draft Vision
- April 2017: Present Vision Update Process and February Draft to the Planning Commission's Environment Committee
- May 2017: Present Revised Draft Vision to the Board of Supervisors Environmental Committee





Community Outreach Highlights

1. June 2016: Kick-Off
2. Dedicated web page — high visibility
3. News Release/Media Outreach
4. Use of Social Media
5. Public Survey
6. Outreach to dozens of organizations/groups
7. Available online for everyone to access
8. July 2016: Facilitated Public Meetings
9. February 2017: Posting of draft report*
10. February 2017: Public Comment opportunity

*Draft report to be reviewed with BOS offices and EQAC prior to February 2017 posting

9



Draft Vision Highlights

What's New?

1. Table of Contents and Preface
2. Record of Commitment
3. Vision Summary
4. Climate and Energy Core Service Area
5. **Core Service Area Vision Statements with Supporting Objectives**

What's Updated?

1. Core Service Area Headings and Introductions
2. Conclusions

10



Draft Vision Highlights


- ▶ Broad Vision – Not a plan
- ▶ Defines key Board Vision for each core service area
- ▶ Provides for focused objective statements to support the Vision
- ▶ Objective statements reinforce and support existing Board Policy.



Seven Core Service Areas

- Land Use
- Transportation
- Water
- Waste Management
- Parks & Recreation
- Climate & Energy
- Environmental Protection

11



Draft Vision Discussion

Questions Regarding the Draft Vision?

12



Draft Vision Next Step

1. Board Environmental Committee endorsement of Draft Vision
2. Ask staff to bring forward an Action Item in July for Formal Board Adoption

13

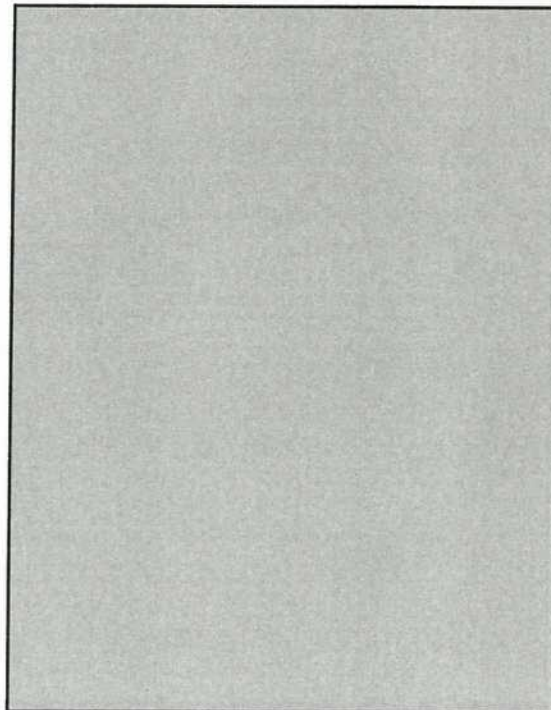
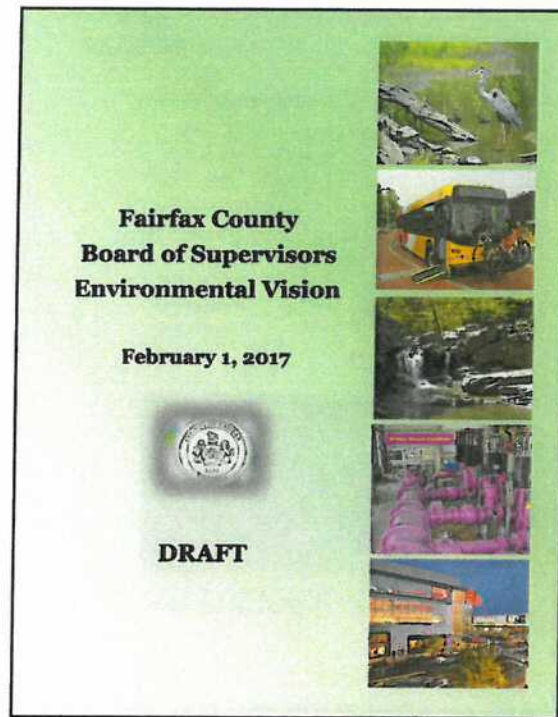


Vision Update Information

Web page: <http://www.fairfaxcounty.gov/living/environment/environmentalvision.htm>

Kambiz Agazi
Environmental Coordinator
(703) 449-8488
Kambiz.Agazi@fairfaxcounty.gov

14



FAIRFAX COUNTY BOARD OF SUPERVISORS

Sharon Bulova, Chairman At-Large
 Penelope A. Gross, Vice-Chairman Mason District
 John C. Cook Braddock District
 John W. Foust Dumerville District
 Catherine M. Hudgins Hunter Mill District
 Jeffrey C. McKay Lee District
 Daniel G. Storch Mount Vernon District
 Linda Q. Smyth Providence District
 Pat Hentry Springfield District
 Kathy L. Smith Sully District



(From left to right: Daniel Storch, John Cook, Cathy Hudgins, Jeff McKay, Sharon Bulova, Penny Gross, John Foust, Kathy Smith, Linda Smyth, Pat Hentry)

Table of Contents

Preface	i
Summary	ii
Section 1: Fairfax County: A Record of Commitment	1
Section 2: Protecting and Enhancing our Environment	3
A. Land Use	3
B. Transportation	9
C. Water	13
D. Waste Management	19
E. Parks and Ecological Resources	23
F. Climate and Energy	27
G. Environmental Stewardship	31
Section 3: Conclusions	35

Preface

Environmental quality is both a key responsibility and a critical legacy of any elected public body. Fairfax County's environment is resilient, but not indestructible. It is the county's overarching vision to attain a Quality Environment that provides for a high quality of life and is sustainable for future generations. These aspects of a quality environment are essential for everyone living and working in Fairfax County. No matter what income, age, gender, ethnicity, or address, everyone has a need and right to breathe clean air, to drink clean water, and to live and work in a quality environment.

A healthy environment enhances our quality of life and preserves the vitality that makes Fairfax County a special place to live and work. As such, the county government has a responsibility to be an environmental steward through its operational practices and to establish and implement policies and programs that will foster broader environmental protection and stewardship efforts throughout the community and in the broader region.

Good stewardship and prudent management of our natural and manmade environment are not merely "add-ons," or afterthoughts, but rather are essential and fundamental responsibilities that must be given fullest consideration at all times. The environmental impact of every decision the county makes must be carefully and purposefully evaluated. The Board of Supervisors is elected to represent the citizens of the county and is the principal source of creative decision-making and leadership in providing the best Environment possible.

The Board of Supervisors Environmental Vision provides an overview of the visions and supporting objectives of the board in support of environmental sustainability across seven major core service areas. It is not a set of specific actions but sets the framework for the identification and implementation of activities needed to achieve the visions and supporting objectives. While this document does not address every environmental issue relevant to county operations and/or policy, it does provide a guidance on all issues through the major environmental themes addressed. There are many other environmental issues for which the county has pursued programmatic and/or policy directions; the lack of explicit recognition in this document of any particular issue does not mean that the issue is not important to the board.

Cooperation with this vision among county residents, employees, employers, land developers and managers and government leadership and agencies is required to effect lasting solutions to the environmental challenges we face. While we have made great strides, we can and must do more. I and the board hopes that you will take up the challenge and work with us to further support the county's environmental vision.

Fairfax County Board of Supervisors
Sharon Bulova, Chairman

Environmental Vision Summary

The Board of Supervisors Environmental Vision was first adopted in 2004 and later updated in 2017 to take into account new policies, techniques and opportunities, changed regulations, budget requirements and changes to county operations that had taken place since 2004.

The Board of Supervisors has shaped its vision to protect and enhance the environment around two principles: 1) Conservation of our limited natural resources must be interwoven into all government decisions; and 2) the Board is committed to provide the necessary resources to protect and improve our environment for quality of life now and for future generations.

The vision is divided into three sections. The first section describes a record of commitment along with notable awards and recognitions. This commitment is documented in the county's Sustainability Initiatives document: www.fairfaxcounty.gov/office-of-the-environment/sustainability/.

Section 2 demonstrates the county's leadership to protect and enhance the environment across seven core service areas: land use; transportation; water; waste management; parks and ecological resources; climate and energy; and environmental stewardship. Each of the service area describes existing and past county efforts followed by an area vision and supporting objectives.

Section 3 provides concluding remarks regarding the vision and reiterates the guiding principles identified above.

Board of Supervisors Environmental Vision
Draft 2/1/2017

Section 1 Fairfax County: A Record of Commitment

Fairfax County has a long tradition of commitment to environmental stewardship. Building on previous environmental initiatives (e.g., Environmental Quality Corridor policy; Cocoon zoning initiatives, etc.) the adoption of the Fairfax County Environmental vision in 2004 cemented that commitment into official policy, but was just one step in a long line of important environmental initiatives. The county's *Sustainability Initiatives* document www.fairfaxcounty.gov/development/sustainability/ describes many of the county's innovative approaches to achieving its environmental and energy objectives that support Board policy. The following list highlights some of the important awards and recognitions the county has received.

2004 Chesapeake Bay Program, Gold Chesapeake Bay Partner Community: Launched in 1997, the Bay Partner Community Program recognizes local governments in the Chesapeake Bay watershed for their commitment to protecting and restoring the Bay and its tributaries. Fairfax County was first designated as a Gold Chesapeake Bay Partner Community in 1997 and recertified in 2004.

2006 U.S. Environmental Protection Agency Landfill Methane Outreach Program (LMOP) Community Partner of the Year: The LMOP helps to reduce methane emissions from landfills by encouraging the recovery and beneficial use of landfill gas (LFG) as an energy resource. The LMOP honored Fairfax County as a Community Partner of the Year for its use of LFG to produce electricity, dry sludge at its wastewater treatment plant, and heat the county's facilities using infrared heaters.

2010 National Recreation and Park Association (NRPA) Gold Medal Award, Class 1 Category (population 250,000 and over): The Fairfax County Park Authority was awarded the NRPA Gold Medal for demonstrating excellence in long-range planning, resource management, and agency recognition.

1

Board of Supervisors Environmental Vision
Draft 2/1/2017

2011 American Planning Association (APA) Daniel Burnham Award: This award, which recognizes advancements of the science and art of planning, is granted to only one urban plan in the nation each year. In 2011, the APA honored the Comprehensive Plan for the Tysons Corner Urban Center for its approach to density that is focused around four transit stations, incentives to reserve 20 percent of new housing units for moderate-income households, and innovative stormwater management strategies designed to retain at least the first inch of rainfall on site.



2016 Public Technology Institute (PTI) Sustainability Solutions Significant Achievement Award - Smart Irrigation Systems: Fairfax County Park Authority (FCPA)

replaced existing irrigation controllers with smart irrigation control systems that are web-based, use local weather data to automatically adjust watering times, and are capable of detecting leaks and sending notifications.



2

Section 2 Protecting and Enhancing our Environment

A. Land Use

Introduction

Fairfax County has more than 1.1 million people, a population larger than that of eight states. Between 2000 and 2010, Fairfax grew by over 11 percent. It is projected to grow another seven to eight percent between 2010 and 2020, and yet another eight to nine percent between 2020 and 2030. Between 2015 and 2045, the Washington-Maryland-Virginia region will add more than 1.5 million people and 1.1 million jobs.¹ Between 2015 and 2045, the county is forecast to have 281,000 new residents (a 25 percent increase), 127,000 new households (a nearly 32 percent increase) and 244,000 new jobs (a 37 percent increase). This growth will continue to present challenges to meet the needs of schools, transportation, air quality, water quality, recreation and public facilities and services. How we continue to accommodate growth through land use policy while providing for a quality environment will be one of the biggest challenges we face as a community.

Environmental protection, improvement and restoration are compatible with, and serve to support, the county's economic success. The Board's Strategic Plan to Facilitate the Economic Success of Fairfax County emphasizes a continuing commitment to growth in mixed-use, livable, walkable activity centers, to revitalization and redevelopment and to "protection of the environment and enhancement of public health by preserving air and water quality, minimizing energy use and having a broad range of open space and recreational amenities to support the needs of our residents and employees." The county's growth and land use policies have been, and will continue to be, supportive of this goal and are intended to further both the county's economic and environmental success.



Mosaic District

There is no simple solution to the challenge of accommodating anticipated growth. We need to consider a wide range of options. One option, mixed-use development, can promote a vibrant, town-like community by combining housing, employment, shopping and entertainment into a master plan.

¹According to Intermediate Round 9.0 Cooperative Forecasts adopted by the Metropolitan Washington Council of Governments.

A complete mixed-use development encourages nonmotorized transportation and fewer motor vehicle trips to obtain goods and services and therefore can provide considerable environmental benefits. The concentration and orientation of such development around transit facilities can further reduce reliance on motor vehicle trips and can therefore reduce the associated adverse environmental impacts.

A related option, that of redevelopment within existing commercial activity centers, provides opportunities for environmental enhancements through the careful integration of environmentally-beneficial site design strategies (e.g., stormwater management, provision of tree canopy, pedestrian and bicycle connectivity) in areas where attention to such measures was previously lacking.



Opportunities for high-intensity, urban scale mixed-use, transit-oriented development within Fairfax County's "downtown" of Tysons have never been stronger, with the recent opening of four Metrorail stations within Tysons. The extension of Metrorail from Tysons to the eastern portion of Reston (and soon to the central and western portions of Reston, as well as Herndon and Dulles Airport) provide similar opportunities within new Transit Station Areas, and transit stations elsewhere in the county can also attract environmentally-beneficial redevelopment opportunities. Environmental enhancements through development design can also be pursued within these and other activity centers and

revitalization areas, and concentration of the county's anticipated growth in the county's activity centers can have further environmental benefits by reducing development pressures in lower density areas.

Within lower density areas, another development option, that of clustering of residential development, allows several homes to be built close together with the remaining acreage left as open space in perpetuity. The challenge to clustering is building public trust that the open space will remain open.

At the site/development project-specific scale, the pursuit of low impact development (LID)—also referred to as green stormwater infrastructure, or GSI), green building design, tree preservation and planting and sustainable site design practices (e.g., the use of native species in landscaping) can have energy conservation, water conservation, stormwater runoff, air quality and other environmental benefits.

*Board of Supervisors Environmental Vision
Draft 2/1/2017*

LID concepts encourage ways to keep stormwater as close to the source as possible. LID techniques include placing homes closer to the street to reduce impervious surfaces, grassed swales to collect rain water, infiltration measures such as rain gardens, filter strips, porous pavements in less-used parking areas, infiltration of parking lot runoff and storage, green roofs and reuse of stormwater runoff.



Green building design provides a holistic approach to the location, design, construction, operation and, where applicable, dismantling of buildings and their associated landscapes in an environmentally responsible manner to minimize negative impacts on the environment, provide positive ecological benefits and provide positive health benefits to building occupants. For example, green building design approaches that have been applied in several county

library renovation and expansion projects are expected to result in 20 percent or greater reductions in annual energy use and 30 percent or greater reductions in annual water use compared to similarly-sized conventionally-designed facilities.

Policies supporting the application of LID and green building practices have been adopted within the county's Comprehensive Plan and are applied in the reviews of zoning proposals. Support for higher levels of environmental commitment (e.g., green building design, stormwater management) have been included within a number of Plan amendments addressing development and redevelopment in specific mixed-use centers in recognition of the opportunities that development and redevelopment projects in these areas provide.

A challenge faces us as older communities are transformed by teardowns construction, both for new housing and to expand existing homes. In these cases and in general, new developments may not blend well with their neighbors—in size, appearance or architecture.

Another important effect of growth is the challenge it presents to low-income workers trying to find affordable housing opportunities in the county. We need to provide opportunities for all members of the community to live and work in the county. In 2007, the Board adopted a Policy Plan Amendment to support the provision of workforce housing through agreements that would be negotiated with applicants during the zoning process.

The Goals that have been adopted for Fairfax County by the Board of Supervisors, as presented in the Comprehensive Plan, include the following guidance for managing new growth: "...

5

*Board of Supervisors Environmental Vision
Draft 2/1/2017*

Growth should take place in accordance with criteria and standards designed to preserve, enhance, and protect an orderly and aesthetic mix of residential, commercial/industrial facilities, and open space without compromising existing residential development. ...

The Board has also adopted Fairfax County Vision Elements, Priorities and Goals that support a full range of environmental considerations, and numerous supporting initiatives have been pursued by the county. Notable efforts have included, but are not limited to: the adoption and revision of a Comprehensive Plan green building policy in 2007 and 2014, respectively (resulting in commitments during the zoning process to specific levels of green building performance); the adoption by the Board in 2008 of a new Tree Conservation Ordinance (strengthening tree preservation and landscape requirements during development); the development of Urban Design Guidelines for Tysons and other mixed-use centers (resulting in commitments to high quality development designs serving to optimize relationships among buildings, streets, transit facilities, open spaces, pathways and landscaping); and the revision of Development Criteria found in the Policy Plan volume of the adopted Comprehensive Plan for both residential and non-residential development (providing guidelines for county staff during the zoning process related to density, location and amenities, etc.)



Since the Board's initial adoption of the Environmental Excellence 20-Year Vision Plan in 2004, the county's growth and land use policies have increasingly emphasized growth in mixed-use, transit-oriented centers. There has also been an increasing focus on strategic redevelopment and investment opportunities within the older and transforming commercial activity centers of the county. Guidelines addressing transit-oriented mixed-use development (TOD) were incorporated into the Policy Plan volume of the Comprehensive Plan in 2007, and numerous Area Plan amendments supporting TOD and/or mixed-use development concepts have been adopted since that time, including amendments addressing Tysons, Annandale, Bailey's Crossroads, Seven Corners, Franconia-Springfield, Lake Anne Village Center, the Fairfax Corner Area, areas near Fort Belvoir and future rail station areas in Reston and Herndon. The Richmond Highway corridor is being planned to allow for transit-supportive land uses, in anticipation of Bus Rapid Transit and a Metrolink extension. The establishment of the county's Office of Community Revitalization in 2007 highlights the importance and prioritization that the Board has placed on ensuring the long term viability of its older commercial areas, and numerous and substantial redevelopment projects continue to transform these areas into vibrant employment, residential, retail and entertainment destinations.

6

*Board of Supervisors's Environmental Vision
Draft 2/2/2017*

The Board'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 manner. The development priority will be mixed use, pedestrian and bicycle-friendly neighborhoods that encourage walking and biking, and that support the development of vibrant and vital places where people want to live, work, shop and play in a healthy environment, ensuring the protection, enhancement and restoration of natural resources, and the provision, in building and site design, for the efficient use of resources.

Supporting Objective:

- Use clustering and mixed-use development when appropriate to utilize space efficiently and provide perpetual open space.
- Promote walkable communities using mixed-use developments and village-style neighborhoods.
- Support development projects that promote human health and well-being.
- Pursue opportunities to revitalize the county's older commercial activity centers.
- Pursue opportunities to improve environmental conditions through redevelopment.
- Explore opportunities to repurpose empty or obsolete commercial spaces.
- Make mixed-use developments a priority in the county's future.
- Make employment centers, such as Tyson's self-contained vibrant places to live and work by ensuring mixed-use, pedestrian friendly, transit-oriented development.
- Support a mix of housing types to accommodate a range of ages, household size and incomes and provide for affordable housing opportunities in livable, walkable, transit-accessible communities.
- Apply environmentally-sensitive, sustainable site design and green building practices for development and redevelopment.
 - Apply high quality site design principles in activity centers, including landscaping and open space that will increase tree canopy and reduce stormwater runoff.
 - Encourage the use of low impact development concepts and techniques (also referred to as green stormwater infrastructure, or GSI) in new residential and commercial areas, and seek opportunities for retrofitting established areas.
 - Ensure that proposals for development and redevelopment that require zoning changes or that impact an environmentally-sensitive manner consistent with county environmental policies.
 - Address adverse environmental impacts that may result from by-right development.
 - Improve energy conservation, air quality, water quality and stormwater management through tree conservation policies and practices.
 - Emphasize the use of native plant species for landscaping.
 - Increase tree conservation in land development by:

7

*Board of Supervisors's Environmental Vision
Draft 2/2/2017*

- Ensuring that all tree preservation commitments for development projects are honored.
- Optimizing tree preservation and planting efforts associated with by-right development.
- Enforcing the county's tree conservation requirements.
- Optimizing tree preservation and planting efforts in the design and construction of public facilities.
- Continue to monitor and evaluate green building practices and rating systems and to explore related opportunities to strengthen green building policy guidance.
- Plan, and implement appropriate mitigation and adaptation strategies, for impacts associated with global climate change as they may affect land use.
- Pursue state enabling legislation to ensure adequate infrastructure is in place for new development and to provide more flexibility to ensure businesses and compatible development can locate near transit, ensuring that new and redeveloped homes are compatible with established neighborhoods.
- Use our land and other resources wisely by:
 - Concentrating employment and multi-family housing near transit services.
 - Integrating pedestrian-oriented neighborhood commerce (markets, restaurants, services) into new residential neighborhoods.
 - Providing pedestrian and bicycling amenities whenever possible, such as streets with frequent crosswalks, street furniture in shopping areas, transit shelters and urban building design.

For more information about the county's land use efforts, see the "Fairfax County Sustainability Initiatives" document at <http://www.fairfaxcountysva.gov/home/transportation/sustainability/>.

8

Section 2 Protecting and Enhancing our Environment

B. Transportation

Introduction

Fairfax County's transportation network connects our communities internally and regionally through an extensive system of roadways, Metrorail, managed lanes, pedestrian walkways, bicycle facilities, and local, regional, and express bus routes. The dominant mode of travel in Fairfax County is single-occupancy vehicle (SOV) trips. The prevalence of these trips causes congestion on our roadways and releases harmful emissions from the combustion of fossil fuels into the air. Fairfax County is committed to reducing the dependence and impact of SOV trips by supporting efficient land use patterns and an improved transportation network which accommodates all modes of travel. In doing this, the county can offer residents and other stakeholders more transportation options, less congestion, cleaner air and water, positive health impacts, and more livable communities.

Efficient land use patterns integrate land use and transportation planning to reduce vehicle trips and support walking, bicycling and transit as viable transportation choices. Communities which have a mix of uses and robust multimodal transportation network provide greater opportunities for travelers to shorten or reduce their vehicle trips. Fairfax County has adopted a number of land use strategies to encourage this holistic planning and will continue to do so in the future.

Efficiency in the transportation network means utilizing the existing capacity of our transportation infrastructure by distributing trips across alternative modes and away from the peak travel times, which in turn, reduces vehicle congestion and emissions. The county's Transportation Demand Management (TDM) guidelines set trip reduction goals based on the type of development and proximity to transit. TDM programs increase transportation efficiency by incentivizing alternative modes, ridesharing, teleworking, and other strategies to reduce peak-hour SOV trips.



Intelligent Transportation Systems (ITS) convey information on the status of roadways and other transportation systems to users in real time and have the potential to decrease congestion, reduce

vehicle emissions, and improve the safety of our roadways. High-Occupancy Vehicle (HOV) lanes move vehicles more efficiently by incentivizing carpooling and diversion of trips from the peak hour. In the future, autonomous vehicles and other technological advancements will shape the future of our transportation system provide opportunities to increase efficiency. Fairfax County will continue to leverage technology to improve transportation.



Expanding the use of transit, walking, and bicycling as means of transportation requires an investment in the necessary infrastructure and maintenance of facilities such as bus stops, transit centers, sidewalks, crosswalks, bike lanes, trails, and more to support the safe and convenient use of alternative modes. The county's Transit Master Plan and Bicycle Master Plan identify the countywide network of rail and bicycle facilities to support multimodal transportation goals. These plans give county officials, developers, and other stakeholders a guide to implementing these needed improvements. In 2016, Capital Bikeshare launched in Tysons and Reston, signifying the county's commitment to providing a multimodal transportation system.

Transportation planning in the Washington metropolitan region is heavily influenced by air quality planning. Under Section 174 of the Clean Air Act Amendments, the governors of Maryland and Virginia and the mayor of the District of Columbia certified the Metropolitan Washington Air Quality Committee (MWAQC) to develop specific recommendations for a regional air quality plan in the Washington, DC-MD-VA nonattainment area.

The Metropolitan Washington Council of Governments (COG), in close cooperation with state air quality and transportation agencies, provides technical support to MWAQC. Staff from the local counties and cities provide additional technical support. MWAQC with support from COG tests transportation plans to ensure that the projects in the plan, when considered collectively, contribute to air quality improvement goals. Although tremendous progress has been made over the past several years in meeting clean air standards, transportation remains an area of concern to regulatory agencies and to the general public because of its contribution to air toxics and greenhouse gas emissions, and the resultant impact on human and environmental health. Fairfax County will continue to support transportation policies which strengthen the region's ability to ensure that the region complies with air quality improvement goals.

¹High-Occupancy Vehicle (HOV) lanes include managed lanes, also known as High Occupancy Toll (HOT) lanes. HOT lanes function as HOV lanes but also allow toll-paying single-occupancy vehicle users.

*Board of Supervisors Environmental Vision
Draft 1/1/2017*



Fairfax County maintains the largest municipal fleet in Virginia and the sixth largest school bus fleet in the nation. The county owns and maintains a large variety of vehicles and equipment ranging from sedans, police package vehicles and motorcycles to dump trucks, fire apparatus and ambulances, and off-road and miscellaneous equipment (i.e. loaders, dozers, trailers, snow plow blades). The Department

of Vehicle Services provides management and maintenance services to the county's vehicle fleet and strives for economically responsible environmental stewardship by working to achieve increased fuel efficiency, reduced emissions, and reduced petroleum consumption in vehicle procurement and through best practices for maintenance of the existing fleet. Diesel Exhaust Fluid (DEF) stations are located at three heavily used fueling sites owned by Fairfax County for diesel vehicles. DEF is a non-hazardous solution that breaks down dangerous NOx emissions. As plug-in hybrids and electric vehicles continue to come to market, the county plans to continue its practice to procure alternative fuel vehicles when practical.

The Board's Environmental Vision:

A dependable, safe, efficient, accessible, and multi-modal transportation network is necessary to support the needs of Fairfax County residents now and into the future. The county will continue to develop policies and strategies which 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.

Supporting Objectives:

- Provide a safe and convenient multi-modal transportation network which meets the needs of local and regional trips, reduces congestion, and improves air quality. Encourage the inclusion of pedestrian and bicycle mobility in major road projects.
- Strengthen transportation policies which reduce the dependence on single-occupancy vehicle trips and are supportive of land use policies that encourage transit oriented development and mixed-use development.
- Improve pedestrian and bicycle mobility and connectivity.
- Increase public transit use and enhance the economic viability of public transit by:

*Board of Supervisors Environmental Vision
Draft 1/1/2017*

- Maintaining the quality, reliability, and convenience of transit service including WMATA's Metrorail System.
- Supporting plans for a high quality transit network that includes the extension of Metrorail, Light Rail Transit (LRT), Bus Rapid Transit (BRT), and express bus service.
- Coordinating public transit service to facilitate intermodal transfers, including convenient and safe bicycle and pedestrian access to transit, and secure bicycle storage in public places and stations.
- Continue to support Transportation Demand Management (TDM) strategies to promote transit, alternative work schedules, teleworking, car-pooling, and use of other modes to reduce congestion and improve air quality.
- Where practicable, give parking preference to multiple occupancy vehicles or alternative fuel vehicles over single-occupancy vehicles.
- Continue coordinating with Metropolitan Washington Council of Governments (MWCOG) to meet and remain in compliance with air quality standards. Support policies that strengthen the region's ability to meet current and future air quality standards.
- Minimize the environmental impact of the county's transportation fleet and facilities through:
 - The purchase of alternative fuel or fuel-efficient vehicles, and by following best practices for maintenance and vehicle efficiency;
 - Minimizing adverse impacts of storm water runoff from roads and other transportation facilities.

For more information about the county's transportation efforts, see Fairfax County's *Sustainability Initiatives* at www.fairfaxcounty.gov/divisions/sustainability/.

Section 2 Protecting and Enhancing our Environment

C. Water

Introduction:

Water is the essence of life – without it, life on our planet would not exist. The availability of clean water and presence of functioning aquatic systems are fundamental to sustaining viable ecosystems and human societies. Fairfax County's natural aquatic resources are vast; its 30 watersheds encompass myriad wetlands, tidal marshes, lakes, ponds and reservoirs – and include well over 1,000 miles of streams and associated riparian corridors. Fairfax County highly values water as an essential part of our ecosystem through protecting and restoring the natural environment, helping provide safe drinking water, and preserving the aesthetic and recreational opportunities these natural resources provide for county residents. This commitment to the value of water is supported by the many awards the county has received from various organizations which include National Association of Counties, National Association of Clean Water Agencies, North American Lake Management Society, Virginia Department of Conservation and Recreation, Virginia Department of Environmental Quality and Virginia Lakes and Watershed Association, to name just a few.

There are three major program areas focused on water in the county: 1) Supply, treatment and distribution of drinking water; 2) Collection, treatment and return of reclaimed wastewater back to the environment; and 3) Collection, treatment and conveyance of stormwater to our streams (which includes managing the water quality and ecological health of these receiving streams). Although these are three distinct and separate operating systems, they use the same water which recycles from one system or purpose to the next. Once drinking water leaves the faucet and enters the drain, it becomes wastewater. Once wastewater is treated, it is returned to the natural environment in waterways, helps to recharge groundwater and again made available as supply for drinking water or to evaporate into the atmosphere and eventually return to the land surface as precipitation, where it can become stormwater runoff. Drinking water supply can also come from groundwater sources through groundwater wells and wastewater from homes can be treated by onsite sewage disposal (septic) systems which primarily discharge back into groundwater. Proper management of both stormwater and wastewater are essential to preserving the ecological health of our streams and surface waters and to protecting drinking water sources, whether supplied from surface waters or groundwater. This "one water" concept envisions water as a resource regardless of its location or condition in any one system and is the lens through which water is viewed in this section.



Solar Powered Water Circulator

In Fairfax County the drinking water system is operated by Fairfax Water, a water utility governed by a Board of ten members who are appointed by the Board of Supervisors of Fairfax County. Fairfax Water withdraws raw water from the Potomac River and the Occoquan Reservoir. The water is then treated at either the James J. Corbett Jr.

