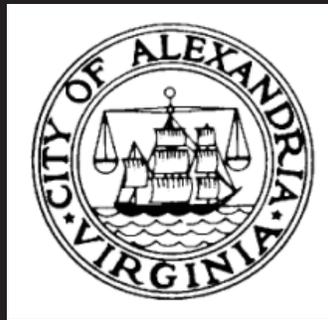
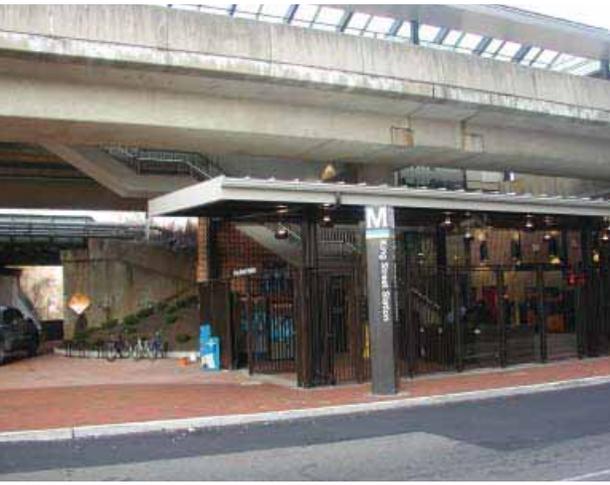




# ECO-CITY ALEXANDRIA

**A Green-Ventory of City Environmental  
Policies, Plans, and Programs**





Presented & Compiled by:

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Submitted to:

Alexandria City Council

Mayor, William D. Euille  
Vice Mayor, Redella S. "Del" Pepper  
Councilman Ludwig P. Gaines  
Councilman Rob Krupicka  
Councilmember Timothy B. Lovain  
Councilman Paul C. Smedberg  
Councilman Justin M. Wilson

Fall 2007

**Cover** | Duncan Library Green Roof  
**Left Image** | King Street Metro Station  
**Center Image** | Alexandria Safe Routes to School  
**Right Image** | Alexandria Recycling Truck

# ECO-CITY ALEXANDRIA

## Phase I: A Green-Ventory of City Environmental Policies, Plans, and Programs

Water Quality  
Green Buildings & Energy  
Solid Waste  
Transportation  
Air Quality  
Land Use  
Parks and Open Space  
Environmental Health



## ACKNOWLEDGEMENTS

Gathering information about the City of Alexandria's existing environmental policies, plans and programs was a complex task. We would like to acknowledge the efforts of the graduate students in the Spring Eco-City Studio (listed below) for compiling the baseline information for the inventory. These young professionals spent many hours surfing web sites and meeting with City staff from their respective program areas. During the summer the primary responsibility for synthesizing and corroborating the student work rested on the shoulders of graduate research assistant Sara Hamberg. She worked with City staff to ensure the program summaries were fair and accurate. We would also like to thank Healthy Communities Ph.D. candidate Kimberley Hodgson for sharing her design talents with the layout of the final report. Students from the Fall Eco-City Studio also contributed several of the text-box program spotlights.

We want to acknowledge the leadership of the Mayor, City Council, City Manager, department directors, and the staff for their time and assistance, especially Vice Mayor, Redella S. "Del" Pepper, Council member, Rob Krupicka, and Environmental Policy Commission Chair, Danielle Fidler. City staffs are incredibly busy, but many of them found the time to review our work and provide good insights. We would also like to thank William Skrabak and his staff at TES for serving as the manager of this project. While many of us have experience working with and for local governments, each City has its own culture and unique ways. We could not have effectively navigated through this maze of programs and policies without Mr. Skrabak's guidance.

Finally, we wish to recognize the dedication and spirit of the City of Alexandria. Every City staff person we met or spoke with genuinely cares about this wonderful place. We feel confident they will carry forward their commitment to Alexandria as good stewards of the new environmental action plan.

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## Overview and Introduction to the Inventory

Alexandria faces a series of environmental challenges ranging from climate change and rising energy costs to classic problems of air quality and traffic congestion. City officials and community leaders recognize they will need a comprehensive and coordinated strategy to effectively address these and other environmental issues over the next ten years. Throughout 2007 a team of Virginia Tech planning professors and graduate students has been working with the City Council, the Environmental Policy Commission, and City departments to design and develop a new Citywide environmental action plan.

The following inventory of the City's existing environmental programs, plans, and policies is a component of the first phase of Alexandria's Eco-City Project. It includes general descriptions and web links, along with preliminary observations and insights about the City's existing environmental efforts.

### ECO-CITY PROJECT OVERVIEW

In 1998 City officials and community leaders engaged in a collaborative process to produce Alexandria's first environmental strategic action plan. More than 200 residents, business leaders, civic activists, and elected officials came together at the Environmental Quality of Life Summit to reaffirm their commitment to environmental stewardship of the City and endorse the plan. The Summit and Action Plan set forth dozens of ideas and recommendations to enhance existing, and develop new, environmental programs and policies. Alexandria adopted several of these ideas, including the formation of a new Division of Environmental Quality within the Department of Transportation and Environmental Services.

With the passage of nearly ten years, the following indications suggest that the time is ripe for Alexandria to design a new environmental action plan that sets forth goals and priorities for the next ten years and beyond:

- > The City and the region confront new environmental challenges, e.g., climate change, rising energy costs, aging stormwater infrastructure, and dwindling opportunities for open space;
- > Political support for the environment continues to grow. In 2005 Mayor Euille endorsed a series of national resolutions on the environment that were formally adopted by the U.S. Conference of Mayors (USCM). Alexandria formally joined the USCM/Sierra Club Cool Cities Initiative;
- > Alexandria, like many communities, has launched new environmental policies related to open space, urban forestry, Chesapeake Bay watershed protection, recycling, and green building design;
- > Dozens of cities across the nation have also created model environmental programs. Several cities have devised holistic ecological plans and launched sustainability programs that Alexandria could adapt to fit local needs.

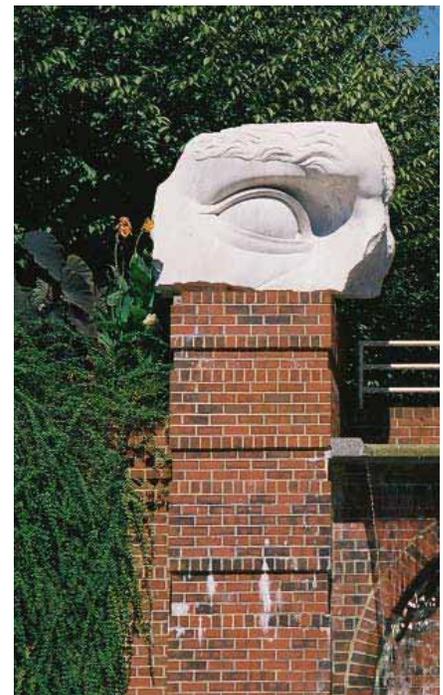
Building on the legacy of 1998, in early 2007 the City partnered with Virginia Tech University's Urban Affairs and Planning program in Alexandria to design and manage a new strategic environmental planning process called Eco-City Alexandria.<sup>1</sup> The Project consists of three phases:

**Phase One:** Inventory existing programs/policies and collect relevant model practices (spring and summer 2007);

<sup>1</sup> A memorandum from Council members Krupicka and Pepper requested that Virginia Tech would work with two city council members, the Environmental Policy Commission and the City's staff on a new environmental action plan.

**The primary challenge is pulling together all of Alexandria's respective plans, programs, and policies into a cohesive action plan and then coordinating its implementation across existing City departments.**

*An Eye Toward the Future: Greco Roman Sculpture at Tide Lock Park, part of the linear park system along Alexandria's waterfront*



**Phase Two:** Prepare a preliminary list of strategic environmental actions—short term and long range (fall 2007); and

**Phase Three:** Design and facilitate a series of community events (including an Eco-City Summit in spring 2008) to build consensus around an Eco-City Charter. The final Environmental Action Plan will be presented to City Council for adoption in 2008.

**Virginia Tech Team:** Professors in Practice, Joseph Schilling and Shelley Mastran, along with Research Assistant, Sara Hamberg, are leading the Virginia Tech effort. They serve as the project’s primary points of contact with City staff and the community. Schilling teaches classes in Environmental Planning and Policy and Community Involvement. He holds a Masters of Environmental Law from George Washington Law School and has worked with dozens of local governments on land use, brownfields, and environmental management. Shelley Mastran teaches in both the Urban Affairs and Planning program and Natural Resources program at Virginia Tech. She is a national expert on urban and rural planning, conservation, and historic preservation. Sara Hamberg is dual degree graduate student in Natural Resources and Urban Planning and has worked for international environmental and conservation organizations.

The core Virginia Tech team is supported by Associate Professor Kris Wernstedt, formerly with Resources for the Future, and Kathryn McCarty, adjunct community involvement professor and co-director of ADR Vantage, Inc., a woman-owned community involvement and facilitation firm. Wernstedt provides policy guidance with the research of model environmental practices and draft action plan. McCarty will lend a hand facilitating workshops and meetings with City staff and commissions and managing the community outreach process set for the spring of 2008.

**Eco-City Studios:** During the Phase One Studio (Spring 2007) a talented team of eleven graduate students in planning, natural resources, and landscape architecture developed an inventory of the City’s current and past programs, policies, and plans related to the following environmental themes:

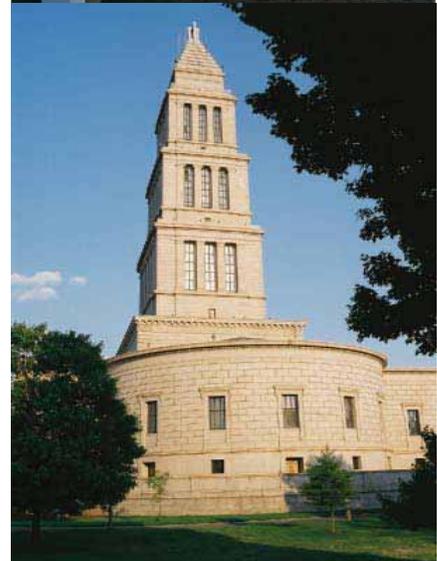
- Water Quality
- Parks and Open Space
- Land Use
- Solid Waste
- Energy & Green Buildings
- Transportation
- Air Quality
- Environmental Health

Students also collected model environmental practices and programs related to the core environmental topics above. They searched the web sites of various national and international organizations and environmental groups and contacted program leaders from a small sample of model initiatives. Students tried to identify relevant programs from cities similar to Alexandria in size and geography.

During the summer of 2007 Professors Mastran and Schilling and research assistant Sara Hamberg refined, edited, and expanded the environmental inventory and compendium of model practices. They met with staff from departments across the City and got feedback on the documents from the staff and the current Environmental Policy Commission (EPC).

## INTRODUCTION TO THE INVENTORY

The following inventory summarizes Alexandria’s existing programs, policies, and plans that directly or indirectly regulate or influence the City’s overall environment. Although these activities will change and evolve, the inventory offers a baseline of



*Alexandria Landmarks: Historic Old Town (top) and The George Washington Masonic Memorial (below).*



information as of summer 2007. *Note that this inventory is NOT a policy assessment or evaluation of programs and policies.* It merely identifies and summarizes the City's key environmental programs, plans and policies. The inventory also identifies several relatively recent initiatives that are either planned for the upcoming fiscal year (2007-2008) or are just underway.

Every effort was made to ensure the accuracy of the summaries. City staff reviewed early drafts of the inventory and provided valuable feedback and insights. When the City and Virginia Tech began this project, it seemed the inventory would be a simple task. For the traditional environmental programs within the purview of the Department of Transportation and Environmental Services (T&ES) the inventory was relatively straightforward. However, most City departments (other than T&ES) have their own programs and initiatives whose environmental relevance or significance may not be immediately obvious. Information on certain programs was not easy to find, and some web sites did not clearly explain how a program works or contributes to protecting the environment.

Another challenge was the myriad of City plans and boards and commissions. Virtually all City departments have one or more plans that guide a critical part of their respective missions, such as the Open Space Plan, the Long Range Transportation Plan, and the Solid Waste Plan. Many of these City plans are driven by citizen commissions and some are required by state law. The Planning and Zoning Department administers the City's comprehensive land use plan (called the Master Plan) and nearly 20 Special Area Plans. The City Council's 2015 Strategic Plan sets forth several environmental goals. It is anticipated that the Environmental Action Plan and the environmental charter, currently under development, will provide a path to accomplish many of them. Our inventory includes a matrix of current City plans and City and regional boards/commissions, which may be useful in coordinating these individual plans and commissions—a critical task in the next phase of the Eco-City Project.

## THE REGIONAL POLICY FOOTPRINT

### City Background

Alexandria, Virginia, is an independent city in the Commonwealth of Virginia. Established in 1749 and incorporated in 1779, its growth and history have been closely tied to the growth of the federal government. Construction of the Pentagon in the 1940s and the Capital Beltway and Woodrow Wilson Bridge in the 1960s substantially spurred the City's growth. Annexation of the western part of the City (from Fairfax County) in 1952 almost doubled its size to 15.75 square miles. The City is largely populated by professionals working in the federal civil service or the U.S. military, or for one of the many private companies that provide services to the federal government.

### Profile of Alexandria Today

Alexandria is a highly mobile, culturally diverse community of approximately 137,000. Alexandria is a city with many young adults; the median age of residents is 34.4 years. More than half (54.3%) of the adult population (25 years and over) has earned a four-year college degree, and nearly a quarter of the population (24.8%) has earned a graduate or professional degree.

The number of foreign-born Alexandria residents approximately tripled in the twenty years between 1980 and 2000. In 2000, 25.4% of the population was foreign-born. Thirty percent of City residents did not speak English in their homes, and 20.4% did not speak English well. The largest number of foreign-born residents in the City come from South and Central America. There is also a growing Muslim population in the western end of the city and a sizeable Korean population in the Landmark area.

The Old Town area of the City has experienced renewal as historic buildings have



been renovated and fine restaurants and shops have opened along the City's charming tree-lined streets. It is now a major draw for tourists and those seeking nightlife. Other neighborhoods in Alexandria include Arlandria, known as "Little El Salvador" for the diverse Central American immigrant population; Del Ray, a National Register historic district; Eisenhower Valley, home to the U.S. Patent & Trade Office; and Alexandria's West End, among others.

## Washington, D.C. Metropolitan Growth & Development

Alexandria, together with the District of Columbia, Arlington County, and Fairfax County comprise the core jurisdictions of the Washington, D.C., Metropolitan area. Metropolitan Washington, D.C. is one of the fastest growing regions in the country with a vibrant economy and highly educated work force. According to 2006 projections, the region will add another 2.1 million people by 2030 and Alexandria's population will reach over 170,000 by that time. Such dynamic growth presents a number of regional and local environmental challenges—how can local governments accommodate growth so that it does not adversely impact the region's high quality of life while protecting the environment. From an ecological perspective all of these variables—population growth, land development, quality of life and the environment—are interdependent.

## Alexandria's Regional Environmental Policy Context

Many federal and state environmental laws and policies govern and guide Alexandria's environmental policies and programs. For example, the state of Virginia sets recycling targets for municipalities within the state. The federal Clean Water Act administered by the U.S. Environmental Protection Agency (EPA) establishes stormwater infrastructure requirements and deadlines. U.S. EPA then delegates significant responsibility to the state of Virginia's Department of Environmental Quality (VDEQ) for administering various environmental regulatory and permitting regulations under the Clean Water Act, Clean Air Act, and hazardous and solid waste under the federal Resources Conservation and Recovery Act (RCRA). There are many other federal and state environmental laws that Alexandria must either comply with or work with state and federal environmental agencies to administer. While Alexandria does have some ability to create and administer a wide portfolio of environmental programs and policies, it must do so within these federal and state environmental frameworks.

Even in areas such as transportation infrastructure (roads, highways, and transit), Alexandria must work through the Metropolitan Washington County of Governments (MWCOCG). As the designated Metropolitan Planning Organization (MPO), MWCOCG manages the transportation planning and funding process for the region.

## Regional Boards & Commissions Related to the Environment

The City of Alexandria is one of the twenty-one jurisdictions that comprise the Metropolitan Washington Council of Governments (MWCOCG) and actively participate in several regional environmental initiatives. As Metropolitan Washington's primary regional entity, COG works to resolve regional problems such as growth, transportation, affordable housing, air pollution, water supply, water quality, economic development, and crime. It serves as a regional planning organization for the 21 area governments which are involved. The following are some of the MWCOCG committees that address environmental issues:

The **COG Chesapeake Bay Policy Committee** is to recommend, advocate and coordinate Bay Program policy on behalf of the membership. In particular, the Committee is charged with developing and coordinating a means for local governments in the region to influence the development of future Bay Program policies.

The **COG Climate Change Steering Committee** was established in 2007 to take the lead on the development of COG's regional climate change policy and strat-



*Fountain and flag in front of Alexandria's City Hall building.*



egy. This committee is tasked with the development of an inventory of sources and emissions data; cataloging greenhouse gas reduction efforts in the region; forecasting impacts of climate change; identifying best practices to prevent and plan for climate change; the development of an action plan to combat climate change; and with educating the public on issues surrounding climate change.

The **COG Community Forestry Network Committee** seeks to provide a framework for discussions and activities for COG member governments and other interested parties which are developing solutions to urban and community forestry problems in the Washington metropolitan area.

The **COG Energy Advisory Committee** addresses a wide range of regional energy concerns for local governments. The committee collects, monitors, and analyzes pertinent energy data, and advises on energy trends and developments, with special emphasis on energy deregulation and the impact on this region. Other focal areas include the future energy supplies; energy pricing; energy conservation; energy contingency planning; and related issues.

The **COG Environment and Public Works Directors Committee** addresses wastewater, drinking water, recycling and solid waste, pollution prevention, energy management, and certain air quality and non-point source management issues.

The **COG Intergovernmental Green Building Group** explores issues related to building practice and the region's environment, reviews best practices and green building standards, and offers recommendations that local governments and COG can implement to improve the performance of buildings region wide.

The **COG Metropolitan Development Policy Committee** is responsible for integrating environmentally-related aspects of land development and maintaining regional development policies, including economic development issues, policies and strategies.

The **COG Metropolitan Washington Air Quality Committee** coordinates regional air quality planning activities.

The **Northern Virginia Regional Commission** promotes the orderly and efficient development of the physical, social, and economic elements of the District.

The **Northern Virginia Regional Park Authority** plans, acquires, operates, and preserves the regional parks of Northern Virginia. It supplements city or county parks by providing facilities that could not be provided by one jurisdiction.

The **Northern Virginia Transportation Commission** coordinates all public mass transit services within the Northern Virginia Transportation District and encourages the fair and effective operation of transit services.

The **Occoquan Basin Technical Review Committee** works out agreements concerning nonpoint pollution among all the jurisdictions which drain into or use water from the Occoquan River.

*Old Town Theater*





The **Regional Sanitary Advisory Board**, under COG, acts as a clearinghouse for technical information and coordinates regional planning for the expenditure of federal grants, etc.

*Integrate the New with the Old: View of Alexandria's historic train station surrounded by new development.*

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# City of Alexandria Organizational Structure, Policymakers and Departments

## MAYOR AND CITY COUNCIL—THE 2015 STRATEGIC PLAN

The City Council consists of the mayor, currently William D. Euille, and six members who are elected at-large for three-year terms, as is provided for in chapter 10 of the city charter (Code 1963, Sec. 2-1). Current members of City Council include: Vice Mayor Redella S. “Del” Pepper, Councilmember Timothy B. Lovain, Councilman Paul C. Smedberg, Councilman Ludwig P. Gaines and Councilman K. Rob Krupicka, and Councilman Justin M. Wilson.

Council determines the needs to be addressed and the degree of service to be provided by the administrative branch of the City government. Under Alexandria’s Charter, the Council has power to:<sup>1</sup>

- > Determine policy in the fields of planning, traffic, law and order, public works, finance, social services, and recreation;
- > Appoint and remove the City Manager;
- > Adopt the budget, levy taxes, collect revenues, and make appropriations;
- > Appoint and remove the City Attorney;
- > Authorize the issuance of bonds by a bond ordinance;
- > Appoint and remove the City Clerk;
- > Establish administrative departments, offices, and agencies;
- > Appoint members of the Planning Commission, and other City authorities, boards, commissions, and committees;
- > Inquire into the conduct of any office, department, or agency of the City and make investigations into municipal affairs;
- > Provide for an independent audit; and
- > Provide for the number, titles, qualifications, powers, duties, and compensation of all officers and employees of the City.