Treatment Plant or the Frederick P. Griffith Jr. Treatment Plant, respectively. The treated water is then distributed through an underground pipe network to individual homes, schools, businesses and others. On an average day, 163 million gallons of water are treated and distributed to nearly two million people in Northern Virginia in the communities of Fairfax, Loudoun, Prince William, Fort Belvoir, Herndon, Vienna, Alexandria, Falls Church and Fairfax City. Fairfax Water is also a participant in regional planning efforts for the Metropolitan Washington Area to address water supply and drought issues. As part of these efforts, the focus is on a year-round wise water use program for conservation and drought awareness and response.

Once the water is used, most of it then enters the wastewater system. Fairfax County's Department of Public Works and Environmental Services houses the wastewater management program. The county owns and maintains over 3,300 miles of wastewater collection pipes which deliver an average of 100 million gallons per day of wastewater to the seven regional wastewater plants that provide service to the county. Once treated the water is then released back into the natural environment. In the case of the Upper Occoquan Service Authority, the treated water enters Bull Run, several miles upstream of the Occoquan Reservoir, and is available for reuse as drinking water after advanced treatment at the Frederick P. Griffith Jr. Water Treatment Plant.

The county's wastewater program operations must also comply with the Clean Water Act-mandated requirements of the National Pollutant Discharge and Elimination System (NPDES) permit. This permit specifies the minimum level of treatment which have been routinely exceeded by employing advanced treatment techniques at county's wastewater treatment plants. The county's wastewater program operations must also comply with the Clean Water Act-mandated requirements of the National Pollutant Discharge and Elimination System (NPDES) permit. This permit specifies the minimum level of treatment which have been routinely exceeded by employing advanced treatment techniques at county's wastewater treatment plants.

Board of Supervisors Environmental Vision
Draft 2/1/2017

In Fairfax County there are over 14,000 private wells that serve individual residences or businesses for drinking water and/or irrigation purposes. There are over 21,500 onsite sewage disposal (septic) systems located in the county. The mission of the Fairfax County Health Department (HD), Division of Environmental Health, is to protect the public's health by ensuring the proper installation and use of private groundwater wells and onsite sewage disposal systems. HD is responsible for the permitting, inspections, sampling, investigation of complaints and the enforcement of regulations for groundwater wells and onsite sewage disposal systems and also provides the owners with educational outreach on the proper maintenance of these systems. The HD administers the compliance for all Alternative Onsite Sewage Disposal Systems in the county as specified in Virginia Department of Health's Chapter 613 of Regulations that were adopted December 7, 2011 for these systems. The HD also enforces provisions of the Chesapeake Bay Preservation Act and Chapter 68.1 of the Fairfax County Code requiring all onsite sewage disposal systems to be pumped out at least every 5 years.

Stormwater is the water that runs off surfaces during and after rain and snow events. Stormwater runoff is sometimes collected in catch basins and piped either to a stormwater management facility for treatment or directly to local streams. As the county has developed, natural landscapes like forest and meadows have been replaced by developed land that includes impervious surfaces such as roofs and pavement. Since rainwater or snow melt can no longer percolate into the ground through these surfaces, both the volume and velocity of water running off the surface has increased. Prior to the 1970's, stormwater was typically routed to an open water body as quickly as possible with no treatment. This resulted in local streams as well as downstream water bodies, such as the Potomac River and Chesapeake Bay, being negatively impacted by both the quantity and quality of stormwater running off impervious surfaces. The stormwater management program is administered through several county agencies and has two facets – regulatory and operational. The regulatory program focuses on new and redevelopment land development activities and is instrumental in the adoption and implementation of standards through a Public Facilities Manual and the Stormwater Management Ordinance (Chapter 124) adopted in 2014. The operational program focuses on 1) the maintenance of the stormwater infrastructure, 2) retrofitting of existing development (by implementing stormwater management practices and techniques to address both the quantity and quality of water entering local streams) and 3) the protection and restoration of natural receiving waters such as stream corridors, wetlands, lakes tidal embayments, etc.



15

Board of Supervisors Environmental Vision
Draft 2/1/2017



The county completed the development of watershed plans for all 30 of its watersheds in 2011. These plans now serve as a framework to document changing conditions and identifying actions needed to preserve and restore the ecological health of local streams. The implementation of recommended actions from the plans are well underway as part of our annual capital improvement program. A significant part of this effort also relies on the implementation of the Tree Action Plan (adopted in 2006) to promote conservation of trees and the Chesapeake Bay Preservation Ordinance (first adopted in the early 1990s) which protect trees, wetlands and wildlife habitat by establishing buffers along more than 800 miles of perennial streams.

There are also several state regulations and the County Ordinance that regulate activities in wetlands – these are valuable natural resources which help to prevent flooding, improve water quality and provide natural habitat. The ever-growing stormwater management infrastructure consists of over 6,500 stormwater management treatment facilities and over 1,300 miles of storm drain pipes and associated appurtenances. There are several large impoundments or lakes within the county that serve as flood and sediment control and/or recreational amenities that must comply with applicable state dam safety regulations for maintaining safe operations. The county's stormwater program operations must also comply with the Clean Water Act-mandated requirements of a state-issued municipal separate storm sewer system (MS4) permit which requires pollution prevention, infrastructure maintenance and monitoring programs and also defines pollutant reductions mandated by the Chesapeake Bay restoration efforts and to address local stream impairments. The county's Tree Conservation Ordinance that mandates tree preservation and planting during the development process is also instrumental in providing tree canopy that improves water quality and contributes to the county meeting water quality regulatory requirements.

Stormwater management in Fairfax County also includes an advanced floodplain management program and flood response program. Fairfax County has participated in the National Flood Insurance Program (NFIP) since 1978 and has adopted floodplain regulations and development standards that have led to the vital protection of its residents and developments from flooding impacts. Fairfax County has also implemented floodplain development standards that exceed the NFIP requirements. As a result, county residents are given a 20 percent discount in flood insurance premiums.

16

Board of Supervisors Environmental Vision
Draft 2/2/2017

There are a number of older communities in Fairfax County that were developed before the creation of the NFIP, and were built in floodplains or flood-prone areas. Fairfax County has implemented a comprehensive flood response plan that coordinates the actions of first responders to provide a level of safety to these communities. The goal of this plan is to provide early warnings to residents, and facilitate the speedy evacuation of affected residents to safer locations. The county also develops flood mitigation projects to reduce flooding impacts in some of these communities.

Although each water system (drinking, wastewater, and stormwater) operates independently with different technologies, they have a common goal of providing safe and healthy water for humans and wildlife.

The Board's 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 and regulations, the county will implement the best available technology, including advanced and innovative practices to protect and restore streams, promote water conservation and ensure the most effective stormwater management, advanced wastewater treatment, and the safest, most reliable drinking water supply for future generations.

Supporting Objectives:

In the interest of the health, safety and welfare of Fairfax County residents, it is the policy of Fairfax County government to promote the following measures in order to protect, conserve and manage our water resources to support an adequate drinking water supply and a healthy natural ecosystem:

- Increasing the capital investment based on demonstrated needs for the infrastructure supporting drinking water, wastewater and stormwater. Keeping plans and strategies constantly updated to ensure an adequate water supply for future generations. Strategies may include the reuse of treated wastewater for drinking water (such as the effluent from the UOAS recharging the Occoquan reservoir) and irrigation, the capture and reuse of stormwater for irrigation and cooling water, or using quarries to supplement and protect the availability of our drinking water supplies.
- Improving wastewater and stormwater treatment where possible to maintain healthy recreational and aesthetic water bodies and restoring impaired stream ecosystems and other water bodies. Gunston Cove is one example of an aquatic ecosystem that has significantly improved as a result of the county's continued efforts to improve wastewater treatment.
- Recognizing that stormwater runoff and treated wastewater are valuable assets when properly managed.

17

Board of Supervisors Environmental Vision
Draft 2/2/2017

- Minimizing the energy associated with the treatment and conveyance of stormwater, wastewater and drinking water by optimizing the use of more advanced and efficient processes and equipment.
- Managing land use and development standards to protect and enhance existing water resources, to protect properties from flooding, and to better adapt to the emerging impacts of climate change and sea level rise.
- Continuing to identify the need for protection and improvement of the ecological health of our aquatic resources through the implementation of watershed plan recommendations, stream monitoring, tree conservation and applicable stormwater management policies/regulations.
- Promoting the capture and treatment of stormwater runoff at the source whenever possible, which may involve education/outreach efforts to change behaviors and achieve a cultural shift.
- Enhancing the use and maintenance of all onsite sewage disposal systems by providing residents with information on state-of-the-art installation and best maintenance practices.
- Optimizing the latest information technology resources in order to provide cost effective solutions and disseminate information on our programs in the most efficient and transparent manner.
- Continuing to work collaboratively with other agencies and jurisdictions to manage water resources more effectively and support regional planning efforts.
- Continuing to work with regional partners and organizations to increase outreach and awareness on vital issues such as water pollution prevention, water conservation, flooding prevention, drought response, watershed health and other environmental issues.

For more information about the county's water efforts, see Fairfax County's Sustainability Initiative at www.fairfaxcountys.gov/Doing/better/government/sustainability/.

18

Section 2 Protecting and Enhancing our Environment

D. Waste Management

Introduction:

The Fairfax County Solid Waste Management Program (SWMP) focuses on waste management, waste reduction, and pollution prevention activities, managing disposal and recycling services for Fairfax County residents and businesses since 1950. The county operates two complexes that manage solid waste, recyclables, household hazardous waste, electronics, and more. Fairfax County code requires that residents recycle paper and cardboard, plastic, metal, glass, and yard waste while businesses are required to recycle paper and cardboard. All haulers are required to provide curbside collection of recyclables along with trash collection. Since 1999, more than eight million tons of materials have been recycled rather than disposed of in Fairfax County. This equates to long-term, sustained pollution prevention and resource conservation for the county.

The Fairfax County Solid Waste Management Program is self-funded; it does not rely on taxpayer funding to operate the waste-to-energy facility, transfer station, the regional ash landfill, and the closed landfills located within the county.

Fairfax County collects waste and recycling from about ten percent of the county residences, and many county facilities. The majority of households and all businesses receive service from the many private haulers operating in the county. The SWMP is focused on recycling as much solid waste as possible to minimize the need for disposal. In addition, the SWMP is focused on increasing the actual beneficial use of recycled materials. Where practical, recycling of materials from waste to energy ash is also encouraged.

The Department of Public Works and Environmental Services (DPWES) has also undertaken innovative measures to achieve energy savings in many of its industrial plant processes. The SWMP manages a regional ash landfill and two closed landfills in the county, using landfill gas collection systems at the two closed sites. The county's wastewater treatment plant, the Norman M. Cole, Jr. Pollution Control Plant, uses methane gas from a county landfill in its sludge-burning process, thereby avoiding the purchase of natural gas and recovering methane, which has a global warming potential that is 21



19

times that of carbon dioxide. DPWES is also using solar energy equipment to power nine remote wastewater flow-monitoring sites and to assist in treating wastewater; its use of solar mixers at the treatment plant is saving about \$40,000 a year in energy costs.



DPWES has also undertaken a Water Reuse Project to use approximately 550 million gallons of reclaimed water from the plant for process and irrigation purposes, respectively; this project avoids the energy use and costs associated with treating the water. This project will reduce consumption of potable water at the waste-to-energy facility through the reuse of wastewater treatment plant effluent as a substitute. This action will provide a cost savings of up to 25 percent per year over the cost of potable water. Efforts to expand water reuse are encouraged.

More information about these programs and initiatives is available at

<http://www.fairfaxcounty.gov/living/recycling/>,
http://www.fairfaxcounty.gov/dpwes/wastewater/norman_cole.htm and
http://www.fairfaxcounty.gov/dpwes/construction/water_reuse/.

The Board's Environmental Vision:

Fairfax County will use integrated waste management principles to ensure future system capacity and sustainability. The objectives are an increase in the recovery of recyclable materials; a decrease in the amount of material disposed of; a decrease in greenhouse gas emissions by managing landfill gas, development of renewable energy and alternative fuels for buildings and vehicles; and preservation of open space, green space, and wildlife preserves.

Supporting Objectives:

The Fairfax County Solid Waste Management Program is responsible for providing solid waste management services in an efficient and cost-effective manner while complying with federal and state environmental regulations.

Supporting objectives for county operations:

- Ensure and act where possible to create a business environment so that materials go to the highest and best use depending on current market conditions and technology.
- Promote the use of the best available technology and practices for both recyclables and solid waste.
- Track actual recycling of county waste to determine additional actions that could be taken to improve diversion rates.

20

*Board of Supervisors Environmental Vision
Draft 2/2/2017*

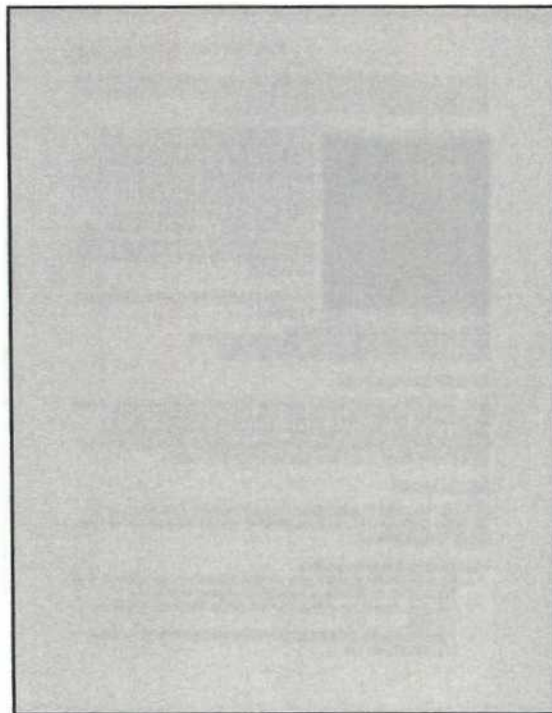
- Recycle county resources (such as wastewater and collected glass) where practical
- Utilize alternative energy sources such as landfill gas and solar where practical
- Refranch solid waste complexes into resource recovery facilities to underscore the county's commitment to sustainable infrastructure.
- Expand support for green initiatives including environmentally preferable purchasing, source reduction strategies, organics management, waste-to-energy, landfill gas collection and use, wastewater reuse, and renewable energy generation at landfills.

Supporting objectives for the community at-large:

- Encourage pollution prevention, source reduction, and waste minimization through public outreach and infrastructure.
- Work with all sectors - residential, commercial, and institutional - to divert as much material as possible from the waste stream.
- Promote policies that make recycling as convenient as disposal for all residents.
- Continue to work with regional partners and organizations to increase outreach and awareness on vital issues such as pollution prevention, resource conservation, and other environmental issues.

For more information about the county's waste management efforts, see Fairfax County's Sustainability Initiatives at www.fairfaxcounty.gov/environment/sustainability/.

21



Section 2 Protecting and Enhancing our Environment

E Parks and Ecological Resources

Introduction:

Over 50,000 acres, or almost 20%, of the county is owned as open space by government and partnering organizations. Almost half of this open space is owned by the Fairfax County Park Authority and provides outdoor recreational opportunities that are utilized by 87% of county households, improves the well-being of county citizens, and protects vital ecological resources and the environment. The most important function that county park organizations and partners can perform is preservation of these resources for the holistic benefit of county residents.



The vast majority of the county's open space hosts ecological resources. Ecological resources are considered natural capital. This capital consists of various elements: living organisms; non-living components such as air, water and soil; the ecosystems they form; and the environmental services they provide, including cleaning air and water, supporting wildlife and contributing to quality of life. Natural capital is not self-sustaining; instead, deliberate care and investment are required for its preservation, enhancement, and restoration.

Many county agencies manage ecological resources in Fairfax County. These agencies include the Park Authority, the Stormwater Management Division of the Department of Public Works and Environmental Services, the Police Department, and the Northern Virginia Soil and Water Conservation District. Additionally, many partners including nonprofit organizations such as the Audubon Society of Northern Virginia, Earth Sangha, Fairfax RedLeaf, the Fairfax Chapter of Virginia Master Naturalists, Northern Virginia Conservation Trust, and others are engaged in ecological resource management and stewardship activities.

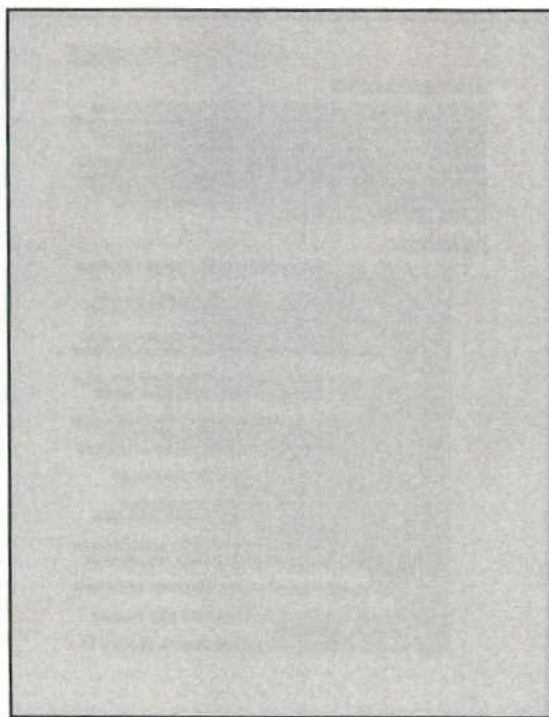
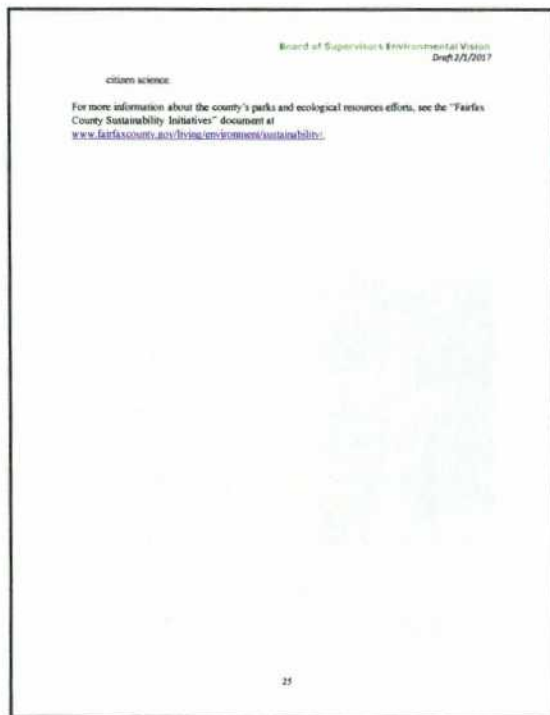
In addition to management by agencies and partners, county regulations play a key role in the protection of ecological resources. They include the Chesapeake Bay Preservation Ordinance, the Floodplain Regulations of the county's Zoning Ordinance, the Tree Conservation Ordinance, the Wetlands Zoning Ordinance, and others identified in this document. The Comprehensive Plan policy also plays a key role.

The Board's Environmental Vision:

Parks, trails, and open space provide habitat and other ecological resources that promote the physical and mental well-being of citizens through supporting healthy lifestyles and allowing for interaction with our natural environment. A comprehensive county trails system, such as the Cross-County and W&OD Trails, can provide means for environmentally responsible transportation. Ecological resources that include the soil, water, air, plants, animals, ecosystems and the services they provide are considered natural capital and green infrastructure. This green infrastructure should be treated 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.

Supporting Objectives:

- Create more parks, trails, and green spaces that are equitable, accessible, safe, efficient, and environmentally responsible.
- Create more community parks for active and passive recreation—green spaces with native vegetation to sustain local wildlife and to create areas for walking, meditating, bird watching, community gardening, and other passive uses.
- Plan, implement, maintain, and support a comprehensive interconnected trails system throughout the county and region for nature appreciation, recreation, and non-motorized transportation.
- Continue to create a network of green space corridors and hubs, through direct purchase or conservation easements, to connect people, wildlife such as pollinators, and their ecological resources.
- Continue to encourage conservation easements for open space and trails either to private organizations, such as the Northern Virginia Conservation Trust and The Potomac Conservancy, or to government agencies like the Fairfax County Park Authority or the Northern Virginia Regional Park Authority.
- Provide adequate resources to maintain and manage healthy native forests and ecosystems, and outdoor recreational opportunities.
- Preserve, protect, maintain, enhance, and restore healthy native trees, forests, waterbodies, and ecosystems to promote natural capital, ecological services such as carbon sequestration, and green infrastructure.
- 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.
- Conserve the rare, threatened, endangered, and unique natural heritage and biodiversity of the county.
- Inventory and monitor ecological resources, parks, and trails to inform citizens and integrate with all county decision-making.
- Educate communities about environmental stewardship and provide opportunities for



Section 2 Protecting and Enhancing our Environment

F. Climate and Energy

Introduction:

Fairfax County government has long been proactive in its environmental actions. In the mid-2000s, it recognized the unique role that local jurisdictions play in the challenge of addressing climate change given their regional cooperation and influence on major environmental factors like air quality, land use planning, transportation planning, forest preservation and water conservation. The county therefore led a national effort, "Cool Counties," that encourages counties nationwide to reduce greenhouse gas (GHG) emissions. Participating counties commit to halting the growth in their operational GHG emissions by 2010 and moving toward the goal of reducing these emissions regionally by 80 percent below today's levels by 2050. The Board of Supervisors signed the Cool Counties Climate Stabilization Declaration on July 16, 2007. The Declaration, as well as more information about Cool Counties, is available at www.fairfaxcounty.gov/diving/environment/coolcounties/.



Building on the principle that emissions reductions require combined efforts, Cool Counties signatories like Fairfax County commit to act locally, regionally, and nationally to reduce GHG emissions. As required under Cool Counties, the county has inventoried the GHG emissions associated with its own operations, both to determine a baseline and to assess policy or program changes that may be made, within existing authority and resources, to further reduce the emissions we produce. This inventory, which was published in 2013 for the years 2006-2010, demonstrated that energy consumption and more specifically electricity accounted for the majority of the county's GHG emissions. The inventory also confirmed that the county had achieved its Cool Counties initial goal of halting emissions growth by 2010. Additionally, the county continues to reduce its operational emissions through measures including energy efficiency, conservation and education. Local government efforts to reduce GHG emissions and energy consumption within the community include education and outreach to both residents and businesses and the implementation of policies and programs that help reduce energy use and corresponding emissions, including transit-oriented mixed-use development and green building. Regionally, the county has teamed with its partners at the Metropolitan Washington Council of Governments (COG) to create an inventory of GHG emissions on a regional scale, to develop regional emissions reduction targets, and to develop a regional action plan. In 2010, the county and other COG members executed the "Region Forward Compact," which included the region's

27

first official regional GHG emissions reductions targets. Nationally, the county has worked with its counterparts to reach out to federal leaders, urging them to support proposals, including incentives for limiting and reducing GHG emissions and setting more rigorous Corporate Average Fuel Economy standards.

While Cool Counties is directly related to climate change, other county goals, objectives and policies provide strategic direction and commitment to achieve environmental and energy goals, including those set forth in the 2009 Energy Policy and the county's comprehensive plan. A key implementation mechanism to address and support these goals, objectives, and policies is the county's Environmental Improvement Program. Two collaborative inter-agency committees – the Environmental Coordinating Committee and the Energy Efficiency and Conservation Coordinating Committee – are vital to implementation, as they help ensure that cross-cutting action is coordinated across county agencies, authorities, and schools. The county's *Sustainability Initiatives* document, available at www.fairfaxcounty.gov/diving/environment/sustainability/, describes many of the county's innovative approaches to achieving its environmental and energy goals, as well as some of the awards it has earned for those efforts and achievements.

The Board's Environmental Vision:

The county will continue its commitment to conserve and manage energy resources and improve efficiency in its operations in a pragmatic cost-effective way to reduce its operational energy consumption. The county will work with and encourage the community to do likewise. The county also will continue to support regional air quality and climate goals through local and regional action. It will continue to implement policies, programs and operations to achieve significant, measurable and sustainable reduction of the county's operational emissions to help contribute to the regional reduction targets as identified by the Metropolitan Washington Council of Governments.

Supporting Objectives:

Supporting objectives at the local level:

- Promote and encourage energy efficiency and conservation efforts by county employees, employers, and residents.
- Implement policies, programs and operations to achieve significant, measurable and sustainable reductions in operational GHG emissions.
- Ensure that cost-effective energy efficiency is an integral part of county operations, capital improvement and capital renovation projects.
- Consider life-cycle energy costs when making procurement decisions.
- Achieve climate and energy benefits by implementing urban forest management policies and practices to increase tree canopy.

28

*Board of Supervisors Environmental Vision
Draft 2/1/2017*

- Identify climate change impacts likely to affect the county and its population, engage in resilience planning to prepare for these impacts, and implement appropriate adaptation actions.

Supporting objectives at the regional, state and federal levels:

- Building on its successes in halting emissions growth and reducing emissions levels, continue to participate in regional efforts to achieve reductions in county geographical GHG emissions of 20 percent below 2005 levels by 2020 and of 80 percent below 2005 levels by 2050.
- Participate in the development and implementation of a regional plan that establishes short-, mid-, and long-term GHG reduction targets and identifies the actions needed to reach these targets.
- Participate in regional and state efforts to identify and address climate change impacts, including sea level rise, localized flooding and expected extreme weather events.
- To secure long-term energy savings, encourage prompt state adoption of updated commercial and residential building energy codes and work to ensure local enforcement and compliance.
- Continue to advocate for changes in state law that would allow all classes of electric customers to benefit from on-site or community renewable energy systems.
- Ensure Fairfax County's cooperation in regional compliance with federal primary and secondary national air quality standards.
- Urge Congress and the Administration to enact a multi-sector national program of requirements, market-based limits, and incentives for reducing GHG emissions to 80 percent below 2005 levels by 2050.

For more information about the county's climate and energy efforts, see Fairfax County's Sustainability Initiatives at www.fairfaxcounty.gov/transportation/sustainability/.

Section 2 Protecting and Enhancing our Environment

G. Environmental Stewardship

Introduction:

The county government and its residents have a responsibility to respect and manage our finite natural resources. Together, residents, communities, governments and private entities need to make informed decisions that will conserve and improve our environment and minimize impacts on our ecosystems. The county also has a responsibility to be an environmental steward through its operational practices. As ecosystems are rarely defined by jurisdictional boundaries, the county recognizes that how it carries out its responsibility for environmental stewardship will have effects on a regional and even global scale.

Through coordinated planning efforts (including the Tree Action Plan and Watershed Management Plans) the county promotes the conservation of trees and identifies strategies for the protection, restoration or enhancement of water resources entrusted to their care. The county supports regional planning initiatives to improve air quality. Stewardship is a brand used on promotional material produced by the Fairfax County Park Authority as it relates to their natural resource management programs and to relay the support needed from park visitors.



The county and its partners work together to inform its citizens, communities, governments, and private entities who make decisions that conserve and improve our environment and minimize impacts on our shared ecosystems. The county demonstrates or partners with other organizations to provide formal and informal educational and engagement opportunities, which are featured extensively in the Sustainability Initiatives document and promoted through the Fairfax County Environmental webpages and in social media outlets.

Surveys conducted by the Northern Virginia Clean Water Partners, a regional stormwater education campaign managed by the Northern Virginia Regional Commission, found that over 90 percent of Fairfax County respondents would change their own behaviors once they learned that certain activities were sources of pollution to local streams and rivers.

31

To promote personal stewardship, the county partners with organizations (such as the National Park Service, Fairfax County Park Authority, the Virginia Cooperative Extension Service, the Northern Virginia Soil and Water Conservation District, the Northern Virginia Conservation Trust, Fairfax ReLeaf, the Fairfax County Restoration Project, Earth Sangha, the Audubon Naturalist Society, Master Naturalists, Master Gardeners, civic groups, among others) to educate people on environmental protection. These organizations are also included in county-initiated projects and programs for the betterment of our environment. Businesses are often part of this effort, as well.



The county partners with the Fairfax County Public School system to support the Get2Green program; this program enriches school grounds with outdoor learning labs, and supplements K-12 learning with engaging programs developed with a local focus to meet Virginia Standards of Learning requirements. Teaching environmental stewardship to youngsters at an early age is an investment in future years of responsible behavior and decision-making.

Vision Statement:

Caring for the county's natural resources is normal practice. An informed community works together with Fairfax County and its partners to protect, maintain, enhance and restore our treasured natural resources.

Supporting Objectives:

- Promote the successes and lessons-learned of county demonstration projects.
- Provide forums for communities of learning to share local efforts by and between individuals and communities.
- Encourage affordable personal stewardship through the promotion of incentive-based or build-your-own programs.
- Encourage organizations (for example, those that work on stream monitoring, stream valley restoration, and habitat protection or enhancement) to involve schools, community groups, and individuals of all ages in their work.
- Encourage environmental stewardship groups and help them to work with all stakeholders to protect, enhance and improve the natural resources, and hence, the quality of life in their communities.

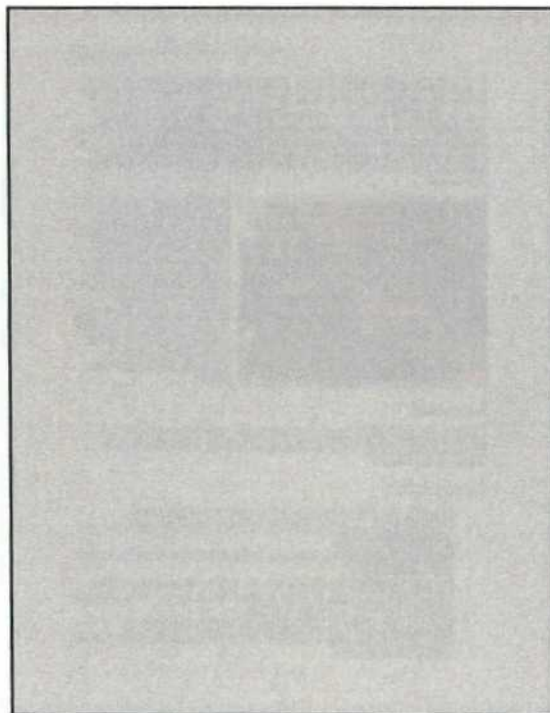
32

*Board of Supervisors Environmental Vision
Draft 2/1/2017*

- Provide and promote opportunities for community service by students and involve children in projects that respect, protect and enhance the environment.
- Establish a support network for community groups which adopt natural areas such as parks, trails, and stream valleys.
- Commit that county operations will be pursued in an environmentally-sensitive manner, supporting local, regional, and global environmental protection and improvement.
- Foster an appreciation for our urban forest and inspire county residents to protect plant and manage trees and forest stands on public and private lands.
- Promote ways county constituents can limit air and noise pollution in their day-to-day lives.
- Recognize excellence and models of environmental stewards.

For more information about the county's environmental stewardship efforts, see Fairfax County's Sustainability Initiatives at www.fairfaxcounty.gov/learning/environmentsustainability/.

33



Board of Supervisors Environmental Vision
 Prof: 2/1/2017

Section 3 Conclusions

A community with a quality environment requires a comprehensive vision supported by the leadership of an efficient and effective government. As shown in the picture below, we have made great strides in the last 13 years since the original adoption of the vision, but we can and must do more. This vision is guided by two overarching principles: 1) Conservation of our limited natural resources must be interwoven into all government decisions; and 2) the Board must be committed to provide the necessary funds and resources to protect and improve our environment for better quality of life now and for future generations.

Fairfax County government needs to set an example for the community and do its part to conserve our natural resources and protect the environment. However, local government operations typically only account for a fraction of total community-wide environmental impact. In order to meet the vision and supporting objectives, the county needs to inspire community action. Partnerships are important ways the county can encourage and support community action and innovations. In this way, we all have a role to play to leave our land, water and air better than we found it.



38

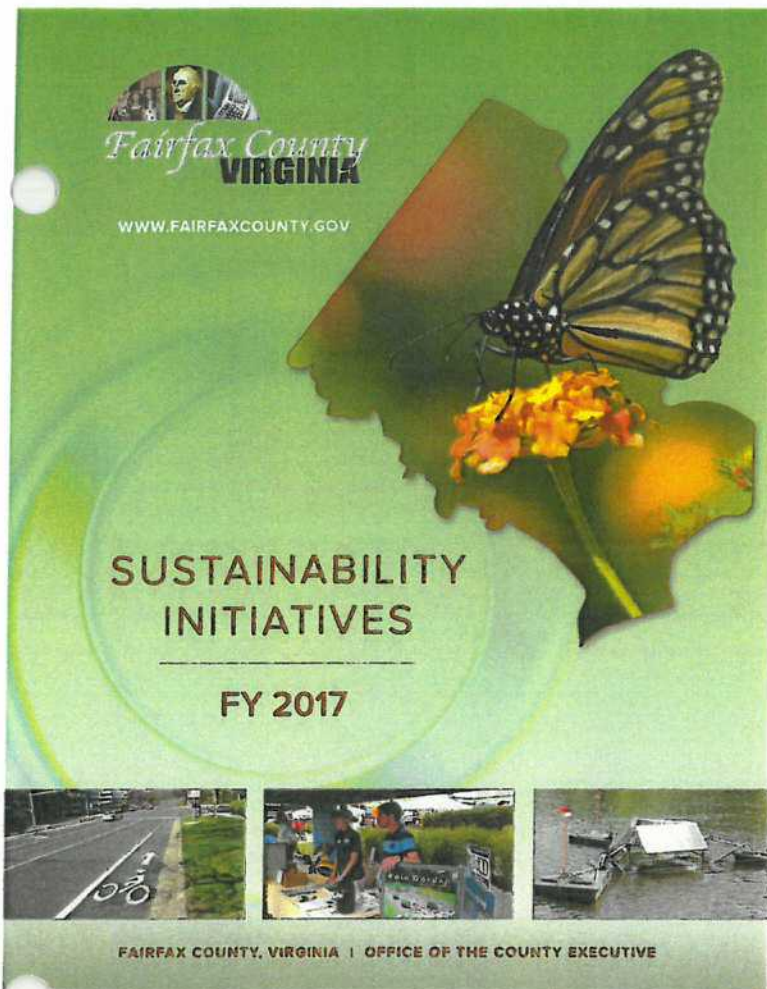
A publication of the County of Fairfax, Virginia

DRAFT Publication Date: February 2017

Fairfax County Office of the County Executive
12000 Government Center Parkway
Fairfax, VA 22035
703-324-7329 TTY 711
<http://www.fairfaxcounty.gov>



The County of Fairfax is committed to a policy of nondiscrimination in all County programs, services and activities and will provide reasonable accommodations upon request.



FAIRFAX COUNTY BOARD OF SUPERVISORS

Sharon Bulova, Chairman..... At-Large
 Penelope A. Gross, Vice-Chairman..... Mason District
 John C. Cook..... Braddock District
 John W. Foust..... Dranesville District
 Catherine M. Hudgins..... Hunter Mill District
 Jeffrey C. McKay..... Lee District
 Daniel G. Stork..... Mount Vernon District
 Linda Q. Smyth..... Providence District
 Pat Herrity..... Springfield District
 Kathy L. Smith..... Sully District

Edward L. Long Jr..... County Executive
 Patricia Harrison..... Deputy County Executive
 David J. Molchany..... Deputy County Executive
 David M. Rohrer..... Deputy County Executive
 Robert A. Stalzer..... Deputy County Executive
 Joseph M. Mondoro..... Chief Financial Officer



TABLE OF CONTENTS

Preface	9
Introduction	11
Section 1: Fairfax County Government: An Overview	15
1.1 Introduction	15
1.2 Fairfax County Government	16
1.2.1 County Government	16
1.2.2 Cities and Towns	16
1.2.3 Boards, Authorities, and Commissions	16
1.2.4 Other Authorities and Commissions	22
1.3 Energy and Environment Agencies and Business Areas	22
1.3.1 Departments of Public Works and Environmental Services	22
1.3.2 Other County Departments	22
1.4 Working with Stakeholders and Constituents	25
1.4.1 Internal Collaboration and Consultation	25
1.4.2 Regional Collaboration	26
1.5 Petition Organization	27
Section 2: Regulatory, Policy and Strategic Framework	31
2.1 Introduction	31
2.2 Policies Adopted by the Board of Supervisors	31
2.2.1 Priorities and Goals	31
2.2.2 Environmental Goals	32
2.2.3 Cook County Climate Adaptation Initiative	33
2.2.4 Energy Policy	34
2.2.5 Comprehensive Plan	35
2.2.6 Tree Action Plan	37
2.2.7 Solid Waste Management Plan	37
2.2.8 Sustainable Development Policy for Capital Projects	38
2.2.9 Fairfax County Park Authority Policy	38
2.3 Ordinances Adopted by the Board of Supervisors	40
2.4 Funding Mechanisms	41
2.4.1 Funds Used for Environmental Projects	41
2.4.2 Environmental Improvement Program	42
Section 3: Promoting a Sustainable Community	47
3.1 Introduction	47
3.2 Growth and Land Use	47
3.2.1 Design and Planning	48
3.2.2 Transit-Oriented Mixed-Use Development	48
3.2.3 Revitalization	50
3.2.4 Green Buildings	51
5 Sustainability Initiatives	

TABLE OF CONTENTS

TABLE OF CONTENTS

3.3 Air Quality and Transportation	53
3.3.1 Air Quality Planning in the Washington Metropolitan Region	54
3.3.2 Transportation Planning in the Washington Metropolitan Region	55
3.3.3 Washington Metropolitan Air Quality Status	56
3.3.4 Fairfax County Multimodal Transportation Initiatives	57
3.4 Water Resources	58
3.4.1 Sewerage	58
3.4.2 Wastewater	61
3.4.3 Water Supply Planning	63
3.5 Parks and Ecological Resources Management	64
3.5.1 Open Space in Fairfax County	64
3.5.2 Natural Resource Management	67
3.5.3 Policy and Regulatory Mechanisms for Protecting Natural Resources	68
3.6 Trees and Tree Canopy Goals	71
3.6.1 Urban Forest Management	72
3.6.2 Tree Action Plan	73
3.7 Solid Waste Management	76
3.7.1 Recycling	76
3.7.2 Solid Waste Management Plan Green Initiatives	76
3.8 Community Outreach, Education and Stewardship	78
3.8.1 Community Stewardship Opportunities	78
3.8.2 Presentations and Publications	79
3.9 Environmental Health	85
3.10 Noise, Light Pollution and Visual Pollution	85
3.10.1 Noise	85
3.10.2 Light Pollution	84
3.10.3 Visual Pollution	85
Section 4: Promoting Sustainable County Operations	89
4.1 Introduction	89
4.2 Building Design and Construction	89
4.2.1 Green Building Policy for County Facilities	89
4.2.2 Green Roofs	91
4.3 Purchasing and Supply Management	92
4.3.1 Green Purchasing Program	92
4.3.2 Surplus Equipment	93
4.4 Facilities and Site Management	94
4.4.1 Energy Efficiency Upgrades	94
4.4.2 Energy Monitoring	96
4.5 Information Technology	96
4.5.1 Information Technology Energy Efficiency Initiatives	96

Sustainability Initiatives 6

TABLE OF CONTENTS

4.6 Waste Management	97
4.6.1 Landfill Gas Recovery and Reuse	97
4.6.2 Waste-to-Energy	98
4.6.3 Water Reuse	98
4.7 Vehicle Services	101
4.7.1 Hybrid and Electric Fleet	101
4.7.2 Other Vehicle Services Initiatives	102
4.8 Exhibit Opportunities for Environmental Excellence	103
4.9 Community Stewardship Risk Reduction Inventory	105
Section 5: Environmental Improvement Program: Objectives and Funded Projects	109
5.1 Introduction	109
5.2 Objectives	110
5.3 Fiscal Year 2012 Environmental Improvement Program Projects	110
5.3.1 FY12 EIP Projects Selection Process	110
5.3.2 Fiscal Year 2012 Funding and Projects	111
5.4 Environmental Improvement Program Ongoing Projects History	115
Section 6: Awards and Recognition	119
6.1 Selected Awards and Recognition	119
Appendix I: How to Report Environmental Concerns	127

PREFACE

Fairfax County Sustainability Initiatives (FCSI) provides an overview of many of the projects and programs carried out by Fairfax County and its partners in support of the Energy and Environmental goals and policies of the Board of Supervisors (board).

Specifically, FCSI is intended for an audience interested in learning about what Fairfax County is doing to promote sustainability and protect the environment, consolidated into a single go-to resource. Although the FCSI is accessible to the general public and formatted with clear text and engaging images, it is not a simple brochure intended for the casual reader, but for those with a stronger, more specific interest. It is a resource for students conducting research, environmental organizations and their members, and as a reference guide for county staff, residents and businesses.

FCSI would not have been possible without the tireless efforts of the many highly dedicated professionals who contributed to the development of this document. I would like to especially thank Susan Hafeeli, Noel Kaplan, John Stokely, Charlie Forbes and Emily Burton of Fairfax County. I would also like to thank the Northern Virginia Soil and Water Conservation District for its assistance and support.

We wish to also thank Deputy County Executive, David J. Molchany for his direction, encouragement and support.

It is our hope that the *Fairfax County Sustainability Initiatives* report will clearly demonstrate the Fairfax County Board of Supervisors leadership and commitment for promoting sustainability in the county.

This report represents only one aspect of the county's Environmental Improvement Program, which also consists of a projects funding process and an energy strategy with goals and actions that is currently a work in progress. I hope that you will take up the challenge and work with us to further develop the county's sustainability initiatives.

Kambiz Agazi, Ph.D., P.E.
Environmental & Energy Coordinator
Fairfax County, Virginia

INTRODUCTION

Environmental quality is essential for everyone living and working in Fairfax County. A healthy environment enhances quality of life and preserves the vitality that makes Fairfax County a special place to live and work.

In 2004, the Fairfax County Board of Supervisors (board) adopted its Environmental Vision (Environmental Agenda), entitled *Environmental Excellence for Fairfax County: A 20-year Vision*. The *Environmental Agenda*, which is currently in the process of being updated (see section 2.2.2), affirms that, in Fairfax County, environmental stewardship and prudent management of natural resources are not merely "add-ons," or afterthoughts, but rather are essential and fundamental responsibilities of local government that must be given fullest consideration at all times. The *Environmental Agenda*, which was revised in 2007, is available at www.fairfaxcounty.gov/living/environment/sip/bos_environmental_agenda.pdf.

Achieving the goals articulated in the board's *Environmental Agenda* requires cooperation and coordination between county residents and government leadership and agencies.

This document, *Fairfax County Sustainability Initiatives*, provides an overview of many of the projects and programs carried out by Fairfax County and its partners in support of the board's *Environmental Agenda*.

Section 1 describes the county government structure, particularly as it relates to sustainability initiatives.

Section 2 summarizes the strategic, policy and regulatory framework that guides the sustainability efforts of the Fairfax County Board of Supervisors and county staff.

Section 3 describes sustainability activities with a community-wide impact.

Section 4 highlights a number of innovative and successful efforts to implement environmental and energy goals for county facilities and operations.

Section 5 identifies those projects and programs that receive funding set aside by the Board of Supervisors for the county's Environmental Improvement Program.

Section 6 lists a number of the sustainability awards and recognitions received by the county over the last decade.

Environmental stewardship is both a key responsibility and a critical legacy of any elected public body. The county has a responsibility to help citizens respect and manage our finite natural resources. Ideally, citizens, communities, governments and private entities will learn to make informed decisions that will conserve and improve our environment and minimize impacts on our ecosystems. The county also has a responsibility to be an environmental steward through its operational practices. We have made great strides... but we can and must do more.

Board of Supervisors
Environmental Agenda 2007

SECTION 1

FAIRFAX COUNTY GOVERNMENT: AN OVERVIEW

FAIRFAX COUNTY GOVERNMENT: AN OVERVIEW

Featured in this Section

1.1	Introduction	15
1.2	Fairfax County Government	16
1.2.1	County Governance	16
1.2.2	Cities and Towns	19
1.2.3	Boards, Authorities, and Commissions	19
1.2.4	Other Authorities and Commissions	22
1.3	Energy and Environment Agencies and Business Areas	22
1.3.1	Department of Public Works and Environmental Services	22
1.3.2	Other County Departments	24
1.4	Interagency Collaboration and Coordination	25
1.4.1	Internal Collaboration and Coordination	25
1.4.2	Regional Collaboration	26
1.5	Partner Organizations	27

SECTION 1

1.1 Introduction

Fairfax County is a diverse and growing community. It is home to over 1.1 million residents, almost double its 1980 population. Over a third of the county's residents speak a language other than English at home, and nearly 60 percent are college graduates. The county has a total land area of 395 square miles, a fiscal year 2017 (July 1, 2016 through June 30, 2017) adopted budget of \$7.45 billion, including the General Fund and appropriated funds such as state and federal grants, and a 2014 median household income of \$110,674. See www.fairfaxcounty.gov/demograph/gendemo.htm.

The county is governed by the elected Fairfax County Board of Supervisors (board). The board engages residents and businesses, protects investment in the county's most critical priorities and maintains strong responsible fiscal stewardship to ensure:

- A quality educational system.
- Safe streets and neighborhoods.
- A clean, sustainable environment.
- Livable, caring and affordable communities.
- A vibrant economy.
- An efficient transportation network.
- Recreational and cultural opportunities.
- Affordable taxes.

To ensure the third priority – a clean, sustainable environment – Fairfax County has pledged to “continue to protect our drinking water, air quality, stream valleys and tree canopy through responsible environmental regulations and practices. We will continue to take a lead in initiatives to address energy efficiency and sustainability and to preserve and protect open space for our residents to enjoy.” See www.fairfaxcounty.gov/government/board/priorities/.

Advancing the board's priorities requires the coordinated efforts of many actors working within the governance structure provided by state law. This section describes the county's governance structure and briefly discusses the roles of key agencies and partners working on behalf of a clean, sustainable Fairfax County.

FAIRFAX COUNTY
GOVERNMENT:
AN OVERVIEW

FAIRFAX COUNTY
GOVERNMENT:
AN OVERVIEW

1.2 Fairfax County Government

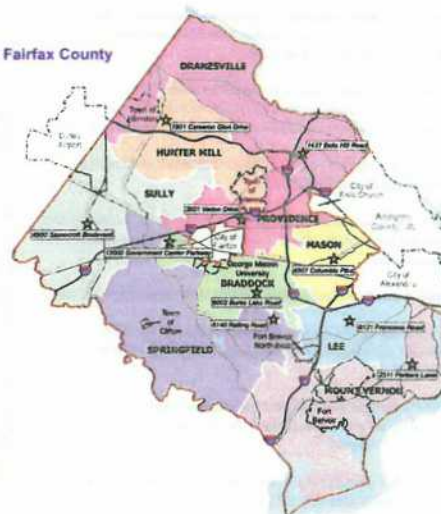
1.2.1 County Governance

The Fairfax County government is organized under the Urban County Executive form of government as defined in the Code of Virginia. The county's governing body is the Board of Supervisors.

The Board of Supervisors consists of ten members: the Chairman (elected at large) and one member from each of nine supervisor districts of approximately equal population. The supervisors (other than the chairman) must be residents and qualified voters of their districts and be elected only by voters living in those districts. All voters in the county may vote for the chairman. The board elects the vice chairman annually from among its members at its first meeting in January. Board members are elected for four-year terms. There is no legal limit to the number of terms a member can serve.

Supervisor Districts in Fairfax County

Supervisor Offices
★ Office Address
★ Chairman's Office



The Fairfax County Board of Supervisors



From left to right: Daniel G. Stork (Mount Vernon District); John C. Cook (Braddock District); Catherine M. Hudgins (Hunter Mill District); Jeffrey C. McKay (Lee District); Sharon Bulova (Chairman, At-Large); Penelope A. Gross (Mason District, Vice Chairman); John W. Foust (Dranesville District); Kathy L. Smith (Sully District); Linda Q. Smyth (Providence District); and Pat Hentley (Springfield District)

Chairman, At-Large
Sharon Bulova
703-324-2321, TTY 711
www.fairfaxcounty.gov/chairman/

Braddock District Supervisor
John C. Cook
703-425-9300, TTY 711
www.fairfaxcounty.gov/braddock/

Dranesville District Supervisor
John W. Foust
703-356-0551, TTY 711
www.fairfaxcounty.gov/dranesville/

Hunter Mill District Supervisor
Catherine M. Hudgins
703-478-0283, TTY 711
www.fairfaxcounty.gov/huntermill/

Lee District Supervisor
Jeff C. McKay
703-971-6262, TTY 711
www.fairfaxcounty.gov/lee/

Mason District Supervisor and
Vice Chairman
Penelope A. Gross
703-256-7717, TTY 711
www.fairfaxcounty.gov/mason/

Mount Vernon District Supervisor
Daniel G. Stork
703-780-7518, TTY 711
www.fairfaxcounty.gov/mountvernon/

Providence District Supervisor
Linda Q. Smyth
703-560-6946, TTY 711
www.fairfaxcounty.gov/providence/

Springfield District Supervisor
Pat Hentley
703-451-8873, TTY 711
www.fairfaxcounty.gov/springfield/

Sully District Supervisor
Kathy L. Smith
703-814-7000, TTY 711
www.fairfaxcounty.gov/sully/

More information about this doctrine of limited authority for local governments, which is commonly called the Dillon Rule, is available at www.fairfaxcounty.gov/government/about/dillon-rule.htm.

The Board of Supervisors web page, <http://www.fairfaxcounty.gov/government/board/>, provides links to the board members' individual web pages, podcasts, RSS feeds, a "Find Your District Supervisor" application, Board of Supervisors' news, committee assignments, goals and priorities, pictures of presentations to residents and more. An organizational chart of Fairfax County government is available at www.fairfaxcounty.gov/government/county-org-chart.pdf.

1.2.2 Cities and Towns

In Virginia, cities and counties are distinct units of government and do not overlap. Fairfax County completely surrounds the City of Fairfax and is adjacent to the City of Falls Church and the City of Alexandria. Property within these cities is not subject to taxation by Fairfax County, and the county generally is not required to provide governmental services to their residents. However, pursuant to agreements with these cities, the county provides certain services to their residents.

Unlike cities, incorporated towns are overlapping units of government within the county. There are three incorporated towns in Fairfax County: Clifton, Herndon and Vienna. These towns have land use policies and regulations that are independent of the county's, although other county ordinances and regulations are generally effective in them. Property in these towns is subject to county taxation and the county provides certain services to their residents.

1.2.3 Boards, Authorities and Commissions

Advisory bodies and citizen participation play very important roles in Fairfax County government. The Board of Supervisors has established dozens of boards, authorities and commissions (BACs) to ensure that residents and other stakeholders are involved in all aspects of the county government's functions.

Residents interested in serving on a county board, authority, commission or committee, should contact their Supervisor.

The board establishes county government policy, passes resolutions and ordinances (within the limits of its authority established by the Virginia General Assembly), approves the budget, sets local tax rates, approves land use plans and makes appointments to various positions. These actions are taken in open meetings, which the public is encouraged to attend. All discussions are held in public, with the exception of issues exempt from the Virginia Freedom of Information Act, such as legal or personnel issues.

Board members also participate in various committees, subcommittees and regional agencies, which are listed at www.fairfaxcounty.gov/besclerk/board-committees/. Several board committees address aspects of sustainability, including the Environmental Committee, the Community Revitalization and Reinvestment Committee and the Transportation Committee. Each of these committees is a "committee of the whole," or comprised of all board members.

Sustainability issues are also addressed in regional committees in which board members are active participants, including:

- Metropolitan Washington Council of Government (COG) Region Forward Committee.
- COG Climate, Energy and Environmental Policy Committee.
- Metropolitan Washington Air Quality Committee.
- COG Chesapeake Bay and Water Resources Policy Committee.
- COG Task Force on Regional Water Supply Issues.
- Potomac Watershed Roundtable.
- Northern Virginia Regional Commission.

The Board of Supervisors appoints a County Executive to act as the administrative head of the county. The County Executive serves at the pleasure of the Board of Supervisors, carries out the policies established by the Board of Supervisors, directs business and administrative procedures and recommends officers and personnel to be appointed by the board.

Like other Virginia local governments, Fairfax County has limited powers. Virginia courts have concluded that local governments in Virginia have only those powers that are:

- Specifically conferred on them by the Virginia General Assembly.
- Necessarily or fairly implied from a specific grant of authority.
- Essential to the purposes of government – not simply convenient, but indispensable.

A complete list of BACs is available at www.fairfaxcounty.gov/bacs/. BACs with environmental roles include the following:

Boards, Authorities and Commissions	
Name	Purpose and Link
Agricultural and Forestal Districts Advisory Board	To advise the Board of Supervisors and Planning Commission regarding the proposed establishment, modification, renewal, continuation and determination of agricultural and forestal districts; to render expert advice on the desirability of establishing such districts. www.fairfaxcounty.gov/bacs/BoardDetails.aspx?BoardID=23335
Airports Advisory Committee	To advise the Board of Supervisors on all airports and aircraft operations affecting Fairfax County; to expand the committee's responsibilities and feasibility of establishing a countywide aircraft noise complaint center. www.fairfaxcounty.gov/bacs/BoardDetails.aspx?BoardID=23354
Board of Zoning Appeals	To hear and decide: (1) appeals of administrative decisions made pursuant to the Zoning Ordinance; (2) applications for special permits and variances as authorized by the Zoning Ordinance; and (3) applications for interpretation of the Zoning Map where there is uncertainty as to the location of a zoning district boundary. www.fairfaxcounty.gov/dpa/bza/
Chesapeake Bay Preservation Ordinance Exception Review Committee	To review applications to conduct land disturbing activities within Resource Protection Areas. www.fairfaxcounty.gov/dpa/baypreservation/exception/
Engineering Standards Review Committee	To provide technical and engineering advisory services to the Board of Supervisors; to thoroughly review the input data for the annual update of the Public Facilities Manual. www.fairfaxcounty.gov/bacs/BoardDetails.aspx?BoardID=23312
Environmental Quality Advisory Council	To advise the Board of Supervisors on environmental matters through ongoing review of the quality of the county's physical environment and to advocate and promote environmental preservation, protection and enhancement. www.fairfaxcounty.gov/dpa/eqac/
Fairfax County Park Authority	To be responsible for the acquisition, development and maintenance of the parks in the county. www.fairfaxcounty.gov/parks/

Boards, Authorities and Commissions	
Name	Purpose and Link
Geotechnical Review Board	To adopt ordinance amendments, official map and criteria regulating development in areas of Manumco/Marine Clay soils and other problem soil areas. www.fairfaxcounty.gov/bacs/BoardDetails.aspx?BoardID=23317
Health Care Advisory Board	To be responsible for a periodic review of a comprehensive health plan for the county; to initiate an on-going health care information process in coordination with local, regional, state and federal agencies. www.fairfaxcounty.gov/hd/hcab/
Planning Commission	To advise the Board of Supervisors on all matters related to the orderly growth and development of Fairfax County; to approve or disapprove the location, character and extent of all public facilities in the county. www.fairfaxcounty.gov/planning/
Redevelopment and Housing Authority	To be responsible for providing rental housing for low income families in Fairfax County. www.fairfaxcounty.gov/rla/aboutrla.htm/
Trails and Sidewalks Committee	To report to the Board of Supervisors for the purpose of providing citizen input and oversight to planning and developing a countywide trails system. www.fairfaxcounty.gov/trails/
Transportation Advisory Commission	To advise the Board of Supervisors and provide information and comments on major transportation issues faced by the county. www.fairfaxcounty.gov/tcdot/tac/
Tree Commission	To provide advice to the Board of Supervisors based on an annual reevaluation of the administration and implementation of local law relating to vegetation preservation and planting; to provide leadership in developing an understanding of the objectives and methods of tree conservation; to assist the Urban Forest Management Division in the development and maintenance of technical specifications and guidelines. www.fairfaxcounty.gov/bacs/BoardDetails.aspx?BoardID=23331
Wetlands Board	To preserve and prevent the despoliation and destruction of wetlands within its jurisdiction while accommodating necessary economic development in a manner consistent with wetlands preservation. www.fairfaxcounty.gov/bacs/BoardDetails.aspx?BoardID=23219

21 Sustainability Initiatives

The Solid Waste Management Program (SWMP) oversees the county's municipal solid waste management system, through public outreach/education, demonstrated best management practices and enforcement of the county's solid waste management ordinance and related environmental requirements. The program mission and statutory authority covers the storage, collection, recycling and disposal of all municipal solid waste (MSW) generated within the county. The program also manages two MSW disposal sites and provides refuse and recyclables collection to 45,000 county residents and county government operations. Further, the SWMP implements the county's 20-year Solid Waste Management Plan, which is required by State regulation to be reviewed and updated every five years.

For decades, the program has also provided a suite of services that further promote sustainable values, including:

- Source reduction, reuse and recycling education and outreach to residents and target industry/business sectors.
- Ready access to recycling, through curbside and drop-off programs, for as many materials as practical within market limits.
- The use of waste-to-energy (WTE) as the primary disposal technology.
- Resource recovery to minimize impacts from waste disposal systems (e.g., metal recovery from WTE ash, landfill gas-to-energy).
- Specialty waste collection, to provide economies-of-scale for more expensive or specialized recycling and disposal options. Examples of these specialty programs include E-waste collection, household hazardous waste collection, used tire recycling and document shredding events.
- Research and adoption of state-of-the-art technologies that support sustainable and efficient solid waste management and keep the county's integrated solid waste management system functioning well. Recent examples of the SWMP's work in this area include pilot programs to explore food waste composting and alternate technologies for recycling glass, and using the closed portion of the I-95 landfill as a potential host for pollinators and for the generation of solar power.

More information about these programs is contained in Sections 2, 3 and 4. Also refer to www.fairfaxcounty.gov/living/recycling/.

- Stormwater Management develops and maintains a comprehensive watershed and infrastructure management program that protects property, health and safety, enhances the quality of life and preserves and improves the environment. The business area plans, designs, constructs, operates, maintains and inspects the county's extensive

23 Sustainability Initiatives

1.2.4 Other Authorities and Commissions

The following authorities and commissions have regional environmental responsibilities:

Fairfax County Water Authority (FCWA) – FCWA, known as Fairfax Water, is Virginia's largest water utility, serving nearly two million people. Fairfax Water operates two water treatment plants with a combined capacity of 376 million gallons per day and produces, on average, 163 million gallons of water per day. Fairfax Water also purchases up to 30 million gallons of water per day from the Washington Aqueduct. See www.fairfaxwater.org/.

Northern Virginia Regional Commission (NVRC) – NVRC is a regional council of 14 member governments in Northern Virginia. NVRC's energy and environmental programs and projects include those addressing energy efficiency, water resources and solid waste and recycling. See www.nvaregion.org/.

Northern Virginia Regional Park Authority (NVRPA) – NVRPA was established in 1959 to protect natural resources from the threat of urban sprawl and provide recreational amenities. NVRPA currently owns about 7,000 acres in Fairfax County. See www.nvrpa.org.

Upper Occoquan Service Authority (UOSA) – UOSA was formed in 1971 to construct, finance and operate a regional water reclamation facility. It is currently authorized to process 54 million gallons of wastewater a day. See www.uosa.org/.

1.3 Energy and Environment Agencies and Business Areas

1.3.1 Department of Public Works and Environmental Services

The mission of the Fairfax County Department of Public Works and Environmental Services (DPWES) is to build and maintain healthy, safe and environmentally responsible communities in Fairfax County. DPWES's areas of responsibility include building and infrastructure construction, land use, solid waste management and stormwater and wastewater management. The following highlights several DPWES divisions:

- Capital Facilities** provides Fairfax County with quality, cost-effective buildings and infrastructure in a safe, timely, and environmentally-sound manner. The Capital Facilities division implements the county's Green Building policy, described in both Sections 2.2.8 and 4.2. See www.fairfaxcounty.gov/dpwes/construction/capitalprojects.html.

stormwater infrastructure. It also performs environmental assessments through coordinated stormwater and maintenance projects. Several Stormwater Management initiatives are discussed in Section 3.4.1. See www.fairfaxcounty.gov/dpwes/stormwater/.

- Wastewater Management** safely collects and treats wastewater in compliance with all regulatory requirements using state-of-the-art technology. The county's wastewater collection and conveyance system, one of the nation's largest sanitary sewer systems, covers nearly 234 square miles. The total system capacity is 157.8 million gallons of wastewater per day for about 340,000 residential and business connections in Fairfax County. See www.fairfaxcounty.gov/dpwes/wastewater/.