In fall 2004 Alexandria’s City Council adopted a Strategic Plan for 2004-2015 based on the following Vision of what Council would like Alexandria to become by the year 2015:

***Alexandria 2015 is a vibrant, diverse, historic and beautiful City with unique neighborhoods and multiple urban villages where we take pride in our great community.***

<sup>1</sup> Know your City: A Citizen’s Guide to Alexandria. City Council. Found on: [http://alexandriava.gov/city/kyc/city\\_government.html#city\\_council](http://alexandriava.gov/city/kyc/city_government.html#city_council). Accessed August 2007.



Authorized under 15.2-2223 of the Code of Virginia, the Alexandria City Council developed the Strategic Plan and Vision from 2003-2004 after holding a series of work sessions, two community meetings, and a public hearing to obtain community input.<sup>2</sup> Adopted by City Council in fall 2004, the Strategic Plan guides City policy and budgetary decisions from 2004 to 2015. The Plan includes seven vision principles and seven major goals and is the City Council's road map to fulfill its Vision. Several of the goals in the Strategic Plan, outlined below, are directed at making Alexandria more sustainable:

## Goal 1: Quality Development and Redevelopment that is Well Planned and Consistent with Alexandria's Vision.

### Objectives

- 1 New Development, Redevelopment and Infill Development are Compatible with the Character and Scale of Alexandria Neighborhoods, its Natural Environment and its Historic Resources;
- 2 The City Encourages New Development and Redevelopment that are Highly Transit Oriented.

## Goal 2: A City That Respects Protects and Enhances the Natural Environment.

### Objectives

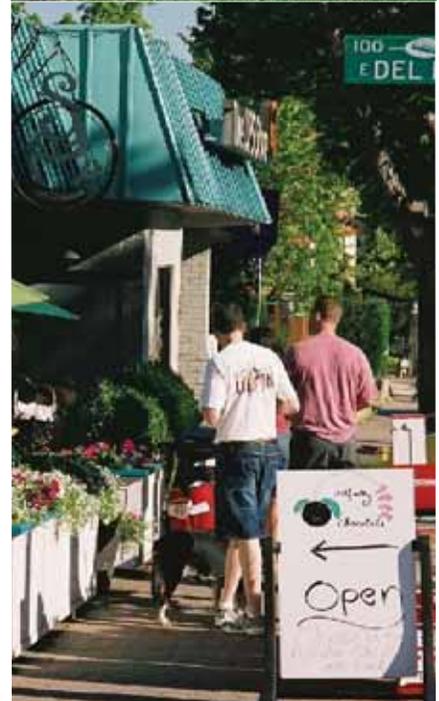
- 1 There is greater Environmental Sensitivity in Planning New Development, Redevelopment and Public Facilities;
- 2 The City Increases the Amount of Open Space, Recreation Space and Park Acreage per Resident;
- 3 The City's Overall Tree Canopy is Protected and Expanded;
- 4 More People Travel in the City by Mass Transit, Bicycle or Walking and Become Less Auto Dependent;
- 5 The Quality of Air and Water in Alexandria is Improved.

## Goal 3: An Integrated, Multi Modal Transportation System that Gets People from Point "A" to Point "B" Efficiently and Effectively.

### Objectives

- 1 More Residents and Commuters Use Mass Transit;
- 2 More Residents Use Alternate Transportation Modes such as Walking and Biking;
- 3 Design of Future Developments is Pedestrian Friendly and Mass Transit Friendly.

(Note: The entire Strategic Plan can be found on: [http://alexandriava.gov/city/amacc/strategicplan/strategic\\_plan.html](http://alexandriava.gov/city/amacc/strategicplan/strategic_plan.html))



*Alexandria strives to promote multi-modal forms of transportation and to have well planned development and redevelopment at the neighborhood scale.*

<sup>2</sup> A Special Report to Alexandrians (Alexandria Strategic Plan). Found on: [http://alexandriava.gov/city/amacc/strategicplan/strategic\\_plan.html](http://alexandriava.gov/city/amacc/strategicplan/strategic_plan.html). Accessed August 2007.



## DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES (T&ES)

The mission of Transportation and Environmental Services is “to provide excellent multimodal transportation services and facilities, and to protect and enhance the natural environment, to improve the quality of life for those who live in, work in, and visit the City of Alexandria.”<sup>3</sup> T&ES is responsible for the engineering, design, construction, inspection, surveying and maintenance of streets, bridges, sewers, fire hydrants and traffic control mechanisms. The department also oversees environmental regulation and management, including air and water quality, transit and refuse and recycling collection.<sup>4</sup>

### The following divisions are located within T&ES:

The **Construction & Inspection Division** administers contracts for curb, gutter and sidewalk repairs and is responsible for managing and inspecting capital improvement projects throughout all the phases of construction. This division also administers and coordinates utility work within public rights-of-way, inspects all bonded development work, and enforces the soil erosion control ordinance.<sup>5</sup>

The **Engineering & Design Division** designs capital improvement projects to be administered by the department and reviews State projects and privately submitted site plans to ensure that construction is in compliance with the City’s engineering standards and policies. This division is also responsible for administering the State-mandated Chesapeake Bay Preservation Ordinance, as well as performing all City survey work, maintaining all engineering records, and administering the street lighting program. In addition, this division conducts the federally mandated bridge inspection program.<sup>6</sup>

The **Division of Environmental Quality (Alex-DEQ)** is responsible for monitoring and maintaining environmental quality thus preserving and protecting public health and welfare and the environment. Alex-DEQ performs the following tasks in an effort to achieve the City’s environmental goals:

- > Monitors air and water quality;
- > Investigates pollution complaints;
- > Reviews development plans with regard to environmental impacts;
- > Ensures compliance with the Chesapeake Bay Preservation Act;
- > Issues noise variance permits and, along with Code Enforcement and the Police Department, enforces the Noise Code which can be found in Section 11-5 of the Alexandria City Code;
- > Inspects stormwater management facilities;
- > Supports open space preservation;
- > Participates in stormwater management and watershed planning and restoration initiatives;

3 City of Alexandria, 2008 approved budget. Operating Agencies: Public Works – Transportation and Environmental Services. Found on: [http://alexandriava.gov/budget/budget2008/approved/pdf/budget08apvd\\_publicworks.pdf](http://alexandriava.gov/budget/budget2008/approved/pdf/budget08apvd_publicworks.pdf). Accessed August 2007.

4 Know your City: A Citizen’s Guide to Alexandria. Department of Transportation and Environmental Services. Found on: [http://alexandriava.gov/city/kyc/physical\\_dev.html#tes](http://alexandriava.gov/city/kyc/physical_dev.html#tes). Accessed August 2007.

5 Construction & Inspection Overview. Found on: <http://alexandriava.gov/tes/ci/overview.html>. Accessed August 2007.

6 Engineering & Design Overview. Found on: <http://alexandriava.gov/tes/ed/overview.html>. Accessed August 2007.



- > Responds to citizen questions and concerns and provides information to the public on how to protect and improve the environment;
- > Monitors vacant lot contaminated site clean-up and environmental capital projects;
- > Advises and works with other City agencies and divisions on matters that impact the environment; and
- > Sweeps and flushes streets and collects leaves from streets during the fall leaf pick-up period;
- > Collects refuse, old newspapers and multi-material recyclable products (glass, plastic and aluminum) at curbside and occasionally collects white goods (stoves, washers, dryers, refrigerators, hot water heaters, etc.);
- > Provides staff support to the City's Environmental Policy Commission (EPC), which studies and makes recommendations on various projects and program initiatives that may have environmental impacts.

The Alex-DEQ also implements environmental programs to achieve the goals established in the City Council's Strategic Plan (2004-2009) which states that all residents of Alexandria experience "a city that respects, protects, and enhances the natural environment".<sup>7</sup>

The **Maintenance Division** of T&ES provides maintenance and repairs for all City sewers, streets, sidewalks and fire hydrants; maintains stream beds, weirs and stream banks; maintains drainage tunnels, box culverts and storm water pollution removal facilities; maintains bridges; and conducts snow removal and flood control operations. This division also coordinates with other City agencies and other divisions within T&ES to respond to weather-related emergencies, such as unusually heavy snowfall and rain, floods, high winds and hurricanes, and assists in both emergency management and clean-up following these events. The Maintenance Division also assists in the cleanup of hazardous materials and spills in the City's sewer system and streams.<sup>8</sup>

The **Solid Waste Division** has been providing refuse collection services for over half a century. It is the Division's goal to provide services that protect the environment and respond to the needs of the community at the least possible cost.

The City of Alexandria and Arlington County co-own an Energy from Waste facility, which is operated under contract by Covanta Energy. The contract is managed by a group of trustees representing the City and County. At this facility waste is incinerated at temperatures exceeding 2000 degrees Fahrenheit and the heat is converted into electricity and sold to Dominion Virginia Power, which supplies electricity to businesses and residents in Northern Virginia.

The Solid Waste Division also oversees the collection of refuse and recyclable materials curbside and collects white goods (stoves, washers, dryers, refrigerators, hot water heaters, etc.) and bulk items. In the fall, the City collects leaves from City streets and processes them into mulch, which is made available to residents in the spring.<sup>9</sup>

The **Transit Services Division** is working to reduce the congestion and environmental impacts generated by single occupancy vehicles through the coordination, planning, development, monitoring, and evaluation of City-sponsored transit and paratransit services, as well as those services initiated by the regional transit authority and other agencies. This Office administers the City's ridesharing program and

<sup>7</sup> Division of Environmental Quality. Found on: <http://alexandriava.gov/tes/DEQ/index.html>. Accessed August 2007.

<sup>8</sup> Maintenance Division Overview. Found on: <http://alexandriava.gov/tes/md/overview.html>. Accessed August 2007.

<sup>9</sup> Solid Waste Division Overview. Found on: <http://alexandriava.gov/tes/sw/overview.html>. Accessed August 2007.

## Spotlight | Alexandria DEQ & Water Quality

One of the responsibilities of Alexandria's Division of Environmental Quality (Alex-DEQ) is water quality monitoring and improvement for the City of Alexandria. A leading source of stream impairment in Alexandria is polluted stormwater; as a result, in 2001 the City Council adopted a Water Quality Management Supplement to the Master Plan, which also fulfilled the phase II requirements of the State's Chesapeake Bay Program. With this document, four principles for urban pollution reduction were approved:

- > Impervious surface area necessary to accommodate desired land uses should be minimized;
- > Human behavior that results in pollution should be challenged and changed through public education;
- > Pollution that cannot be reduced through changes in human behavior should be controlled by employing technology or by installing stormwater management pollution reduction facilities (also known as best management practices, or BMPs)."
- > In the six years since 2001, these four principals have been the basis for the implementation and improvement of numerous regulations and programs created to protect the quality of Alexandria's water.



specialized transportation services for the mobility impaired. The Alexandria Transit Company, a non-profit public service corporation owned by the City of Alexandria, is responsible for providing local DASH bus service. The Division also administers and oversees the implementation of the City's Transportation Management Program Ordinance.

The **Transportation Division** provides and maintains a comprehensive City-wide traffic signal system that includes the traffic computer system linking many of the City's signaled intersections. The Transportation Division also provides and maintains a roadway signing network and pavement marking program; maintains City parking meters and collects meter revenues; and operates the vehicle impounding facility. This division also oversees long-range transportation planning. The new regional Financially Constrained Long-Range Transportation Plan (CLRP), which City Council should approve this fall, is a joint project among the members of jurisdictions in the DC Metropolitan area (Northern Virginia, Maryland and the District of Columbia).<sup>10</sup>

## DEPARTMENT OF PLANNING & ZONING

The mission of the Department of Planning and Zoning is to "involve the community in creating a shared vision for Alexandria's future, and to assure that all new development reflects this vision."<sup>11</sup> Planning and Zoning works closely with the community in each area of the City to ensure that all new development reflects City Council's 2004-2015 Strategic Plan and Community Vision for vibrant, walkable neighborhoods, protected natural resources, and vital Main Street business districts.

The Department is also responsible for planning the physical development of the City. It maintains the City's Master Plan and undertakes planning studies to establish a vision for future development and redevelopment. The department coordinates and evaluates all applications for development, special use permits, special exceptions, variances, and subdivisions. It also enforces the zoning ordinance, monitors economic and demographic trends, and maintains the Geographic Information System (GIS) technology program for the City.<sup>12</sup>

<sup>10</sup> Transportation Division Overview. Found on: <http://alexandriava.gov/tes/td/overview.html>. Accessed August 2007.

<sup>11</sup> City of Alexandria, 2008 approved budget. Operating Agencies: Community Development: Planning and Zoning. Found on: [http://alexandriava.gov/budget/budget2008/approved/pdf/budget08apvd\\_communitydevelopment.pdf](http://alexandriava.gov/budget/budget2008/approved/pdf/budget08apvd_communitydevelopment.pdf). Accessed August 2007.

<sup>12</sup> About Planning & Zoning. Found on: <http://alexandriava.gov/planningandzoning/aboutpnz.php>. Accessed August 2007.

## Spotlight | Alexandria & Air Quality

The Alexandria Department of Transportation and Environmental Services, Division of Environmental Quality (Alex-DEQ) staff work proactively with state and regional partners, citizen committees, and citizens on a daily basis to improve air quality for the City of Alexandria and the greater Washington region. A number of programs and activities ranging from asbestos removal and abatement projects, to ambient air quality monitoring and Air Quality Action Days comprise Alexandria's Air Quality Program.

Under the Clean Air Act (1970, amended 1990) the Environmental Protection Agency (EPA) is required to establish National Ambient Air Quality Standards (NAAQS) for six pollutants, often known as "criteria pollutants": ozone, particulate matter, nitrogen dioxide, carbon monoxide, sulfur dioxide, and lead. These pollutants are often found in the air, yet are harmful to both human life and our environment. Regions that do not meet the NAAQS for a criteria pollutant are classified as non-attainment areas, and are subject to greater air pollution controls than areas whose criteria pollutants fall within the NAAQS. The Washington region is in non-attainment status for the ground-level ozone and fine particulate matter (PM<sub>2.5</sub>).

Alexandria participates in regional air quality planning efforts through the Metropolitan Washington Air Quality Committee (MWAQC) of the Metropolitan Washington Council of Governments (MWCOG). Vice Mayor Redella S. Pepper is City's representative at the MWAQC. Mr. William Skrabak, the Division Chief of Alex-DEQ is currently serving on its Technical Advisory Committee.

The City of Alexandria also has a local air pollution control program. Under this program, all major point sources of air pollution are inspected routinely. In addition, City staff responds to and investigates air quality related complaints. The City maintains an ambient air monitoring station located at 519 St. Asaph Street. This station monitors SO<sub>2</sub>, NO<sub>x</sub>, CO, O<sub>3</sub> and PM<sub>10</sub>. The City also operates a PM<sub>10</sub> monitoring station at the Cameron Station. The Virginia DEQ staff provides Alexandria DEQ with training and assistance in operating these monitoring stations.



The Department of Planning and Zoning is organized into six groups:

**Neighborhood and Community Planning** undertakes long range planning studies for geographical areas of the City, in a consensus building format, in order to establish a vision for the area; establishes design and development standards and guidelines; manages City-wide studies on special subjects, such as parking, open space, or infill development; and monitors economic and demographic trends.

**Zoning** reviews all applications to the City for zoning compliance; processes special exceptions and variances; provides information to the public, reviews building permit and certificate of occupancy applications; and enforces the zoning ordinance.

**Development Review** coordinates all stages of the development application process from a proposal's conceptual beginning through design issues and final site plan administration; processes all proposals for development, including site plans, development special use permits, and Transportation Management SUPs.

**Historic Preservation** reviews applications for certificates of appropriateness to the Boards of Architectural Review and prepares reports for the Boards.

**Urban Design** prepares plans for redevelopment of specific areas of the City and provides architectural design advice to City departments and on developmental projects.

**Geographic Information System (GIS)** oversees the development and utilization of the City's geographic information system and offers user and application support.<sup>13</sup>



*The Eisenhower East Small Area Plan promotes a "city within a city" that will include distinctive architecture, a mix of businesses, residences, and retail spaces, grand boulevards, and parks and gardens.*

## DEPARTMENT OF RECREATION, PARKS & CULTURAL ACTIVITIES (RP&CA)

A formal Recreation and Parks Department was established in the early 1950s and now the Department has close to 200 full time staff and nearly 500 seasonal employees. The Department provides recreation and cultural programs and maintains parks and open space throughout the City. Its mission is "to be a vibrant, safe and attractive City of opportunity through the development of effective and efficient recreation programs, facilities and parks for all citizens and residents to enjoy."<sup>14</sup> The Department is made up of three divisions: Program Operations, which includes the Centers, Playgrounds and Youth Sports sections; Parks, Natural Resources, and Capital Projects; and Administration.

As is stressed in the Department of Recreation, Parks & Cultural Activities' (RP&CA) Strategic Plan and Open Space Master Plan, the Department seeks to continue to expand the amount and quality of City park facilities. The Department also strives to

<sup>13</sup> Know your City: A Citizen's Guide to Alexandria. Department of Transportation and Environmental Services. Found on: [http://alexandriava.gov/city/kyc/physical\\_dev.html#planning\\_zoning](http://alexandriava.gov/city/kyc/physical_dev.html#planning_zoning). Accessed August 2007.

<sup>14</sup> City of Alexandria, 2008 approved budget. Operating Agencies: Parks, Recreation and Cultural Activities. Found on: [http://alexandriava.gov/budget/budget2008/approved/pdf/bud08apvd\\_parksrecreation.pdf](http://alexandriava.gov/budget/budget2008/approved/pdf/bud08apvd_parksrecreation.pdf). Accessed August 2007.



make parks and open space accessible to all of Alexandria's citizens through equitable location and by making them more accessible by adding trails to connect them. The City also has a Pocket Park program which was created to add small parks within neighborhoods. To date, RP&CA has created 127 parks and open space areas, which totals 978.25 acres. Furthermore, the Department is credited with the addition and stewardship of 20 miles, each, of on- and off-street trails, various athletic fields and playgrounds, 17,000 street trees, 59 boat slips, 17 dog parks, 14 picnic shelters, and 6 outdoor pools. In addition, RP&CA has various environmental education programs through its Buddie Ford Nature Center, Winkler Botanical Preserve, Earth Day event, and through City schools.

## ALEXANDRIA HEALTH DEPARTMENT, ENVIRONMENTAL HEALTH DIVISION

The Alexandria Health Department's Environmental Health Division is responsible for preventing disease and promoting healthy environments for the Alexandria community by consistently providing professional, timely, and technically excellent environmental health services and by educating and empowering others to improve our City's health and environment. The Division provides services to the citizens of Alexandria through programs designed to prevent diseases, to promote health, to protect the environment.

The Alexandria Health Department monitors the community for environmentally linked disease through daily syndromic surveillance of hospital records and investigation of outbreaks of food-borne, water-borne and vector-borne disease. The Environmental Health Division monitors laboratory test results of drinking water sampling. The Division also monitors vector-borne diseases in the City through testing of mosquitoes for arboviruses and mammals for rabies.

The Environmental Health Division investigates environmental health complaints and works to eliminate unsanitary and unsafe conditions and public health nuisances. Areas of expertise include child lead poisoning prevention, indoor air quality and respiratory health, mosquito control, rabies prevention, food safety, swimming pool safety, drinking water quality and sewage disposal. The Division also educates and informs people by providing them with information on these topics.

The Environmental Health Division regulates restaurants, grocery stores, and other food service establishments and inspects them regularly for compliance with the FDA Food Code. The Division also regulates and inspects swimming pools, spas, health clubs, personal care establishments, hotels and motels for health and safety. The Division also permits wells drilled in the city and pump-and-haul facilities for temporary sewage disposal. The Division inspects sewage pump-out facilities at marinas in the City located along the Potomac River. The Division also enforces the City's smoking ordinance.

## DEPARTMENT OF GENERAL SERVICES

The Department of General Services maintains physical facilities and provides communication and logistical support for the City government. The Department's five divisions and their functions are:

The **Administration Division** is responsible for providing overall planning, direction and management of the department; scheduling meetings and events at City Hall and Market Square; and negotiating and monitoring building leases, facilities planning, and budgeting.