1.3.2 Other County Departments

A number of other county departments and agencies play instrumental roles in promoting environmental stewardship and prudently managing natural resources.

- Land Development Services** provides oversight and enforcement of site and building requirements for construction projects within the county including environmental requirements like erosion and sediment control and Chesapeake Bay regulations. Its efforts support the county's Tree Action Plan and Tree Canopy Goals, both of which are discussed in Section 3.6, and the Environmental Improvement Program. See www.fairfaxcounty.gov/dpwes/develop/.

- Fairfax County Park Authority (FCPA)**, which was created in 1950 by the Board of Supervisors, currently owns over 23,000 acres in Fairfax County. Its mission, as expressed in its Great Parks, Great Communities Plan, is:

To set aside public spaces for and assist citizens in the protection and enhancement of environmental values, diversity of natural habitats and cultural heritage to guarantee that these resources will be available to both present and future generations. To create and sustain quality facilities and services that offer citizens opportunities for recreation, improvement of their physical and mental well-being, and enhancement of their quality of life.

More information about FCPA, including its resource management practices, is provided in Section 3.5. See www.fairfaxcounty.gov/living/parks/.

- Department of Planning & Zoning** provides proposals, advice and assistance on land use, development review and zoning issues to those who make decisions on such issues in Fairfax County. DPZ's mission is to promote livable communities which enhance the quality of life for the present and the future. See www.fairfaxcounty.gov/dpz/.

Sustainability Initiatives 24

Facilities Management Department (FMD) provides a full range of facility management services to the approximately 240 county-owned and leased facilities in its portfolio. Key FMD services include energy management, capital renewal, maintenance, repair and renovation. The department also provides space planning and interior design services, as well as custodial, security and moving services. Several of FMD's energy-related initiatives and accomplishments are described in Section 4.4.

Department of Health, through its Division of Environmental Health (DEH), protects and improves public health by using its regulatory authority and community-based outreach activities to prevent, minimize or eliminate exposure to biological, chemical or physical hazards. DEH's regulatory activities include the permitting and inspection of the operations of various businesses that can potentially impact the community's health, pest surveillance and public health complaint investigations. Section 3.9 discusses five of the potential environmental hazards and exposures that pose a risk to human health that DEH addresses: contaminated ground and surface water; vector-borne diseases; radon; and naturally-occurring asbestos. See www.fairfaxcounty.gov/hd/eh/.

Department of Vehicle Services (DVS) provides fleet management services support to all county customers and ensures that county vehicles and equipment are maintained in accordance with all federal, state and county safety and environmental policies, procedures and regulations. DVS is fully committed to conservation of the county's natural environment and to initiatives that contribute to cleaner air and water. Section 4.7 discusses several of these DVS initiatives. See www.fairfaxcounty.gov/dvs/.

1.4 Interagency Collaboration and Coordination

Fairfax County has long recognized the need for coordinated and proactive policies and initiatives to address its environmental and energy related challenges. Federal and state guidelines and regulations demand diligence in the development of concrete strategies for a healthy environment, as well as inter-agency and inter-jurisdictional coordination to address environmental issues that know no organizational or political boundaries.

1.4.1 Internal Collaboration and Coordination

The county has established two committees to facilitate agency collaboration and coordination: the Environmental Coordinating Committee (ECC) and its companion, the Energy Efficiency and Conservation Coordinating Committee (EECCC). Both are inter-agency

management committees intended to facilitate communication among agencies and to break down walls that separate individual agencies and their respective missions. Committee members act as advisors to and a "sounding board" for each other about environmental and energy issues, including programs, initiatives and strategies.

Both committees develop recommendations on policy and practice related to the environment and energy efficiency, which are then presented to the appropriate parties (i.e., the County Executive and/or the Board of Supervisors Environmental Committee). Recognizing that federal and state legislation and administrative proceedings may affect county policies, the ECC and EECCC keep abreast of the status of relevant legislation and administrative proceedings and provide guidance as to any application in Fairfax County.

Both committees also coordinate closely with the county's Environmental Quality Advisory Council (EQAC), which is an independent, board-appointed advisory committee. EQAC is tasked with reporting the state of the environment in Fairfax County and in recommending a variety of policy and programmatic actions that the board can take in support of the environment. EQAC also provides a forum for citizen input on environmental issues through its annual public hearing and e-mail address. See www.fairfaxcounty.gov/dps/eqac/ for more information regarding EQAC and its *Annual Report on the Environment*.

1.4.2 Regional Collaboration

As discussed in Section 1.2.1, board members are active participants in committees and initiatives within the metropolitan Washington, D.C. region, particularly those sponsored by the Metropolitan Washington Council of Governments (COG) and the Northern Virginia Regional Commission.

County staff is also active on a regional basis. The COG committees and boards in which county staff participates includes:

- COG Climate, Energy and Environment Policy Committee.
- COG Built Environment and Energy Advisory Committee.
- Metropolitan Washington Air Quality Committee and the MWACQ Technical Advisory Committee.
- Transportation Planning Board.

Information about the Metropolitan Washington Council of Governments and its committees and boards is available at www.mwacog.org/about/. Information about the Northern Virginia Regional Commission, including its programs and projects, is available at www.novaregion.org/.

1.5 Partner Organizations

Fairfax County provides financial or other tangible support to a number of agencies and nonprofit organizations that promote the general health and welfare of the community. The county's environmental partners include:

Clean Fairfax Council works to prevent litter, encourage recycling and promote sustainability. See www.cleannfairfax.org/.

Earth Sangha promotes conservation through its native plant nursery and ecological restoration projects. See www.earthsangha.org/.

Fairfax County Restoration Project connects, creates and promotes efforts to restore ecosystem functions through collaboration with public, private, and volunteer organizations. See www.fcrrp3.org/.

Fairfax ReLeaf works to conserve, restore and promote sustainable urban forests by engaging volunteers in tree planting projects. See www.fairfaxreleaf.org/FFR/about.html.

Northern Virginia Conservation Trust helps local governments and private landowners preserve natural areas, trails, streams and parks through voluntary conservation easements. See www.nvct.org/.

Northern Virginia Soil and Water Conservation District works for clean streams, protected natural resources and community engagement in Fairfax County. See www.fairfaxcounty.gov/nvswcd/.

Volunteer Fairfax matches the skills and interests of volunteers and donors to the needs of local nonprofit organizations, helping to build a better community through service. See www.volunteerfairfax.org/.



Huntley Meadows wetland restoration, facilitated by the Fairfax County Park Authority, brought together county and community partners

SECTION 2

REGULATORY, POLICY AND STRATEGIC FRAMEWORK

REGULATORY, POLICY AND STRATEGIC FRAMEWORK

Featured in this Section

2.1	Introduction	31
2.2	Policies Adopted by the Board of Supervisors	31
2.2.1	Priorities and Goals	31
2.2.2	Environmental Agenda	32
2.2.3	Cool Counties Climate Stabilization Initiative	33
2.2.4	Energy Policy	34
2.2.5	Comprehensive Plan	35
2.2.6	Tree Action Plan	37
2.2.7	Solid Waste Management Plan	37
2.2.8	Sustainable Development Policy for Capital Projects	38
2.2.9	Fairfax County Park Authority Policy	38
2.3	Ordinances Adopted by the Board of Supervisors	40
2.4	Funding Mechanisms	41
2.4.1	Funds Used for Environmental Efforts	41
2.4.2	Environmental Improvement Program	42

SECTION 2

2.1 Introduction

The Fairfax County Board of Supervisors (board) has set the framework for the county's environmental initiatives through its vision, goals, policies and ordinances and has dedicated considerable resources to implementing these initiatives. This section of the report addresses this framework.

The board's vision statement includes the following (paraphrased slightly):

Our vision is to protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County by maintaining safe and caring communities, building livable spaces, connecting people and places, maintaining healthy economies, practicing environmental stewardship, creating a culture of engagement and exercising corporate stewardship.

We envision that local government, industry and residents will seek ways to use all resources wisely and to protect and enhance the county's natural environment and open space. As a result, residents will feel good about their quality of life and embrace environmental stewardship as a personal and shared responsibility.

Vision of Fairfax County Board of Supervisors, available at www.fairfaxcounty.gov/government/vision.htm.

2.2 Policies Adopted by the Board of Supervisors

2.2.1 Priorities and Goals

Fairfax County will continue to protect our drinking water, air quality, stream valleys and tree canopy through responsible environmental regulations and practices. We will continue to take a lead in initiatives to address energy efficiency and sustainability and to preserve and protect open space for our residents to enjoy.

Fairfax County Statement of Priorities, available at www.fairfaxcounty.gov/government/board/priorities/.

Environmental initiatives are driven by goals, policies and priorities agreed upon at the highest levels of the county government. Through its Statement of Priorities, the Board of Supervisors has pledged to engage residents and business and protect investment in eight critical areas, including "a clean, sustainable environment."

REGULATORY, POLICY AND STRATEGIC FRAMEWORK

REGULATORY, POLICY AND STRATEGIC FRAMEWORK

The county's goals, adopted by the Board of Supervisors in 1988 and subsequently revised, serve as the basis for the Comprehensive Plan and encompass all aspects of the county government. Of 20 adopted goals, many speak directly to environmental protection and resource conservation:

Environmental Protection – The amount and distribution of population density and land uses in Fairfax County should be consistent with water quality, ambient air quality and other environmental standards. Development in Fairfax County should be sensitive to the natural setting, in order to prevent degradation of the County's natural environment.

Energy Conservation – Fairfax County should promote energy efficiency and energy conservation within the public, commercial, residential, and industrial sectors.

Open Space – Fairfax County should support the conservation of appropriate land areas in a natural state to preserve, protect and enhance stream valleys, meadows, woodlands, wetlands, farmland, and plant and animal life. Small areas of open space should also be preserved in already congested and developed areas for passive neighborhood uses, visual relief, scenic value, and screening and buffering purposes.

Three other goals, "Quality of Life," "Land Use" and "Transportation," also have environmental components. The Fairfax County Goals reflect the belief of the community that environmental protection and preservation are overarching components of the quality of life. They demonstrate an understanding of the interdependence of decisions regarding private development, transportation and public works with the environment. How we use land affects, and is affected by, the natural environment.

See the board's statement of priorities at www.fairfaxcounty.gov/government/board/priorities/ and the county's goals at www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/preface.pdf.

2.2.2 Environmental Agenda

Fairfax County has long recognized the need for proactive policies and initiatives to address its environmental challenges. Indeed, environmental considerations are embedded in the county's policy and regulatory documents, and the county has pursued a myriad of environmental initiatives that continue to grow in number and complexity.

For this reason among others, at its regular meeting on Monday, June 21, 2004, the board, in continuation of its long history of environmental vigilance and dedication, endorsed and adopted the "Environmental

Excellence for Fairfax County: A 20-year Vision," also known as the Environmental Agenda. The Environmental Agenda is organized into six core services:

- Growth and Land Use.
- Air Quality and Transportation.
- Water Quality.
- Solid Waste.
- Parks, Trails, Open Space.
- Environmental Stewardship.

The Agenda centers on two main guiding principles: First, conservation of our limited natural resources must be interwoven into all government decisions. Second, the county must be committed to providing the necessary resources to protect the environment.

In addition to the six central themes, the Environmental Agenda includes objectives relating to trees and resource conservation.

The Environmental Agenda provides specific guidance for board members, county staff and the community when making decisions that have environmental impacts. Environmental concerns are not seen as trade-offs or compromises but instead are foundational to the decision making process. The Environmental Agenda provides the necessary guidance for creative decision-making and leadership. It is an aggressive, multi-year plan that will require a long-term financial commitment.

On October 6, 2015, the Board of Supervisors directed that county staff review the Environmental Agenda with community and board involvement in order to determine if the document needs to be updated. Completion of an update to the Environmental Agenda is anticipated in 2017. See www.fairfaxcounty.gov/living/environment/environmentalvision.htm.

The board's Environmental Agenda is available at www.fairfaxcounty.gov/living/environment/elp/bos_environmental_agenda.pdf.

2.2.3 Cool Counties Climate Stabilization Initiative

The Cool Counties Initiative was developed in collaboration with local, regional and national partners to reduce greenhouse gas emissions.

Fairfax County's climate change actions and initiatives include:

- Reducing greenhouse gas emissions in county government operations through efficiency, conservation and education.



- Implementing air quality, land use planning and zoning, transportation, tree and open space preservation, solid waste management, recycling and water conservation and reuse initiatives.
- Encouraging similar efforts in the wider community by supporting transit-oriented mixed-use development, green building and energy-conserving design, particularly in redevelopment areas such as Tysons Corner.

See www.fairfaxcounty.gov/living/environment/coolcounties/.

2.2.4 Energy Policy

The Fairfax County Energy Policy, adopted in 2009, promotes pragmatic conservation and management of energy resources. The policy supports nine measures:

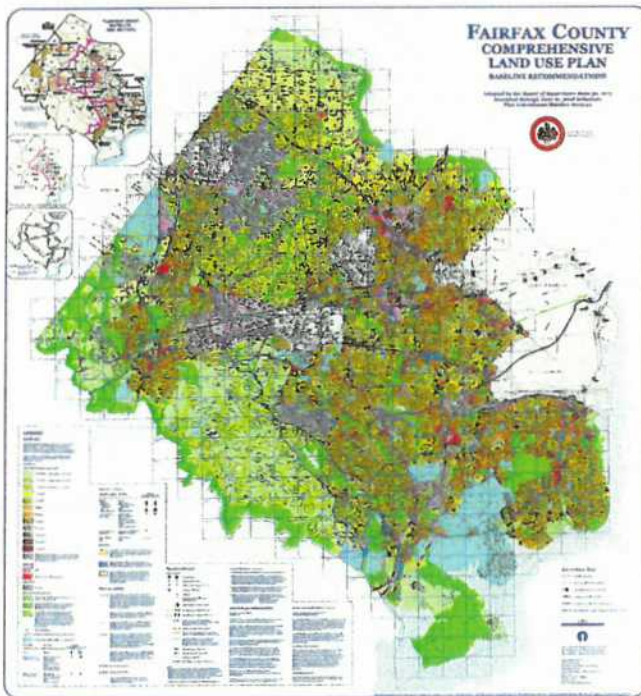
- Energy efficiency and conservation in buildings, facilities, operations and vehicles.
- The use of alternative and sustainable energy options.
- Waste reduction and recycling.
- The use of more fuel efficient and alternate fuel vehicles in the county's fleet.
- Implementation of energy efficiency and conservation projects.
- Generation of energy on-site.
- Land use patterns and transportation systems that serve to reduce energy use.
- Intergovernmental energy efficiency efforts.
- Energy efficiency and conservation efforts by county employees, employers and residents.

The energy policy is available at www.fairfaxcounty.gov/living/environment/county-energy-policy.html.

The primary implementation mechanism to address and support environmental and energy policies and goals set forth in the board's 2004 Environmental Agenda, the 2007 Cool Counties Initiative and the 2009 Energy Policy is the county's Environmental Improvement Program. Two collaborative inter-agency committees – the Environmental Coordinating Committee and the Energy Efficiency and Conservation Coordinating Committee – are vital to implementation, as they help ensure that cross-cutting action is coordinated across county agencies, authorities and schools. More information on the Environmental Improvement Program is presented in Sections 2.4.2 and 5 of this document.

2.2.5 Comprehensive Plan

The Plan map may be viewed at a larger scale at <http://www.fairfaxcounty.gov/dpz/comprehensiveplan/complanmap06212016.pdf>.



The Comprehensive Plan guides land use-related decision-making about the environment by the county's Board of Supervisors, Planning Commission and Board of Zoning Appeals. It is also a guide for county staff and the public about development and redevelopment in the county.

The Plan consists of the Policy Plan, four Area Plans, the Land Use Plan map, the Countywide Trails Plan map, the Bicycle Plan map and the Transportation Plan map. The Policy Plan provides broad, countywide policy guidance, while the Area Plans provide more specific recommendations for smaller geographic areas, often specific to individual parcels of land. Development proposals requiring zoning approval are evaluated in regard to how they would implement or otherwise support both Policy Plan and Area Plan guidance.

The Policy Plan contains goals, objectives, and policies relating to 11 functional elements:

- Land Use.
- Transportation.
- Housing.
- Economic Development.
- The Environment.
- Heritage Resources.
- Public Facilities.
- Human Services.
- Parks and Recreation.
- Revitalization.
- Visual and Performing Arts.

The plan provides objectives, policies and guidelines for future development in Fairfax County, while protecting natural and cultural resources. The policies and objectives in the Environment section address environmental resources, conservation, pollution, hazards and coordination as well as green building practices.

More information about the county's growth and land use policies is presented in Section 3.2 of this report.

See www.fairfaxcounty.gov/dpz/comprehensiveplan/.

2.2.6 Tree Action Plan

The Tree Action Plan, adopted in December 2006, is a 20-year strategy document to preserve and restore tree cover in Fairfax County. Members of the Fairfax County Tree Commission, county staff, residents and builders worked together to develop goals and recommendations. The goals include:

- A commitment to the preservation of current tree assets.
- Enhancement of the legacy for future generations by increasing the quantity and quality of trees and wooded areas.
- More effective integration of urban forestry with planning and policy making.

The Plan includes 12 core recommendations through which trees are accorded a high priority and are integrated into urban planning with related goals, strategies and tactics.

After completing the plan, the Board of Supervisors adopted a 30-year tree canopy goal to increase the county's tree cover to 45 percent by the year 2037. A study of urban tree canopy in 2012 using high resolution satellite imagery showed that 53 percent of the county is now covered by tree canopy. For information about implementation of the Tree Action Plan, please see Section 3.6.

More information about the Tree Action Plan is available at www.fairfaxcounty.gov/dpwes/environmental/tap.htm.

2.2.7 Solid Waste Management Plan

The Solid Waste Management Program (SWMP) is responsible for the management and long-range planning for refuse and recycling within the county. Program elements are summarized within the county's Solid Waste Management Plan. Program operations, as included in the plan, are identified in Section 2.4.1 of this report and are described in more detail in Section 3.7.

The county's Solid Waste Management Plan, including the 2015-2035 Update submitted to the Department of Environmental Quality in March 2015, is available at www.fairfaxcounty.gov/dpwes/swmp/. The Solid Waste Management Program is a part of the county's Department of Public Works and Environmental Services.

2.2.8 Sustainable Development Policy for Capital Projects

Fairfax County supports green building in its own capital projects as well as private sector development. The Sustainable Development Policy for Capital Projects addresses Fairfax County facilities. The Environment section of the Fairfax County Comprehensive Plan covers the private sector.

County projects greater than 10,000 square feet in size must have a goal of achieving Silver certification in the Leadership in Energy and Environmental Design, or LEED®, rating system; smaller facilities are recommended for LEED certification.

The Sustainable Development Policy for Capital Projects is available at www.fairfaxcounty.gov/dpwes/construction/sdpolicy.pdf. More information about the county's green building policies and efforts is presented in Sections 3.2.4 and 4.2 of this report.



Bluebells at Riverbend Park

2.2.9 Fairfax County Park Authority Policy

The Fairfax County Park Authority mission is: "To set aside public spaces for and assist citizens in the protection and enhancement of environmental values, diversity of natural habitats and cultural heritage to guarantee that these resources will be available to both present and future generations. To create and sustain quality facilities and services which offer citizens opportunities for recreation, improvement of their physical and mental wellbeing, and enhancement of their quality of life."

Fairfax County Park Authority, Five Year Strategic Plan, available at <http://www.fairfaxcounty.gov/parks/plandev/downloads/strategic-plan-fy14-18-final.pdf>.

2.3 Ordinances Adopted By the Board of Supervisors

Fairfax County's regulations support, complement and implement the county's environmental policies and state and federal mandates. They are the "shall" requirements that accompany the "should" policies. Both are critical to the success of the county's comprehensive environmental program.

The Fairfax County Code contains all county-adopted ordinances and associated requirements. These ordinances are not static but are reviewed and updated as needed. The current set of county ordinances is available at https://www.municode.com/library/va/fairfax_county. Environmental ordinances and other ordinances with key environmental provisions include:

- Chapter 62, Fire Protection.
- Chapter 67.1, Sanitary Sewers and Sewage Disposal.
- Chapter 68.1, Individual Sewage Disposal Facilities.
- Chapter 70.1, Private Water Well Ordinance.
- Chapter 101, Subdivision Provisions (including, by reference, the Public Facilities Manual).
- Chapter 103, Air Pollution Control.
- Chapter 104, Erosion and Sedimentation Control.
- Chapter 107, Problem Soils.
- Chapter 108, Noise.
- Chapter 109.1, Solid Waste Management.
- Chapter 112, Zoning Ordinance (including Floodplain Regulations, the Airport Noise Impact Overlay District and the Water Supply Protection Overlay District).
- Chapter 113, Water Use, Emergency Regulations.
- Chapter 114, Agricultural and Forestal Districts of Statewide Significance.
- Chapter 115, Local Agricultural and Forestal Districts.
- Chapter 116, Wetlands Zoning Ordinance.
- Chapter 118, Chesapeake Bay Preservation Ordinance.
- Chapter 120, Heritage, Specimen, Memorial and Street Tree Ordinance.
- Chapter 122, Tree Conservation Ordinance.
- Chapter 123, Coastal Primary Sand Dune Ordinance.
- Chapter 124, Stormwater Management Ordinance.

The Fairfax County Park Authority manages over 23,000 acres, 425 parks, five nature centers and a horticultural center, more than 300 miles of trails, over 650 public garden plots, 220 playgrounds, 779 athletic fields and one of only four state natural area preserves in Northern Virginia.

The Fairfax County Park Authority Board, appointed by the Board of Supervisors, works collaboratively with constituents, partners, stakeholders and government leaders to champion the preservation and management of natural and cultural resources and facilitate the development of park and recreation programs and facilities. To guide park planning and programs, numerous policies and plans have been adopted:

- **Fairfax County Comprehensive Plan – Parks and Recreation** - Provides guidance and goals for park planning and land use decisions affecting the conservation of natural and cultural resources, protection of environmental quality and provision of parks and park facilities to meet countywide needs. www.fairfaxcounty.gov/dps/comprehensiveplan/policyplan/parkarec.pdf
- **Fairfax County Park Authority Policy Manual** - This manual guides Park Authority Board and staff decision making in accordance with the Park Authority mission, objectives and associated laws. www.fairfaxcounty.gov/parks/parkpolicy/
- **Great Parks, Great Communities 2010-2020 Comprehensive Park System Plan** - This document offers a long-range plan for the place-based, physical aspects of the park system, its land, its natural and cultural resources and its facilities. www.fairfaxcounty.gov/parks/plandev/greatparks/
- **Natural Resource Management Plan** - This plan coordinates agency-wide efforts to achieve the natural resource preservation mission of the Fairfax County Park Authority and implement agency Policy 201 - Natural Resources. www.fairfaxcounty.gov/parks/nrmp.htm
- **Cultural Resource Management Plan** - This plan provides the tools, policies and practices to best manage and protect cultural resources, both on parkland and countywide. www.fairfaxcounty.gov/parks/gmp/crmpfinal.pdf
- **Park Master Plans** - These plans serve as general guides for appropriate park uses and facilities and their approximate locations within a specific park site. They guide future park development and programming. www.fairfaxcounty.gov/parks/plandev/mparchives.htm

Other ordinances also have environmental provisions that are secondary to other purposes.

2.4 Funding Mechanisms

2.4.1 Funds Used for Environmental Efforts

Fairfax County supports environmental initiatives through several county agencies and funds. Each year, the General Fund supports priority projects through a rigorous project selection process in support of the Environmental Agenda. Recent funding has been included for projects such as: lighting retrofits and upgrades at Fairfax County Park Authority facilities for energy efficiency and conservation; the installation of Variable Frequency Drives at RECenter pools; support for the Park Authority's Invasive Plant Removal Program; Energy Education and Outreach Initiatives; the Green Purchasing Program; the installation of waterSMART web-based irrigation controllers at park facilities with irrigation systems; a watershed protection and energy conservation matching grant program; a protected bike lane demonstration project; and other strategic environmental initiatives. General Fund support is provided as available on an annual basis.

The General Fund also supports two nonprofit environmental agencies through a contributory fund. For several years, Fairfax County has contributed to Earth Sangha, an environmental nonprofit organization which provides numerous volunteer opportunities involving environmental work. Fairfax ReLeaf is another nonprofit organization of volunteers that plants and preserves trees and restores forest cover on public and common lands in Northern Virginia.

Several important environmental program areas are supported through funding sources outside of the General Fund.

The Wastewater Management Program keeps track of requirements relating to the Chesapeake Bay Program as these requirements relate to amounts of nutrient pollutants allowed to be discharged from wastewater treatment facilities. A phased approach was taken to renovate and upgrade plant facilities to accommodate more stringent nutrient discharge requirements. The plant is in full compliance with the new requirements. The Wastewater Management Program is primarily supported by sewer service charges, connection charges and availability fees; these funds are used to fully recover program operation and maintenance costs, debt service payments and capital project requirements attributable to improving wastewater treatment effluent quality as mandated by state and federal agencies.

The Solid Waste Management Program is responsible for ensuring that the county has adequate, environmentally-responsible resources to manage refuse and recycling. Operations include: a county-owned and operated refuse transfer station; a privately-owned and operated Energy/Resource Recovery Facility; two closed municipal solid waste landfills; a regional ash fill operated by the county; two recycling and disposal facilities that include the collection of household hazardous waste and e-waste; eight drop-off sites for recyclable materials; and equipment and facilities for refuse collection, disposal and recycling operations for approximately 44,000 residents in sanitary districts. The Solid Waste Program includes the following funds: Leaf Collection; Refuse Collection and Recycling Operations; Refuse Disposal; Energy/Resource Recovery Facility; and I-95 Refuse Disposal. These funds are all supported by special revenue fees and charges.

The Stormwater Services fund is also essential in supporting environmental mandates such as those aimed at protecting the Chesapeake Bay and the water quality of local waterways. This fund is supported by a special service district fee currently based on 2.75 cents per \$100 of assessed real estate value. This fund is used to improve, operate and maintain the county's stormwater system, meet state and federal regulatory and water quality standards and meet dam safety requirements. The stormwater fee also supports contributions to both the Northern Virginia Soil and Water Conservation District (NVSWCD) and the Occoquan Watershed Monitoring Program (OWMP). The NVSWCD is an independent subdivision of the Commonwealth of Virginia that provides leadership in the conservation and protection of Fairfax County's soil and water resources. The OWMP and the Occoquan Watershed Monitoring Laboratory were established to ensure that water quality is monitored and protected in the Occoquan Watershed.

2.4.2 Environmental Improvement Program

The Environmental Improvement Program (EIP) was first developed in 2005 by the county's Environmental Coordinating Committee (ECC) in response to direction by the board following the adoption of its Environmental Agenda on June 21, 2004. Until recently, the EIP was largely a compilation of projects, initiatives and actions that the county had taken, was in the process of taking or could take to support board-adopted environmental and energy policies and goals.

The EIP was updated annually through a coordinated and collaborative process. Please see www.fairfaxcounty.gov/living/environment/eip/ for further information regarding past EIPs.

In consultation with the Board of Supervisors and the county's Environmental Quality Advisory Council, staff revised the EIP in 2012 to include a more formal project selection and prioritization process to better support the board-adopted Environmental Agenda.

In this revised process, EIP project proposals are evaluated and prioritized annually. Projects identified through this process are forwarded to the county executive for consideration for inclusion in the advertised budget. A description of the EIP project selection process and additional information about EIP projects are provided in Section 5.3 of this report.

SECTION 3

PROMOTING A SUSTAINABLE COMMUNITY

PROMOTING A SUSTAINABLE COMMUNITY

Featured In this Section

3.1	Introduction	47
3.2	Growth and Land Use	47
3.2.1	Zoning and Planning	48
3.2.2	Transit-Oriented Mixed-Use Development	49
3.2.3	Revitalization	50
3.2.4	Green Buildings	51
3.3	Air Quality and Transportation	53
3.3.1	Air Quality Planning in the Washington Metropolitan Region	54
3.3.2	Transportation Planning in the Washington Metropolitan Region	55
3.3.3	Washington Metropolitan Air Quality Status	56
3.3.4	Fairfax County Transportation Initiatives	57
3.4	Water Resources	58
3.4.1	Stormwater	59
3.4.2	Wastewater	61
3.4.3	Water Supply Planning	63
3.5	Parks and Ecological Resource Management	64
3.5.1	Open Space in Fairfax County	64
3.5.2	Natural Resource Management	67
3.5.3	Policy and Regulatory Mechanisms for Protecting Natural Resources	68
3.6	Trees and Tree Conservation	71
3.6.1	Urban Forest Management	72
3.6.2	Tree Action Plan	73
3.7	Solid Waste Management	75
3.7.1	Recycling	75
3.7.2	Solid Waste Management Plan Green Initiatives	76
3.8	Community Outreach, Education and Stewardship	78
3.8.1	Community Stewardship Opportunities	78
3.8.2	Presentations and Publications	79
3.9	Environmental Health	81
3.10	Noise, Light Pollution and Visual Pollution	83
3.10.1	Noise	83
3.10.2	Light Pollution	84
3.10.3	Visual Pollution	85

Sustainability Initiatives 46

SECTION 3

3.1 Introduction

Section 2 of this report identified the broad policy framework guiding the county's sustainability initiatives. This section addresses how the county furthers the policy framework through promotion of sustainability within the community.

In its Environmental Vision (Environmental Agenda), adopted in 2004, revised in 2007, and planned for an update in 2017, the Board of Supervisors concluded that environmental stewardship is both a key responsibility and a critical legacy of any elected public body. As such, "the Board of Supervisors will have as one of its chief goals to integrate environmental planning and smart growth into all we do and to leave our land, water and air quality, better than we found it." The board's far-sighted goal is found on page 11 of the Environmental Agenda, available at www.fairfaxcounty.gov/living/environment/elp/bos_environmental_agenda.pdf.

Achieving this goal of sustainability requires an on-going commitment to support environmental stewardship in every aspect of daily life.

Fairfax County made this commitment to sustainability, demonstrated by an extensive range of policies, programs and efforts, including those promoting:

- Transit-oriented mixed-use development and green building practices.
- Clean air and reduced carbon emissions.
- Healthy waterways and clean drinking water.
- Adaptive, holistic management of natural resources.
- Tree canopy conservation, forest management and access to open space.
- Recycling and other waste management initiatives that minimize use of landfills.
- Outreach and educational programs that support stewardship values.
- Reduction of environmental hazards to human health and quality of life (e. g., biological, chemical and physical hazards, noise, light pollution and visual pollution).

3.2 Growth and Land Use

Both Fairfax County and the larger metropolitan Washington, D. C. area are expected to experience substantial growth into the future.

Fairfax County's 2015 population of approximately 1.13 million is projected to increase to over 1.26 million by 2030. Over this same period, the number of households is forecast to increase from about 404,000 to nearly 468,000. The Metropolitan Washington Council of Governments (COG) forecasts that the population in the region (i.e., jurisdictions within the COG/Transportation Planning Board Planning Area) will grow by over 1.5 million between 2015 and 2045, increasing from approximately 5.4 million to approximately 6.9 million. COG forecasts that between 2015 and 2045 the region will add over 1.1 million jobs, with over 240,000 of these new jobs located in Fairfax County.

The question, then, is not if the county will grow, but how it will grow.

The county's growth and land use policies favor growth in mixed-use, transit-oriented centers. These centers provide for employment growth near both transit opportunities and residential areas. They also support vibrant communities by creating safe and attractive streets for pedestrians and reducing the need for vehicle trips and resulting traffic congestion.

3.2.1 Zoning and Planning

Land use in Fairfax County is regulated by the Zoning Ordinance. Each parcel of land in the county is zoned, and the zoning establishes both rights and restrictions on the use and development of that parcel. These restrictions include allowed uses and standards, including setback, building height, open space and parking requirements. Additional requirements exist in "overlay" districts that have been established to address area-specific issues, such as water quality within the Occoquan Reservoir watershed.

Development that conforms to allowed uses and standards under the zoning ordinance proceeds "by right" – that is, it is approved administratively and does not require a public hearing. Legislative approval following public hearing is required for other development:

- Requests for special permit uses are subject to approval by the Board of Zoning Appeals.
- Requests for special exceptions or to change the zoning of a parcel (rezoning) are subject to approval by the Board of Supervisors.

The Fairfax County Planning Commission holds public hearings and provides recommendations to the Board of Supervisors on all special exception and rezoning proposals.

In making decisions on these matters, members of the boards and Planning Commission are guided by the Comprehensive Plan. This plan, which is discussed in Section 2.2.5, describes the county's land use vision for the future and includes countywide and area-specific policies to help attain this vision.

More information about the Zoning Ordinance and process is available at www.fairfaxcounty.gov/dpz/zoning/. The Comprehensive Plan is available at www.fairfaxcounty.gov/dpz/comprehensiveplan/.

3.2.2 Transit-Oriented Mixed-Use Development

The Policy Plan volume of the county's Comprehensive Plan contains the Board of Supervisors' goals, policies and objectives regarding land use, transportation, housing, the environment, human services, public facilities, parks and recreation, revitalization, economic development, heritage resources and visual and performing arts.

The land use and transportation policies of the Comprehensive Plan emphasize locating mixed uses, including employment and multifamily housing, in activity centers (i.e., the Tysons Corner Urban Center, suburban centers, community business centers and transit station areas) with transportation options, especially rail transit. Transit-oriented mixed-use development (TOD) guidelines were incorporated into the Policy Plan in March 2007.

In June 2010, the Board of Supervisors adopted an amendment to the Comprehensive Plan for the Tysons area. The Plan amendment, which was the culmination of one of the largest targeted planning efforts in county history, supports TOD concepts, including the provision of housing in employment centers. This amendment, which was designed to take advantage of the four new Metro stations to be built in the area, received the 2011 Daniel Burnham Award from the American Planning Association. This award is granted to only one urban plan in the nation each year for advancing the science and art of planning.

Other Plan amendments that support TOD concepts and/or mixed use development and connectivity include those for Annandale, Baileys Crossroads, Seven Corners, Franconia-Springfield, Lake Anne Village Center, the Fairfax Center Area, areas near Fort Belvoir and areas near future rail stations in the Reston and Herndon areas. It is anticipated that efforts to incorporate TOD, mixed use and connectivity concepts into the Comprehensive Plan will continue into the future.

has adopted Plan guidance for each CRD/CRA, Tysons and Reston; incorporated the Urban Parks Framework into the Policy Plan; and adopted Urban Design Guidelines for many of its mixed-use activity centers, with the goal of adopting such standards for additional areas. These guidelines promote walkable, pedestrian-oriented, sustainable development and are used to evaluate development applications and site plans.

Through the use of strategic financing mechanisms, such as the Community Development Authority/Tax Increment Financing (CDA/TIF) that was used for the Mosaic-Merrifield Town Center project, and other forms of public-private partnerships, the county forms partnerships with the private sector to complete major projects that serve the public interest.

More information about revitalization is available at www.fcrevit.org.

3.2.4 Green Buildings

Green Building Policy – In addition to adopting a green building policy that applies to county capital projects, as discussed in Section 4.2.1, Fairfax County has adopted green building policies for private sector development. These policies for private sector development are found in the Comprehensive Plan and are implemented through the zoning process.

The Policy Plan volume of the Comprehensive Plan includes broad support for green building practices. It also establishes links between green building/energy conservation practices and the attainment of certain Comprehensive Plan options and planned uses, as well as development densities and intensities. One example of these linkages involves proposals at the high end of the planned density/intensity range in the county's growth centers. In these centers, green building certification



Dolley Madison Library

PROMOTING A
SUSTAINABLE
COMMUNITY

PROMOTING A
SUSTAINABLE
COMMUNITY

The Plan's guidance is implemented through the approval of zoning applications. Approved and pending rezoning applications regarding TOD and mixed use development include those affecting properties in Tysons, Reston, the Dulles Suburban Center, Merrifield, Springfield and the Huntington and Vienna Metrorail station areas.

The Policy Plan is available at www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/. More information about TOD is available in the Land Use section of the Comprehensive Plan, available at www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/landuse.pdf, particularly Objectives 2, 6, 16 and Appendix 11.



Mosaic District

3.2.3 Revitalization

Fairfax County's Office of Community Revitalization (OCR) facilitates strategic redevelopment and investment opportunities within the older and transforming commercial activity

centers of the county. These centers include the five Commercial Revitalization Districts (CRD) of Annandale, Baileys Crossroads/Seven Corners, McLean, Richmond Highway and Springfield; the two Commercial Revitalization Areas (CRA) of Lake Anne Village Center and Merrifield; the Springfield Town Center; Reston Transit Station Areas (TSA) and village centers; and the Tysons Urban Center (Tysons).

OCR includes a dedicated team of planning and design professionals who work with developers, property owners, community stakeholders, cross-agency teams and consultants to provide review and direction on zoning applications, site plans, Comprehensive Plan amendments, streetscape and wayfinding projects, infrastructure improvement projects, public outreach, special studies, urban design guidelines, solicitations regarding county facilities and related development and public-private partnerships.

Board policy and OCR's work program have been instrumental in promoting a sustainable community through redevelopment and reinvestment. New incentives to reduce barriers for redevelopment and facilitate revitalization and redevelopment are being implemented through countywide initiatives aimed at improving the development process. To achieve and sustain revitalization goals and objectives, the county

PROMOTING A
SUSTAINABLE
COMMUNITY

PROMOTING A
SUSTAINABLE
COMMUNITY

through the Leadership in Energy and Environmental Design (LEED®) program or its equivalent is recommended for certain nonresidential and multi-family residential proposals. Another example that applies countywide is the recommendation for other residential projects to incorporate green building practices sufficient to attain certification under an established residential green building rating system that incorporates multiple green building concepts and that includes an ENERGY STAR® Qualified Homes designation or comparable level of energy performance.

The Area Plan volumes of the Comprehensive Plan include area-specific green building policy. For example, the Tysons Corner Urban Center Area Plan recommends a LEED Silver or equivalent level of certification for nonresidential development. Plan guidance recommends similar efforts for specific areas within the Richmond Highway Corridor, an area near the Town of Herndon, Reston's Transit Station Areas and areas near the Huntington and Franconia-Springfield Metrorail stations. Another example of an area-specific policy is found in the Annandale Community Business Center Plan. This Plan includes an incentive development option that allows for increased building heights in certain areas where any of a number of benefits are provided, including commitments to LEED Gold or LEED Platinum certification.

During the zoning application review process, county staff receives commitments from applicants to green building certification and other green building efforts. Commitments to green building certification have been made for more than 200 buildings that have been approved through the zoning process. A majority are linked to LEED certification, with many buildings linked to certification at the LEED Silver or higher level.

More information about the county's green building policies for private sector development is available at www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/environment.pdf (Objective 13).

Green Building Priority Plan Review – Both residential and commercial development projects that will be designed to attain certain thresholds of green building design are eligible for shorter waiting times during the building plan review process. Commercial projects designed to reach a minimum LEED rating of silver are eligible for this incentive, as are residential projects designed to, as a minimum, attain one of the following rating levels: LEED for Homes Silver; National Green Building Standards® Silver; Earthcraft® Select; or three "Globes" in the Green Globes® rating system. Other green building rating programs are evaluated for approval on a case-by-case basis.

County Incentives for Solar Installations – Current solar incentives include a waiver for the permit application fee (solar hot water or solar photovoltaic projects) and a limited solar tax incentive in accordance with Va. Code Section 58.1-3661. This is covered by the county ordinance in Article 18, Chapter 4 of the Fairfax County Code. Essentially, qualifying solar equipment as approved by the Department of Public Works and Environmental Services (DPWES) can result in a tax credit (not an exemption) against the amount of normal property taxes due. The credit is determined by applying the local tax rate to the value of the certified solar equipment (the value is typically the cost of the equipment).

The tax credit is available the first tax year following the date of application. The credit is good for five years. Although the concept for this was generally aimed at homes, both commercial and residential properties qualify. The link provided is the application from DPWES at www.fairfaxcounty.gov/dpwes/forms/solarenergy.pdf.

In addition, it is possible to obtain a same-day solar permit if proper documentation is provided to the walk-through counter at the county's Permit Application Center.

3.3 Air Quality and Transportation

The federal Clean Air Act was passed in 1970 to protect public health and welfare. Congress amended the Act in 1990 to establish requirements for areas not meeting the National Ambient Air Quality Standards (NAAQS) for ground-level ozone (smog), oxides of nitrogen (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), lead and particulate matter (PM). The metropolitan Washington region is a "Marginal" nonattainment area for the 2008 eight-hour standard for ground level ozone. The region is in compliance with the NAAQS for the other five criteria pollutants.

The Clean Air Act Amendments of 1990 (CAAA) established a legal process for evaluating air quality and identifying and classifying nonattainment areas according to the severity of their air pollution problems. Although emissions from stationary sources such as industrial power generation facilities and manufacturing are significant contributors to overall air quality, the focus of this section will be on transportation related (mobile) emissions.

Since 1970, significant progress has been made in reducing mobile source emissions in the Washington Metropolitan region, despite increases in

population, employment and vehicle miles traveled. Most of the emissions reductions have resulted from cleaner vehicles and cleaner fuels.

Transportation agencies, both state and local, have also contributed to emission reductions through the implementation of transportation system management (TSM) strategies such as traffic signalization projects and high occupancy vehicle lanes, and through transportation demand management (TDM) strategies such as transit facilities and pedestrian and bicycle programs. Nevertheless, mobile sources continue to contribute to overall air quality issues and remain an area of concern to regulatory agencies and to the general public. More recently, mobile source air toxics and greenhouse gas emissions have also become concerns.

3.3.1 Air Quality Planning in the Washington Metropolitan Region

Under Section 174 of the CAAA, the governors of Maryland and Virginia and the mayor of the District of Columbia certified the Metropolitan Washington Air Quality Committee (MWAQC) to develop specific recommendations for a regional air quality plan in the Washington, DC-MD-VA nonattainment area.

Members of MWAQC include: elected officials from the Cities of Bowie, College Park, Frederick, Gaithersburg, Greenbelt, Rockville and Takoma Park in Maryland and Alexandria, Fairfax, Falls Church, Manassas and Manassas Park in Virginia; representatives of the Montgomery and Prince George's county councils; the Montgomery and Prince George's county executives; the mayor of the District of Columbia and representatives of the Council of the District of Columbia; and representatives of Calvert, Charles and Frederick counties in Maryland, and Arlington, Fairfax, Loudoun and Prince William counties in Virginia. Representatives of the general assemblies of Maryland and Virginia, the state air management directors, the state transportation directors and the chairman of the National Capital Region Transportation Planning Board also are members of MWAQC.

The Metropolitan Washington Council of Governments (COG), in close cooperation with state air quality and transportation agencies, provides technical support to MWAQC. Staffs from the local counties and cities provide additional technical support.

MWAQC also has established an Air Quality Public Advisory Committee (AQPAC) to provide recommendations regarding public participation in the development of the air quality plans. AQPAC members represent academic, business, civic and environmental groups.

In addition, MWAQC works with the Interstate Air Quality Council (IAQC), a cabinet-level collaboration among the District of Columbia, the state of Maryland and the commonwealth of Virginia that includes the secretaries of the environment and transportation. The purpose of the IAQC is to address issues of interstate transport of air pollutants and to provide a sound process for improving regional air quality.

Once MWAQC approves the air quality attainment plan, it will be forwarded to the Interstate Air Quality Council for approval. The governors and the mayor (or their designees) are then required to submit the air quality State Implementation Plans (SIPs) to the U.S. Environmental Protection Agency (EPA) to meet the requirements of the CAAA.

3.3.2 Transportation Planning in the Washington Metropolitan Region

Transportation planning in the Washington metropolitan region is heavily influenced by air quality planning. Transportation plans are tested to ensure that the projects in the plan, when considered collectively, contribute to the air quality improvement goals embodied in the CAAA. A series of tests are performed with computer models that predict how much air pollution will be generated over the next 25 years by facilities in the plan, and how much the air will be improved by cleaner gasoline standards and many other factors.

If the transportation plan is found to meet regional air quality goals, federal agencies certify that the plan is "in conformity." In other words, the plan "conforms" to air quality improvement goals. If the plan encounters difficulty in meeting conformity, transportation agencies may be required to adopt Transportation Emission Reduction Measures, such as ridesharing and telecommuting programs, improved transit and bicycling facilities, clean fuel vehicle programs or other possible actions.

The transportation conformity rule and the Clean Air Act require that Transportation Control Measures (TCMs) in approved SIPs be implemented.

State air, environmental and health agencies are typically responsible for the development of SIPs that explain how each nonattainment area will meet the requirements of the CAAA. However, state and local transportation agencies are required to implement the transportation measures, so it is important that they take an active role in the development of the SIP.

3.3.3 Washington Metropolitan Air Quality Status

The metropolitan Washington region has met National Ambient Air Quality Standards, often referred to as NAAQS, for carbon monoxide and fine particulate matter, but not for ozone pollution.

Ozone – In July 2012, the Washington region was designated as a "Marginal" nonattainment area for the 2008 ozone standard of 75 ppb. The region was to have attained the 2008 standard by July 20, 2015 using 2012-2014 data. Based on the data for 2012-2014, the ozone design value for the Washington region was 76 ppb, so the region did not attain the NAAQS. However, the region has been progressively lowering the ozone level in the region, so state air agencies of the District of Columbia, Maryland, and Virginia requested EPA to extend the attainment date by one year. EPA granted the request in April 2016. The preliminary design value of 70 ppb for 2013-2015 shows that the region now is in attainment of the 75 ppb standard. Therefore, the Washington region plans to submit a redesignation request and a maintenance plan for the above standard by late 2017 or early 2018.

EPA published a revised eight-hour ozone standard of 70 ppb in October 2015. EPA is scheduled to publish by October 2017 designations regarding whether or not regions have attained the new standard based on 2014-2016 data. Depending on the designation for the metropolitan Washington region, federal, state and local governments may be required to implement new measures to meet the revised tougher standard.

Fine Particulate Matter (PM_{2.5}) – The region is in attainment of the 1997 primary annual PM_{2.5} standard. Based on the 2012-2014 data, the Washington region's design values for the annual PM_{2.5} standard (12 µg/m³) is 9.5 µg/m³ and the daily PM_{2.5} standard (35 µg/m³) is 22 µg/m³. Also, there was no exceedance of the daily PM_{2.5} standard in 2015.

However, the region is covered under a maintenance plan for the 1997 primary annual PM_{2.5} NAAQS. This plan must demonstrate that the region will continue to meet the standard. Virginia, Maryland and the District of Columbia are revising the maintenance plan in 2016 to reflect revised annual motor vehicle emissions budgets (MVEBs) for PM_{2.5} and NO_x using the EPA approved MOVES2014 model. EPA had earlier approved the region's MVEBs for the two pollutants which were developed using EPA's older MOVES2010a model. The revised MVEBs will reflect the lower emissions calculated by the new model.

Carbon Monoxide – The region has been in attainment of the carbon monoxide NAAQS for the twenty year period of its maintenance plan and is projected to remain considerably under the NAAQS into the future. Therefore, there are now fewer requirements to assess the effects of transportation projects and other development on carbon monoxide emissions.

3.3.4 Fairfax County Transportation Initiatives

The Fairfax County Department of Transportation (FCDOT) has a number of initiatives supporting transit and other forms of alternative transportation use in Fairfax County. The Employer Services Program provides outreach to employers on transportation demand management strategies, including rideshare incentives and promotions, computerized ridesharing, carpool incentives such as preferred parking, subsidies and telework programs.



McLean Metro Station

In recent years, FCDOT's Bicycle Program has made great improvements to bicycle infrastructure and opportunities for county residents. The Bicycle Master Plan was approved by the Board of Supervisors in October 2014. Since then, FCDOT has partnered with the Virginia Department of Transportation (VDOT) to install over 30 miles of on-road facilities. The adoption of the Bicycle Master Plan, coupled with the VDOT partnership, resulted in 2015 being the most successful year for bike facility implementation in Fairfax County to date.

In early 2016, the Board of Supervisors approved a \$1.7 million plan to launch the Capital Bikeshare system in Reston and Tysons. The plan will bring 15 Capital Bikeshare stations and 132 bicycles to Reston, and 11 Capital Bikeshare stations and 80 bicycles to Tysons. The first phase of the system is anticipated to launch in fall 2016, and FCDOT will continue to evaluate potential areas to expand the system in the future.

Other FCDOT efforts include: the Connector Bus system; the "RideSources" program, which provides ridesharing information and ridesharing assistance to commuters (part of the regional Commuter Connections system); the Community Residential Program, which assists residential communities with the assessment and promotion of alternatives to single occupant vehicle trips; and the provision of Park-and-Ride lots.

Employees are eligible to receive a subsidy for transit use of up to \$120 per county employee. More information is available at www.fairfaxcounty.gov/fcdot/.



Fairfax Connector Bus

3.4 Water Resources

The Federal Water Pollution Control Act of 1948 was enacted as the first law to address water pollution. Increased awareness and concern of water pollution in the following years throughout the U.S. led to amendments to the law in 1972, which became known as the Clean Water Act (CWA).

The Clean Water Act requires states and their municipalities to meet certain water quality standards for all contaminants in surface waters. The act established: authority for EPA to implement pollution control programs (with delegation to the states); a basic structure for regulating pollutant discharges (through construction, industrial, wastewater and municipal separate storm sewer systems or MS4 permits); water quality standards for surface waters (including impaired waters and total maximum daily loads); and the need to address critical issues in the Chesapeake Bay.

Additionally, in 1974 Congress passed the Safe Drinking Water Act, which regulates public drinking water supplies through national health-based standards for drinking water from every day water systems. The law has been amended twice and requires actions to be taken to protect drinking water and its sources.

Since the passage of the Clean Water Act and the Safe Drinking Water Act, federal and state agencies have had great success in controlling pollution from point sources (industrial and wastewater discharges) and protecting public water supplies. In more recent years, continued efforts to improve the water quality of rivers, estuaries and lakes have led to an increased focus on addressing nonpoint source pollution such as agricultural and urban stormwater runoff.

3.4.1 Stormwater

Fairfax County has made significant investments in addressing stormwater management and controlling water pollutants. Stormwater is the runoff from rainfall and snowmelt that flows across the land and impervious areas such as paved streets, parking lots and building rooftops. Stormwater runoff can pick up and carry sediments, nutrients, toxic substances, pathogens and other pollutants to lakes, streams, rivers, wetlands and coastal waters. These pollutants have the potential to impact drinking water supplies, recreation and aquatic life. In addition, impervious surfaces prevent water from infiltrating the ground, causing higher volumes of stormwater runoff to flow into storm drains at higher speeds. When these higher volumes of stormwater runoff empty into receiving streams, they can severely erode stream banks and damage sensitive stream valley ecosystems. The county is proactive in the mission of environmentally friendly stormwater management and control through implementation of a broad range of ongoing activities. For more information on stormwater management funding to protect streams and rivers, see Section 2.4, Strategic Framework: Funding Mechanisms.



Big Rocky Run Stream Restoration Before and After

Watershed Management Planning – The Board of Supervisors has adopted watershed management plans covering all 30 of the county's watersheds. Each plan provides an assessment of stormwater conditions, recommends protection strategies, prioritizes improvement projects and encourages

public involvement in project selection and implementation. The watershed management plans and recommended improvement projects can be found online at: www.fairfaxcounty.gov/dpwes/watersheds/.



Stormwater Capital Projects – Fairfax County and its partners continue to implement stormwater management-related capital projects, including flood mitigation projects, stormwater management facility retrofits, green infrastructure (previously known as low impact development (LID) projects), stream restoration, meadow installation and stabilization projects.



Pond Retrofit Before and After

Operations – Fairfax County maintains and operates its stormwater management facilities and stormwater drainage infrastructure

consistent with the requirements of its Municipal Separate Storm Sewer System (MS4) permit, which regulates discharges of stormwater from the county's MS4. In an effort to minimize the pollutants reaching the MS4 and streams, the county also implements best management practices as required by the permit for: operation of county maintained roadways; use of pesticides, herbicides and fertilizers on county properties; controlling industrial and high risk runoff; detection and elimination of sources of illicit discharges; and spill response.

Monitoring and Assessment – Fairfax County conducts in-stream water quality monitoring, dry weather screening, wet weather screening, physical habitat evaluations and biological assessment of fish and aquatic macroinvertebrates.

Public Outreach and Education – Fairfax County continues to partner with local organizations to implement programs informing residents of water quality issues and encouraging environmental stewardship.

Strategic Initiatives – Fairfax County and its partners work proactively to improve the county's stormwater management through the MS4 permit and TMDL compliance, workplace modernizations, watershed management plans structural projects and updating job hazard assessments.

Stormwater Management Status Reports are available at www.fairfaxcounty.gov/dpwes/stormwater/stormwater_status.htm.

3.4.2 Wastewater

Fairfax County's Wastewater Management Program provides wholesale sewer service to the Towns of Herndon and Vienna, the Cities of Fairfax and Falls Church, and a small portion of Arlington County in addition to Fairfax County. The county's wastewater system has been featured on United States Environmental Protection Agency's website for Innovative use of Capacity, Management, Operation and Maintenance (CMOM) techniques as well as system rehabilitation and diagnostic methods for minimizing sanitary sewer overflows, which in turn protect the quality of life in Fairfax County and water quality in its streams. See www.epa.gov/npdcs/pubs/sso_casestudy_fairfax.pdf.

Wastewater Capital Projects – a majority of the recent capital projects have been related to upgrading the wastewater treatment plants that serve the county to meet the more stringent federal and state requirements for improving the water quality in the Potomac River and the Chesapeake Bay. The completed plant upgrades have resulted in nitrogen discharge levels that are consistently below permitted limits.

Operations – The county's wastewater system consists of approximately 3,400 miles of sewer lines, 63 sewage pumping stations, 280 sewage grinder pumps and 53 flow metering stations.

Currently, the approximately 100 million gallons per day (MGD) of wastewater generated and collected in Fairfax County is conveyed and treated at the county-owned and operated Noman M. Cole, Jr. Pollution Control Plant, at five regional treatment facilities (Prince William County Service Authority, DC Water Blue Plains plant, Alexandria



Solar mixer at Noman M. Cole, Jr. Pollution Control Plant

Renew, Arlington County, Upper Occoquan Service Authority), and at a privately owned (Colchester) plant through sewer service agreements and in accordance with their Virginia Pollutant Discharge Elimination System permits. Additionally, 1 MGD capacity at Loudoun's Broad Run plant has been purchased in anticipation of future growth in the northern part of the county. The treatment plants serving the county under service agreements are listed below, showing the county's allocated capacity at each of the plants:

Plant	County Capacity (MGD)
Noman M. Cole, Jr.	67.00
Colchester (Private)	0.08
Prince William County Service Authority	0.30
Blue Plains (DC Water)	31.00
Alexandria (AlexRenew)	32.40
Arlington County	3.00
Upper Occoquan Service Authority	22.60
Loudoun County (Broad Run)	1.00
TOTAL	157.18

Public Outreach – Wastewater Management employees bring Sewer Science to the county's high schools. The Sewer Science program, which meets the requirements of Virginia Standards of Learning, is a hands-on program that teaches high school students about wastewater treatment in a laboratory setting. See www.fairfaxcounty.gov/dpwes/wastewater/sewerscience.htm.

Rigorous and Sustainable Analytical Services – Value-added and reliable laboratory capacity is a critical function for defining environmental quality. Wastewater Management maintains an advance analytical capability that is certified under Virginia Environmental Laboratory Accreditation Program to accurately and confidently assess the environmental effects of its programs and ensure regulatory compliance. Wastewater Management is also pursuing more sustainable laboratory practices through upgrading or adding new, more energy efficient analytical instrumentation, which uses less toxic/hazardous reagents as well as minimizes sample and reagent waste, and reduces chemical emissions to ensure more consistent use of green chemistry principles.

Wastewater Reuse – In addition to wastewater reuse at the waste-to-energy facility described in Section 3.7.2, fully treated wastewater is being delivered to the Laurel Hill Golf Course and the South County Little League Athletic Fields for irrigation purposes. In addition, the Upper Occoquan Service Authority (UOSA) discharge supplements flows into the Occoquan

Reservoir and is an internationally recognized example of successful indirect reuse.

Virginia Environmental Excellence Program – The Virginia Department of Environmental Quality has established the Virginia Environmental Excellence Program to encourage superior environmental performance by use of environmental management systems and pollution prevention. Wastewater Management has received the highest level of the Environmental Excellence Program, which is "Extraordinary Environmental Enterprise," or E4.

3.4.3 Water Supply Planning

Virginia experienced serious droughts in 1999 and 2002. Largely as a result of these droughts, in November 2005 the State Water Control Board (SWCB), a regulatory board comprised of citizen-apointees, enacted regulations establishing the requirement and criteria for a planning process for all local governments to develop local or regional water supply plans. The purposes of these regulations, codified at 9 VAC 25-780, Local and Regional Water Supply Planning, are to: (1) ensure that adequate and safe drinking water is available to all citizens of the commonwealth; (2) encourage, promote and protect all other beneficial uses of the commonwealth's water resources; and (3) encourage, promote and develop incentives for alternative water sources, including but not limited to desalinization. Localities were required to submit their Water Supply Plans (WSPs) by November 2011 to the Virginia Department of Environmental Quality (DEQ), which administers regulations enacted by the SWCB.

Fairfax County has participated in the development of a regional water supply plan (WSP) encompassing 22 Northern Virginia jurisdictions. In 2007, these jurisdictions designated the Northern Virginia Regional Commission (NVRC) as the lead agency responsible for developing the Initial Northern Virginia WSP. Fairfax Water (www.fairfaxwater.org), which provides water service to nearly two million people in the Northern Virginia counties of Fairfax, Loudoun and Prince William, the cities of Fairfax, Falls Church and Alexandria and the Towns of Vienna and Herndon, served as the county's designated agent in the WSP development process.

The Northern Virginia WSP includes numerous elements, including: descriptions of existing water uses, sources and resource conditions; an assessment of projected water demand; water management actions that address water conservation; and an evaluation of alternative water sources to address projected deficits in water supplies.

The SWCB also conducts a five-year review to assess the adequacy of a WSP to meet water demands. A revised WSP must be submitted within five years if the circumstances have changed significantly or new information renders a WSP inadequate. The Northern Virginia WSP five-year review process is due in December 2018. WSPs must be reviewed, revised if necessary and resubmitted to DEQ every ten years from the date of last approval (December 2013).

The planning horizon for Northern Virginia's WSP extends to the year 2040. The WSP assessment indicates that new sources of supply are needed in the 2035-2040 timeframe in order to avoid emergency restrictions and potential water shortages.

Fairfax Water has planned proactively to meet future water supply demands. In June 2015, the Fairfax County Board of Supervisors and Fairfax County Board of Zoning Appeals approved a series of zoning applications from Fairfax Water and Vulcan Construction Materials that will provide for a two-phase conversion of a quarry into a water supply storage facility; this effort has been designed to address the need for new water supply sources in the 2035-2040 timeframe and ultimately into the next century.

The county also has adopted regulations restricting water use during drought and emergencies. These regulations, located in Chapter 113 (Water Use, Emergency Regulations) of the County Code, satisfy state requirements for drought response and contingency plans.

More information regarding the Northern Virginia WSP is available at www.novavirginia.org/index.aspx?nid=1214.

3.5 Parks and Ecological Resource Management

3.5.1 Open Space in Fairfax County

Fairfax County contains approximately 50,800 acres of open space owned by local, state and federal agencies and organizations. (This number does not include unknown but substantial acreage under special tax district, rural or low-density residential areas or lands owned by civic associations within subdivisions.)

Almost half of the open space in the county – over 23,000 acres – is owned by the Fairfax County Park Authority (FPCA). The Board of Supervisors created FPCA in December 1950 and authorized it to make



Burke Lake Park

decisions concerning land acquisition, park development and operations in the county. Today, FCPA manages and operates over 420 parks. In addition to its role in providing recreational facilities and services, FCPA is the primary public mechanism for preserving environmentally-sensitive land and resources and areas of historic significance in Fairfax County. More information about FCPA is available at www.fairfaxcounty.gov/perks/.

Listed below are other owners of substantial open space in the county, including state and federal agencies and organizations.