The **Facilities Maintenance Management Division** is responsible for maintaining over 75 City buildings, including City Hall, the Alexandria Courthouse, Beatley Library, the Vola Lawson Animal Shelter and the Public Safety Center; providing



maintenance of heating and cooling systems; supporting events on Market Square, including the weekly Farmer's Market; coordinating changes in facility utilization; overseeing contractor operation of City parking facilities, security and custodial services; and maintaining the waterfront plaza and piers.

The **Capital Projects Division** is responsible for providing overall construction management for new City facilities, capital building repairs and renovation projects, and tracking City utility usage.

The **Fleet Services Division** procures, maintains, and manages all motor equipment, such as police cars, dump trucks, refuse trucks, graders, sweepers, and motor pool cars; and auctions vehicles at the end of vehicle life. The Division operates the City's two primary fuel sites on Wheeler Avenue and the Public Safety complex at 2003 Mill Road.

The **Communications Division** provides mail services, copying, postage, and messenger service support for City agencies. The Print Shop is responsible for graphic arts and the printing of City publications and forms.<sup>15</sup>

## LOCAL BOARDS AND COMMISSIONS RELATED TO THE ENVIRONMENT

The following are some of the local boards and commissions that address environmental issues:<sup>16</sup>

The **Ad Hoc Transportation Policy and Program Task Force**, formed in 2004, helps develop the mid- and long-range multi-modal transportation policies, plans and programs for the City of Alexandria. The Task Force guides preparation of an updated and revised transportation element of the Master Plan other components of the Comprehensive Transportation Policy and Program project.

The **Beautification Commission** represents citizens' values in City beautification matters and coordinates projects to encourage and achieve beautification.

The **Board of Zoning Appeals** hears and decides appeals requesting any variance from provisions of the Zoning Code.

The **Environmental Policy Commission** studies and makes recommendations on the environmental impact of various projects and program initiatives in the City of Alexandria.

The **Industrial Development Authority** promotes industry and develops trade by encouraging manufacturing, industrial, government, and commercial

### Spotlight | Environmental Policy Commission

The Alexandria Environmental Policy Commission was created in 1970 by the City Council. The functions of the Commission are to advise and make recommendations to the City Council and, where appropriate, to the Planning Commission and the City Manager. The City Manager distributes commission recommendations to appropriate city departments for their consideration. These recommendations relate to: clean air, land use, noise pollution and abatement, pesticides, herbicides and contaminants, solid waste, water quality and supply, other topics relating to conservation and protection of environmental conditions in the City of Alexandria, and such other matters as from time to time may be referred to the commission by the City Council.

The Commission consists of 13 members designated by the City Council. A commission chair, vice-chair and secretary are elected annually by the commission members at the organizational meeting by the commission. The Department of Transportation and Environmental Services, Division of Environmental Quality provides administrative and logistical support to the Commission and its chair.

Over the years, the EPC has led or participated in several important environmental initiatives pursued by the city. One such example is the organization of the Environmental/Quality of Life Report and Summit in 1998. Another example is the organization of the annual Earth Day. Currently, the EPC has representatives on several City committees including Waterfront, Open Space and MCMG (Mirant Community Monitoring Group).

<sup>15</sup> Know your City: A Citizen's Guide to Alexandria. Department of General Services. Found on: [http://alexandriava.gov/city/kyc/staff\\_support.html#general\\_services](http://alexandriava.gov/city/kyc/staff_support.html#general_services). Accessed August 2007.

<sup>16</sup> Ibid.



enterprises to locate or remain in the City.

The **Open Space Advisory Group**, appointed by the City Manager, studies and assists staff in the implementation of the Open Space Master Plan.

The **Park and Recreation Commission** advises City Council on all matters relating to parkland, recreation, and culture; and participates in planning recreational activities and services through its advice to Council and the Department of Parks, Recreation and Cultural Activities. The Commission also sponsors an awards program for services to the community.

The **Planning Commission** prepares and adopts a master plan for the City, including a comprehensive zoning plan providing for the regulation and restriction of the land use, buildings, and structures in the respective zones. The Commission also approves site plans and subdivisions and makes recommendations to City Council on special use permits and text amendments to the Zoning Code.

The **Public Health Advisory Commission** provides information about and evaluation of health-related matters and investigates specific health problems.

The **Sanitation Authority** was created under the Virginia Water and Sewer Authority Act and is responsible for raising its own funds by selling revenue bonds and charging users for service. Its purpose is to treat sewage waste from the City and its responsibilities include construction, operation, maintenance, and improvement of the sewage system.

The **Traffic and Parking Board** investigates, studies, and analyzes traffic and parking problems within the City; devises plans, methods, and means to control and relieve parking and traffic congestion; and has jurisdiction over taxicabs and their owners/operators.

The **Waterfront Committee** studies the issues relating to the Alexandria Waterfront and makes recommendations to City Council.



# Matrix of Departments, Plans, & Boards/Commissions Related to the Environment

This matrix provides an inventory of the city departments' policy and project plans that guide environmental decision-making within Alexandria. Each of these plans establishes its own series of environmental principles, goals, and priorities. The Matrix also highlights the corresponding citizen commissions along with relevant regional environmental plans and special environmental projects.

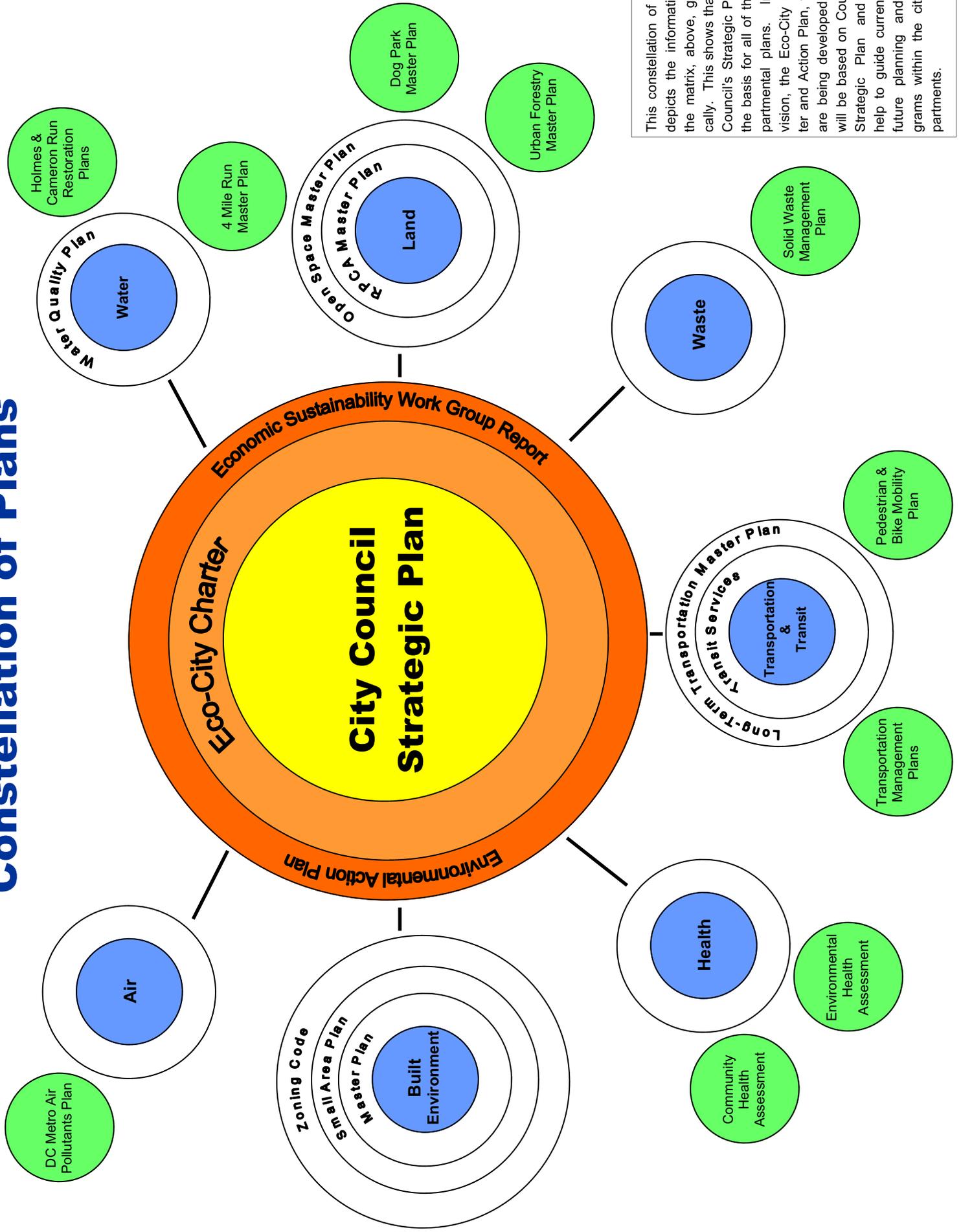
Department		Plan(s)	Local Commission(s) / Board(s)	Regional Commission(s) / Board(s)	
<b>City Council</b>		Strategic Plan	N/A	N/A	
<b>Department of Transportation &amp; Environmental Services</b>	Construction & Inspection	N/A	Environmental Policy Commission	Potomac Round Table	
	Maintenance Division			COG Chesapeake Bay Policy Committee	
	Division of Environmental Quality	City of Alexandria Master Plan Water Quality Management Supplement		Potomac River Commission	
		Four Mile Run Plan		COG Energy Advisory Committee	
		Holmes Run & Cameron Run Restoration Plans (planned)		NVRC Energy & Environmental Policy Committee	
		State Implementation Plan for Air Pollutants for the DC Metro Region (regional)		COG Water Resources Technical Committee	
	Solid Waste Division	Solid Waste Management Plan 2004		Alexandria Sanitation Authority	Cameron Run Agency Coordinating Group
				Ad Hoc Transportation Policy & Program Task Force	Four Mile Run Agency Coordinating Group
					Metropolitan Washington Air Quality Committee
	Transit Services	Pedestrian & Bicycle Mobility Plan			COG Environment & Public Works Directors Committee
Transportation Division	Financially Constrained Long-Range City Transportation Master Plan (regional)	Transportation Safety Commission	MwCOG Transportation Planning Board		
	Transportation Plan (regional)	Traffic & Parking Board			
<b>General Services</b>		Green Building Policy	N/A	Intergovernmental Green Building Group	
<b>Department of Planning &amp; Zoning</b>		Master Plan & Small Area Plans	Planning Commission	COG Metropolitan Development Policy Committee	
		Zoning Ordinance	Board of Zoning Appeals		
		Plan for Planning	Urban Design Advisory Committee		
			Beautification Commission		
		Waterfront Plan	Waterfront Committee		

## Matrix (continued.)

Department	Plan(s)	Local Commission(s) / Board(s)	Regional Commission(s) / Board(s)
<b>Department of Recreation, Parks &amp; Cultural Activities</b>	Strategic Master Plan	Waterfront Committee	Northern Virginia Regional Park Authority
	Open Space Master Plan	Beautification Commission	COG Community Forestry Network Committee
	Dog Park Master Plan	Parks & Recreation Commission	
	Urban Forestry Master Plan		
	Four Mile Run Master Plan	Open Space Advisory Group	
<b>Health Department, Division of Environmental Health</b>	Community Environmental Health Assessment	Public Health Advisory Commission	COG Health Officials Committee
		Partnership for a Healthier Alexandria	Northern Virginia Environmental Health Managers Roundtable



# Constellation of Plans



This constellation of plans depicts the information in the matrix, above, graphically. This shows that City Council's Strategic Plan is the basis for all of the departmental plans. In our vision, the Eco-City Charter and Action Plan, which are being developed now, will be based on Council's Strategic Plan and also help to guide current and future planning and programs within the city departments.

## Policies, Plans, and Programs by Topic Area

- > WATER QUALITY
- > ENERGY AND GREEN BUILDINGS
- > SOLID WASTE
- > TRANSPORTATION
- > AIR QUALITY
- > LAND USE
- > PARKS AND OPEN SPACE
- > ENVIRONMENTAL HEALTH



*An icon of Old Town Alexandria: The Historic Torpedo Factory Art Center.*



## WATER QUALITY

- 1 Water Quality Master Plan
- 2 Zoning Ordinance / City Code
- 3 Community Programs and Information Campaigns
- 4 Stream Assessment and Monitoring Programs
- 5 Stormwater and Best Management Practices (BMP) Programs
- 6 Stream Restoration and Remediation
- 7 Sewer Systems and Water Treatment



### 1. Water Quality Master Plan

#### Water Quality Management Supplement

On January 13, 2001, the City Council adopted the Water Quality Management Supplement to the Master Plan, thus, fulfilling the phase II requirements of the Chesapeake Bay Program and completing a process that began in late 1996. The Northern Virginia Regional Commission (NVRC) in close collaboration with Alexandria's Department of Transportation and Environmental Services prepared the document. On March 19, 2001, the Chesapeake Bay Local Assistance Board "determined that the amendments made to the City of Alexandria's Comprehensive Plan have made its Phase II program consistent" with the Chesapeake Bay Preservation Act.

This document emphasizes Alexandria's water and habitat resources; it focuses on

*Geese enjoy swimming in the Potomac River, though Alexandria residents do not. The Potomac River, a major tributary of the Chesapeake Bay, is seriously contaminated. Through the creation of a Waterfront Park and Recreation Zone, Alexandria has created a buffer to filter runoff before it enters the watershed.*



water quality impacts and directs the City, through specific initiatives, to preserve our existing resources and reclaim and better manage our watersheds.

## 2. Zoning Ordinance / City Code

### Special and Overlay Districts (Article VI)

#### Sec. 6-200: Waterfront Park and Recreation Zone

**Department:** Department of Planning and Zoning

**Description:** Land adjacent to the Potomac River has been designated as the Waterfront Park and Recreation Zone. The purpose of the zone is to improve the City's waterfront by promoting parks, open space, and promenades. In the zone, a building may cover no more than 30 percent of the parcel and 25 percent must be used to provide open space. Also, each development must provide a walkway and bikeway adjacent to the Potomac River as open space. The open space required within the zone also helps filter stormwater before it reaches the Potomac.

#### Sec. 6-300: Floodplain District

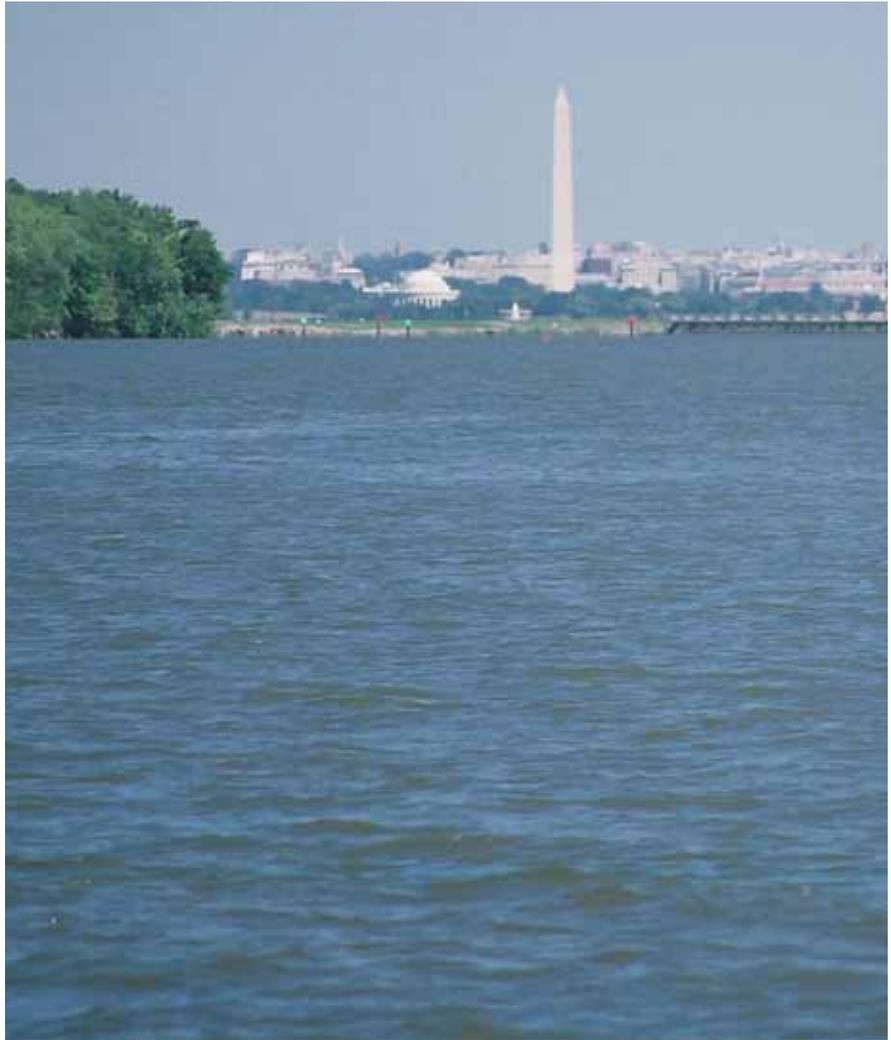
**Department:** Department of Planning and Zoning and Department of Transportation and Environmental Services

**Description:** The floodplain overlay district was created in May 1991 and is based on the Flood Insurance Rate Map. Any changes to the floodplain area are reviewed by the Federal Emergency Management Agency (FEMA). When developing within the floodplain district, one must request a permit, as is delineated in Section 6-300 of the City of Alexandria Zoning Ordinance. If a tax parcel is flagged in the Permit Plan database as potentially located in the floodplain, the Construction and Inspection (C&I) Division and Engineering staff jointly share the permit processing.

Since January 1, 2006 approximately 362 building permits, including those for interior work, have been issued for dwellings in floodplains. Trailer camps, manufactured homes, mobile homes, and septic tank systems are not authorized in the floodplain. In order to ensure building and human safety—as well as water quality protection—buildings and structures are allowed to be constructed in a floodplain district only if they meet the following specifications:<sup>1</sup>

- > Elevation of the lowest floor must be at or above the 100-year-flood level;

<sup>1</sup> Section 6-307 of Article VI in the Zoning Ordinance; Federal and State sources are used to determine the 100-year-flood level.



*View of Washington, D.C., from Alexandria. Urban runoff from the region enters the Potomac, polluting the Chesapeake Bay.*



- > No water heaters, furnaces, electrical distribution panels, or other electrical installations will be installed below the 100-year-flood level;
- > Construction cannot raise water surface elevation of the 100-year-flood more than 1/2 foot in an AE zone and cannot raise water surface elevation at all in a floodway;
- > Construction must be protected against flood damage;
- > Construction must be designed to prevent flotation, collapse, or movement of the structure;
- > The structure must be built using materials that are resistant to flood damage;
- > Construction must employ practices that minimize flood damage.

FEMA revised their Flood Insurance Elevation Certificate in February 2006. The new EC is effective December 2006. FEMA's web link for the revised form is: <http://www.fema.gov/business/nfip/elvinst.shtm>.

### **Environmental Management Ordinance (Article XIII)**

**Department:** Transportation & Environmental Services (all programs under Article XIII are handled by T& ES, unless otherwise noted).

**Background:** This ordinance, revised and adopted April 11, 2006, is issued under the authority of the Code of Virginia, Sec. 10.1- 2108 of Chapter 21, Title 10.1 (Chesapeake Bay Preservation Act), Sec. 10.1- 603.3 (authorization of Stormwater Management), and Sec. 15.2-2283 of the Code of Virginia.

Primarily the result of development, the tributaries of the Chesapeake Bay in Alexandria—the Potomac River, Four Mile Run, Cameron Run and Holmes Run—have been degraded by pollution and erosion. In order to restore water quality in these watersheds and the Chesapeake Bay, the City adopted the first Environmental Management Ordinance in 1992, in compliance with the Virginia Chesapeake Bay Preservation Area Designation and Management Regulations.

**Description:** The purpose of Article XIII: Environmental Management Ordinance is to establish policy that will:

- > Minimize pollution from stormwater runoff;
- > Minimize soil erosion;
- > Reduce harmful nutrients and toxins within the water;
- > Maximize rainwater infiltration;
- > Establish long-term performance measures; and,
- > Manage stormwater runoff.

### **Sec. 13-105: Designation of Chesapeake Bay Preservation Area Overlay District**

**Description:** Alexandria's Chesapeake Bay Preservation Program has provided the impetus for many of the City's water quality programs. The Chesapeake Bay Act was to be met by Tidewater Virginia localities in two phases: the first was the designation, mapping, and control of Resource Protection Areas (RPAs) and Resource Management Areas (RMAs). The second phase was the incorporation of water quality improvement measures into cities' comprehensive plans and zoning ordinances.

In Alexandria, all land within the corporate limits is within a Chesapeake Bay Preservation Area and thus is designated as either a RPA or a RMA. Land within the



RPAs— including tidal wetlands, tidal shores, nontidal wetlands that are next to a tidal wetlands or a water body with perennial flow, and the 100 foot buffer around water bodies with perennial flow—are areas where development or use could result in degradation of water quality. Overall, the RPA protects about 20 miles of Alexandria streams and the Potomac River shoreline through buffer areas. All other land in the City is located in a Resource Management Area. This is land that could potentially be a cause of water quality degradation if improperly used or developed. Overlay districts, created to designate each zone, supersede all zoning, land use, or land development regulation.

The City's Chesapeake Bay Program follows more stringent requirements than those imposed by the State. For example, the City requires the "first flush" of stormwater from all impervious surfaces to be treated through Best Management Practices (BMPs) before it is discharged into streams (see Targets of Opportunity Urban Stormwater Retrofit Program, below, for more information on the BMP requirements). Moreover, all perennial streams with a 100' buffer and natural intermittent streams with a 50' buffer are protected.

Furthermore, the City has developed a "Tool Box" approach to addressing Alexandria's development needs. This approach allows development review staff to suggest that developers incorporate a range of mitigation tools, including donations to the Water Quality Improvement Fund (see description below) , for development or redevelopment projects.<sup>2</sup>

### **Sec. 13-110: Water Quality Improvement Fund**

**Department:** Transportation & Environmental Services

**Description:** The City of Alexandria is a highly urbanized area, resulting in a large amount of impervious surface, which prevents rainwater from infiltrating naturally and can lead to polluted runoff and erosion of land and waterways. As a result, the City requires stormwater quality and quantity management techniques employed on all properties with greater than 2,500 square feet of disturbed land. Developers may choose to mitigate excess stormwater quantity or improve the quality of runoff using several techniques, or a combination thereof, to treat their stormwater, providing the developer great flexibility. Several of the available options include:

- > Stormwater quality management facility;
- > Best Management Practice (BMP) facilities which clean stormwater;
- > Stream restoration;
- > Stream daylighting;
- > Removal of RPA encroachment;
- > RPA enhancement;
- > Street cleaning;
- > Combined sewer system separation; or
- > Permanent preservation of open space.

If an owner can justify that stormwater cannot be treated on-site, the owner may request to make a monetary contribution to the Water Quality Improvement Fund. This fund provides financing for alternate City-provided mechanisms to best reduce nonpoint source pollutants (phosphorous/sediment) entering streams, thus improving water quality. All monetary contributions to the Fund are calculated by T&ES based on life cycle costs of on-site best management practices.

<sup>2</sup> "Overview of Environmental Progress and Accomplishments Since Environmental Quality of Life Summit, 1998" T&ES Presentation, January 23, 2007.



### Sec. 13-113: Stormwater Management Plan

**Description:** All property owners who propose to change elevation of their property, which may cause excess runoff—or stormwater—that could adversely affect adjacent properties and Alexandria’s waterways, must have a plan in place to manage stormwater. Each plan must contain the following information, which is to be verified by engineers and scientific data:

- > Pre- and post-development non-point pollutant loadings and peak runoff rates for a two-year and ten-year storm;
- > Course of action for implementing non-structural stormwater controls;
- > Location and design of all stormwater control devices; and
- > Confirmation of structural soundness of facilities.

The plan must also establish a long-term schedule for inspections and maintenance of BMPs.

### Sec. 13-114: Water Quality Impact Assessment

**Description:** A water quality impact assessment is required for all development or redevelopment that is proposed within an RPA in order to evaluate the impact the proposed development will have on water quality. There are two types of assessments: water quality minor impact assessments and water quality major impact assessments.

A water quality minor impact assessment is required for development or redevelopment within the RPA that is less than 5,000 square feet. It may also be required by the Director of T&ES in situations where the proposed development is too close to wetlands, there is a danger of contaminants, or on slopes greater than 15 percent.

A water quality major assessment is required for development or redevelopment within the RPA that is greater than 5,000 square feet or may be required by the Director of T&ES when there is more than 5,000 square feet of land disturbance adjacent to an RPA.

Each assessment must show the buffer area, vegetative plantings, and all BMPs that will result in the removal of at least 75 percent of sediments and 40 percent of nutrients. Each assessment must also have a site plan that includes the location of:

- > Existing characteristics;
- > Type of development that will encroach into the buffer area, including: paving material, structures, drives, drainfields sites, or another impervious cover;
- > Vegetation and BMPs to mitigate development;
- > Existing vegetation along with the number and type of tree/vegetation that is to be removed in the buffer area as a result of development; and
- > Re-vegetation plan which will include native vegetation.

### Erosion and Sediment Control Ordinance

**Department:** Department of Transportation and Environmental Services, Division of Environmental Quality (reviews plans and administers the program), Construction and Inspection Division.

**Description:** This ordinance, Title 5, Chapter 4 of the City Code, is enabled under the State Erosion and Sediment Control Law, Code of Va., Secs. 21-89.1 to 21-



Land-disturbing activities that exceed an area of 2,500 square feet require an approved Erosion and Sediment Control plan and must install appropriate construction site runoff controls to meet the goal of reduced pollutant discharge to the City's streams. Each plan must include the:

- > Limits of construction;
- > Appropriate means of sediment control;
- > Disposition of stormwater;
- > Sequence of construction; and,
- > Mechanism and timing of stabilization.

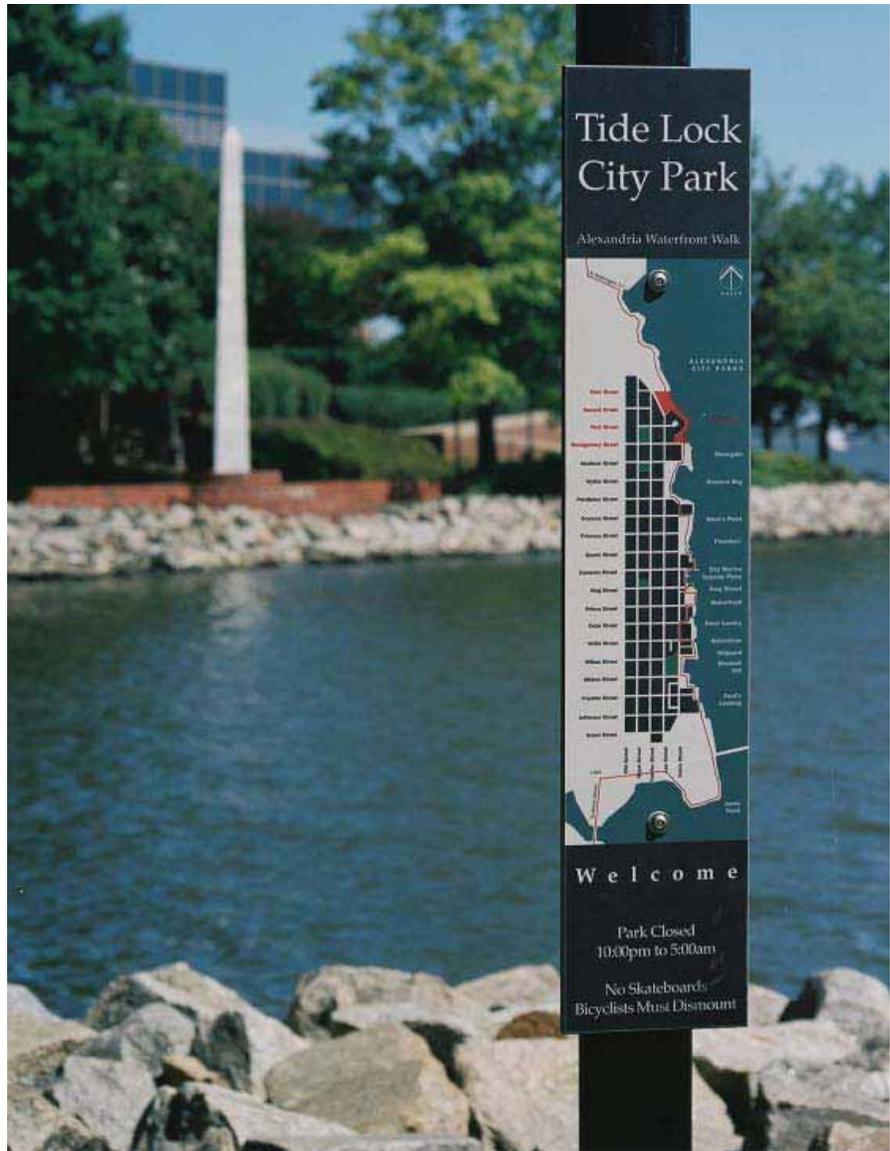
### 3. Community Programs and Information Campaigns

#### Waterway Signage Programs and Public Outreach

**Department:** Department of Transportation & Environmental Services

**Background:** One of the recommendations of the City's 2001 Water Quality Management Supplement was for increased coordinated outreach to citizens and business on how to prevent pollution from entering the water. Additionally, in response to the Clean Water Act amendment of 2007 the City has taken action to provide materials and developed outreach programs to inform individuals and households about steps they should take to reduce stormwater pollution.

**Description:** In an effort to educate and inform the public of the importance of pollution prevention, the City of Alexandria has begun a more comprehensive public education and outreach program. Several bilingual English/Spanish educational brochures have been developed to advertise the detrimental effects of many of the pollutants people often put into storm drains, often unknowingly contaminating waterways. In addition, the City regularly airs scrolling messages on its government access channel (Comcast Cable Channel 70) to provide the public with tips for reducing pollutants and protecting local waterways. New signage has been placed on roadways at stream crossings and at parks adjacent to streams to both inform the public of their local resources, as well as notify them that dumping or littering is not allowed. In many



*Informational signage at Tide Lock Park, part of the linear park system along Alexandria's waterfront.*



places bilingual “No Dumping” signs are displayed in order to reach the large Spanish-speaking community in the City. All new and redeveloped above-ground storm-water BMPs are now marked to inform the public of their benefit to water quality.<sup>3</sup>

### Livable Neighborhood Watershed Stewardship Program

**Department (Regional Program):** City of Alexandria, Arlingtonians for a Clean Environment (ACE), Arlington County, Fairfax County, City of Falls Church, Northern Virginia Soil & Water Conservation District.

**Background:** This program was launched as a regional effort in 2003 and seeks to train community leaders in watershed health so that they, in turn, will educate their neighbors. The program is funded through a one-time grant from the National Fish and Wildlife Foundation, but further funding is being sought.

**Description:** Citizens volunteer to attend 4 trainings over 2-3 months, where they perform exercises and participate in discussions with other volunteers on water quality, conservation, and volunteerism. Participants also test conservation methods at home. Following trainings, those who choose to be team leaders then invite their neighbors to an educational meeting to showcase the conservation methods they have learned.

There are currently 4 Watershed Stewardship Program teams in Alexandria, with trainings for new teams held regularly. Team members fill out lifestyle assessment sheets to track the type and number of water conservation and water quality activities they are currently undertaking, while also planning and tracking those which they plan to implement. Current team members have attended rain barrel workshops and installed rain barrels on their property. One team marked 80 storm drains in their neighborhood and distributed an educational brochure on water quality to all of the neighbors. Another team is working on building a rain garden on common open space property, while another is conducting a stream clean-up around their local stream.

### Informational Campaigns for Best Management Practices (BMPs) in Automotive Industries and Lawn Care Companies

**Department:** Transportation & Environmental Services

**Background:** Service stations and landscaping industries present a risk to water quality because, in those businesses, hazardous fluids and/or chemicals are regularly handled by people who may or may not have an understanding of the detrimental effects they may have on the environment.

With information provided by the U.S. Environmental Protection Agency, the City has published a Best Management Practices Manual for Automotive Related Industries to help people in these types of industries understand the implications of their actions and carry out preventative measures. These manuals are distributed to automotive businesses around the City.



*The City has sent letters to lawn care companies to educate them about the detrimental effects chemicals can have on water quality.*

<sup>3</sup> VPDES Annual Report, p. 4.

The City has also sent letters to lawn care companies to educate them about the detrimental effects dumping chemicals into storm sewers can have on water quality. Those letters cite City Code (Title 11 Sec. 11-13-2) which states that it shall be unlawful for any person to dump any waste on any property, in any waters or in any sanitary sewer or stormwater system, except as authorized by law or by applicable permit.

**Description:** Fourteen recommended practices and four advanced management practices are suggested to control pollution at automotive service stations. Key recommendations include: running a dry shop, being a zero discharger, closing the loop (reusing or recycling hazardous materials), properly training employees, and keeping customers informed. Manuals have been submitted to these types of businesses in Alexandria since 1998 and compliance is required of all such businesses that call for a Special Use Permit (SUP) through conditions placed on the permit.

Furthermore, the City sent letters and a brochure to lawn care companies recommending that they follow these guidelines to prevent stormwater pollution and protect water quality:

- > Never apply any fertilizer to a hard surface such as sidewalk, driveways or streets;
- > Sweep up granular fertilizers off all hard surfaces and put it back onto the lawn;
- > Select the proper fertilizer and read and follow the manufacturer's recommendations and directions for proper use;
- > Do not over fertilize;
- > Do not wash spreader or other equipment over a hard surface;
- > Do not blow grass clippings or leaves onto sidewalks or streets.
  
- > Do not dump in storm drains; and,
- > Cover bare ground with vegetation or mulch to prevent soil erosion.

## 4. Stream Assessment and Monitoring Programs

### Stream Assessment

**Department:** Transportation & Environmental Services/Consultants

**Background:** The 2001 Water Quality Management Supplement to the Master Plan identified a lack of data regarding the status of riparian habitats and waterways within the City. Proactively, the City has undertaken a stream assessment which will provide in-depth information regarding not only existing conditions and health of City waterways, but also the conditions of the riparian habitats surrounding these waterways.

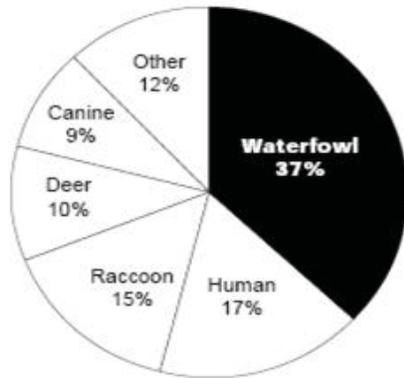
**Description:** Phase I of the stream assessment classified streams into three categories: perennial, intermittent or ephemeral. Phase II of the stream assessment is a more detailed investigation and mapping of each of the stream components—including buffer depth, habitat assessment, physiographic weaknesses, and in stream conditions—which will serve to identify problems and to generate management strategies. The draft Phase II report is due to be completed in the fall of 2007.

### Fecal Coliform Contamination Monitoring

**Department:** Transportation & Environmental Services/Consultants



**Background:** For the past several years, Four Mile Run and Cameron Run have been tested at unacceptable levels for fecal coliform contamination.<sup>4</sup> As this is a human health concern, more in-depth testing has been carried out to determine the exact sources of this contamination. Within Four Mile Run, a September 2000 sample showed that the majority of the contamination was the result of the presence of wildlife within the area and was not largely attributable to human or canine contamination.<sup>5</sup>



**Figure 4: Four Mile Run Fecal Coliform Contamination<sup>6</sup>**

**Description:** To further the investigation, the City is collecting information regarding the total maximum daily load that Four Mile Run can assimilate and maintain compliance with water quality standards. This information will be compared to existing information to develop methods for addressing noncompliance issues. The same is planned within the Cameron Run watershed in the future.

### **Comprehensive Citywide Stream Monitoring**

**Department:** Transportation & Environmental Services/Community Groups

**Background:** The 2001 Water Quality Management Supplement to the Master Plan identified the need for a comprehensive city-wide stream monitoring program within Alexandria. This comprehensive monitoring would provide valuable water quality data, which the City could use when updating programs, policies, or plans, or when requesting funding.

**Description:** As indicated previously, Four Mile Run and Cameron Run are monitored. The City has just completed the Phase II stream assessment which inventoried and assessed conditions throughout the City. It will act as a baseline against which any further monitoring efforts can be compared.

## **5. Stormwater and Best Management Practices (BMP) Programs**

### **Street Sweeping/Flushing and Catch Basin Cleaning Program**

**Department:** Transportation & Environmental Services

**Background:** The City of Alexandria has used street sweepers for aesthetic purposes since the early 1900s, though more recently street sweeping has been promoted for its water quality benefits. Street sweeping is effective in removing large sediments, litter and sands (though it is less effective at cleaning fine particles which

<sup>4</sup> City of Alexandria Water Quality Management Supplement to the Master Plan

<sup>5</sup> Ibid, Page 10.

<sup>6</sup> Simmons, et al.

typically have potentially harmful nutrients attached). According to some sources, street sweepers can remove up to 50 percent of all street surface pollutants.<sup>7</sup>

**Description:** Alexandria has mechanical and vacuum street sweepers, which serve over 600 lane miles once a week to once a month, depending on the need. The City also runs a “street flushing” program in areas served by the City’s combined sewer system (CSS), which is found primarily in Old Town. In these areas a street flusher—a vehicle with a high-powered hose—follows a street cleaner in order to flush the remaining pollutants into storm drains which, in the case of the CSS areas, drain into the Alexandria Wastewater Treatment Facility where it is treated. In addition, catch basins, which trap litter and large debris, are cleaned often.



*Sign along Four Mile Run, educating the public on the effects polluted runoff can have on Alexandria’s watersheds.*

## Targets of Opportunity Stormwater Retrofit Program

**Department:** Transportation & Environmental Services

**Background:** The City of Alexandria adopted a stormwater quality management program in 1992 as part of its Chesapeake Bay Preservation Ordinance. A component of that program includes retrofitting existing development with stormwater quality facilities. Since 1992, over 1,000 acres of urban best management practices (BMP) retrofits have been installed within the City under this program. Examples of BMPs and stormwater controls include: stormwater wet/dry detention ponds, vegetative buffers, bioretention, hydrodynamic structures, sand filters, and cluster development to retain open space, and design standards that promote stream buffers and reduce impervious surfaces.<sup>8</sup>

**Description:** The purpose of this program is to “enhance the mandatory requirements of the Chesapeake Bay Program with additional treatment of stormwater runoff from built up areas that would otherwise not be required to implement water quality protection measures”.<sup>9</sup> Upon adoption of the Chesapeake Bay Preservation Ordinance, Alexandria staff conducted a survey to identify areas where BMPs would need to be upgraded in order to continue to function as filters of sediment and pollutants. This survey especially highlighted existing ponds or basins which could potentially be used for regional stormwater detention basins. Staff who reviews development proposals can now use the survey to suggest developers incorporate some of these BMP improvements into their development plans.<sup>10</sup>

As a result of this program, much of Alexandria’s retrofit program has been funded by developers. From 1992 to 2001 the City was able to retrofit 1,007 acres. Furthermore, the Targets of Opportunity Stormwater Retrofit Program won a Community Innovation Award from the Chesapeake Bay Program in 1997 in recognition of the City’s achievements and efforts, which have gone above and beyond the Chesapeake Bay Act requirements.<sup>11</sup> One of the best examples is the lake in Ben Brenman Park, which is used to treat the storm water from Cameron Station as well as from

<sup>7</sup> Water Quality Management Supplement, p. 52

<sup>8</sup> Alexandria Watershed Management Web Page

<sup>9</sup> Water Quality Management Supplement, p. 52

<sup>10</sup> Targets of Opportunity: Alexandria’s Urban Retrofit Program, p. 83

<sup>11</sup> City of Alexandria Water Quality Management Supplement to the Master Plan, p. 52-53



large off-site areas.