Northern Virginia Regional Park Authority/NOVA Parks (NVRPA) – NVRPA was established in 1959 to protect natural resources from the threat of urban sprawl and provide recreational amenities. NOVA Parks owns about 8,270 acres in Fairfax County, primarily along the Bull Run-Occoquan river corridor and reservoir, the Potomac River and on Pohick Bay on Mason Neck. See www.nvrpa.org.

Reston Association (RA) – Founded as Virginia's first planned residential community in the mid-1960s, RA owns over 1,350 acres of open space. Its holdings include 55 miles of paved and natural surface trails, more than 700 acres of forest, 50 meadows and numerous water resources including four lakes and 20 miles of stream. See www.reston.org.

U.S. Department of Defense – Fort Belvoir is a strategic sustaining base for the U.S. Army that houses numerous agencies providing logistical, intelligence and administrative support. The county considers about 4,990 of Fort Belvoir's 8,500 acres to be open space. See www.belvoir.army.mil/default.asp.

U.S. Department of Interior, Bureau of Land Management (BLM) – In October 2001, BLM exchanged a portion of the former Lorton Prison

property to acquire the 800-acre Meadowood Special Recreation Management Area. The acquisition was intended to preserve open space on Mason Neck and provide wildlife habitat, recreation and environmental education. See www.blm.gov/es/st/an/fo/tpfo_html/meadowood_history.html.

U.S. Department of the Interior, Fish and Wildlife Service – The 2,277-acre Elizabeth Hartwell Mason Neck National Wildlife Refuge, located on Mason Neck, is the oldest and largest refuge within the Potomac River refuge complex. Established in 1969 under the Endangered Species Act, its focus is on forest, marsh and riverine habitat important to the bald eagle. See www.fws.gov/refuge/mason_neck.

U.S. Department of the Interior, National Park Service – George Washington Memorial Parkway is a 7,600-acre national park protecting the landscape, historic sites and native habitat of the Potomac shoreline. See www.nps.gov/gwmp/index.htm.

Virginia Department of Conservation and Recreation – Mason Neck State Park is comprised of 1,825 acres within the Elizabeth Hartwell Mason Neck National Wildlife Refuge that include wetlands, forest, open water, ponds and open fields. See www.dcr.virginia.gov/state-parks/mason-neck.shtml.

Additionally, certain organizations work to preserve open space through the negotiation and acquisition of conservation easements. A conservation easement typically restricts an owner's rights to subdivide or develop his/her property, to remove trees or to excavate or fill the property. One such organization active in Fairfax County is the Northern Virginia Conservation Trust (NVCT). NVCT, which was founded in 1994, helps local governments and private landowners voluntarily preserve natural areas, trails, streams and parks. NVCT has helped preserve 739 acres in Fairfax County. See www.nvct.org.



Huntley Meadows Park
Red-eared Slider

3.5.2 Natural Resource Management

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. This capital consists of various elements: living organisms; non-living components such as air, water and soil; the ecosystems they form; and the environmental services they provide, including cleaning air and water, supporting wildlife and contributing to the quality of life. Natural capital is not self-sustaining; instead, deliberate care and investment are required to enhance, protect and preserve it.

Agencies that manage resources in Fairfax County include FCPA, Urban Forest Management, the Stormwater Division of the Department of Public Works and Environmental Services, the Police Department and the Northern Virginia Soil and Water Conservation District. Additionally, the county has engaged many partners, including nonprofit organizations such as the Audubon Society of Northern Virginia, Earth Sangha, Fairfax ReLeaf, the Fairfax Chapter of Virginia Master Naturalists and organized Friends Groups.

Examples of the county's natural resource/capital management programs include:

- **Fairfax County Watershed Planning and Watershed Plan Implementation** (www.fairfaxcounty.gov/dpwos/watersheds/).

- **Fairfax County Park Authority Natural Resource Management Plan Implementation** (www.fairfaxcounty.gov/parks/resource-management/nrmp.html).
- **Fairfax County Deer Management Program** (www.fairfaxcounty.gov/living/wildlife/deer-management/).
- **Fairfax County Goose Management** (www.fairfaxcounty.gov/living/wildlife/management/geese-management.html).



Difficult Run

3.5.3 Policy and Regulatory Mechanisms for Protecting Natural Resources

Section 2 describes the regulatory, policy and strategic framework of the county's environmental programs, including a brief introduction to the county's Comprehensive Plan and environmental ordinances. Section 3.5.3 discusses three county regulations that play a key role in the protection of natural resources: the Chesapeake Bay Preservation Ordinance, the Floodplain Regulations of the county's Zoning Ordinance and the

Wetlands Zoning Ordinance. Also discussed is the Environmental Quality Corridor policy in the Comprehensive Plan, which plays a significant role in protecting natural resources.

3.5.3.A Chesapeake Bay Preservation Ordinance

All of Fairfax County drains into the Potomac River and ultimately the Chesapeake Bay. As a result, land use and development activities in the county can adversely impact the water quality of both the county streams and downstream resources.

In 1988, the Commonwealth of Virginia enacted the Chesapeake Bay Preservation Act, which required 84 localities in Virginia, including Fairfax County, to institute water quality protection measures to improve the declining health of the Chesapeake Bay and its tributaries. The county adopted the Chesapeake Bay Preservation Ordinance in 1993 to protect both local streams and the Chesapeake Bay from pollution due to land use and development in the county. The ordinance was substantially revised in 2003.

The Chesapeake Bay Preservation Ordinance imposes water quality requirements on all development and redevelopment projects in the county.

Sensitive areas along streams, rivers and other waterways throughout the county are designated as Resource Protection Areas (RPAs). With some exemptions and exceptions, land disturbance in RPAs is prohibited. Other areas of the county that are not in RPAs have been designated as Resource Management Areas (RMAs). RMAs are comprised of lands that, if improperly used or developed, have the potential to significantly harm water quality or diminish the functional value of the RPA. Collectively, RPAs and RMAs are known as Chesapeake Bay Preservation Areas.

More information about the Chesapeake Bay Preservation Ordinance, including maps and FAQs, is available at www.fairfaxcounty.gov/dpwes/environmental/cbay/.

3.5.3.B Floodplain Regulation

A floodplain is the flat area located adjacent to a stream channel that is prone to flooding. When stream banks overflow during or after a storm, the floodplain provides natural storage for the excess water. In Fairfax County, the 100-year frequency storm is used to determine the limits of the floodplain.

The Floodplain Regulations of the Zoning Ordinance establish two types of regulated floodplain areas:

- The "Minor Floodplain," associated with streams with drainage areas between 70 and 360 acres.
- The "Major Floodplain," associated with streams with drainage areas greater than 360 acres.

The Floodplain Regulations serve a number of purposes. They are intended to protect against loss of life, health or property from flood or other dangers. They are also intended to preserve and protect floodplains in as natural a state as possible, thereby (1) preserving wildlife habitats; (2) maintaining the natural integrity and function of the streams; (3) protecting water quality; and (4) promoting a zone for ground water recharge.

A limited number of uses are permitted in floodplains, although additional uses can be approved by the Board of Supervisors through a special exception. All floodplain uses are subject to a series of limitations that serve to protect public safety and minimize adverse environmental impacts associated with these uses.

Floodplain Regulations are addressed in Part 9 of Article 2 of the Zoning Ordinance, available at www.fairfaxcounty.gov/dpz/zoningordinance/articles/art02.pdf.

69 Sustainability Initiatives



3.5.3.C Wetlands Zoning Ordinance

Fairfax County has approximately 112 linear miles of tidal shoreline, according to the Center for Coastal Resources Management of the Virginia Institute of Marine Science. This shoreline traverses south along the Potomac River from Cameron Run to the Occoquan Reservoir, where the tidal influence terminates at the dam.

Tidal wetlands are valuable natural resources that help prevent flooding, improve water quality and provide habitat. The Wetlands Zoning Ordinance was adopted in recognition of the environmental functions provided by tidal wetlands in the county and the need to ensure that development activities in tidal areas occur in a manner that minimizes adverse impacts to these wetlands.

The Fairfax County Wetlands Board has adopted a "Living Shoreline" Stabilization Policy that encourages vegetative shoreline stabilization in shoreline areas which are appropriate for such stabilization. The policy is available at www.fairfaxcounty.gov/dpz/environment/finallivingshoreline.pdf.

In 2015, the Virginia Marine Resources Commission finalized the regulations and guidance to support the general permit for the use of living shoreline measures as the preferred alternative to stabilizing tidal shorelines. The Living Shoreline General Permit can be found at www.mrc.virginia.gov/regulations/MRC_Scanned_Regs/Habitat/FR1300_09-01-15.pdf.

The Board of Supervisors asked staff to develop a strategy to inform homeowners about the regulations for tidal shoreline property that protect against negative impacts to the environment. As a result of that request, staff developed an information sheet for owners of tidal shoreline property. The information sheet is available at www.fairfaxcounty.gov/dpz/environment/wetlands/mailingbrochure.pdf.

This informational flyer was mailed to approximately 1,000 property owners and residents along the County's tidal shoreline in early March 2016. Staff from the Departments of Planning and Zoning and Public Works and Environmental Services worked collaboratively to update permitting information and requirements on the respective department websites, which may be found at www.fairfaxcounty.gov/dpz/environment/wetlands and www.fairfaxcounty.gov/dpwes/sitedevelopment.

Before making changes to waterfront property or undertaking land-disturbing activities, a property owner may need to obtain a permit from the Wetlands Board and other agencies.

Sustainability Initiatives 70

The Wetlands Board requires mitigation or compensation for unavoidable tidal wetlands loss, as explained in its policy, available at www.fairfaxcounty.gov/dpz/environment/wetlands/mitigation_compensation_policy_adopted.pdf.

3.5.3.D Comprehensive Plan Policy

The Environment section of the Policy Plan volume of the Comprehensive Plan provides broad environmental policy guidance that is applied during the zoning process. The Environment section includes numerous policies, including those recommending the identification, protection and restoration of Environmental Quality Corridors (EQCs) and streams and buffer areas upstream of EQCs.

The EQC system is an open space system in Fairfax County designed to preserve, restore and link natural resource areas. The core of this system is the county's streams. The EQC policy recommends protection and restoration of environmentally-sensitive lands, including a number of features near streams (steep slopes in stream valleys, wetlands connected to stream valleys and 100-year floodplains). The policy also recommends protection and restoration of upland habitats that augment the habitats and buffers provided by stream valleys. The EQC policy has been refined since its initial adoption in 1975 but continues to be a centerpiece of Fairfax County's environmental policy.

The Department of Planning and Zoning, which negotiates zoning commitments made by developers, estimates that EQC commitments have protected thousands of acres of land that would not otherwise have been protected through regulation. Flexible zoning provisions often allow developers to concentrate densities/intensities on the less-sensitive portions of their sites, thereby achieving both desired levels of development and the protection of EQCs and other desirable open space.

The EQC policy is found in Objective 9 of the Environment section of the Policy Plan, available at www.fairfaxcounty.gov/dpz/comprehensiveplan/policyplan/environment.pdf.

3.6 Trees and Tree Conservation

Fairfax County's urban forest is critical to enhancing the livability and sustainability of our community. Management of the trees within our urban forests to maximize the multitude of benefits they provide to residents is an essential step in successfully reaching the commitments and goals of



Huntley Meadows

the Board of Supervisors' Environmental Agenda, the Tree Action Plan, the Cool Counties Climate Stabilization Initiative and other county public health, livability and sustainability initiatives and programs.

An August 2010 study commissioned by the county using i-Tree Ecosystem Analysis assessed the structure, function and value of the Fairfax County urban forest as of 2009. According to the assessment, Fairfax County's urban forest has over 20,900,000 trees that provide significant environmental, economic and social benefits. Each year, this urban forest removes 4,670 tons of air pollutants at a value of close to \$22 million a year, and stores 3,879,000 tons of carbon, equal to the annual carbon emissions from 1,669,000 single family homes. Other economic benefits include residential energy savings of approximately \$11.9 million (based on 2002 prices) due to shading and evaporative cooling. The i-Tree Ecosystem Analysis is available at www.fairfaxcounty.gov/dpwes/environmental/trees.htm.

The value of urban trees' and forests' contributions to human health and well-being, including physical and mental well-being, building a sense of community and economic development, are now well documented. Much of the social science on the value of urban forests and urban greening is available at the Green Cities: Good Health website of the University of Washington, <http://depts.washington.edu/hnwh/>.

3.6.1 Urban Forest Management

The Urban Forest Management Division (UFMD) of the Department of Public Works and Environmental Services is the primary county agency responsible for managing trees and forests in Fairfax County. UFMD coordinates and implements the county's efforts to manage our urban forest resources, including advancing the board's Environmental Agenda to:

- Increase tree conservation in land development.
- Improve air quality through tree conservation policies and practices.
- Improve water quality and stormwater management through tree conservation.
- Foster an appreciation for our urban forest and inspire county residents to protect, plant and manage trees and forest stands on public and private lands.

UFMD draws on science, education and strong partnerships to help achieve a healthy urban forest. Its key responsibilities and activities include:

- Implementing the Tree Action Plan. See www.fairfaxcounty.gov/dpwes/environmental/tap.htm/
- Conducting vegetation mapping and surveys.
- Developing ordinances and policy for tree preservation, including the Tree Conservation Ordinance and tree conservation provisions of the county's Public Facilities Manual. See www.fairfaxcounty.gov/dpwes/publications/pfm/chapter12.pdf.
- Providing public education and outreach at a range of venues, including community tree planting events, school programs and local fairs.
- Partnering with nonprofit environmental and tree planting groups in support of the county's tree planting and conservation efforts.
- Promoting the use of natural landscaping techniques on public and private property.
- Providing assistance on tree and landscape requirements and issues to residents, the development community and other county agencies throughout the land development process including:
 - Rezoning and other zoning case reviews.
 - Site plan reviews.
 - Site inspections.
 - Final inspections for bond release.
- Identifying, monitoring and providing limited suppression of forest insect pest infestations throughout the county to prevent defoliation and maintain the health of the urban forest. See www.fairfaxcounty.gov/dpwes/environmental/forest_pest.htm.

In addition, the Urban Forest Management Division provides staff support to the Tree Commission. The Tree Commission is comprised of 15 citizens appointed by the Board of Supervisors to advise the board on tree-related matters. These matters include tree conservation as well as vegetation preservation and planting. The commission also assists the UFMD in developing and maintaining technical specifications and guidelines. More information about the UFMD, including a link to the Tree Commission, is available at www.fairfaxcounty.gov/dpwes/environmental/ufmdmain.htm.

3.6.2 Tree Action Plan

The Tree Action Plan is a 20-year strategy for conserving and managing the county's tree resources. The Tree Action Plan, which was adopted

in December 2006, was developed through a collaborative process that involved the Tree Commission, county staff, residents and builders. The plan reflects three key goals: to commit to conserve current tree assets; to enhance the legacy for future generations; and to increase the effectiveness of urban forestry with planning and policymaking.

To achieve these goals, the Tree Action Plan includes 12 core recommendations through which trees are accorded a high priority and integrated into urban planning. Trees are not considered ornamental or decorative but, instead, are recognized as infrastructure providing environmental, economic and social benefits.

Tree Action Plan Core Recommendations

- Engage and educate.
- Engage and educate.
- Build strong partnerships and alliances.
- Optimize tree conservation in county policies.
- Improve air quality and address climate change through tree conservation.
- Improve water quality and stormwater management through tree conservation.
- Use ecosystem management to improve and sustain the health and diversity of our urban forest.
- Strengthen state-enabling authority for tree conservation.
- Encourage sustainable design practices.
- Plant and protect trees by streams, streets and trails.
- Optimize tree conservation in land development.
- Optimize tree conservation in utility and public facilities projects.
- Support and refine the county's urban forestry programs.

Each of the plan's 12 core recommendations includes goals, strategies and tactics to help achieve the recommendation.

The Board of Supervisors has taken a number of actions based on recommendations in the Tree Action Plan. For example, in June 2007, the board formally adopted a tree canopy goal of 43% for the county by the year 2037. A study of urban tree canopy in 2012 using high resolution satellite imagery showed 53 percent of the county is now covered by tree canopy. A follow-up tree canopy study will be completed in summer 2016, which will allow for an accurate determination of the gain or loss in canopy

over the last four years. To support tree planting programs to support the goals of the Tree Action Plan, the board established the Tree Preservation and Planting Fund (TPPF). The TPPF collects and disburses funding for tree-related projects to nonprofit organizations, county agencies and regional government agencies. The UFMD is currently looking at ways to more effectively implement the TPPF and establish partnerships to plant trees in the county.

More information, including links to the Tree Action Plan and the TPPF brochure, is available at www.fairfaxcounty.gov/dpwes/environmental/tap.htm/.

3.7 Solid Waste Management



The Fairfax County Solid Waste Management Program (SWMP) is responsible for providing solid waste management services in an efficient and cost-effective manner while complying with federal and state environmental regulations. The SWMP has

managed disposal and recycling services for Fairfax County residents and businesses since 1950.

3.7.1 Recycling

In 1990, the SWMP established a residential curbside recycling collection program. In 2015, Fairfax County reported a 50 percent recycling rate for municipal solid waste generated within the county.

In addition to curbside recycling, the SWMP has established a number of related recycling and waste disposal programs for county residents.

- Since the early 1990s, SWMP has operated two permanent collection sites where it accepts residents' household hazardous waste at no charge for disposal in accordance with local, state and federal regulations. See www.fairfaxcounty.gov/dpwes/trash/dispshw.htm.
- Recycling drop-off centers are located throughout the county. Items accepted vary by location, but all sites accept newspaper, mixed paper, glass jars and bottles and plastic bottles and jugs. See www.fairfaxcounty.gov/dpwes/recycling/doc1at.htm.

- Each year, SWMP hosts secure document shredding events at various locations around the county. County residents can drop off up to five medium-sized boxes of sensitive documents for secure on-site shredding. See www.fairfaxcounty.gov/dpwes/recycling/shredding.htm.

- Since 2009, the county has collected over 1,000,000 pounds of obsolete electronics each year, including televisions, computers and peripheral devices such as keyboards, speakers, printers and external drives. Currently, electronic waste, or e-waste, is collected daily at the two Recycling and Disposal Centers at no charge to county residents. See www.fairfaxcounty.gov/dpwes/recycling/electric-sunday.htm.

More information about the SWMP recycling programs is available at www.fairfaxcounty.gov/living/recycling/.

3.7.2 SWMP Green Initiatives

In addition to offering environmentally-responsible waste recycling and disposal options to residents, the SWMP strives to be environmentally responsible in its own operations. These operations include:

Waste-to-Energy – Solid waste disposal capacity in Fairfax County is provided by a waste-to-energy facility, located in Lorton, Virginia. This facility burns about 3,000 tons per day of solid waste. Incineration avoids the need to landfill refuse and the resulting production of potent greenhouse gases (GHG). About one half of a ton of carbon dioxide equivalent is prevented from being released into the atmosphere for each ton of solid waste processed. It also powers generators that produce about 80 megawatts of electricity; the sale of electricity to a regional



transmission market partially offsets the cost of operation of the county's solid waste management program. The facility has had a strong compliance history with its air pollution control and Title V permits, during its operational history. Use of reagents, scrubbers,

combustion controls and other technology to clean the stack gases ensures that roughly 98 percent of all pollutants are removed. See www.fairfaxcounty.gov/dpwes/trash/dispomsf.html.

Landfill Gas – The SWMP is responsible for managing two closed landfills in the county: the I-95 Landfill Complex and the I-66 Transfer Station. Landfill gas (LFG) collection systems are installed at both sites, with both supporting beneficial use of LFG as an alternative to natural gas or other fossil fuels. At the I-95 Landfill Complex, LFG is used to generate about 4.5 megawatts of electricity, which is sold to the local electric utility. LFG from the I-95 site is also used in the combustion process, which dewater biosolids at the county's nearby wastewater treatment plant, thus avoiding the use of \$160,000 worth of natural gas. At the I-66 site, LFG is used to fuel heating systems for nearby bus maintenance garages, the transfer station worker's facility and truck washes, thus avoiding the use of \$35,000 worth of natural gas. Beneficial use of the county's LFG reduces atmospheric emissions that are equivalent to 260,000 tons of carbon dioxide. The reductions in atmospheric emissions come from gas that would otherwise be emitted by the landfill if no collection system were in place, and by using the collected gas in place of fossil fuels. See www.fairfaxcounty.gov/dpwes/trash/dispmethrvc.htm.

Wastewater Reuse – The SWMP partnered with the county's wastewater treatment program to develop a wastewater reuse project. Under this project, about 1.3 million gallons of treated but non-potable water is pumped from the wastewater treatment plant to the waste-to-energy facility, where it is used as cooling water. Substituting non-potable for potable (drinking) water conserves water resources and reduces water purchase costs. See www.fairfaxcounty.gov/dpwes/wastewater/water_reuse/.

Other Sustainability Initiatives – The SWMP continues to pursue green initiatives. In 2011, the I-66 Transfer Station workers' facility was designed and built as a LEED Silver facility. At the I-95 Landfill Complex, the SWMP is exploring the development of additional power generating capacity. This project, part of the Lorton Green Energy Triangle, involves the possible installation of solar panel arrays on the cap of the closed landfill.



3.8 Community Outreach, Education and Stewardship

3.8.1 Community Stewardship Opportunities

A wide variety of Fairfax County programs engage adults and youth in volunteer opportunities and other hands-on environmental stewardship activities, including:

- **Stream Monitoring** – Volunteers monitor local stream health four times each year. Training, equipment and certification are provided by the Northern Virginia Soil and Water Conservation District.
- **Storm Drain Marking** – The county's network of storm drains directs stormwater to streams, not the wastewater treatment plant. As a result, substances dumped in the storm drains – from pet waste to trash – flow into county streams. To remind residents to protect the streams, program volunteers label storm drains with watershed-specific “no dumping” markers.
- **Stream Clean-ups** – Free supplies for litter cleanups in parks, streams and neighborhoods are provided through partnerships with community organizations including Clean Fairfax and the Alice Ferguson Foundation.
- **Tree Planting** – Fairfax County and partner organization Fairfax ReLeaf support volunteer tree planting in the spring and fall on community property, schoolyards and other sites.

More information about these and other watershed volunteer opportunities is available at www.fairfaxcounty.gov/dpwes/stormwater/volunteer.htm.

Other volunteer opportunities focus on county parkland, including:

- **Invasive Management Area Program** – This Fairfax County Park Authority (FPCA) program recruits and trains volunteers to lead and participate in invasive plant removal in county parklands. See www.fairfaxcounty.gov/parks/resources/ima/.
- **Trail Improvements** – FPCA has seven trail partner groups that have adopted sections of the Cross County Trail. Each group is responsible for oversight and routine maintenance of its individual section. Re-routings and other trail improvements are also coordinated through these groups. See www.fairfaxcounty.gov/parks/cct/.
- **Adopt-A-Field/Adopt-A-Park** – This program is a cooperative venture between FPCA and interested community organizations and citizens. Groups or individuals assume maintenance responsibility for designated park areas or facilities. Areas within parks may include flower beds.

playgrounds, stream valleys, trees and other points of interest. See www.fairfaxcounty.gov/parks/volunteer/wp-adopt.htm.

More information about volunteer opportunities in the parks is available at www.fairfaxcounty.gov/parks/volunteer/mdvol-main.htm.

County residents can also pursue service on one of the county's many boards, authorities and commissions that address environmental issues (see Section 1.2.3 of this report). Residents interested in serving on these committees should contact their Supervisors.

In addition to volunteer opportunities, the county and its partner organizations offer activities that promote environmental stewardship. A number of such activities are offered by the Northern Virginia Soil and Water Conservation District, including:

- **Sustainable Garden Tour** – Rain gardens, green roofs, porous pavers and other features are highlighted in this annual tour of innovative home, school and community gardens. See www.fairfaxcounty.gov/nvswcd/gardentour.htm.
- **Rain Barrel Program** – Participants build and take home low-cost rain barrels, reducing runoff and harvesting rainwater for reuse. Since 2007, more than 3,000 barrels have been distributed. See www.fairfaxcounty.gov/nvswcd/rainbarrels.htm.
- **Build-Your-Own Composter** – Each workshop participant builds and takes home a low-cost tumbler-style composter built from a recycled pickle barrel, gas pipe and pre-cut 2x4s. See www.fairfaxcounty.gov/nvswcd/announcements.htm.
- **Seedling Sale** – NVSWCD distributes low-cost native shrubs and trees to residents each spring for planting on private property. See www.fairfaxcounty.gov/nvswcd/seedlingsale.htm.



3.8.2 Presentations and Publications

One way the county promotes environmental awareness and stewardship is through its Facebook Environment page. Other ways include public education campaigns, presentations, awards and its website.

Young children can learn about a healthy environment with the “Stormy the Raindrop” program. This public education campaign encourages children to appreciate and take better care of their environment, and to pass on this desire to their peers and parents. The campaign includes two Stormy-themed activity books, puppet shows and numerous appearances at county events and venues. The program earned Best of Category in the National Association of Counties 2012 Achievement Awards. More information is available at www.fairfaxcounty.gov/dpwes/stormwater/stormy/.

For older children and teens, educational programs sponsored by the Fairfax County Park Authority (FPCA) supplement the hands-on activities described in Section 3.8.1. For example, the county's Hidden Pond Nature Center and Park offers school-age children programs on wetlands ecosystems – its most requested program topic – as well as those on reptiles and amphibians and rocks, minerals and soil. More information about the Hidden Pond Nature Center school programs is available at www.fairfaxcounty.gov/parks/hidden-pond/schoolmenu.htm.

Residents of all ages can watch television programs with environmental themes produced by the county and broadcast on its Channel 16 station. Programs include Can the Grease, Stop Bagging our Streams, Green Buildings and Live Energy Efficient Now. These and other programs are available on a video-on-demand (VOD) basis at www.fairfaxcounty.gov/cable/channel16/vod.htm.

Meetings, seminars, festivals and townhall meetings provide additional options to enhance energy and environmental awareness. Speakers from county agencies and partner groups give presentations to neighborhoods and other community groups on a range of topics. Master Gardener, Master Naturalist and Tree Steward courses educate and establish a volunteer base for environmental projects and programs. Green Breakfast presentations sponsored by the Northern Virginia Soil and Water Conservation District engage county residents six times a year on emerging and innovative green topics. Meetings of the Fairfax County Environmental Quality Advisory Council (www.fairfaxcounty.gov/dpz/eqac/) and other boards and commissions are open to the public and offer more opportunities to hear from speakers about environmental issues in the county.

Award ceremonies also create opportunities to further environmental awareness. For example, each year the Board of Supervisors recognizes those who dedicate their time and energy to benefit the environment and support county environmental initiatives. Since 2000, 54 Environmental

Excellence Award winners have been selected. These awardees, who have been honored by the Board of Supervisors during its public meetings, include 18 county residents, 17 organizations, nine businesses, and 10 county employees. A list of award recipients is available at www.fairfaxcounty.gov/dpt/eqac/awards.htm.

In addition to the VOD programs, the county's website offers a wealth of resources related to environmental awareness and stewardship. For example:

- The county's Energy Action Fairfax Web pages include energy-saving tips and innovative video presentations to help homeowners reduce their energy consumption. See www.fairfaxcounty.gov/energyactionfairfax/.
- Stewardship Brochures published by FCPA address topics ranging from beavers to wildlife conflicts, while its Nature Pages help visitors explore the county's environmental and cultural resources. See www.fairfaxcounty.gov/parks/resource-management.
- A Water Overview provided by the Department of Public Works and Environmental Services explains how the county manages various water uses - drinking water, stormwater and wastewater - and how residents can help keep water clean for future generations. See www.fairfaxcounty.gov/dpwes/environmental/water.htm.

3.9 Environmental Health

The Division of Environmental Health (DEH) provides public health services that protect the community from potential environmental hazards and exposures that pose a risk to human health—as the prevention of epidemics and spread of disease is one of the core functions of the Health Department. DEH has three program areas: the Consumer Protection Program; the Onsite Sewage and Water Program; and the Disease Carrying Insects Program. The primary services conducted by these programs include inspections, complaint investigations, commercial and residential plan reviews, surveillance and control activities and community outreach. DEH supports the general public, the regulated community and other agencies in encouraging healthy behaviors and maintaining voluntary, long-term compliance with state and local regulations.

DEH strives to integrate Health in All Policies (HIAP). By definition, HIAP recognizes that health and well-being are influenced by a variety of factors beyond health care, including the social and environmental conditions in our communities. HIAP is a collaborative approach to improving community

routinely rotated across years to help minimize pesticide resistance in local vector populations. See www.fairfaxcounty.gov/hd/westnile/.

Rabies – Rabies is a preventable viral disease of mammals most often transmitted through the bite of a rabid animal. The vast majority of rabies cases reported to the Centers for Disease Control and Prevention each year occur in wild animals like raccoons, skunks, bats and foxes. Domestic animals account for less than 10 percent of the reported rabies cases. State law and county ordinance require dogs and cats four months of age and older to be inoculated against rabies. See www.fairfaxcounty.gov/hd/rabies/.

Radon – Radon is a naturally-occurring radioactive gas produced by the breakdown of uranium in soil, rock and water. It cannot be seen, smelled or tasted. Long-term exposure to elevated radon levels is estimated to cause thousands of lung cancer deaths nationally each year. The Fairfax County Radon Potential Map provides a general description of radon within Fairfax County. The county Radon Web page also provides links for more information from the Virginia Department of Health and U. S. Environmental Protection Agency. See www.fairfaxcounty.gov/hd/elr/radon.htm.

Naturally-Occurring Asbestos – Naturally-occurring asbestos has been mapped in approximately 11 square miles of Fairfax County and Fairfax City. Asbestos-bearing rock is interspersed in the greenstone rock formations that underlie the surface soils in the orange soils group.

Surface exposures of these rock formations are not usually seen. See www.fairfaxcounty.gov/hd/chs/natural-asb.htm.

3.10 Noise, Light Pollution and Visual Pollution

While not traditionally considered to be sustainability issues, noise, light pollution and visual pollution can adversely affect the county's environment and quality of life.

3.10.1 Noise

The county has long had a Noise Ordinance that limits the noise that can be generated from stationary and other sources. Noise generated from airport and highway operations is not within the county's regulatory purview, however.

health by incorporating health considerations into decision-making across sectors and policy areas, including policies related to environmental sustainability and stewardship. The Health Department may participate in a Health Impact Assessment (HIA). HIA incorporates data, research, and stakeholder input to determine a project's potential impact on the health of a population and the environment.