## Stormwater Utility Feasibility Study

**Department:** T&ES

**Background:** The Code of Virginia (Section 15.2-2114) allows localities to adopt a stormwater control program and to enact a system of service charges. Income derived from these charges is dedicated special revenue and may be used only to pay or recover costs for the following:

- > Cost of administering stormwater utility programs;
- > Engineering and design, debt service, construction costs for new facilities, and enlargement or improvement of existing facilities;
- > Facility maintenance;
- > Monitoring stormwater control devices;
- > Pollution control and abatement; and
- > Planning, design, land acquisition, construction, operation, and maintenance activities.

**Description:** This study is being carried out under direction of Alexandria's City Council to evaluate the need for a utility tax for stormwater control and treatment. As of FY 2008, this study has been fast-tracked and a contracting team has been chosen. Funding for the study has been also identified.

This study is expected to determine how much the City spends on stormwater-related activities, such as:

- > Storm sewer line repairs and flushing;
- > Capital improvements on storm sewer reconstructions, channel restoration, and the City's stormwater permit;
- > One-time capital improvements such as the restoration of Cameron Run stormwater tunnels (the report will also include overhead costs of administering these programs).

*Like many urban streams, parts of Cameron Run and Holmes Run have been channelized. Channelization, while lessening the impact of excess quantities of water, may lead to degraded water quality.*

As a component of this project, educational and community outreach programs will also be developed.

## 6. Stream Restoration and Remediation

### Cameron Run & Holmes Run Flood Corridor Maintenance Program

**Department (Regional Program):** Transportation & Environmental Services, Recreation, Parks and Cultural Activities, Federal Emergency Management Agency (FEMA), Community Groups, Fairfax County, the U.S. Army Corps of Engineers (USACE), and Northern Virginia Regional Commission (NVRC)



**Background:** In an effort to reduce flooding throughout the watershed, both Cameron Run and lower Holmes Run have been ‘hardened’ in many areas with flood control channels that include armoring with large rocks and concrete. While the channelized versions of Cameron Run and Holmes Run have carried flood waters more effectively than the natural stream channels did, the streams now fail to meet expectations for water quality, natural habitats, and aesthetics. Furthermore, citizens and the City became concerned with the amount of development and impervious surfaces along these waterways and the levels of flooding that were occurring as a result.<sup>12</sup>

**Description:** The City of Alexandria developed maintenance plans, in conjunction with FEMA and concerned citizens for both Holmes Run and Cameron Run. The plans enable the waterways to maintain their respective “flood carrying capacities”.<sup>13</sup> The programs are now designed to enhance the riparian environments for both streams and provide maintenance in a manner which is least likely to disrupt the natural flow of water and the natural growth of vegetation. The plans are periodically evaluated to ensure that the most up-to-date methods are implemented.

Additionally, the City of Alexandria, Fairfax County and the U.S. Army Corps of Engineers (USACE) have initiated a partnership to examine opportunities to restore Cameron Run’s natural habitats and improve water quality. The partnership, supported by the Northern Virginia Regional Commission (NVRC), will develop a watershed-wide feasibility study. This initiative was initiated in September 2004 and currently is scheduled to be completed in March 2009. The feasibility effort is financed by 50 percent Federal funding and 50 percent in-kind services by the local jurisdictions.

## Restoration of Degraded Wetlands

**Department:** Transportation & Environmental Services

**Background:** By nature of Alexandria’s urban environment, and the fact that much of the existing development occurred prior to environmental regulations, there are several areas of degraded wetlands within the City. One of the City’s goals is to ensure that these wetlands be maintained and restored wherever possible.

**Description:** The City works with developers on a case-by-case basis when redevelopment occurs to ensure that wetlands are restored to their natural state. A specific example of this occurring is the Potomac Greens site plan, where approximately 12 acres of previously degraded wetlands are being returned to a healthy and sustainable state. Additionally, the City has undertaken wetland restoration projects of its own, such as the acre and a half wetlands restoration site along Four Mile Run.

## Potomac River Watershed Clean Up Program (“Trash Free Potomac Watershed Initiative”)

**Department:** Transportation & Environmental Services, Recreation, Parks and Cultural Activities, Alice Ferguson Foundation, Community Volunteers

**Description:** For almost two decades, volunteers from throughout the Potomac River Watershed have joined together one day a year to clean the banks of the river. Since 1989, more than 35,000 volunteers have teamed with 250 partner organizations to tug 1,230 tons of trash from the watershed’s streams, rivers and bays. Last year’s haul of almost 232 tons included more than 13 tons of recyclables, 889 tires, 11 shopping carts, eight car bumpers, three bed frames, two recliners, \$50 in foreign currency, and, yes, even the proverbial kitchen sink.<sup>14</sup> On March 31, 2007 (the 19th annual Potomac River clean up), Alexandria had eight sites along the Potomac River and its tributaries where clean up activities occurred. Staff members and team leaders directed various groups and coordinated the volunteer services. The teams

<sup>12</sup> City of Alexandria Holmes Run Maintenance Implementation Plan

<sup>13</sup> City of Alexandria Cameron Run Maintenance Plan.

<sup>14</sup> Alice Ferguson Foundation. Annual Potomac Watershed Cleanup



worked for three hours at their respective sites.

In addition to the Annual Potomac River Watershed Cleanup, Transportation & Environmental Services sponsors several stream clean-ups throughout the City; for example, T&ES aided the Holmes Run Park Committee clean up Holmes Run, provided support to two separate groups which held clean-ups along Four Mile Run, T&ES also supports Earth Day Cleanups, a Post Flood Cameron Run Cleanup, and a Clean Virginia Waterways / International Coastal Cleanup. Cleanups are typically advertised through press releases, email distributions to Alexandria's eNews Subscribers, flyers, local government and community cable channel announcements, and local volunteer bureaus.

### **Potomac River Bulkhead Rehabilitation**

**Department:** Recreation, Parks & Cultural Activities, General Services, Transportation & Environmental Services

**Background:** Numerous bulkheads along the Potomac River waterfront were identified as needing rehabilitation through a study conducted in 1998 by the Northern Virginia Planning District Commission. Figure 5 illustrates the numerous instances of bulkheads that need rehabilitation along Alexandria's Potomac River waterfront.

**Description:** When redevelopment occurs adjacent to an area of degraded bulkhead or riprap, the City works with the developer to restore the bulkheads or riprap to a stable condition. Additionally, the City has restored and will continue to proactively restore bulkhead and riprap areas as funding allows.

### **Four Mile Run Stream Restoration Project & Master Plan**

**Department:** Recreation, Parks and Cultural Activities; Transportation and Environmental Services; and Planning and Zoning partnered with Northern Virginia Regional Commission, County of Arlington, United States Environmental Protection Agency and United States Army Corps of Engineers

**Background:** In the 1960s and 1970s, frequent and damaging floods occurred within the Four Mile Run watershed due to its high level of urbanization. As a result,

*Concept of a restored Four Mile Run.*



in 1974 the United States Army Corps of Engineers was directed to channelize the waterway.<sup>15</sup> The objective of the project was achieved, in that no flooding has occurred in the watershed since the channelization was completed, but the end result of the project was an eyesore and the absence of a healthy riparian environment. Through time, the residents and the jurisdictions in which the channelized portions were located began to see the benefits of a natural stream corridor as opposed to the channelized corridor. "Benefits of restoring Four Mile Run include an enhancement of aquatic (in-stream) and riparian (adjacent-to-stream) habitats and an establishment of the run as a focal point, reflecting its value as a community resource."<sup>16</sup> Efforts to improve the channelized areas began at the grassroots level and have since blossomed.

Description: A task force was formed and funding was secured to develop a plan for returning Four Mile Run to a more natural state. A Master Plan was developed and adopted in March 2006, setting out a 30-year vision for the improvement of the channelized areas. With all parties fully dedicated, the implementation phase of the plan is now beginning. The first step is to fund, design and construct a demonstration project which will embody the kind of development which is envisioned for the entire restoration area.<sup>17</sup> (See Figure 6, Vision for a Restored Four Mile Run<sup>18</sup>).

### **Cameron Run Restoration Project (Holmes Run/Cameron Run Watershed Feasibility Study)**

**Department:** Transportation & Environmental Services, Recreation, Parks and Cultural Activities and Planning and Zoning partnered with Northern Virginia Regional Commission, Fairfax County and United States Army Corps of Engineers

**Background:** The once natural environment of the Cameron Run watershed has rapidly changed within the past decades. Growing concern for aquatic integrity of the waterway and the need to design a watershed-wide mechanism to improve water quality spurred the Cameron Run Restoration Project.

**Description:** The working group has since adopted a mission of completing a feasibility study for the restoration of Cameron Run by 2009. The feasibility study shall investigate the resources necessary for achieving the following goals:<sup>19</sup>

- > Reduce stormwater impacts on the Cameron Run watershed from impervious areas to help restore and protect the streams;
- > Preserve and improve watershed habitats to support native flora and fauna;
- > Preserve and improve stream water quality to benefit humans and aquatic life;
- > Improve stream-based quality of life and recreational opportunities for residents of and visitors to Cameron Run watershed;
- > Provide adequate, cost-effective flood protection for adjacent communities along major tributaries in the Cameron Run watershed;
- > Build a framework for long-term regional cooperation.

This feasibility study is the initial step of a restoration program which will return the Cameron Run Watershed to a healthy and sustainable condition.

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<sup>15</sup> Northern Virginia Regional Commission Four Mile Run Restoration Project History.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

<sup>18</sup> Four Mile Run Restoration Master Plan.

<sup>19</sup> Northern Virginia Regional Commission Cameron Run/Holmes Run Watershed Feasibility Study e-Newsletter.



## 7. Sewer Systems and Water Treatment

### Alexandria's Drinking Water

**Department:** Alexandria Health Department, Environmental Health Division; Virginia American Water

**Description:** Under provisions of the Safe Drinking Water Act, states are required to develop comprehensive Source Water Assessment Programs that identify the watersheds that supply public tap water, provide an inventory of contaminants present in the watershed, and assess susceptibility to contamination in the watershed. The Virginia Department of Health's Office of Drinking Water regulates, permits, and inspects the public drinking water systems in Alexandria. The Alexandria Health Department's Environmental Health Division also monitors drinking water testing and answers questions and addresses complaints from the public about the drinking water system.

Typically, peak water usage in Alexandria occurs in July and August. Below is a table outlining water sales for Alexandria from 2003-2006:

Year	2003	2004	2005	2006
Residential	3.39	3.089	3.895	3.766
Commercial	9.436	10.374	10.071	10.625
Industrial	0.562	0.607	0.645	0.68
Other Public Authorities	0.783	0.793	0.684	0.672
<b>Total Daily Average Water Sold</b>	<b>14.171</b>	<b>14.863</b>	<b>15.295</b>	<b>15.743</b>
<b>Yearly Water Sales (gallons)</b>	<b>5,172,483,000</b>	<b>5,439,785,000</b>	<b>5,582,489,000</b>	<b>5,746,366,000</b>

Virginia American Water provides drinking water to customers in the City of Alexandria. Alexandria's water comes from two surface water treatment plants owned and operated by Fairfax Water Authority. The Corbalis water treatment plant is located on the Potomac River. The Occoquan / Lorton plants are located on the Occoquan Reservoir. Based on the criteria developed by the state, the Potomac River and the Occoquan Reservoir were determined to be of high susceptibility to contamination. This determination is consistent with the state's finding of other surface waters (rivers, lakes, streams) throughout the Commonwealth of Virginia.

### Sanitary Sewer Line Inspection and Maintenance Program

**Department:** Transportation & Environmental Services

**Background:** The City of Alexandria has been conducting a multi-year program to inspect sewer lines in an effort to detect illegal connections and to determine where areas of groundwater inflow into the sewer system and sewage infiltration into the surrounding soils are taking place. Inflow can cause sewage flow to increase during heavy loads, causing overflows, and infiltration can let harmful pollutants into the environment.

**Description:** During the last 3 years, City maintenance crews and engineers have been collecting data on the Four Mile Run and Commonwealth sewer service areas to look for areas of inflow and infiltration. The results of this study showed that many of the sewers and manhole covers in public streets needed to be rehabilitated. Fortunately, many of these problems have been corrected via pipe linings, instead



of excavation, which can be time-consuming, expensive, and messy. However, approximately 550 sewer point repairs were required in areas where internal repair is not sufficient. The City contracted private companies to perform these costly repairs (\$2.78 million for Four Mile Run area and \$4.19 million in the Commonwealth sewer service area).<sup>20</sup> At this point, the work in the Four Mile Run 'sewershed' has been completed as has monitoring of the work carried out. Maintenance and repairs in the Commonwealth sewershed have also been completed and are currently in the monitoring stage. The next phase includes inspection and testing of the Taylor Run sewershed and identification of a contractor to perform rehabilitation in that area.

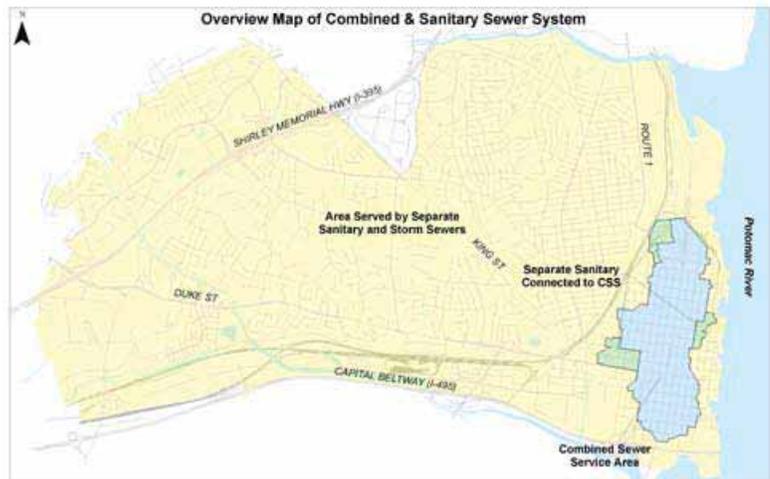
The City has gradually been reducing the number of septic systems within its boundaries. Unfortunately, the remaining septic systems are not well documented and are only discovered when a problem is reported to the Health Department.<sup>21</sup> Properties that are within 500 feet of a sewer system that have not connected now must connect. Furthermore, all new and significant redevelopment must also connect to the City's system.

## Combined Sewer System Area Reduction Plan

**Department:** Transportation & Environmental Services, Planning & Zoning

**Background:** Combined sewer systems (CSS) have only one pipe which conveys both sewage / greywater and stormwater to a local wastewater treatment plant. In times of peak flow, these types of systems can lead to overflow through combined sewer overflow (CSO) outfalls (which are regulated by the Virginia Department of Environmental Quality) into the Potomac River. The City has 4 Combined Sewer Overflow points which are permitted under a Virginia Pollutant Discharge Elimination System (VPDES) permit issued by Virginia Department of Environmental Quality (VDEQ). The permit also includes extensive monitoring, water quality sampling and modeling requirements.

**Description:** The oldest part of the City (primarily Old Town, or approximately 540 acres) is served by a CSS. Any new development within the area served by Combined Sewer System is required to separate onsite sewers. The City desires to further reduce the overall area of the CSS and its impact by separating the storm and sanitary sewers over time as development opportunities arise. The City has developed an Area Reduction Plan that identifies the system modifications, associated costs and environmental impacts of separating certain portions of the CSS deemed especially conducive to separation relative to the CSS area as a whole. In addition to required onsite separation, the new development and redevelopment projects in CSS area are evaluated using this plan and appropriate proffers are attached to the development conditions requiring developers to construct sewers that will result in either partial or complete separation. Much like the Targets of Opportunity Stormwater Retrofit Program, this program seeks to enlist the development projects using proffers. To date this has resulted in over 13 acres of separation. The separation of the CSS is a priority for Alexandria today, though in many cases it is prohibitively expensive. The City will continue to use this Area Reduction Plan to further reduce impacts of Combined Sewer System.



Map of Alexandria's remaining Combined Sewer System (CSS).

<sup>20</sup> Stormwater Infiltration & Inflow Program: Protecting Alexandria's Waters.

<sup>21</sup> Water Quality Supplement, p. 36



In the meantime, the City has consistently exceeded all of the requirements of the VDEQ VPDES permit and is working to eliminate combined sewer overflows through the employment of the US Environmental Protection Agency's "Nine Minimum Controls"<sup>22</sup>, described below:

<b>Table 2: EPA's Nine Minimum Controls</b>		
<b>1</b>	Proper operation and regular maintenance programs for the sewer system and the CSOs	<ul style="list-style-type: none"> <li>• Regular sewer flushing</li> <li>• Regular program of CCTV inspection of sewers</li> <li>• Regular catch basin cleaning program</li> </ul>
<b>2</b>	Maximum use of the collection system for storage	<ul style="list-style-type: none"> <li>• Sewer relining projects to reduce inflow and infiltration</li> <li>• Onsite stormwater retention required for new development</li> </ul>
<b>3</b>	Review and modification of pretreatment requirements to assure CSO impacts are minimized	<ul style="list-style-type: none"> <li>• No pretreatment required</li> </ul>
<b>4</b>	Maximization of flow to the publicly owned treatment works for treatment	<ul style="list-style-type: none"> <li>• Diversion facilities (regulator structures, weirs, etc) inspected regularly and maintained</li> </ul>
<b>5</b>	Prohibition of CSOs during dry weather	<ul style="list-style-type: none"> <li>• Diversion facilities inspected regularly and maintained</li> <li>• 24 hour on-call response team for reported dry weather overflows</li> </ul>
<b>6</b>	Control of solid and floatable materials in CSOs	<ul style="list-style-type: none"> <li>• Regular sewer flushing and catch basin cleaning</li> <li>• Use of hooded catch basins</li> <li>• Regular leaf season pickup, street cleaning program and litter clean-up program</li> </ul>
<b>7</b>	Pollution Prevention	<ul style="list-style-type: none"> <li>• Recycling programs (general recycling and solid waste control, hazardous waste)</li> <li>• Industrial waste reduction program</li> <li>• Best management practices for automotive related industries</li> <li>• Ordinances and enforcement</li> </ul>
<b>8</b>	Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts	<ul style="list-style-type: none"> <li>• CSO public notice signs - Public information bulletin available</li> </ul>
<b>9</b>	Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls	<ul style="list-style-type: none"> <li>• Monitoring program for the CSS in accordance with Parts I.A and B of its VPDES permit</li> </ul>

### **Municipal Separate Storm Sewer System (MS4) Virginia Pollution Discharge Elimination System (VPDES) Permit Compliance**

**Department:** Virginia Department of Conservation and Recreation, Virginia Department of Environmental Quality, Alexandria's Department of Transportation & Environmental Services

**Background:** A municipal separate storm sewer system is a conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, storm drains), designed or used for collecting or conveying stormwater.

**Description:** Alexandria's water quality programs are governed by several federal and state authorities. The MS4 permit (Phase II General Permit) is issued by the Virginia Department of Conservation and Recreation and requires the City to submit an annual report to demonstrate the City's compliance with the 6 minimum control criteria. This report looks at all programs in a single document and is required for compliance with the Virginia Pollution Discharge Elimination System (VPDES) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems. The following six minimum control measures, aimed at reducing the discharge of pollutants to the "maximum extent practicable," are required to be

<sup>22</sup> <http://alexandriava.gov/tes/DEQ/whatscitydoing.html> Watershed Management: Combined Sewer Systems. Department of Transportation & Environmental Services web site.



addressed in this report:<sup>23</sup>

- > Public Education and Outreach
- > Public Participation and Involvement
- > Illicit Discharge Detection and Elimination
- > Construction Site Runoff Control
- > Post-Construction Runoff Control
- > Pollution Prevention and Good Housekeeping.

The City programs outlined within the annual VPDES report are addressed elsewhere within this document, so are not included here.

As part of the General Permit requirements, the City has to assure that it is able to detect and eliminate illicit discharges. An illicit discharge is defined as “any discharge to the municipal separate storm sewer system that is not composed entirely of stormwater, except for discharges allowed under a National Pollutant Discharge Elimination System (NPDES) permit.”<sup>24</sup> Non-stormwater discharges typically occur through illegal connections or dumping. To meet this requirement, the City is mapping all waterways and stormwater outfalls and is educating businesses and the public on the laws against this illegal activity. Furthermore, illicit discharges have been assessed through the Phase II Stream Assessment and sewer mapping program.

## Upgrade of the Alexandria Wastewater Treatment Facility

**Department:** Alexandria Sanitation Authority

**Background:** Alexandria Sanitation Authority (ASA) was created by the Alexandria City Council in 1952 “for the purpose of acquiring, constructing, improving, extending, operating and maintaining a sewer system and sewage disposal system.”<sup>25</sup> The ASA is a public body, organized under the Virginia Water and Sewer Authorities Act, which oversees Alexandria’s Wastewater Treatment Facility. In 1997, with the passing of the Chesapeake Bay Agreements and the Potomac Embayment Policy, which each required treatment facilities to meet tougher water quality requirements, the ASA decided to upgrade Alexandria’s wastewater treatment facility. Construction of the Advanced Wastewater Treatment Plant (AWWTP) began in 1999 and was, for the most part, completed in December 2002.

**Description:** Of all the water quality programs listed here, the ASA’s upgrades to the Alexandria Wastewater Treatment Plant will have the most significant impact on water quality.<sup>26</sup> The new design of the AWWTP includes a biological nutrient removal system, which has reduced nitrogen discharges from the plant by 70 percent.<sup>27</sup> Furthermore, ASA will begin producing Class A Exceptional Quality biosolids and return to the beneficial reuse of this product by land application at Virginia farms. Costs were estimated to be \$200 to \$240 million to be paid by Alexandria and portions of Fairfax County (which is served in part by the system). Part of this bill is funded through taxes, through a 5-year rate increase which will end in 2010.

## Underground and Above Ground Storage Tank Compliance Program

**Department:** Transportation & Environmental Services, the Fire Department’s Code Enforcement Bureau, Fire Marshall, and Virginia Department of Environmental Qual-

<sup>23</sup> Year 2 VPDES Annual Report.

<sup>24</sup> Alexandria’s Storm Water Management web site

<sup>25</sup> Water Quality Supplement p. 55

<sup>26</sup> Water Quality Supplement, p. 63

<sup>27</sup> Alexandria Sanitation Authority



ity's Water Division.

**Background:** Above and below ground storage tanks can be detrimental to water quality due to spillage, leakage, and, if above ground, toppling.<sup>28</sup> Large storage tanks are regulated by the Virginia DEQ or by the federal government through the Clean Water Act. However, smaller tanks (less than 660 gallons) are not regulated, at which point it is the responsibility of the individual owner to assure that leaks do not occur.

**Description:** The City keeps a record of all underground and above ground storage tanks. There have been 219 tanks reported leaking since 1981 and while most of those leaks have been resolved, a few have not.<sup>29</sup> It is often difficult for the City to detect when there is a leak or the exact location of a leak, as many are buried and leaks can be carried or contained underground, evading detection. The City's Transportation & Environmental Services Underground Storage Tank Program maintains the City's storage tank records and oversees any remediation should a leak occur.

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<sup>28</sup> According to the VADEQ, approximately 90 percent of releases from individual tanks are a result of overflow or the tipping over of a tank. Water Quality Supplement, p. 35.

<sup>29</sup> Water Quality Supplement, p. 36



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## ENERGY AND GREEN BUILDINGS

### 1 Energy and Climate Change

### 2 Green Buildings



*T.C. Williams, Alexandria's newest green high school, is an educational tool that will teach many generations the importance of environmental stewardship.*

## 1. Energy and Climate Change

### Cool Cities Program/Energy Conservation Efforts

**Department:** Office of the Mayor, General Services, Transportation & Environmental Services

**Background:** In 2005 William D. Euille, Alexandria's mayor, signed the U.S. Mayors Climate Protection Agreement, which is the first step to becoming what the Sierra Club has dubbed a "Cool City". The Sierra Club's Cool City program identifies cities that have made a commitment to stopping global warming by signing the U.S. Mayors' Climate Protection Agreement and are working towards efforts to conserve energy. Under the Agreement, participating cities commit to take the following three actions:

- > "Strive to meet or beat the Kyoto Protocol targets in their own communities, through actions ranging from anti-sprawl land-use policies to urban forest restoration projects to public information campaigns;
- > Urge their state governments, and the federal government, to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol – 7% reduction from 1990 levels by 2012; and
- > Urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system."

**Description:** Alexandria is already making progress in reducing greenhouse emissions through the provision of biking and walking trails, mass transit and transit oriented development, tree conservation, energy conservation and green city facilities. Furthermore, the City has recently hired an Energy Manager to implement programs related to the U.S. Mayor's Climate Protection Agreement. This person will develop and implement the Cool Cities program, develop a targeted energy conservation plan, and manage energy conservation in City facilities.



## Solar Energy Equipment Tax Exemption

**Department:** The exemption is administered by the local building department and the local real estate assessments office; the code (Title 3, Chapter 2, Article P of the city code) specifies that solar equipment must fall under properties certified by the state certifying authority, which for the purposes of this code, include the state department of housing and community development in conjunction with the City department of building and mechanical inspections.

**Description:** This program, started in 1978, offers a tax deduction for City residents who purchase and install approved solar energy equipment. Certified solar energy equipment, facilities and devices are considered by the City to be a separate class of property, which justifies separate taxation from other classifications of real or personal property. Under this code, Alexandria residents can deduct the purchase and installation cost of approved solar energy equipment from property tax bills. Residents must apply for the credit and have their installation and use of equipment verified by the City.

Certified solar energy equipment, facilities or devices include property certified by the state certifying authority to be designed and used primarily for the purpose of providing for the collection and use of incident solar energy for water heating, space heating or cooling or other applications which would otherwise require a conventional source of energy such as petroleum products, natural gas or electricity.

*The City of Alexandria is undergrounding utility lines in Old Town and along Mount Vernon Avenue, which will help preserve tree canopies while making these areas more aesthetically pleasing.*

## Utility Undergrounding Project – Old Town

**Department:** Transportation & Environmental Services, Engineering and Design Division

**Background:** Undergrounding of electric power lines in Old Town began in 1992. The program has an annual budget of \$552,000 based on Phase I-II (1992-1994).

**Description:** The City entered into a partnership with Virginia Power to underground electric power lines and telephone lines in the Old Town area. The project initially consisted of two phases in the early 1990s, with an additional twelve proposed beginning in 2007. The City provides right-of-way and underground conduit, and restores the streets and sidewalks (including some visual improvements such as streetlights) following installation of utility equipment. The electric and telephone utilities install their utility equipment in the provided conduits.

Undergrounding projects are subject to many bureaucratic delays, especially related to obtaining easements on private property. Phases I and II, covering a total of five city blocks, were completed in two years ending in 1994. Phases III through XIV, with similar coverage areas, are anticipated to take up to 26 years (2007 – 2033) to complete.

## Utility Undergrounding Project – Mount Vernon Avenue

**Department:** Transportation & Environmental Services, Engineering and Design Division

**Description:** This program undergrounds utility lines through a City-utility partnership along Mt Vernon Av-



enue similar to the Old Town undergrounding project, but with a much greater emphasis on streetscape improvements. The project area includes the entire Mt Vernon Avenue corridor from the Braddock Rd Metro station to Glebe Rd. Streetscape improvements include brick sidewalks, park benches, street furniture and signage. This project is complete as of fall 2006.

This project largely achieved its primary goal of improving the streetspace on Mt Vernon Avenue. This corridor is a heavily-used pedestrian space with restaurants, coffee shops and storefronts, including several outdoor cafes.

## 2. Green Buildings

### Green Building Checklist

**Department:** Planning and Zoning

**Background:** According to Alexandria's Planning for Alexandria brochure (from the Department of Planning and Zoning web site), what makes a livable city includes the following elements: (1) a range of housing choices for all incomes; (2) buildings that contribute to the City's character; (3) vibrant, safe neighborhoods; (4) attractive, walkable streets; (5) easy access to transit; (6) multiple transportation choices; (7) locally owned businesses; (8) economic development that leads to a range of quality job choices; (9) usable, public open space; (10) pride in a unique community; and (11) green, sustainable buildings.

Since 2006 the City has required that developers fill out a Green Building Checklist, which outlines elements of each project that use green building technologies. While it is not mandatory that new development utilize green technology, having developers fill out the list serves to educate them on the possibilities. The items on the checklist are strongly suggested to developers who apply for special use permits. The demand for more sustainable building practices nationwide drove the City to develop this voluntary project checklist. The success of green roofs, permeable pavement, reduced parking, and other ecologically sensitive practices within City limits encouraged the City to recommend these techniques for all new development.

**Description:** The Green Building Checklist form is used as a tracking device and is a requirement for plan approval. In the case of special use permits, once a project receives the permit the builder is given the opportunity to incorporate the items on the checklist into the design through the building permit process. The City is currently exploring the process of establishing a green-sustainable

### Spotlight | T.C. Williams High School

Alexandria's commitment to its youth is exemplified in the city's newest addition to its portfolio of school buildings – the state-of-the-art, environmentally responsible T.C. Williams High School that opened for the start of the 2007-08 school year. The school is pursuing LEED certification, a national benchmark for the design, construction and operations of high performance green buildings administered by the U.S. Green Building Council. With this new green school and several other green buildings under construction, Alexandria joins the ranks of hundreds of other cities around the country touting a green building initiative as a results-oriented, measurable component of a broader sustainability initiative.

The idea for a new green school originally was proposed by a group of parents and community members, who suggested that raising the bar in the environmental design of the building would be advantageous to the community. The green school is expected to yield significant benefits to students' health and educational performance, the school district's financial investment, and of course the environment. The school has a number of features that contribute to its performance as both a healthy and comfortable learning environment and a tool for teaching sustainable building practices. The flood of natural light through strategically placed windows is one design feature that is proven to enhance students' reading and math test scores. Also, carbon dioxide detectors in each classroom monitor CO2 output and adjust the room temperature and air flow for improved air quality in the building. And the learning extends beyond the classroom at T.C. Williams; students will be able to view the building's energy and water use through a central "dash board" in a common area.

With T.C. Williams, the school district has made a sound investment of its resources and a positive statement to the almost 2,000 students. The estimated 10 percent increase in costs for the green building features is projected to pay off within five to seven years, and the living educational tool that the school district has created will teach many generations the importance of environmental stewardship and the ways in which it can be achieved.



building requirement for new development.

## Green Building Policy

**Department:** The Department of General Services, Transportation & Environmental Services' Environmental Quality Division, and the Department of Planning and Zoning, Development Review Division, which oversees permits.

**Background:** The City is a signatory of the U.S. Mayors Climate Protection Agreement. The agreement states that participants will strive to meet or exceed Kyoto Protocol targets for reducing global warming pollution by taking actions in their own operations and communities such as practicing and promoting sustainable building practices using the U.S. Green Building Council's LEED program or a similar system.

**Description:** The Department of General Services developed a Green Building Policy in 2003, which was later adopted by City Manager. This policy seeks to "provide a comprehensive outline and strategy for developing an integrated program of design, construction, renovation and operations practices for City facilities that recognizes the interdependence of natural and built environments".<sup>1</sup> The City's goal is to obtain a LEED-Silver rating or the equivalent for all new City facilities. The Department of General Services is also offering facility maintenance staff training so that they will fully understand and be able to implement the green building policy during building maintenance. In addition, General Services is striving to have all staff be knowledgeable of energy saving initiatives and sustainable design and practices.

### Some of the City green building projects are:

**T.C. Williams High School (3330 King Street):** Alexandria's new high school has incorporated green roofs and other water and energy-saving methods. The City has applied for LEED certification for the building (target is silver LEED rating). A few of the building's green features include:

- > A 450,000 gallon underground cistern which collects rainwater from the building's roof and stores it for use in toilet flushing, air-conditioning operations and irrigation;
- > A permanent measurement and verification system will track water and energy usage at the facility. Data collected will be made available to students at the central "dash board" located in the student commons;
- > The garden roof cleanses roof run-off before draining to the storm sewer system and provides a living laboratory for students.

**James Duncan Branch of the Alexandria Library (2501 Commonwealth Ave):** The first City building with a green roof, Duncan's green roof was sown in early September 2005 with a variety of sedum. (The building was first constructed in 1969.) The green roof and a glass storefront, which was also added, incorporate energy conservation measures, with the vegetated roofing expected to filter stormwater runoff and reduce heat in the summer, and the glass storefront to provide natural light, thereby decreasing the need for supplemental interior lighting.

**Alexandria Health Department (4480 King Street):** A green roof project has been installed at the Alexandria Health Department and the "Clubhouse" program of the Department of Mental Health, Mental Retardation and Substance Abuse. The building was previously approximately 96 percent impervious surface; after the building was retrofitted, the pervious surface increased by 33 percent. This new vegetated roof, funded partially through a grant from the Virginia Department of Conservation & Recreation, covers 10,765 square feet of the roof.

<sup>1</sup> Program for Incorporating Green Building Measures into City Facility Design, Construction, Renovation, and Operations.



The project, a collaborative one between the City's Department of General Services and Department of Transportation & Environmental Services' Environmental Quality Division, is projected to reduce stormwater discharge by 10,000 gallons of rainfall from a 1.5" rainstorm. The vegetation also acts as a filtration mechanism to improve water quality for the water that does runoff. The hardy sedum plant species selected for the project is drought- and cold-resistant and is a low maintenance feature for building owners considering green roof applications. The vegetated roof is also projected to save in energy costs by reducing roof temperatures during summer months.

This project is seen as a demonstration site, to display how green building technology can be used cost-effectively to meet the nutrient reduction goals for the Chesapeake Bay Nutrient and Sediment Reduction Tributary Strategy for the Shenandoah and Potomac Basins. This strategy states that low impact development and other urban retrofit techniques that promote infiltration of stormwater need to be implemented on 107,000 acres in order for Virginia to meet its Chesapeake Bay 2000 Agreement.

**Low Impact Development Techniques in Site Design – Beatley Library Bioretention Filter:** This Alexandria library has several well-vegetated bioretention areas in its parking lot and the front of the building, which treat runoff from the parking lot and a portion of the roof. There is an additional bioretention area along the west side of the building, behind the reading garden, which treats the runoff from the remainder of the roof and from the cement garden patio. Since the roof is made of copper, the bioretention basins help to remove much of the copper oxidation before it reaches the stormwater system.

**U.S. Green Building Council registered projects in the City include:**

- > Charles Houston Recreation Center
- > DASH Bus Maintenance Facility
- > Fire Station 209 (and the EarthCraft certified, residential units on top of the building)
- > New Police Facility

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## SOLID WASTE

- 1 Alexandria/Arlington Energy from Waste Facility
- 2 Solid Waste Collection and Disposal
- 3 Recycling
- 4 Outreach/Partnerships

### 1. Alexandria/Arlington Energy from Waste Facility

**Department:** The City of Alexandria and Arlington County co-own a energy-from-waste facility, which is operated under contract by Covanta Energy. The contract is managed by a group of trustees representing the City and County.

**Description:** Since February 1988, Alexandria's residential trash has been delivered to the Covanta Waste-to-Energy Facility at 5301 Eisenhower Avenue where the waste is incinerated and the heat is converted into electricity and sold to Dominion Virginia Power grid, supplying enough electricity to power approximately 20,000 homes in Northern Virginia. City residents may also drop off small amounts of solid waste (limit 500 pounds) free of charge at the facility.

The energy from waste system consists of three 325 ton-per-day waterfall furnaces with Martin® reverse-reciprocating grates and ash handling system. Its air pollution control equipment consists of semi-dry flue gas scrubbers injecting lime, fabric filter baghouses, a nitrogen oxide control system, mercury control system, and a continuous emissions monitoring (CEM) system. Its rated refuse capacity is 975 tons per day and the facility can create up to 23 megawatts from two condensing steam turbine generators. The Facility operates with a stellar environmental record; it operates under a Title V, Clean Air Act permit and all emissions parameters are measured continuously against those limits. The Facility achieves emission results well below the EPA permit levels and far exceeds the removal efficiencies.

The energy-from-waste facility helps prevent climate change because it curbs methane production while producing significantly more electricity from each ton of waste compared to landfills. The energy production from the COVANTA facility also offsets greenhouse gases from fossil fuel electrical production. It is estimated that for every ton of trash combusted in modern Energy from Waste plants, nearly one ton less of carbon dioxide equivalent is released into the air due to avoided

### Spotlight | A Second Life For Household Garbage: Energy-from-Waste

Do you ever wonder where all of the curbside trash in your community ends up? We all know that our waste is dutifully picked up each week in large trucks, but where do these trucks drop their contents? Most people would guess that the trash goes to a giant landfill out in the country surrounded by old refrigerators and seagulls sailing overhead. For the residents of Arlington and Alexandria, however, the trash stays right in the City and is processed in the state-of-the-art energy-from-waste facility on Eisenhower Avenue in Alexandria. Behind the beige walls of the Covanta plant, 975 tons of trash are processed each day to produce enough electrical energy to power 20,000 households. This energy is purchased by Virginia Power and sent into its grid via an on-site transformer.

So why do Alexandria and Arlington burn trash? Like so many good ideas, the energy-from-waste plant was borne from necessity. As the counties grew and became more urbanized, landfill space became scarce and surrounding landfills became prohibitively expensive. In the early 1980's the two municipalities joined forces to create a solution to their trash woes. Financing for the facility was secured in 1984 through a \$75 million dollar bond initiative. On January 1st 1988, the plant came to life. Since then it has been in operation day and night, 365 days a year.

Burning trash sounds like a good idea, but it is good for the environment? The answer is an unequivocal yes. Not only does the burning of refuse reduce landfill size, it reduces the amount of harmful methane gas released from landfills into Earth's atmosphere. Energy-from-waste processing also reduces CO2 emissions that would have been generated by the burning of fossil fuels to produce the energy generated by the waste burning process. For every one million tons of trash processed at the facility, the need to use nearly 1.67 million barrels of oil is avoided. According to the EPA, nearly one ton of CO2 equivalent emissions are avoided for every ton of municipal solid waste handled by a energy-from-waste plant.



methane from land disposal, fossil fuel power generation, and metals productions.<sup>1</sup> More details about the energy-from-waste technology including greenhouse gas control and climate change can be found at: [www.covantaenergy.com](http://www.covantaenergy.com).

In addition, the energy-from-waste facility recovers ferrous metal for scrap metal recycling. In 2007, the Facility installed a 6-foot diameter electromagnet to recover ferrous metal from the ash that is generated from the combustion process. The Facility expects to recover over 6,000 tons of metal annually.

Alexandria and Arlington's contractual relationship with Covanta Energy expires January 1, 2013 and, under the original agreement executed in 1985, the jurisdictions stand to inherit the facility on October 1, 2025 when Covanta's land lease expires.

Solid waste fees are considered non-tax revenue by the City, but solid waste user fees are billed on residents' real estate taxes. In FY 2005, the annual user fee was \$205 per household. The fee increased to \$237 in FY 2007 to \$264 in FY 2008 because of an increase in disposal costs from \$64 in FY 2007 to \$78 per ton in FY 2008.

## 2. Solid Waste Collection and Disposal

### Curbside Trash Pickup

**Department:** Solid Waste Division of Transportation & Environmental Services

**Background:** Curbside refuse collection is provided to approximately 19,000 single-family residences and 400 small businesses or multifamily properties. Expenditures in FY 2006 were \$4,656,588.

**Description:** The City is divided into four collection areas, each being served once a week, Monday through Thursday. Bulky waste, including air conditioners, microwaves, refrigerators, etc. are collected by appointment only on Tuesdays and Wednesdays.

### Leaf Collection & Mulching Operations

**Department:** Solid Waste Division of Transportation & Environmental Services

**Background:** This program provides for the removal of leaves from residential properties. Expenditures for FY2006 were \$326,678.

**Description:** Each fall, city crews use vacuum trucks to remove leaves from

<sup>1</sup> Covanta Energy web site. "EfW and Climate Change." Accessed: <http://www.covantaholding.com/greenhouse.shtml>.



*The Covanta Energy-from-Waste Facility supplies enough electricity to power approximately 20,000 homes in Northern Virginia.*

residential properties. Residents must rake the leaves into a pile at the curb for vacuuming, or use biodegradable bags for manual collection. The City provides bags free of charge at several locations. Crews make at least three passes through each of five collection areas throughout the fall, using a vacuum-equipped truck to lift the piles or bags of leaves. Any leaves placed in a non-biodegradable bag (such as a garbage bag) are not removed and will be collected as trash.