DEH addresses sustainability within the following areas:

Ground and Surface Water – DEH regulates the design, installation, operation and maintenance of private sewage disposal and well water systems. Effective installation and maintenance allows for appropriate conveyance of sewage and protection of ground water and drinking water supplies from contamination.

DEH also partners with the Department of Public Works and Environmental Services to maintain the infrastructure of the public sewer system and reduce sanitary sewer overflows or accidental discharges to the environment. A brochure titled Understanding Your Grease Trap-Interceptor informs regulated food establishments of the procedures to prevent or reduce the amounts of fats, oil and grease (FOG) being discharged into the sewer. See www.fairfaxcounty.gov/hd/food/foodpdf/understanding-grease-trap.pdf.

Disease-Carrying Insects Program (DCIP) – The bite of an infected mosquito, tick or other vector of disease may result in a life-changing illness, such as West Nile virus, Zika virus, Chikungunya virus or Lyme disease. The DEH's Disease Carrying Insect Program, established in 2003, works to minimize the threat of vector-borne diseases through active surveillance, community education and vector management to help protect county residents. The DCIP utilizes an ecological approach to control pests of public health importance, guided by the principle of Integrated Pest Management (IPM). IPM combines appropriate pest control strategies into a unified, site-specific plan. The goal of an IPM program is to reduce pest numbers to acceptable levels in ways that are practical, cost-effective and safe for people and the environment. Pesticides are just one component of IPM that can be utilized in combination with other methods such as public education and personal protection—as behavioral change at the individual and community level can significantly reduce the need for pesticide applications. Most larvicides used by the DCIP are derived from naturally-occurring soil bacteria that specifically target mosquitoes, minimizing the impact on non-target organisms that may be beneficial to the environment. Products with different modes of action and active ingredients are

Although noise from airport operations is not addressed in the Noise Ordinance, the county has taken steps to ensure that land uses near Washington Dulles International Airport will remain compatible with airport operations into the future. The Zoning Ordinance includes an Airport Noise Impact Overlay District in the area of the county near the airport.

This district establishes interior noise standards and associated acoustical mitigation requirements that apply to development that is pursued within the district. Additionally, Comprehensive Plan policy recommends against new residential development within specific areas near the airport.

The Comprehensive Plan also provides guidance regarding land use compatibility near highways. Applying this guidance during the zoning process, the county has obtained commitments from developers to noise mitigation measures, including highway noise barriers and acoustical mitigation for noise-sensitive indoor areas.

A comprehensive set of links addressing various transportation and other noise-related concerns is available at www.fairfaxcounty.gov/dps/environment/noise.

3.10.2 Light Pollution

"Light pollution" is used to describe light output, primarily from exterior (outdoor) sources, that is excessive in amount and/or that causes harmful glare directed into: (1) the path of travel; (2) light-sensitive areas such as residential neighborhoods; or (3) the sky in general. Light pollution can occur in commercial, residential and roadway settings.

Light pollution can interfere with enjoyment of the night sky. Improper lighting can also waste energy. In recognition of these impacts, the county has established an Outdoor Lighting Ordinance. To reduce glare, the ordinance requires full cut-off lighting fixtures in most cases. Such fixtures prevent light from being emitted at or above a horizontal plane drawn through the bottoms of the fixtures.

The requirements of the Outdoor Lighting Ordinance do not affect the outdoor lights used by most homeowners. Requirements apply to roof and canopy lighting, architectural and landscape lighting, recreation/sports facility lighting and internally-illuminated signs. In addition, the ordinance establishes after-hours parking lot lighting reduction requirements for developed nonresidential lots that contain four or more parking light poles.

More information about the county's outdoor lighting rules is available at www.fairfaxcounty.gov/code/lighting/.

3.10.3 Visual Pollution

Litter, unkempt properties and poorly-placed signs are typically considered examples of visual pollution that degrades the environment. Fairfax County has taken steps to address visual pollution, including:

- Public outreach on litter-related issues. See www.fairfaxcounty.gov/dpwes/trash/litter.htm.
- A blight abatement program that provides for the reporting and remediation of vacated, dilapidated structures. See www.fairfaxcounty.gov/code/property/blight/.
- Zoning Ordinance limitations on signs. See www.fairfaxcounty.gov/dps/zoningordinance/articles/art12.pdf.
- A review process for proposed telecommunications towers. See www.fairfaxcounty.gov/dps/2232/submit_application.htm.

In addition, in early 2013, Fairfax County and the Virginia Department of Transportation (VDOT) finalized an agreement regarding signs placed in VDOT public rights-of-way. State law makes all such signs, including political advertising, illegal. The agreement authorizes the county, acting on behalf of VDOT, to remove the illegal signs and fine the offenders in accordance with state code.

SECTION 4

PROMOTING SUSTAINABLE COUNTY OPERATIONS

PROMOTING SUSTAINABLE COUNTY OPERATIONS

Featured in this Section

4.1	Introduction	89
4.2	Building Design and Construction	89
4.2.1	Green Building Policy for County Facilities	89
4.2.2	Green Roofs	91
4.3	Purchasing and Supply Management	92
4.3.1	Green Purchasing Program	92
4.3.2	Surplus Equipment	93
4.4	Facilities and Site Management	94
4.4.1	Energy Efficiency Upgrades	95
4.4.2	Energy Monitoring	96
4.5	Information Technology	96
4.5.1	Information Technology Energy Efficiency Initiatives	96
4.6	Waste Management	97
4.6.1	Landfill Gas Recovery and Reuse	97
4.6.2	Waste-to-Energy	99
4.6.3	Water Reuse	100
4.7	Vehicle Services	101
4.7.1	Hybrid and Electric Fleet	101
4.7.2	Other Vehicle Services Initiatives	102
4.8	Fairfax Employees for Environmental Excellence	103
4.9	Community Greenhouse Gas Emissions Inventory	105

SECTION 4

4.1 Introduction

Fairfax County government has long been proactive in its environmental stewardship, as described in the preceding sections. This section describes several of the county's innovative and successful efforts to implement environmental and energy goals for county facilities and operations. It concludes with a discussion of the county's greenhouse gas emissions inventory and results.

Significant efforts have been made over time to reduce the county's operational demand for energy through efficiency, conservation and education. The basis for these efforts is Fairfax County's strategic direction and commitment to achieve environmental and energy goals, including those set forth in the board's 2004 Environmental Agenda, the 2007 Cool Counties Initiative, the 2009 Energy Policy and the county's Comprehensive Plan.

Two collaborative inter-agency committees - the Environmental Coordinating Committee and the Energy Efficiency and Conservation Coordinating Committee - are vital to achieving these goals. These committees help ensure coordinated action across county agencies, authorities and schools. Their meetings provide a forum for participants to share project updates, discuss emerging trends and technologies, candidly review their experiences with equipment and systems and raise issues of mutual interest.

4.2 Building Design and Construction

4.2.1 Green Building Policy for County Facilities

In 2008, the county Board of Supervisors adopted the Sustainable Development Policy for Capital Projects, which is applicable to the construction of new county buildings and renovations or additions to existing buildings. The policy requires buildings with more than 10,000 square feet to be constructed to meet or exceed minimum green building standards. The policy applies only to county government capital projects. County public school projects are designed using the Virginia Collaborative for High Performance Schools criteria.

The 19,000 square foot facility achieved LEED Gold certification in April 2012 following a renovation and expansion.

The library incorporates energy-saving features that are expected to reduce annual energy use by about 20 percent when compared to similarly-sized conventionally-designed facilities. The library's energy-saving features include natural lighting and a lighting control system that varies the amount of light from overhead lighting fixtures based on the level of daylight in the space. These design and building elements reduce the need for artificial lights that consume energy and generate heat. Other energy saving features include high-efficiency ENERGY STAR compliant mechanical equipment and a roofing system that uses a combination of a highly-reflective roofing material and a green roof that covers about one-third of the building's roof. Both the reflective material and green roof reduce the need for cooling during the summer. The green roof also reduces stormwater runoff.

The library includes other green building features. The installation of water-efficient plumbing fixtures such as low-flow, sensor-operated faucets and dual-flush toilets is expected to reduce annual water use by about 30 percent when compared to similarly-sized conventionally-designed facilities. More than 80 percent of the construction waste was recycled and more than 50 percent of the library's construction materials were purchased regionally (within 500 miles of the project) to reduce transportation energy costs.

Information about the county's green building policy for its capital facilities, including a list of green buildings and their key features, is available at http://www.fairfaxcounty.gov/living/environment/coolcounties/county_green_buildings.htm.

The county's green building policies for private sector development are discussed in Section 3.2.4. These policies are found in the Environment section of the Comprehensive Plan and are implemented through the zoning process.

4.2.2 Green Roofs

The Dolley Madison Library renovation is one of several county capital facility projects that have incorporated a green roof. Other projects incorporating a green roof include the West Ox Bus Operations Center, Merrifield Center, Providence Community Center, the Great Falls Volunteer Fire Station and the Herndon Fire Station.

The county's government buildings are certified under established green building rating systems that recognize outstanding performance in several key areas:

- **Sustainable Sites** – discourages development on undeveloped land and seeks to minimize a building's environmental impacts.
- **Water Efficiency** – encourages the smarter use of water inside and out.
- **Energy & Atmosphere** – encourages the implementation of energy-wise strategies.
- **Materials & Resources** – encourages the use of sustainably produced materials and waste reduction, reuse and recycling strategies.
- **Indoor Environmental Quality** – promotes strategies that improve indoor air quality, acoustics and access to natural daylight.
- **Innovation in Design** – encourages the use of technologies and strategies that improve a building's performance.
- **Regional Priority** – encourages builders to consider and address local high-priority environmental concerns.

Currently, 22 county buildings have satisfied the certification criteria established by the Leadership in Energy and Environmental Design (LEED®) program of the U. S. Green Building Council; of these, 12 have been certified as LEED Gold buildings. Two buildings have received Green Globe certifications from the Green Building Initiative's environmental assessment and rating system for commercial buildings. There are 17 projects in design or construction that have the goal of achieving LEED Silver certification, and one project – the Huntington Levee project – is being designed to achieve a bronze-level rating under the Institute for Sustainable Infrastructure Envision rating system.

The Dolley Madison Library is one of the county's LEED Gold buildings.



A 5,000 square foot green roof is located on the upper level of the five-story Hertry Building parking garage in the Government Center complex. Its ability to absorb stormwater volume and related pollutants is monitored and compared to an unplanted area on the opposite side of the garage. This green roof – which can be seen from county offices that issue permits to developers and builders – also showcases the three varieties of green roofs.

Within the vegetated roof area, three different planting levels illustrate the three types of green roofs: extensive, semi-intensive and intensive. The largest area, which is planted predominantly with tiny, drought-tolerant plants called sedums, is of the extensive type. Extensive green roofs have shallow soil layers of three to four inches and are the most common, lightest and most low-maintenance type of green roof. Semi-intensive green roofs, like the shallow planters on the Hertry garage, have deeper soils – about four to eight inches – and support a greater variety of drought-tolerant plants, including shallow rooted perennials. Intensive green roofs are true roof-top gardens intended for public enjoyment, and can include water features, gardens and even trees and shrubs.

4.3 Purchasing and Supply Management

4.3.1 Green Purchasing Program

Fairfax County spends over \$700 million annually on goods and services. The Environmentally Preferable Purchasing Policy (EPP Policy) directly supports the Board of Supervisors' Environmental Agenda. The EPP Policy acts as a guiding form of reference and encourages county departments to consider the environmental impacts of the goods and services they purchase without compromising on quality or cost.

The Department of Procurement and Material Management (DPMM) manages the EPP Policy through the Green Purchasing Program. Using the competitive procurement process, county departments can partner with innovative contractors to help lower the county's operational impact on the environment while reducing cost. DPMM maintains a catalog of over 40 contracts for goods and services with demonstrated environmental benefits. The catalog includes LEED-compatible furniture, energy- and paper-saving copiers, water recycling car wash and services and carpet recycling. DPMM strives to choose materials with an inherently lower impact on the environment, such as materials from sustainably managed renewable resources, and to use recycled materials wherever possible without compromising quality. The program also includes a focus on

responsible equipment disposal, which has resulted in cost savings and serves as a model for sustainable resource recovery.

The Green Purchasing Program promotes identifying opportunities and best practices for the procurement of products and services that maximize recyclability and include recycled content. Over 50 percent of the county's office supplies purchased in FY 2014 and FY 2015, including all copy paper, had recycled content or green attributes; this accomplishment exceeds the average among peer governments. Recycled options provide both environmental and financial benefits. For example, the use of "Natural Choice" sustainable copy paper will bring an estimated cost savings to the county and schools of \$100,000 over a three-year period.

Other highlights of the Green Purchasing Program include:

- Considering the life-cycles of products purchased and used by the county, including end-of-life reuse or recycling options.
- Establishing a new office supply contract that offers over 6,500 "green" products that are verified and certified by third-party organizations as meeting specific environmental standards.
- Purchasing and using environmentally-friendly cleaning products in county facilities, where feasible.
- Partnering with the Fairfax Employees for Environmental Excellence, an advisory group of employees who embrace and support efforts that promote environmental awareness.

In addition to promoting and enabling green purchasing within the county, DPMM supports the national market for green solutions. DPMM continues its work with U.S. Communities, which hosts the combined potential purchasing power of up to 90,000 public agencies, to strengthen green language in national solicitations. The National Association of Counties holds DPMM as a proven success story for its green purchasing accomplishments and continued growth in its sustainability efforts.

More information about the county's Environmentally Preferable Purchasing Policy is available at www.fairfaxcounty.gov/news/2009/environmentally-preferable-purchasing-policy.htm.

4.3.2 Surplus Equipment

DPMM promotes responsible reuse and disposal of surplus items through a variety of approaches, including:

- Expanding recycling options by using trade-in, "producer responsibility" and take-back clauses in vendor contracts.

- Marketing and selling surplus equipment on consignment and by on-line and sealed-bid auctions.
- Fostering strategic donations of surplus equipment to charities that further the county's mission.

DPMM's on-line *Reuse, Sell, Recycle* program to manage county-wide surplus property is a notable success in this area. Its use of e-auctions, which are open to the public, optimizes revenue from the sale of surplus sporting goods, office furniture, office equipment, industrial machinery, tools, household and industrial appliances, fleet vehicles and specialized vehicles such as fire trucks and trash trucks. In addition, the on-line reuse program allows employees to shop for surplus equipment from their desks and have items delivered, all at no direct cost to the requesting department. The *Reuse, Sell, Recycle* program has increased the reuse rate, decreased disposal costs and saved thousands on the purchase of new equipment. In FY 2015, the county redistributed or sold 91.4 percent of excess surplus property, achieving \$2.0 million in sales revenue.

The county's internal electronics recycling program, begun in 2011, continues to evolve and now encompasses any item with a circuit board. This program led to the recycling of over 165,000 pounds of electronics over the past two years. This year, DPMM issued a new e-cycling contract with robust recycling options that include de-manufacturing the equipment for recycling and refurbishing components for continued use in new manufacturing. Other recycling initiatives address cell phones, toner cartridges, batteries, scrap metal, used tires and spent oil.

Using its toolbox of options, DPMM promotes and leads collaborative and innovative approaches to reducing waste. These approaches also improve the county's bottom line by reducing disposal costs and generating revenue. More information about DPMM's environmentally-responsible surplus equipment programs is available at www.fairfaxcounty.gov/dpmm/surplus.htm.

4.4 Facilities and Site Management

Fairfax County's Facilities Management Department (FMD) portfolio is comprised of 244 properties, totaling over 10 million square feet of space. This space includes offices, libraries, residential treatment facilities and 24/7 facilities such as adult detention facilities, fire stations and police stations. FMD's portfolio does not include facilities operated by the Department of Public Works and Environmental Services, the Park

Authority, the Redevelopment and Housing Authority or the Fairfax County Public Schools.

4.4.1 Energy Efficiency Upgrades

Energy management is an important focus area for FMD. Over a decade ago, FMD established the goal of reducing energy use by one percent per year, as measured in one thousand British thermal units (kBtu) per square foot. Recent numbers show FMD meeting or exceeding its goal, despite a substantial increase in the square footage of its portfolio. By reducing energy consumption, FMD reduces both greenhouse gas emissions and energy costs. During the period FY2012 through FY2014, FMD saved over a million dollars on utility bills.

FMD undertakes a wide range of energy improvement projects to achieve energy savings. It installs energy management control systems, right-sizes heating, ventilating and air conditioning (HVAC) equipment, installs lighting controls and efficient lighting, including LEDs, and replaces aging roofs, caulking and window sealant.

Energy improvements completed by FMD since 2012 include:

- 34 HVAC and plumbing component replacement projects.
- 22 roof replacement projects.
- 18 projects to replace window and building caulking and sealant.
- 8 LED lighting projects.

FMD's LED lighting projects include the replacement of 950 T-8 fluorescent fixtures in the underground Government Center parking garage with 420 LED fixtures with motion sensors, and the conversion of 650 fluorescent lamps at the Adult Detention Center to LEDs providing 24/7 illumination. FMD's HVAC energy improvements include an FY2014 project at the Government Center that replaced or retrofitted 644 variable air volume (VAV) boxes and added direct digital controls. This project is expected to reduce electricity consumption by up to 15 percent, as compared to the conventional pneumatic system that was replaced.

FMD also has undertaken improvements to reduce water use. Part of a multi-phase two-year project at the Government Center replaced all restroom and locker room flush valves and faucets with low flow, infrared sensor-operated fixtures and replaced shower heads with low flow fixtures. This aspect of the project has reduced water consumption by more than 45 percent, as compared to the prior year's usage.

4.4.2 Energy Monitoring

With over 700 utility accounts, computerized energy monitoring and evaluation are essential elements of FMD's energy management practice. Monitoring and evaluation are facilitated by automated energy management control systems that have been installed in 98 county buildings. FMD also uses data available from its energy management software to measure and track energy and water consumption.

Monitoring allows the county to make adjustments based on real-time information, rather than relying on the historical records of past bills. These adjustments yield immediate and continuing savings. Monitoring also allows FMD to identify cost-saving opportunities due to leaks, equipment inefficiencies or problems with building controls. Further, using the data available from its systems, FMD can more precisely determine the costs of operating the facilities in its portfolio and can determine the greenhouse gas emissions associated with that portfolio's energy consumption. This information provides key inputs to the county's annual calculation of its greenhouse gas emissions.

4.5 Information Technology

4.5.1 IT Energy Efficiency Initiatives

Fairfax County's Information technology (IT) infrastructure is designed to ensure the continuous delivery of quality services in a cost-effective and resource-efficient manner. Energy efficiency IT initiatives reduce the power consumption of IT equipment, decrease the emission of greenhouse gases and reduce the county's carbon footprint.

Virtualization and cloud-computing technologies are the foundation of the county's agile enterprise infrastructure architecture. Elements of this strategic approach include consolidating and standardizing IT resources while still ensuring visibility, security and accountability. The county's server virtualization and consolidation initiative, which was established in FY 2007-2008, was funded in part by an FY 2010 federal stimulus award for energy efficiency projects. This initiative reduced the need for physical servers from 870 to fewer than 300.

The FY 2010 federal stimulus award also helped accelerate the deployment of a personal computer (PC) power management program. The "NightWatchman" program automatically shuts down almost 11,200 end-user PCs across 55 offices when not in operation. In 2015, reductions in PC-related electricity use saved \$240,228 in electricity costs and

avoided the emission of 5.19 million pounds of carbon dioxide. The NightWatchman program also supports the county's virtualization initiative. Because it measures server workloads, the program helps determine which servers are underutilized and thus good candidates for virtualization and consolidation.

Both the virtualization initiative and PC power management programs have been nationally recognized for achieving carbon reductions and operational efficiencies. More information about Fairfax County's IT program and initiatives is available at <http://www.fairfaxcounty.gov/dit/itplan/>.

4.6 Waste Management

4.6.1 Landfill Gas Recovery and Reuse

Landfill gas (LFG) is essentially an equal mixture of methane and carbon dioxide that is a by-product of the decomposition of organic matter buried in sanitary landfills. Fairfax County recovers LFG from several hundred gas wells at the county's two landfills and, after conditioning, uses the LFG to produce electricity, incinerate bio-solids and heat maintenance facilities. The county's LFG use prevents the release of an estimated 260,000 tons (CO₂ equivalents) of greenhouse gases annually.



Electricity Generation – The county's LFG operations began in 1990 at the I-95 Landfill Complex. This landfill complex is one of the largest LFG wellfield and electrical generation networks in the Commonwealth of Virginia. Although it has been operating for more than 20 years,

4.6.2 Waste-to-Energy



The Energy Resource Recovery Facility (ERRF) uses municipal solid waste to generate enough electricity to power about 40,000 homes plus the facility itself.

In a multi-step process, the heat from burning waste produces steam that turns turbines capable of generating over 80 megawatts of electricity. With four industrial boilers that can burn over 3,000 tons per day of solid waste – or about 1.1 million tons per year – the ERRF is one of the largest waste-to-energy facilities in the country. The ERRF, which is located adjacent to the I-95 Landfill Complex, has been in operation since 1990.

Using solid waste to generate electricity avoids both the cost and emissions of using a fossil fuel to produce the electricity. Since 1990, energy production by the ERRF has replaced the equivalent of approximately two million barrels of crude oil per year. Incineration of municipal solid waste at the ERRF has other environmental benefits.

- As a result of pre-incineration sorting, enough metal is recycled each year to build over 20,000 automobiles.
- Incineration reduces waste by up to 90 percent in volume, leaving an ash product that is landfilled.
- Incineration prevents one-half ton of greenhouse gas emissions from entering the atmosphere for every ton of garbage incinerated, making the county's waste-to-energy operation carbon-neutral to negative.

The ERRF is heavily regulated, subject to continuous emissions monitoring, and Covanta Fairfax is required to report to regulators if the ERRF exceeds emissions limits.

approximately 2,000 cubic feet/minute (cfm) of LFG is captured from the I-95 landfill. About 1,600 cfm is used to fuel generators at the site. In 2015, these generators produced approximately 4.5 megawatts of electricity – enough to power about 2,450 homes in Fairfax County, given current standards that assume average monthly residential electric use of 1,772 kilowatt hours per month. This electricity is sold directly to wholesale electric market, helping keep the Solid Waste Management Program a self-funded agency.

Incineration – A three-mile pipeline transmits LFG from the I-95 landfill to the nearby Noman M. Cole, Jr. Pollution Control Plant at a rate of up to 700 cfm. The LFG is used in the plant's incineration process to destroy bio-solids and to fuel afterburners that reduce hydrocarbon emissions. The plant's use of LFG from the I-95 landfill saves Fairfax County about \$160,000 per year that it would otherwise spend on natural gas.

Heating – At the I-466 Transfer Station site, LFG is used to provide heating at an on-site maintenance shop, at the truck wash and at a 10-bay vehicle garage nearby. Savings from these heating projects at the I-95 and I-466 facilities is estimated at approximately \$35,000 annually.

In 2005, the U. S. Environmental Protection Agency designated Fairfax County as *Landfill Methane Outreach Program Community Partner of the Year*. More information about Fairfax County's LFG projects is available at <http://www.fairfaxcounty.gov/dpwes/trash/dispmethrvc.htm>.

The Energy Resource Recovery Facility is privately owned and operated by Covanta Fairfax, Inc., a subsidiary of Covanta Energy, under contract to Fairfax County. More information about the facility is available at <http://www.fairfaxcounty.gov/dpwes/trash/dispomsf.htm>.

4.6.3 Water Reuse



Fairfax County's Water Reuse Program delivers clean but non-potable water from the Noman M. Cole Jr. Pollution Control Plant to non-residential customers for irrigation and industrial purposes. Reusing water conserves valuable treated drinking water and reduces the amounts of nitrogen and phosphorus that reach the Chesapeake Bay. Water reuse also generates revenue for the county.

The program sells water that is not safe for drinking but is safe for other uses, such as watering lawns. Prior to delivery, the water is extensively filtered and disinfected and thoroughly treated to remove harmful organisms and substances, including bacteria, viruses and heavy metals. The Pollution Control Plant continuously monitors and tests the quality of this reclaimed water to ensure it exceeds strict state and federal requirements.

To avoid confusion, every pipe that carries the reclaimed water is painted purple and purple signs are posted at any public location where reclaimed water is being used.

The program delivered 463 million gallons of reclaimed water in 2015.

A purple water reuse pipeline installed along Lorton Road connects the Pollution Control Plant to the county's waste-to-energy plant, the Energy Resource Recovery Facility. This pipeline delivers treated reclaimed non-potable water to the waste-to-energy plant each year for its use in generating electricity. The pipeline also delivers reclaimed water to both the Laurel Hill Golf Course and the Lower Potomac Ball Fields for irrigation purposes.

The county's use of reclaimed water has both economic and environmental benefits. It requires an estimated 2,300 kilowatt hours of electricity to pump, treat, transmit and distribute one million gallons of potable water. The electricity use associated with reclaimed water is substantially

reduced because the water is not treated to the levels required for potable water. Lower electricity costs translate to lower purchase costs. Reductions in electricity use also translate to reductions in greenhouse gas emissions. County staff estimates that using reclaimed water saves approximately 1.1 pounds of equivalent carbon dioxide (CO₂e) per kilowatt hour, based on the mix of generation sources that supply electricity to the Northern Virginia region.

More information about Fairfax County's water reuse is available at http://www.fairfaxcounty.gov/dpwes/wastewater/water_reuse/.

4.7 Vehicle Services

The Department of Vehicle Services (DVS) provides management and maintenance services to the county's vehicle fleet and maintenance support to the Fairfax County Public Schools. The Department of Transportation (DOT) provides, among many other services, the Fairfax Connector transit bus system for public transportation throughout the county. Both agencies strive for economically responsible environmental stewardship by working increased fuel efficiency and reduced emissions and petroleum consumption characteristics into vehicle specifications.

4.7.1 Hybrid and Electric Fleet

DVS's responsibilities include management of the county's Vehicle Replacement fund. In response to the county's desire for cleaner and more energy-efficient vehicles, DVS has included hybrid-electric vehicles in its Vehicle Replacement program, where appropriate. As a result, a conventional gasoline-fueled county fleet vehicle at the end of its service



life may be replaced with a hybrid vehicle, if acceptable to the using agency and conditions warrant.

The county's fleet includes 117 hybrid-electric and plug-in hybrid-electric vehicles. The county saves over 16,000 gallons of gas on average each year from its use of hybrid vehicles. The county fleet also includes six all-electric vehicles.

In 2011, the Fairfax County Environmental Quality Advisory Council (EQAC), an appointed citizen advisory board, selected DVS as one of two recipients of EQAC's annual Environmental Excellence Award. The award recognized DVS's strong environmental stewardship as demonstrated by initiatives including the development and continuing expansion of a hybrid-electric vehicle fleet.

4.7.2 Other Vehicle Services Initiatives

Specifications for new vehicles purchased by DVS and DOT include features designed to reduce emissions and increase fuel efficiency.

In FY2015, DVS purchased 132 school buses with Selective Catalytic Reduction (SCR) technology. SCR meets the EPA2010 requirement of providing engine emissions to near zero (a NO_x level of 0.2 grams per brake horsepower hour). Since 2009, DOT has included variable frequency cooling fans in the buses it purchases. These fans have reduced fuel consumption by 12 percent compared to vehicles with hydraulic fans. Currently, 184 Fairfax Connector buses, or 65 percent of the fleet, are equipped with variable frequency cooling fans.

DVS and DOT also have established a number of initiatives to improve the energy and environmental performance of the vehicles they manage and maintain. For example:

- To reduce fuel consumption and vehicular emissions, DVS and DOT programmed automatic idle shutdown into all county solid waste trucks and Fairfax Connector buses.
- DOT transitioned to nitrogen filled tires to provide longer life and increased fuel mileage.
- DVS retrofitted 1,012 school buses and 113 heavy duty trucks with exhaust after-treatments that reduce particulate emissions.

Information about the county's green fleet initiatives is available at www.fairfaxcounty.gov/living/environment/coolcounties/countyefforts_greenvehicles.htm.

4.8 Fairfax Employees for Environmental Excellence

The Fairfax Employees for Environmental Excellence (FEEE) serves as Fairfax County's employee green team. FEEE's goal is simple: to foster a greener workplace culture. FEEE encourages employees to take advantage of existing environmental programs, including recycling and a green purchasing option. FEEE also encourages employees to use their diverse perspectives to develop creative solutions that can minimize the environmental impact of county operations.

Cumulatively, the simple, habitual behaviors of Fairfax County's 12,000 employees can have significant environmental impact. Examples include deciding which office supplies to buy, whether to use the recycling bins or, in those offices without occupancy sensors, whether to turn the lights off after the work-day. FEEE believes that routine and forgetfulness are the most common impediments to environmentally-responsible action in the work-place. As a result, FEEE focuses on employee behavior.

FEEE is especially known for its action campaigns. Many of these campaigns, like FEEE's 2011 "Junk the Junk Mail," are friendly competitions intended to raise awareness about simple but environmentally-responsible activities. FEEE's junk mail competition reduced junk mail overall by 70 percent among participants. The winning agency, the Office of Public and Private Partnerships, achieved a 93 percent reduction. After the conclusion of FEEE's 2012 friendly competition, "Take the Stairs Week," county staff reported opting for the stairs over the elevator nearly 3,000 times.

Other FEEE initiatives include:

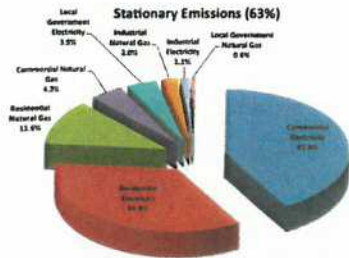
- Using its internal website and blog to disseminate information and tips. Because it offers two-way communication, the blog has the added advantage of allowing employees across the organization to join the conversation.
- Highlighting innovative green ideas on the FEEE website and through FEEE's award program, "Fairfax Sustainability Champions."