Fall leaves and Christmas trees are processed into mulch products using a tub grinder and staff sub-contracted through Arlington County.

## Household Hazardous Waste Collection

**Department:** Solid Waste Division of Transportation & Environmental Services.

**Description:** Under Chapter 1, Article H of City Code, the program enables the safe disposal of residential hazardous waste. The City contracts with a private firm to collect hazardous waste every Monday from 8am – 6pm at the drop-off located at 3600 Wheeler Avenue. Residents may drop-off a variety of hazardous materials including motor oil, paint and mineral spirits, battery acid, gasoline and other household chemicals. Explosives and unknown substances are not accepted. This service is provided by a private contractor and is separate from other recycling services.

## City Disposal of Surplus Hazardous Waste Process

**Department:** Purchasing, Finance Department

**Background:** The United States Congress enacted the Resource Recovery and Conservation Act to assure the proper management of hazardous waste from the moment it is generated until the material is finally disposed of. This law establishes requirements for identification, recycling, universal wastes, generators, transporters, treatment, storage and disposal facilities and enforcement.

**Description:** Departments of the City of Alexandria generate hundreds of items of surplus property each year. This property is identified to the Director of Procurement, who is charged under Section 3-3-13(c), City Code, with responsibility for disposal of surplus goods for the City. The majority of these items are sold at auction, but a substantial amount of property is declared to be scrap. Included in the scrap is a large amount of property that contains hazardous properties. As a result, the City created a working group to identify types of hazardous waste generated by the City and to identify measures to develop a coordinated program of disposal involving the assignment of responsibilities and funding to properly protect the City from potential sanctions by federal or state agencies.<sup>2</sup>

## Spring Clean Up Program

**Department:** Solid Waste Division of Transportation & Environmental Services.

**Description:** This program allows residents to dispose of large bulky items each spring. The program is provided to all residents who receive City refuse collection services. This program is aimed at collecting residents' appliances, brush, mattresses, and other large or bulky items at the curb. Every year, this service is provided to city neighborhoods on designated Saturdays during April. Acceptable materials that are collected include appliances, steel pipe, furniture, mattresses, brush, and tires off the rim.

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<sup>2</sup> Memo: Disposal of Surplus Hazardous Waste by the City of Alexandria. February 8, 2006.



### 3. Recycling

#### Residential Recycling Program

**Department:** Solid Waste Division of Transportation & Environmental Services

**Background:** This program is a residential recycling via curbside collection and drop-off locations. Expenditures for FY 2006 were \$769,002.

**Description:** The city contracts with a private hauler to collect recyclable materials from residences at curbside and all government facilities. In the past, this has been done by City crews, but in FY 2005 a private contractor began collecting recycling. Residents are given one free recycling bin with each additional bin provided at \$6 each. The alexrecycles.org website provides details on what materials may be placed in the bin (generally paper, glass/plastic/metal containers, and cardboard). Residents are charged for lost or damaged bins. Curbside collection takes place the same day as solid waste collection once a week. The City also provides four separate drop-off locations where residents bring materials for recycling.

In 2006 the City reported a 24 percent recycling rate, which is an increase from 2001 when the City recovered only 20 percent of its waste stream. Virginia requires municipalities to recycle 25 percent of solid waste. The use of a private contractor and the new business and multifamily program are anticipated to increase the amount of material recovered for recycling by as much as 20 percent.

The program also includes budgetary resources for City staff to promote recycling related programs like Fall Leaf Collection and Spring Clean-up, as well as the recently established regional Reuse Network, which helps to promote source reduction/waste prevention activities. The Network recently produced its Reuse Directory, promoting regional reuse organizations.

The City budgets \$10,000 per year to promote solid waste and recycling education efforts. These efforts include collaboration with the Metropolitan Washington Council of Governments and the Northern Virginia Regional Commission to develop advertising campaigns about the importance of recycling and the need to reduce hazardous waste. The City's recycling mascot, Robbie the Recycling Squirrel, visits schools, recreation centers, youth groups, and civic associations to educate residents about the City's recycling programs.

In FY 2008 the City plans to conduct a pilot project to provide recycling services to its low-income residents living in

*The City of Alexandria promotes recycling through its residential, business and multi-family recycling programs.*



Alexandria Redevelopment and Housing Authority dwellings. These 900 homes will be targeted and various bins will be used to test how to best recover the most recycling material.

## Business and Multifamily Recycling Program

**Department:** Solid Waste Division of Transportation & Environmental Services

**Background:** This program requires all businesses and multifamily properties to recycling via third party private service provider collection. The program is enabled under Article H, Title 5 of the City Code. Expenditures for the program in FY2006 were \$88,500. Approximately \$15,000 was used for outreach and education efforts.

**Description:** In March 2006 the City amended the Code requiring all businesses and multifamily properties to recycle. The ordinance requires these entities to submit a Recycling Implementation Plan (RIP) form every two years, and submit a recycling rate report for their property at the end of each calendar year.

City staff developed an online database system to keep track of plans and reduce the administrative burden of managing the program. Individual properties will be able to input their information online and manage it in the event of any changes.

The program also includes public education and outreach, such as the new Recycling Works! Business & Multifamily Recycling in Alexandria, which outlines a property's recycling requirements, or Recycling Works! Guide to Setting up A Recycling Program at Your Business or Apartment. The City also hosted two Recycling Works! Expos in 2005 and 2006, targeting this sector for outreach and education on compliance, best practices and program management. In FY 2008, the City will begin promoting the regional Business Recycling Partnership by enrolling businesses and multifamily properties to promote their recycling efforts through a sticker distribution and recycling recognition program in partnership with the Metropolitan Council of Governments.

## Electronics Recycling

**Department:** Solid Waste Division of Transportation & Environmental Services.

**Description:** Concurrent with the hazardous waste collection program, the City accepts used consumer electronics at the 3600 Wheeler Avenue drop-off site on Mondays between 8am and 6pm. Acceptable items include TVs, stereo equipment, computers, cell phones and other similar devices. The collection is open to City residents only. Businesses and multifamily properties are required to manage their hazardous materials and can visit: [alexrecycles.org](http://alexrecycles.org) to find a list of companies that will manage end-of-life electronic devices.

## 4. Outreach/Partnerships

### Adopt-A-Block Litter Program

**Department:** The program is coordinated by the Solid Waste Division of the Transportation & Environmental Services Department.

**Background:** Alexandria's City Council approved the Adopt-A-Block Litter Program as an effort to promote citizen involvement and partnerships between the city and Alexandria residents, and to maintain litter-free neighborhoods.

**Description:** Groups that want to implement the Adopt-A-Block program must sign an adoption agreement, which holds that they will perform the following functions on the site:<sup>3</sup>

<sup>3</sup> Adopt-A-Block Litter Program web site



- > At a minimum, adopt a four-block section of roadway for a period of two years (one block includes both sides of the street);
- > Collect litter a minimum of four times per year, or more often if necessary to keep area reasonably clean;
- > Follow safety procedures during clean-up, as outlined in the agreement;
- > Sign and support the terms and conditions of the litter program.

In turn, the City installs an Adopt-A-Block sign with the group's names, provides safety vests, trash bags, and gloves, coordinates publicity, and removes filled bags following the clean-up.

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## TRANSPORTATION

- 1 Office of Transit Services and Programs
- 2 Transportation Division
- 3 Planned Initiatives



*DASH is the City's local bus service, operated by the Alexandria Transit Company. The entire fleet will operate on ultra low sulfur fuel with continuously regenerating technology exhaust filters by 2009*

### 1. Office of Transit Services and Programs

#### **DASH (1984)**

**Description:** DASH is the City's local bus service, operated by the Alexandria Transit Company. DASH serves most portions of Alexandria and connects to the King Street, Braddock Road, Eisenhower Avenue, Van Dorn Street Metrorail stations. Two DASH routes serve the Pentagon Metrorail station during the morning and afternoon peak periods while the remaining six routes serve locations throughout the city. Most DASH routes operate seven days a week.

DASH honors SmarTrip, Metrobus full-fare flash passes, tokens, and regional transfers. Bus-to-bus transfers are valid for four hours on DASH buses and two hours on other bus systems in the region. The "Dash About" shuttle provides free weekend shuttle bus service in Old Town Alexandria from the King Street Metrorail station to the waterfront with service every 15 minutes. All DASH buses are wheelchair accessible. Currently, most DASH buses operate on clean diesel also known as low sulfur diesel fuel; however the entire fleet will operate on ultra low sulfur fuel with continuously regenerating technology exhaust filters by 2009.



## **Metrobus and Metrorail (1976)**

**Description:** The Washington Metropolitan Area Transit Authority (WMATA) operates bus services throughout the Washington Metropolitan area. More than 40 Metrobus routes serve the City, connecting parts of the City with the region. Reduced fares are available for senior citizens and persons with disabilities. Lift- or ramp-equipped buses for handicap accessibility regularly operate on all Metrobus routes. Metro's fleet includes buses that are fueled by compressed natural gas and hybrid electric buses that offer increased fuel economy and reduced emissions.

Four Metrorail stations serve Alexandria: King Street, Braddock Road, Eisenhower Avenue, and Van Dorn Street. DASH, Metrobus and the Fairfax Connector connect these stations to locations throughout the region. Metrorail is also accessible to persons with disabilities. Fares are based on when and how far you travel. Reduced fares are available for senior citizens and persons with disabilities.

## **Virginia Railway Express (1992)**

**Description:** The Virginia Railway Express (VRE) commuter rail is a transportation partnership of the Northern Virginia Transportation Commission (NVTC) and the Potomac and Rappahannock Transportation Commission (PRTC). VRE provides commuter rail service from the Northern Virginia suburbs to Alexandria, Crystal City and downtown Washington, D.C. The VRE Operations Board, consisting of seven commissioners - three each from NVTC and PRTC and the Director of the Virginia Department of Rail and Public Transportation (VDOT), oversees all operating aspects of the Virginia Railway Express. The VRE operates Monday through Friday during morning and evening rush hours and connects Fairfax and Prince William Counties with Alexandria, Arlington, and Washington, DC. There are two VRE lines: the Fredericksburg Line, which operates north/south between Fredericksburg and Union Station in DC and the Manassas Line, which operates east/west between Manassas Airport and Union Station in DC. Both lines serve the City Alexandria with a stop at Alexandria's Union Station. The Alexandria Station is conveniently located near the King Street Metrorail station.

## **DOT Paratransit Program**

**Description:** DOT is the City's specialized transportation service for residents of Alexandria and visitors who cannot use regular transit buses or rail due to their disabilities. Accommodations are made for visitors with disabilities for a cumulative 21-day period, during a 365-day period beginning with the visitor's first use of service during the 36-day period. Visitors must present documentation that they are eligible to receive ADA paratransit services in the jurisdiction in which they reside. Trips are provided by taxicabs and wheelchair accessible vans. DOT provides service throughout the City of Alexandria, City of Falls Church, Arlington County, Fairfax County and Fairfax City. DOT service operates seven days a week and is scheduled on an advance reservation basis.

## **Alexandria Rideshare/Transportation Demand Management (TDM)**

Alexandria Rideshare is the City's Transportation Demand Management (TDM) program under which non-drive-alone transportation options are promoted and marketed to residents, commuters, businesses, and visitors. Through a variety of marketing and communications efforts, emphasis is placed on the importance of utilizing public transportation, rideshare, walking, bicycling, and telework as means to more efficiently utilize the transportation system and decrease mobile emissions.

Ongoing efforts include (described in more detail, where necessary, below):



- > **AlexRide.org** Program website;
- > **eNews** Transportation Alternatives - subscribers are sent monthly e-mails regarding City transportation programs and initiatives;
- > **Local Motion** Quarterly transportation newsletter distributed to a combined 75,000 households and businesses in the City;
- > **Commuter Connections** The City is a member of the Commuter Connections regional network, which is made up of local jurisdictions working together to achieve TDM goals;
- > **Events & Promotions** Bike to Work Day; Arlington & Alexandria Community Bike Ride; various residential, company, and community transportation fairs;
- > **Supplemental Programs** Initiatives that promote the use of non-drive-alone travel modes and includes Carshare Alexandria!; the City's transportation benefits match program for employers; and Telework!VA.

### **Commuter Connections – Ridematching and Guaranteed Ride Home program**

**Background:** Commuter Connections, of which the City of Alexandria is a member, has an annual budget of \$5.9 million and is a program of the National Capital Region Transportation Planning Board (TPB) at the Metropolitan Washington Council of Governments. The TPB is funded by Maryland, the Virginia Department of Transportation, and the Virginia Department of Rail and Public Transportation. Many of the local Commuter Connections members receive grant funding directly from their respective state government.

**Description:** Carpooling is sharing a ride with another person. Vanpooling involves additional passengers and riders often pay a fee. As a member of Commuter Connections, Alexandria Rideshare utilizes the regional carpool and vanpool matching program to assist residents seeking others to ride with for the work commute. The program matches commuters with others who live and work near them and have a similar work schedule.

*The City provides a monetary incentive to residents and businesses to encourage use of carsharing services.*

For many, the fear of being stranded without a vehicle is intimidating and prevents the use of alternative transportation modes. With the Guaranteed Ride Home (GRH) program, this fear is diminished and allows people who are carpooling, vanpooling, walking, bicycling, or using public transportation to get the full benefit of their transportation mode. The Guaranteed Ride Home program, administered by Commuter Connections, is a free service provided to commuters who regularly (twice a week) carpool, vanpool, bike, walk or take transit to work. In the event of



an emergency or unexpected overtime, commuters may receive a free ride home. The GRH program can be used a maximum of four times per year.

### **Carshare Alexandria!**

**Description:** The City provides a monetary incentive to residents and businesses to encourage use of carsharing services in the City. Carsharing is similar to car rental with the main differences being that an individual can use the carsharing vehicle for as little as one hour and the cars are located in the communities rather than at a central car rental location. Through Carshare Alexandria!, the City reimburses first-time memberships for residents and partially reimburse first-time memberships for businesses.

There are two carsharing companies providing service in the City: Zipcar and Flexcar. Individuals sign up to become members by completing an application and paying necessary fees, then reserve vehicles online or by phone. Because Zipcar and Flexcar usage fees include fuel and insurance, members pay only for the time they use the vehicle. Businesses participating in carsharing allow companies to offer a fleet of vehicles to staff for business use without having to maintain and pay for a costly company fleet or reimburse for taxi expenses. Employees can use an alternative means of getting to work and have a vehicle for meetings when needed.

Carshare vehicles are currently offered at Braddock Road, Eisenhower Avenue, and King Street Metrorail stations; Old Town; and Mark Center.

The benefits of carsharing include: decreased vehicle ownership; reduced parking demand; increased use of a more efficient and environmentally-friendly mode of travel; reduction of personal vehicle usage up to 50 percent; discouragement of single destination trips destination; reduced traffic congestion and; improvement in air quality.

## **Spotlight | Alexandria Rideshare / Carshare Programs**

The Mission of the City of Alexandria's Office of Transit Services and Programs is to develop and administer "plans and programs that provide residents, commuters, and visitors the transportation tools necessary to efficiently get to, from, and through the City while ambitiously decreasing traffic congestion and air pollution, resulting in a favorable quality of life for residents and making the City an ideal destination for all." In an effort to fulfill this mission, the City of Alexandria participates in the Rideshare Program and the Carshare Alexandria! program.

**Rideshare Program** Beep! Beep! Tired of sitting in traffic as it crawls around the Beltway? Rideshare is administered through Commuter Connections – a program of the Capital Region Transportation Planning Board at the Metropolitan Washington Council of Governments. Residents living in the Washington DC Metro Area may participate in a free carpool/vanpool matching service. Carpools/vanpools allow commuters to travel in the High Occupancy Vehicle (HOV) lanes during rush hour, easing the commute and reducing the amount of auto emissions in the air by up to 85%. As of September 13, 2007 there were 978 people enrolled in Rideshare for the City of Alexandria, with 286 living in Alexandria, 679 working in Alexandria, and 13 who live and work in Alexandria.

**Carshare Alexandria!** Ever see the Flex Cars and Zip Cars zoom around town? These vehicles are part of the Carshare Alexandria! program. Citizens rent the cars from four Carshare vehicle locations throughout the City. The locations include three Metro stops (Braddock Road, King Street, and Eisenhower Avenue) and Clyde's Restaurant in Old Town. As an incentive to participate in the program, the City reimburses residents for the membership and application fees. Businesses are also encouraged to participate in the Carshare Alexandria! program with reduced membership and application fees. Advantages to the Carshare Alexandria! program include:

- > Improved air quality
- > Encouraged trip chaining
- > Reduced parking demand
- > Enables households to give up owning second and third vehicles
- > Each Carsharing vehicle replaces four to eight privately owned cars
- > Decreased vehicle ownership
- > Lessens traffic congestion
- > Reduced personal vehicle usage up to fifty percent
- > Increased use of more efficient and environmentally friendly mode of travel including bicycling, walking, public transportation, carpooling/vanpooling
- > Less costly than owning and operating a personal vehicle



## Employer Services

**Background:** Federal legislation allows employers to provide up to \$110/month as a tax-free benefit for each employee's transit or qualified vanpool needs. Employers may deduct the cost of the transit benefit for each employee as an ordinary business expense. This benefit can function as a benefit in addition to salary; a pre-tax payroll deduction, or a combination of these two options.

**Description:** Employer Services was established to help businesses find transportation solutions for employees. The City works with businesses to tailor a program specifically for their organization that will help realize the bottom-line benefits of commute alternatives. In the metropolitan Washington, D.C. region, transportation benefits are generally provided in the form of SmartBenefits or Metrocheks.

Alexandria offers financial assistance of up to \$110/month per employee to private profit and non-profit businesses located in the City for the purpose of starting an employer-provided transportation benefits program for employees who commute to and from work via transit (bus and rail) or vanpool. For six months, companies may receive reimbursement to cover costs associated with commuters riding the bus or rail, or vanpooling. Companies wanting to take advantage of this offer must commit to providing an entire year of a transportation subsidy, of which the City provides six alternating months of reimbursement.

## Telework!VA

**Description:** The Telework!VA program provides financial incentives for Northern Virginia businesses to establish or expand telework programs for their employees in order to provide more opportunity for participation in teleworking. Telework!VA is limited to reimbursement of lease costs and consultant/technical assistance expenses of up to \$35,000 per business (3,500 per employee for up to ten employees). It reimburses a variable percentage of the lease expense for equipment; telework center space; technical assistance for setting up programs and installing equipment; and provides training for teleworkers and supervisors. Business applications to participate in the Telework!VA pilot program are accepted by the Virginia Department of Rail & Public Transportation (VDRPT). Applicants must demonstrate their willingness to start a long-term program, invest in the planning and staff resources required to sustain a program and commit to an implementation schedule with appropriate milestones of two years or less. Priority is given to new program starts while existing program expansion requests are considered on a case-by-case basis.

Along with teleworking at home, telework at any of the 17 regional telework centers throughout the region is also available. The centers provide an ideal alternative for employees unable to work at home. Telework centers provide a professional work environment including a variety of work settings), Pentium computers, modems, photocopiers, fax machines, and voice mail. Other services, such as Internet access and videoconferencing are also available at most centers. There are seven regional telework centers in Virginia, eight in Maryland, and one in both DC and West Virginia.

## High Occupancy Vehicle Lanes

**Description:** High Occupancy Vehicle (HOV) lanes promote more efficient use of roadways by restricting certain lanes at certain times to vehicles that carry multiple passengers, allowing the roadway to move more people at a faster rate than the regular lanes because fewer vehicles are present. HOV lanes are designated with a diamond throughout the region.

The HOV locations and times within Alexandria are as follows:



- > Washington Street Northbound HOV-2 7:00-9:00am
- > Washington Street Southbound HOV-2 4:00-6:00pm
- > Patrick Street/Route 1 Northbound HOV-2 6:00-9:00am
- > Henry Street/Route 1 Southbound HOV-2 3:00-7:00pm

Carpoolers and vanpoolers are able to use the special High Occupancy Vehicle (HOV) lanes instead of regular lanes, which are typically congested during the morning and evening peak periods. Many employers offer parking for carpools and vanpools at a reduced rate or for free. Using carpools and vanpools instead of driving alone can cut harmful auto emissions up to 85 percent.