- Hosting lunch-and-learn events. Recent events include a stream restoration tour, a green roof tour and the display of a replica green office.
- Hosting an annual "Green Lounge" that coincides with the county's Administrative Professionals Conference. Attractions include raffles, a mock "green" cubicle and information on sustainability issues.
- Distributing over 700 of its branded green lanyards to county employees to help spread the word about FEEE.

In less than six years, FEEE has grown from an initial group of 15 to nearly 400 employees interested in a greener workplace culture. By empowering employees to exercise environmental responsibility, FEEE has helped the county realize a range of benefits, including cost savings and increased recycling revenue.

4.9 Community Greenhouse Gas Emissions Inventory



Fairfax County has created a community greenhouse gas (GHG) emissions inventory to provide a baseline measurement, as well as to guide future efforts to reduce emissions.

The inventory establishes 2006 as its baseline year. It then tracks annual stationary and mobile emissions for the five-year period from 2006 through 2010.

Stationary sources are defined as buildings or other fixed, energy-consuming property not attributable to federal or state governments. Mobile emissions are defined as those associated with on-road traffic originating in and passing through the county, as well as light rail, off-road vehicles and mobile machinery. The GHG inventory includes both direct (Scope 1) emissions generated within the county and energy-related indirect (Scope 2) emissions. Scope 2 emissions result from purchased electricity that is consumed inside the county, regardless of where it was generated.

During the review period, stationary sources accounted for 63 percent of the county's total GHG emissions, primarily from electricity use. The majority of stationary emissions – 76.4 percent – were attributable to electricity and natural gas consumed by the residential and commercial sectors: 46.4 percent and 45.9 percent, respectively, of total emissions from stationary sources. Electricity and natural gas consumption by Fairfax County government and schools accounted for 4.5 percent of total stationary emissions.

Mobile sources accounted for the remaining 37 percent of total emissions during the review period. On-road vehicles accounted for 89 percent of total mobile emissions. Of this 89 percent, 46 percent was attributable to vehicles passing through the county (transient vehicles) and 43 percent to vehicles registered in the county (local vehicles).

From 2006 to 2010, total emissions per resident declined by one percent. Fairfax County's baseline 2006 GHG emissions by source and sector are shown in the table below.

Emissions Category	Baseline (2006) GHG Inventory	
	MMTCO ₂ e	% Total Emissions
Stationary Sources		
Residential	3,458	29%
Commercial	3,420	29%
Local government	0,339	3%
Industrial	0,233	2%
Mobile Sources		
Passenger vehicles	2,822	24%
Heavy trucks	0,596	5%
Light trucks	0,486	4%
Other	0,464	4%
TOTAL	11,838	100%

The inventory is available at <http://www.fairfaxcounty.gov/living/environment/greenhousegas/greenhouse-gas-inventory.htm>.

SECTION 5

ENVIRONMENTAL IMPROVEMENT PROGRAM: OBJECTIVES AND FUNDED PROJECTS

ENVIRONMENTAL IMPROVEMENT PROGRAM: OBJECTIVES AND FUNDED PROJECTS

Featured in this Section

5.1 Introduction	109
5.2 Objectives	109
5.3 Fiscal Year 2016 Environmental Improvement Program Projects	110
5.3.1 The EIP Projects Selection Process	110
5.3.2 Fiscal Year 2014 Carryover Review & Fiscal Year 2016 Funding and Projects	111
5.4 Environmental Improvement Program Delivered Projects History	115

SECTION 5

5.1 Introduction

The Environmental Improvement Program (EIP) was first developed in 2005 by the county's Environmental Coordinating Committee (ECC) in response to direction by the Board of Supervisors following the adoption of its *Environmental Agenda* on June 21, 2004. The ECC is a collaborative interagency management committee established to ensure an appropriate level of coordination and review of the county's environmental policies and initiatives.

The EIP provides the County Executive and board with environmental and energy action-oriented opportunities to support board-adopted environmental and energy policies and goals. The EIP is updated annually through a coordinated and collaborative process. See www.fairfaxcounty.gov/living/environment/eip for further information regarding the EIP.

The Department of Management and Budget, with input from the county executive and his/her deputies, determines the appropriate level of funding that will be proposed for EIP projects in any given budget year. Since the EIP project funding is supported by the county's General Fund, the amount of funding available varies from year to year. See Section 2.4.2 in this report for more information regarding the EIP. This section describes the EIP projects solicitation, selection and funding process, and provides details on current projects and a listing of past projects.

5.2 Objectives

Good environmental quality is essential for everyone living and working in Fairfax County. A healthy environment enhances our quality of life and preserves the vitality that makes Fairfax County a special place to live and work. However, rapid growth and development that have characterized Fairfax County over the past half century and that continue today have challenged the county's ability to maintain good environmental quality. Federal and state guidelines and regulations have demanded not only extra diligence in the development of concrete strategies for a healthy environment, but also inter-jurisdictional coordination to address pollution that knows no boundaries.

Stewardship and prudent management of our natural environment and resources are not merely "add-ons," or afterthoughts, but rather are essential and fundamental responsibilities that must be given fullest

108 Sustainability Initiatives

many high-quality environmental projects beginning with the FY 2014 adopted budget (July 1, 2013 - June 30, 2014).

Under this process, each fiscal year, county agencies have the opportunity to submit proposed projects for review, scoring and consideration. An agency must include technical analysis, including cost/benefit information, as part of its submission. After the submission period closes, a staff committee conducts agency interviews for each project, then evaluates and prioritizes all proposals. A final matrix of prioritized projects is submitted to the Department of Management and Budget and the Deputy County Executive for consideration in the County Executive's advertised budget.

Staff-developed submission criteria provide guidance to the agencies as they identify and develop their project proposals. Selection criteria guide committee members as they evaluate and prioritize the projects. Both the submission and selection criteria are derived from the board's *Environmental Vision* and the six core service areas it addresses: Growth and Land Use; Air Quality and Transportation; Water Quality; Solid Waste; Parks, Trails, Open Space; and Environmental Stewardship.

The EIP selection process occurs over a period of months, as shown by this timeline:

- July: Memo sent to agencies soliciting submission of EIP proposal(s) for funding consideration.
- August: EIP Project Selection Committee (PSC) screens proposals to confirm compliance with submission criteria. Additional information may be requested from agencies, if necessary.
- September: PSC conducts preliminary scoring of proposals and schedules interviews.
- October: Agencies present proposal(s) to PSC and address questions. PSC concludes final scoring based on preliminary score and presentations, and presents its final list of prioritized EIP projects to the Deputy County Executive.
- November: Deputy County Executive presents final prioritized list of EIP projects to the County Executive.

5.3.2 FY 2017 Funding and Projects

The County Executive included \$535,000 for EIP projects in the FY 2017 *Advertised Budget Plan*. The specific projects are detailed below.

consideration at all times. Good stewardship doesn't involve "rescuing" nature from environmental disasters; it involves long-term strategic planning that minimizes any possibilities of such emergencies occurring. Clearly, cooperation among county residents, government leadership and agencies will be required to effect lasting solutions to the environmental challenges we face. The EIP serves as a primary mechanism through which such planning occurs.

Fairfax County has long recognized the need for proactive policies and initiatives to address its environmental challenges. Indeed, environmental considerations are embedded in the county's policy and regulatory documents, and the county has pursued a myriad of environmental initiatives that continue to grow in number and complexity. The county's dedication to meeting its environmental challenges is reflected in the numerous awards and recognitions it has earned, including designation by the Chesapeake Bay Program as a Gold Chesapeake Bay Partner Community. Other awards and recognitions are listed in Section 6. Nevertheless, both the board and county staff recognize the need for enhanced environmental efforts, in that environmental challenges are continuing and in many cases becoming more daunting.

5.3 FY 2017 EIP Projects

Fairfax County supports environmental initiatives in the board-adopted *Environmental Excellence 20-year Vision (Environmental Agenda)* through several county agencies and funds. There are also many environmental initiatives and projects carried out by individuals and groups each year. Section 2.4 provides a broad discussion of funds used for environmental efforts.

This section focuses on environmental initiatives and projects that are supported through the EIP, which funds projects identified through a collaborative and coordinated process, and based on a rigorous project selection process.

5.3.1 The EIP Projects Selection Process

In its 2012 *Annual Report on the Environment*, the Environmental Quality Advisory Council (EQAC) recommended that the EIP project selection process be formalized. In response to this recommendation, an interagency staff committee developed a rigorous project selection process to support the board-adopted *Environmental Vision*. This process, which was reviewed and supported by EQAC, has resulted in funding for

Sustainability Initiatives 110

Invasive Management Area Program – An amount of \$150,000 was included to continue the Invasive Plant Removal Program. The Park Authority manages this volunteer program, as well as other invasive removal initiatives. These programs restore hundreds of acres of important natural areas, protect tree canopy, and reach thousands of volunteers. Currently more than 12,000 trained volunteer leaders have contributed 37,400 hours of service since the program's inception in 2005, improving over 1,000 acres of parkland.

Green Purchasing Program – An amount of \$5,000 was included for the Green Purchasing Program. This program is designed to support limited term staff to assist in clearly specifying environmental attributes during the county's procurement process. Fairfax County has a current inventory of over 2,400 contracts, emphasizing environmental attributes such as recycling, energy efficiency, durability and reduced toxicity during the procurement process can contribute to the purchase of green products, creating fiscal and environmental savings.

Watershed Protection and Energy Conservation Matching Grant Program – An amount of \$75,000 was included for the Watershed Protection and Energy Conservation Matching Grant Program. This program is intended



to support the Energy Education and Outreach Initiatives and promote community engagement around sustainability and conservation issues. Specifically, the Watershed Protection and Energy Conservation matching grant program provides financial incentives to empower homeowners through their associations to implement on-the-ground sustainability projects. The initiative builds on current programs that provide technical assistance, hands-on support, outreach and education to Fairfax County

homeowners and residents. Projects will improve water quality, reduce greenhouse gas emissions and conserve energy and water. The \$75,000 program funding level will provide for: printing and materials; matching grants of \$500 – \$3,500 up to \$30,000 total for all grants; and one limited term full-time position to support the program, conduct outreach and education, site assessments, inspections and other responsibilities.



Lighting Retrofits – An amount of \$105,000 was included for lighting retrofits and upgrades at Fairfax County Park Authority facilities for energy efficiency and conservation. Lighting will be upgraded to LED fixtures and lighting controls will be installed to manage operating hours more efficiently. These energy saving retrofit replacements will reduce approximately 80 percent of energy usage, improve lighting, reduce the Greenhouse gas inventory and reduce light pollution.



Water Conservation Measures – An amount of \$95,000 was included to install waterSMART web-based irrigation controllers utilizing ET (Evapotranspiration) weather technology at park facilities that have existing irrigation systems. Smart irrigation controllers poll local weather data and review soil conditions on a daily basis to automatically schedule watering times. Along with weather monitoring, smart irrigation controllers monitor water flow, which allows the system to report out via text or email any leak or system malfunction. The system will also shut off all water completely if it detects a

major main line break. With weather and flow monitoring, smart irrigation controllers can reduce water irrigation consumption and pumping by 20 to 40 percent. This in turn can result in a 10 to 20 percent electrical savings as well.

Pool Pump Efficiency Measure – An amount of \$55,000 was included to install Variable Frequency Drives (VFDs) at five RECenter pools. A VFD is a type of adjustable-speed drive used to control motor speed by varying motor input frequency and voltage. VFDs have been shown to increase performance in pool pumping applications. A VFD could save up to 60 percent or more on a pump's electricity usage. The pool pump will operate more efficiently, which will result in cost savings to the county due to lower electricity use and reduced maintenance costs.

VFD for Providence Pool Pump



Project	Ampereage before	Ampereage after	Energy Saving
PROVIDENCE VFD	25	18	28%

- Variable Frequency Drive (VFD)
- Control AC Motor Speed
- Control Motor Input
- Motor Soft Start
- Decrease Motor Hummer
- Higher Performance
- Lower Maintenance Costs
- Save Energy

Protected Bike Lane Demonstration Project – An amount of \$50,000 was included to construct a protected bike lane demonstration project in Tysons on Virginia Department of Transportation (VDOT) Right-of-Way (ROW). Every year, VDOT repaves select roadways throughout Fairfax County. In conjunction with VDOT's repaving work, Fairfax County Department of Transportation (FCDOT) has successfully created over 50 miles of bicycle facilities. This demonstration project will build upon the existing coordination efforts with VDOT to create the county's first protected bike lane on Westbranch Drive from Jones Branch Drive to Westpark Drive in Tysons Corner; this bike lane will be part of the county's bicycle network. A protected bike lane is a required safety enhancement in certain areas because of the high volume and proximity of automobile traffic to the bicyclists.

In addition, an amount of \$58,140 has been provided in Fund 10030, Contributory Fund, to continue partnering with two nonprofit agencies to support tree planting efforts throughout the county.

5.4 EIP Delivered Projects History

EIP projects were first funded as part of the FY 2004 Carryover Review (September 2004). To date, the total EIP project funding, including the current FY 2017 Adopted Budget Plan, is roughly \$8.22 million. These initiatives generally support the Board of Supervisors Environmental Vision.

The projects listed below have been supported by the county's General Fund; however other environmental projects have been supported by the Energy Efficiency and Conservation Block Grant (as part of the American Recovery and Reinvestment Act of 2009) and by the county's Contributory Fund (the letter of which funded tree planting partnerships with three nonprofit organizations). In addition, as discussed in Section 2.4, several important environmental program areas and initiatives are supported through funding sources outside of the EIP and General Fund.

Projects funded through the EIP to date include:

- Purchase of wind energy.
- Air quality education and Clean Air Partners (media sponsorship to continue public outreach to improve air quality).
- Conversion of 163 Fairfax Connector buses to ultra-low sulfur fuel and addition of particulate traps to reduce emissions.
- Community cleanup/revitalization/blight abatement projects.
- Toxicity reduction public outreach program.
- Expansion of the business recycling program.
- Pedestrian improvements in the Richmond Highway corridor.
- Riparian buffer restoration.
- Cleanup of unauthorized dumpsites.
- Park Authority stewardship education.
- GIS-data green infrastructure for park natural resource management.
- Low Impact development demonstration projects.
- Park trails mapping (comprehensive mapping program to allow the Park Authority to better manage and plan the trail system).
- Invasive Management Area program.
- Landfill gas utilization project at the I-66 and I-95 Landfills.
- Remote household hazardous waste collection events.
- Tree canopy campaign at county facilities.
- Energy efficiency/renewable energy at county facilities.

- Litter campaign.
- Lighting retrofits and upgrades at Fairfax County Park Authority facilities.
- Energy education and outreach.
- Green Purchasing Program.
- Water conservation and efficiency measures at park golf courses and facilities.
- Watershed Protection and Energy Conservation Matching Grant Program.
- Water Conservation Measures at park facilities.
- Energy Efficiency Measures at RECenter pools.

SECTION 6

AWARDS AND RECOGNITIONS

Sustainability Initiatives 118

SECTION 6

6.1 Selected Awards and Recognitions

2016 Public Technology Institute (PTI) Sustainability Solutions Significant Achievement Award – Smart Irrigation Systems. Fairfax County Park Authority (FCPA) replaced the existing Irrigation controllers with a smart irrigation control system that is web based and works off of local weather data to automatically adjust watering times. The system is beneficial for several reasons:

- The system saves water consumption due to the fact that it will only water when needed. If it is cloudy for several days and there is not much evaporation, the system will dial back watering times or postpone watering completely.
- The system is able to learn flow for each particular zone. If it notices a spike in flow (i.e., a broken head), it will shut off that zone and send an email or text alerting that there is a problem. If the system senses flow and the system is not scheduled to water (i.e., main line break), it will shut the water off completely and send an email or text.
- The system is Web based and has a smart phone app. If a problem is reported to FCPA, it has the ability to shut off the water from anywhere at any time. The manufacturer reports that smart irrigation technology can save 20% - 40% on water consumption.

2015 Public Technology Institute (PTI) Sustainability Solutions Significant Achievement Award – Athletic Courts Lighting Control. Fairfax County Park Authority (FCPA) installed Push Button Strobe Control Units for all tennis courts lighting systems. The system is beneficial for several reasons:

- The system saves electricity consumption due to the fact that it will only turn on the lights when needed. The lighting for each set of the courts is controlled separately.
- The push button strobe lighting controls allow players to activate the courts lighting only when needed, and automatically shut off the lights when a predetermined amount of time has expired, or an OFF button is pressed.
- Astronomical time clocks are part of the system to ensure the push button controls are only active during hours specified by Fairfax County park authority, so daylight saving is considered in this system.
- With less use of the lighting system, energy cost and also maintenance cost will be lower.



AWARDS AND RECOGNITIONS

AWARDS AND RECOGNITIONS

2015 National Association of Counties (NACo) Best in Category Achievement Award in the category of Children and Youth. The NACo award honored the Stream Crime Investigation laboratory that teaches high school students about stormwater, watersheds and water quality monitoring. The lab exercise replicates how stormwater professionals identify and track the sources of pollutants in a storm drainage network.

2014 Best Urban Best Management Practice (BMP) in the Bay Award (BUBBA) in Habitat Creation. The Brookfield Park wet pond rehabilitation project won second place in the best habitat creation category in the award contest sponsored by the Chesapeake Stormwater Network. Several divisions of the Department Works and Environmental Services and the Fairfax County Park Authority worked together to restore the dam in the Brookfield Park and plant native vegetation for habitat.

2014 National Association of Counties (NACo) Best in Category Achievement Award in the category of Environmental Protection and Energy. NACo awarded the Stormwater Planning Division of the Department of Public Works and Environmental Services for developing "A Field Guide to Fairfax County's Plants and Wildlife". The field guide was developed collaboratively with stormwater staff and Fairfax County Public Schools as part of the fifth grade science curriculum to highlight the links between ecology and our watersheds.

2013 and 2014 National Association of Clean Water Agencies (NACWA) Platinum Peak Performance Award. Platinum Awards recognize outstanding compliance with National Pollutant Discharge Elimination System (NPDES) permit limits for five or more consecutive years. At the time of the 2014 award, Fairfax County's Norman M. Cole Jr. Pollution Control Plant had achieved 100 percent NPDES compliance for 16 consecutive years – one of only nine municipal water treatment plants across the nation to do so.

2013 National Association of Counties (NACo) Best in Category Achievement Award in the category of Environmental Protection and Energy. The NACo award honored the county's Government Center stream restoration project, an innovative water quality project that included a stream restoration and pond retrofits on county property. NACo Achievement Awards recognize innovative county government programs in one of 21 different categories.

2013 The Coalition for Smarter Growth Sanders-Henn Community Hero Award. The non-profit group honored county staff in the areas of planning.

revitalization, transportation, housing, parks and public services for their on-going efforts to make Tysons a green, walkable urban center.

2013 National Association of Government Communicators (NAGC) Best in Show Award. The Best in Show Award, selected by the NAGC Board of Directors from all first-place Blue Pencil & Gold Screen winners, was presented to the Fairfax County Park Authority for its invasive plant control program, "Take Back the Forest." This program, which involves a partnership between county government, county schools, and REI, Inc., brings more than 500 volunteers into parks over a 30-day period to remove non-native invasive plants and replace them with native plants.

2013 Virginia Recreation and Park Society Award. The Fairfax County Park Authority was recognized for its Huntley Meadows Wetland Restoration in the Best New Renovation/Addition - Parks, Playgrounds, Blueways, Greenways and Trails category for populations of greater than 100,000.

2012 NACO Best in Category Achievement Award for the "Stormy the Raindrop" public education campaign. The campaign, which was developed by the Stormwater Division of the county's Department of Public Works and Environmental Services, centered on a child-friendly character named Stormy the Raindrop.

2012 NACWA Excellence in Management Award. This award acknowledges significant achievements in the utility management arena. It honors agencies that have implemented and sustained, for a continuous three-year period, successful programs that address the range of management challenges faced by public clean water utilities in today's competitive environment.

2011 American Planning Association Daniel Burnham Award. This award, which recognizes advancement of the science and art of planning, is granted to only one urban plan in the nation each year. The APA honored the Comprehensive Plan for the Tysons Corner Urban Center. Plan elements include a tiered approach to density that is focused around four transit stations, a long-term goal of reducing the jobs-to-household ratio from 13:1 to a more balanced 4:1, incentives to reserve 20 percent of new housing units for moderate-income households, and innovative stormwater management facilities designed to retain at least the first inch of rainfall on site.



2011 The Governor's COVITS (Commonwealth of Virginia IT Symposium) Award for Innovation in Local Government. The county was honored for its introduction of mobile applications that provide 24/7 access to government information and services for users of iPhone/iPad, Android and BlackBerry devices.

2011 Governor's Environmental Excellence Bronze Award, Government Category, for stormwater outreach. The Governor's Environmental Excellence Awards recognize the significant contributions of environmental and conservation leaders in the areas of sustainability and land conservation.

2010 National Recreation and Park Association (NRPA) Gold Medal Award, Class 1 Category (population 250,000 and over). The Fairfax County Park Authority was awarded the NRPA Gold Medal for demonstrating excellence in long-range planning, resource management, and agency recognition.

2010 Virginia Mosquito Control Association (VMCA) Outstanding Service Award. The VMCA recognized the Health Department's Disease Carrying Insects Program for its consistent contributions to mosquito control awareness and education throughout Virginia, for its on-going commitment to serving county residents, and to its provision of educational opportunities to partner organizations.

2009 NACO Achievement Award for the Herrity Building Garage Vegetative Roof.

2008 MarCom Platinum Winner and Communicator Award of Excellence. The award was presented to the Fairfax County Park Authority for its Non-Native Invasive Plant Identification and Control Handbook. The MarCom awards, sponsored by the Association of Marketing and Communication Professionals, honor excellence in marketing and communication.

2008 Public Technology Institute Solutions Award, Sustainability Category, for the county's plug-in electric hybrid vehicle fleet trial program. Solutions Awards recognize the members' use of technology to solve specific problems, improve community services and internal operations and reduce costs.

2007 U.S. Environmental Protection Agency Green Power Partner. Fairfax County was recognized for its efforts to reduce the risk of climate change through green power purchasing.

2007 U.S. Environmental Protection Agency EnergyStar partner. Partners team with EnergyStar to save energy through energy-efficient products and practices.

2007 Solid Waste Association of North America (SWANA) Bronze Excellence Award, Integrated Solid Waste Management Program category. The Excellence Awards recognize outstanding solid waste programs and facilities that are environmentally and fiscally responsible, advance worker and community health and safety, and implement successful public education and outreach programs.

2006 Businesses for the Bay Environmental Excellence Award for Outstanding Achievement for Nutrient Reduction by a Local Government. The award recognized the county's achievement in reducing phosphorous and nitrogen discharges from its wastewater treatment plant significantly below legally allowable levels. The discharge reductions benefit more than 3,600 species of plants, fish and shellfish in the Chesapeake Bay, one of the nation's most biologically diverse estuaries.

2006 NACO Achievement Award for Environmental Excellence. The award recognized the county's 2005-2006 Environmental Improvement Program, which is designed to integrate and link environmental goals and objectives into all levels of county decision-making and to provide a strategic approach to prioritizing environmental actions for implementation.

2006 U.S. Environmental Protection Agency Landfill Methane Outreach Program (LMOP) Community Partner of the Year. The LMOP helps to reduce methane emissions from landfills by encouraging the recovery and beneficial use of landfill gas (LFG) as an energy resource. The LMOP honored Fairfax County as a Community Partner of the Year for its use of LFG to produce electricity, dry sludge at its wastewater treatment plant, and heat the county's facilities using infrared heaters.

2005 NACO Achievement Award, Environmental Protection and Energy Category, for Fairfax County's air quality protection strategy, "Improving Air Quality in the Washington Metropolitan Area: A Commitment to Air Quality Excellence."

2004 Chesapeake Bay Program, Gold Chesapeake Bay Partner Community. Launched in 1997, the Bay Partner Community Program recognizes local governments in the Chesapeake Bay watershed for their commitment to protecting and restoring the Bay and its tributaries. Fairfax

County was first designated as a Gold Chesapeake Bay Partner Community in 1997 and recertified in 2004.

2004 NACO Achievement Award for watershed management planning.

2004 National Association of Clean Water Agencies Excellence in Management Award. The award honors member agencies who have implemented successful programs that address the range of management challenges faced by public wastewater utilities, including environmental quality, system capacity and reliability, operations and maintenance, asset management, use of technology, finances, rate management, and customer relations.

2003 NACWA Excellence in Management Award for significant achievements in the utility management arena.

APPENDIX I

Featured in This Section

Appendix I: How to Report Environmental Concerns.....127

APPENDIX

Sustainability Initiatives 126

APPENDIX I

TTY 711 for all phone numbers	
Type of Incident	Phone Number
RELEASE OF HAZARDOUS MATERIALS INTO THE ENVIRONMENT To report the dumping of any materials into a stream, manhole, storm sewer or onto the ground, call 9-1-1. When calling, be prepared to provide specific information about the location of the incident. County Inspectors will investigate complaints within the county; Cities of Fairfax and Falls Church; and the Towns of Clifton, Herndon and Vienna.	911
ILLEGAL DUMPING While any of a number of county and/or state agencies may ultimately have authority over dump sites, depending on circumstances, the Department of Code Compliance is an intake center for complaints (call or visit www.fairfaxcounty.gov/code).	703-324-1300
LAND CLEARING/TREE REMOVAL; DUMPING OF FILL To report the suspected illegal removal of trees, clearing of land, digging or dumping of fill dirt, contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code .	703-324-1300
SOIL EROSION To report soil erosion from private properties or construction sites, contact the Site Development and Inspection Division of the Department of Public Works and Environmental Services.	703-324-1720
GENERATION OF DUST FROM CONSTRUCTION, GRADING OR LAND CLEARING Contact the Virginia Department of Environmental Quality.	703-583-3800
TRASH/DEBRIS ON CONSTRUCTION SITES Contact the Site Development and Inspection Division of the Department of Public Works and Environmental Services.	703-324-1720
CONSTRUCTION NOISE To report construction noise outside between 9 p.m. and 7 a.m. or before 9 a.m. on Saturdays, Sundays and federal holidays, contact the following: • If the construction activity is occurring at the time of the complaint, call the Fairfax County Police non-emergency number. • Otherwise, if the construction activity is ongoing or recurring, call Department of Code Compliance, or visit www.fairfaxcounty.gov/code .	703-691-2131 703-324-1300

Type of Incident	Phone Number
NOISE IN A RESIDENTIAL AREA To make a complaint about noise from animals, amplified sound, vehicles or people, contact the following: • If the noise is currently occurring during non-business hours in a residential area, call the Fairfax County Police non-emergency number. • Otherwise, if the noise is ongoing or recurring, call the Department of Code Compliance, or visit www.fairfaxcounty.gov/code .	703-691-2131 703-324-1300
TRASH COLLECTION BETWEEN 9:00 P.M. AND 6:00 A.M. Call the Department of Public Works and Environmental Services. If possible, provide descriptive information about the truck, such as name of company, color, truck number, and license plate number.	703-324-5230
OTHER SOLID WASTE COMPLAINTS ASSOCIATED WITH WASTE COLLECTORS/HAULERS Call the Department of Public Works and Environmental Services. If possible, provide descriptive information about the truck, such as name of company, color, truck number, and license plate number.	703-324-5230
ACCUMULATION OF SOLID WASTE WITHIN BUILDINGS (E.G., TRASH CHUTES IN DISREPAIR) To report a complaint, contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code .	703-324-1300
SIGNS ON ROADS AND MEDIANS If a sign on a road or median poses a safety hazard, you may call the Virginia Department of Transportation. Fairfax County performs monthly collections of illegal roadway signs on certain designated roads. More information at www.fairfaxcounty.gov/code/signs .	1-800-367-7623
SIGNS ON PRIVATE PROPERTY There are restrictions for signs on private property. To report a complaint, contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code .	703-324-1300
POORLY MAINTAINED HOMES OR OTHER BLIGHTED PROPERTIES To report problems including broken windows and gutters, junk or debris in yards and tall, uncut grass, contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code .	703-324-1300
ABANDONED VEHICLES (FIVE OR FEWER) Contact the Fairfax County Police Department's Traffic Division Impound Section; e-mail: FCPDJunkVehicle@fairfaxcounty.gov .	703-280-0716

Type of Incident	Phone Number
ABANDONED VEHICLES (SIX OR MORE) Contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code .	703-324-1300
OUTDOOR LIGHTING CONCERNS To report problems with glare, overlighting or other issues, contact the Department of Code Compliance, or visit www.fairfaxcounty.gov/code .	703-324-1300
AIR POLLUTANTS Air pollutants are emitted by stationary sources, such as power plants, gasoline service stations, and dry cleaners, as well as by mobile and area sources, such as from automobiles, trucks and other highway activities. This phone number is for the Virginia Department of Environmental Quality Northern Regional Office.	703-583-3800 After hours, call 1-800-468-8892
NO RECYCLING IN SCHOOLS Section IX of the Fairfax County School Board's Policy 8542 states that "Schools and centers will have mandatory recycling programs for paper products, cans, and bottles. Construction waste materials will be separated and recycled." To report schools that are not recycling in accordance with this policy, contact the Fairfax County Public Schools Office of Facilities Management, Plant Operations Section. More information is available at: https://www.fcps.edu/node/27868	703-764-2459
BUSINESS OR RESIDENTIAL RECYCLING To report a suspected violation of recycling requirements (whether residential or business), contact the Department of Public Works and Environmental Services—Solid Waste at the phone number provided or through the Online Complaint/Comment Form at: https://www.fairfaxcounty.gov/dpwes/trash/dispcompform.htm	703-324-5230
HEALTH HAZARDS For information and guidance on a suspected environmental hazard that may pose a public health risk, call the Health Department's Division of Environmental Health. These hazards include unburied dead animals; rat infestations; and mosquito breeding sites.	703-246-2444
MEDICAL WASTE Improper storage or disposal of medical waste should be reported to the Virginia Department of Environmental Quality. This phone number is for the Northern Regional Office.	703-583-3800 After hours, call 1-800-468-8892



A publication of the County of Fairfax, Virginia

Publication Date: October 2016

Prepared by the
Fairfax County Office of the County Executive
12000 Government Center Parkway
Fairfax, VA 22035
703-324-7325 TTY 711
<http://www.fairfaxcounty.gov>

The County of Fairfax is committed to a policy of nondiscrimination in all County programs, services and activities and will provide reasonable accommodations upon request.