## Bicycle and Pedestrian Program

**Description:** The City of Alexandria currently has a bikeway network. A bikeway is a street or shared-use path either designed specifically for bicycle travel or with key design elements that support safe bicycle travel. A bikeway may be a street with a bicycle lane, a street with shared use lane markings or a shared-use (off-street) path. Bicyclists are allowed on all streets in Alexandria, but not all streets may include design elements to improve safety.

Bicycle racks provide bike parking around town for those who bike to work and do errands on their bike. Bicycles are also welcome on Metrobuses at all times and on Metrorail between the hours of 5:30 – 7:00 a.m., 10:00 a.m. – 4:00p.m.and 7:00 p.m. – 12:00 a.m. Two bicycles are allowed per railcar on weekdays and four per railcar on weekends and holidays.

Traffic signals have been installed at intersections to create gaps in the traffic flow of a street, allowing pedestrians to cross safely. The City manages nearly 250 signalized intersections and most have pedestrian signals, pushbuttons, countdown timers or audible pedestrian signals. Still, the City recognizes that it can improve pedestrian safety at many intersections with a combination of signalization, striping and pedestrian enhancements. The City is in the process of adding new pedestrian countdown timers and audible signals where appropriate.

There is also a new Pedestrian and Bicycle Mobility Plan under development (the previous Bicycle Transportation and Multi-use Trail Master Plan is from 1998), which will provide a blueprint for pedestrian and bicycle infrastructure improvements over the next 10 years as funds become available. Many of the recommendations will be implemented as a part of other upcoming projects (e.g., roadway repaving, streetscape improvements, corridor reconstruction, etc.) However, the City is also spending more than \$3.6 million in grant-funded and local projects to improve the pedestrian and bicycle network in Alexandria.



*Bicycle racks provide bike parking around town for those who bike to work and do errands on their bike.*

## Transportation Management Plans (1987)

**Description:** The Transportation Management Plans (TMPs) are now part of the City's zoning ordinance, Development Approvals, which require Transportation Management Special Use Permits.

The ordinance requires that projects of the sizes indicated below submit a special use permit application, which must include a traffic impact analysis and a transportation management plan:

- > **Office** 50,000 or more square feet of usable space
- > **Retail** 40,000 or more square feet of usable retail sales space
- > **Industrial** 150,000 or more square feet of usable industrial space
- > **Residential** 250 or more dwelling units
- > **Mixed-Use** Any combination of space including one or more of the foregoing uses, at the threshold size applicable to that use. If the threshold is satisfied in any of the uses, the TMP must be prepared for all uses present in the project.

A TMP fund was established to finance the transportation strategies to promote the use of non-single-occupant vehicles. Some of these strategies are: discounted fare media, shuttle bus service, registration fees for car sharing, bus shelter maintenance, bicycle lockers and parking facilities, and some administrative costs of the plan. As of July 2006, 54 transportation management plans have been prepared. Among these, 45 are active, 3 were prepared but the projects developed in a manner that did not require a TMP or were not developed, and 6 have been prepared and are in the approval process.

## Transit Incentive Program

**Description:** This program provides up to \$75 per month for City employees (plus an additional \$35 pre-tax option) who take the bus, rail, or a qualified vanpool to and from work. The City began this program as an incentive to encourage staff to use public transportation and qualified vanpools for the work commuter. Alexandria offers this benefit to City employees to reduce the negative consequences of single occupancy vehicle commuting and to serve as a positive example for other Alexandria businesses.

## 2. Transportation Division

### Neighborhood Traffic Calming Program

**Department:** Transportation Division

**Background:** This program has 1 full-time staff and an annual budget of \$600,000.

**Description:** The City's Neighborhood Traffic Calming Program (NTCP) incorporates engineering, education and enforcement in decreasing speeding, improving the street for pedestrians and bicyclists and generally protecting the quality of life in City neighborhoods. The City developed the NTCP to provide residents the opportunity to voice neighborhood traffic concerns and to participate in the selection of strategies that promote safe, pleasant conditions for its residents. The goals of NTCP are as follows:



- > Provide protection to residential neighborhoods from traffic operating at excessive speeds and excessive volumes of traffic;
- > Keep neighborhood street use, to the greatest extent possible, within the classification defined in the transportation chapter of the Master Plan (i.e. local streets, residential collectors, primary collectors);
- > Increase access, safety, comfort and convenience for pedestrians and bicyclists by changing the culture of neighborhood street use from “cars first” to “people first;”
- > Base the expenditure of public resources on need;
- > Foster a collaborative working relationship between City Staff and neighborhood residents in the development of traffic calming measures.

Applications from presidents of civic associations, on behalf of the association, or, in the case that there is no civic association, from at least five affected homeowners, are submitted to the Transportation Division staff for traffic calming consideration for each fiscal year. Speed and volume data are then collected, a traffic calming score is determined for each street segment that meets the minimum criteria, and a priority list of the applications is based on these scores. When projects are chosen, the Transportation Division forms working groups within those neighborhoods to determine the best way to mitigate effects of traffic. When the working group has developed a plan meeting the minimum community level of support, the staff and a working group representative will present it to the Traffic & Parking Board (T&PB) for review, discussion, and recommendations prior to implementation.

### 3. Planned Initiatives

#### Bus Rapid Transit Lane

**Description:** With Arlington County, Alexandria is planning a Bus Rapid Transit (BRT) lane in the corridor from the Braddock Road Metro to Crystal City in the median of Route 1. (Additional land has been obtained from Potomac Yard.) Construction of the BRT lane will begin in 2008.

#### Long-Range Transportation Plan

**Description:** City Council should approve the long-range transportation plan this fall. The plan has a great deal of emphasis on transit; for example, 17 miles of dedicated bus corridors are planned for the city, to be exclusively for buses 24/7. These corridors will be north-south (Route 1 or nearby), east-west (Duke Street), and in the Van Dorn-Beauregard corridor. These lanes will not take away from existing lanes but will be entirely new. These corridors do not replace DASH or WMATA. [Bicycle and pedestrian enhancement is also part of the long-range plan, but there is also the separate Bicycle Mobility Study, which will become part of the long-range plan.]

#### Water Taxis

**Description:** Water taxi service to National Harbor (across the Potomac near the Woodrow Wilson Bridge) will begin in April 2008 through a public-private partnership between the City and Potomac Riverboat Company. Initially there will be two taxis holding about 100 people each.

#### Pedestrian and Bicycle Transportation Study

This plan is due to be released in draft form to the public in summer 2007 and will focus on creating greater connections for biking and walking, improving specific trails such as the Mount Vernon trail, improving signage, and creating pedestrian-friendly intersections.



## Safe Walk to Schools Initiative

**Department:** Transportation & Environmental Services, Alexandria City Public Schools, Environmental Health Department PTAs and community leaders

**Background:** The Alexandria Safe Walk to Schools Initiative is based on a national program which provides funding to localities for the development of programs that encourage school children to walk or bike to school. The program not only provides health benefits to school children and young adults, but also helps improve air quality and minimizes fossil fuel use by lessening school related traffic, which has been shown to be as much as 25 percent of morning traffic.

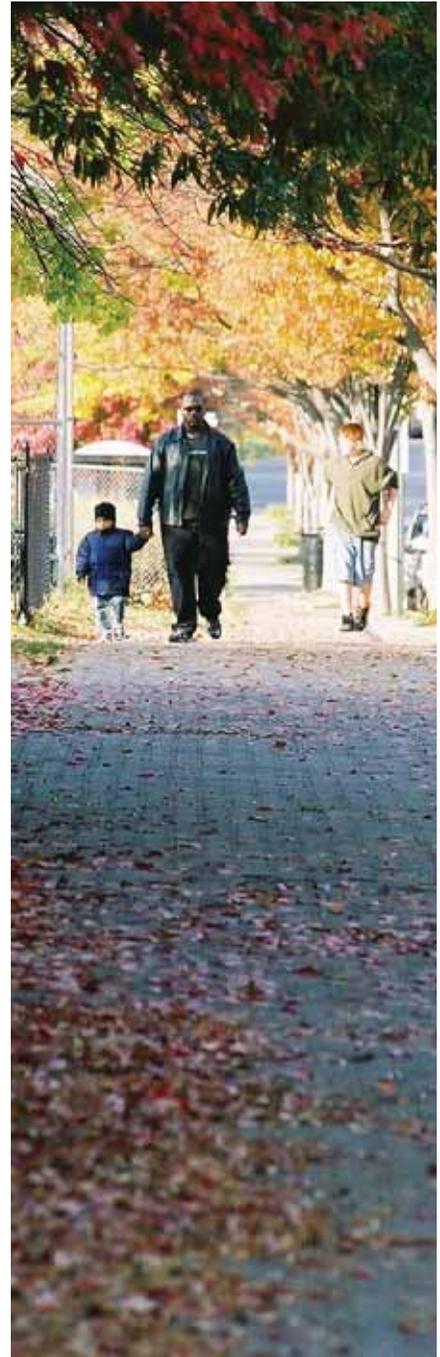
The Alexandria Health Department conducted a Safe Routes to School assessment in 2003 to lay the groundwork for the current program. The provision of this program was also a key recommendation of the Community Pathways resolution adopted by Alexandria's City Council in February 2006. Even before the adoption of this initiative, the City had already built a number of pedestrian safety and traffic calming improvements near schools. The City also participates each year in Walk to School Day in October.

**Description:** Alexandria, which formally began its Safe Walk to School program in 2006, is creating more opportunities for children in grades K through 8 to safely walk or bike to school by constructing new sidewalks, improving signage and other infrastructure improvements, and by holding education campaigns for students and parents. Beginning in fall 2007, the City and Alexandria City Public Schools will receive over \$517,000 in "Safe Routes to School" grant funding from the Virginia Department of Transportation. The funds will be directed toward education, encouragement, and engineering improvements at Alexandria elementary and middle schools. Alexandria's program is entirely grant funded and requires no city matching funds.

Initial funding for education and encouragement programs will go to five schools: Francis C. Hammond Middle School as well as Jefferson-Houston, Charles Barrett, James K. Polk, and George Mason elementary schools. At these schools, the City, PTA members, and the community have had several meetings to identify barriers to walking/biking to school and to develop programmatic and structural solutions to those barriers.

At those schools, the City will use a portion of the funds to complete the following projects:

- > Pedestrian safety and intersection improvements at Charles Barrett, Polk, George Mason and Cora Kelly;
- > Installation of new pedestrian countdown timers at 15 intersections near schools at locations citywide;
- > Installation of new bicycle parking racks at schools citywide;
- > In the James K. Polk school district "Walking to School Busses" have been developed, whereby parents volunteer to walk several children to school;
- > In the Jefferson-Houston district public art will reflect the health and environmental benefits of walking and biking to school.



*The Safe Walk to Schools initiative helps improve air quality and minimizes fossil fuel use, while promoting healthy lifestyles.*



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Commuter Connections. Found on: <http://www.mwcog.org/commuter/ccindex.html>.

Metropolitan Washington Council of Governments. Transportation web site. Found on: <http://www.mwcog.org/transportation/>



## AIR QUALITY

- 1 Monitoring and Inspection
- 2 Clean Technologies and Pollution Prevention
- 3 Regional Programs and Partnerships



### 1. Monitoring and Inspection

#### Air Inspection Program

**Department:** Transportation & Environmental Services

**Background:** This program has been enforced under the Clean Air Act (CAA) and the Virginia Air Pollution Control Regulations since the inception of the CAA.

**Description:** The Alex-DEQ regularly inspects both major and minor sources of air pollution within the City. The inspections are conducted to determine compliance with Air Quality conditions of Special Use permits and general compliance with the State Air Quality permits. Some major sources of air pollution, including the Mirant power plant and the Covanta energy-from-waste power plant, are inspected at a greater frequency (approximately 4 times a year) whereas minor sources of air pollution are inspected either annually or biannually depending upon their EPA classification.

In addition to the inspection of sources of air pollution, the Alexandria Division of Environmental Quality is also responsible for inspecting all of the noise and odor complaints received by the City. Noise studies are performed as needed basis for the purposes of enforcement. The division is responsible for issuing noise permits, for which approximately 300-400 are issued in a typical year.

#### Ambient Air Monitoring Program

**Department:** Alex-DEQ, VDEQ

**Background:** The CAA and Virginia Air Pollution Control Regulations give Alexandria the authority to carry out this program. This is a joint and cooperative effort between the City and Virginia Department of Environmental Quality.

**Description:** The City operates 2 Ambient Air Monitoring Stations with the City of Alexandria. A station located at 517 N. Asaph Street, monitors for concentrations



of the EPA criteria pollutants (Ozone, Carbon Monoxide, Sulfur Dioxide, Nitrogen Dioxide, and Particulate Matter (PM10)). A second air quality monitors concentrations of PM10 at Armistead Boothe Park/Cameron Station. This program began operation in June of 2006 and was established due to concern from the residents of the area about air pollution stemming from nearby industrial activities.

## Asbestos Removal/Abatement Projects

**Department:** Alex-DEQ, Code Enforcement

**Background:** These projects are regulated under 5 unique state and federal laws, including Section 112 of the CAA and EPA established National Emissions Standards for Hazardous Air Pollutants (NESHAP).

**Description:** Building permits are required for all asbestos abatement or removal projects in Alexandria which are issued by the Department of Code Enforcement. The Alexandria Division of Environmental Quality's review includes verification of credentials of contractors seeking to perform asbestos abatement work. Furthermore, occasional inspections are conducted to check for appropriate on-site controls in abatement areas as well as to verify the credentials of abatement personnel to ensure they are capable of performing asbestos abatement activities. Clearance reports are reviewed prior to issuance of demolition permits.

Surrounded by a variety of residential developments, the coal burning Mirant power plant has been operating in the North Old Town section of Alexandria since 1949. A legal loophole in the 1970 Clean Air Act allows many older power plants, including Mirant's, to operate without installing advanced pollution controls. In fact, a modeling analysis done by Mirant in 2005 showed that some pollutants within the vicinity of the plant exceed air quality standards.

## Mirant Community Monitoring Group

**Department:** Alex-DEQ

**Background:** The Mirant Community Monitoring Group (MCMG) was established by the Alexandria City Council in 2004 for the purpose of serving as a central information-receiving and monitoring group for citizens regarding issues involving the Mirant Potomac River Power Plant. The Mirant Potomac River, LLC (Mirant) owns and operates the Potomac River Generating Station (PRGS) in an area north of the Old Town neighborhood. The PRGS is a coal-fired electric generating plant with a generating capacity of 482 megawatts that began operations in 1949. The plant is one of the largest industrial facilities in

Alexandria, and due to its age and the nature of its operations the plant is a serious air quality concern among Alexandria officials and citizens.

## Spotlight | Mirant Power Plant

City residents, officials and staff, along with the Virginia Department of Environmental Quality, have been deeply involved in efforts to significantly reduce pollution produced by this outdated coal-fired power plant located in the City's highly urbanized area. This power plant has very short exhaust stacks due to its being located close to the Reagan National Airport and is not equipped with state-of-the-art air pollution control technology. Under certain weather conditions, the downwash phenomenon associated with its short stacks leads to local emissions concentrations nearby the plant many times above the NAAQS (National Ambient Air Quality Standards). This power plant is the single largest emission source of SO<sub>2</sub>, NO<sub>x</sub> and particulates (PM<sub>10</sub> & PM<sub>2.5</sub>) in Northern Virginia.

In June 2004, City Council passed a resolution outlining a policy that directs staff to work towards achieving the cleanest Mirant plant operations in the short term and plant closure in the long term. Also in 2004, City Council established the Mirant Community Monitoring Group (MCMG). This group serves as a central information-receiving and monitoring group for issues involving the Mirant plant. The MCMG receives reports and tracks the progress involving Mirant's ongoing permit and regulatory issues, its compliance with the regulatory consent decree and order, and act as a forum to discuss technical issues. Members of the monitoring group provide feedback to City Council and City staff and assist in the dissemination of information to the wider stakeholder community.

The City continues to work with the permitting process, the regional SIP planning process and other regulatory measures to ensure the 100% compliance of this power plant with all federal and state regulations in order to protect public health.



**Description:** MCMG tracks and receives regular progress reports on Mirant-related issues, including regulatory, consent decree compliance and consent order matters. Alex-DEQ staff members frequently not only participate in and facilitate MCMG meetings, but they prepare the agenda and schedule all MCMG meetings. MCMG meetings are scheduled on an as-needed basis, the Alex-DEQ staff determine when a meeting is needed based on the amount of information on the Mirant situation is accumulating at a given time or if citizens are raising a particular Mirant-related concern.

To date, the City of Alexandria has been involved in closely monitoring the PRGS and is actively engaging regulatory agencies at the state- and federal-level to deal with the air quality issues arising from the operation of PRGS.

### Indoor Air Quality

**Department:** Alex-DEQ, Alexandria Health Department

**Description:** Despite the lack of federal or state regulations governing indoor air quality, the City does take indoor air quality complaints and provides advice to residents on mold, radon, inadequate ventilation, and others. Alexandria maintains a list of relevant contractors as a resource for citizens, and it also makes referrals to environmental code enforcement officials when necessary.

### Respiratory Health Program

**Department:** Alexandria Health Department, Environmental Health Division

**Description:** The Health Department's Environmental Health Division has a Respiratory Health Program that provides information on asthma and respiratory health to City residents. The Respiratory Health and Indoor Environments webpage ([www.alexhealth.org/rhie](http://www.alexhealth.org/rhie)) provides information on environmental tobacco smoke, mold, radon, combustion byproducts, household products, pesticides, and formaldehyde.

The Environmental Health Division also is certified to conduct site assessments for lead paint as part of the Virginia Department of Health's Child Lead Poisoning Prevention Program. The Division responds to many citizen complaints about mold and, where health issues are involved, conducts site assessments to recommend remedial actions. The Division also enforces the City's Smoking Ordinance and coordinates the voluntary "Proud to Be Smoke-Free" program for restaurants. An industrial hygienist with the Virginia Department of Health is on call to assist with technically complex indoor air quality issues.



*Mirant Power Plant: The City of Alexandria has been involved in closely monitoring the Potomac River Generating Station and is actively engaging regulatory agencies at the state- and federal-level to deal with the air quality issues arising from its operation.*



## Air Quality in Schools

**Department:** Alexandria City Public Schools

**Description:** The Alexandria City Public Schools actively manage air quality in the City's school buildings. "IAQ Tools for Schools," the EPA's proactive program to manage school indoor air quality, is now being piloted at Mount Vernon Elementary School with assistance from the Alexandria Health Department.

## 2. Clean Technologies and Pollution Prevention

### Climate Protection

**Department:** Alex-DEQ

**Background:** In February 2005 the City signed the US Conference of Mayor's Climate Protection Agreement. This agreement committed Alexandria to accomplish a number of actions relating to improving air quality and thus protecting the climate from catastrophic change. Among these actions would be meeting or beating Kyoto Protocol targets through the use of local land use planning, urban forest restoration or public information dissemination, as well as to work with state and federal agencies to work towards greenhouse gas reductions.

**Description:** One of the long-term goals of Alex-DEQ is to create a local emissions inventory. Due to the City's signing of the agreement it was designated as a Sierra Club "Cool City" in November 2005. In addition to signing the US Conference of Mayors Climate Protection Act, a "Cool City" must have a city vehicle fleet comprised of hybrid and other cleaner energy cars, modernize city buildings with energy-efficient technology, and invest in clean and safe renewable energy.

### Taxis

**Department:** Police Department, Transportation and Environmental Services

**Description:** Two years ago the City changed its code to put an age limitation on taxis, so that the overall fleet of 700 taxis would be more fuel efficient and have better emissions.

### Low Emission Vehicles

**Department:** Alex-DEQ, General Services

**Description:** The City of Alexandria has a fleet of 14 Toyota Prius hybrids, 3 Ford Escape hybrids, and 58 Flex Fuel Vehicles, which are capable of operating on gasoline and ethanol (E10 interm or E85 interm). Furthermore, the City has 552 low emission vehicles registered with the VDEQ that are required to have Virginia State Emission tests performed every two years. With the above numbers of cars and light trucks the total percentage of low emission vehicles stands at 70 percent, though this number changes all the time as the City purchases newer vehicles. Furthermore, the City recycles oil, oil filters, and batteries used by City vehicles.

## 3. Regional Programs and Partnerships

### Air Quality Action Days and the Clean Air Partners

**Department:** Alex-DEQ

**Background:** Clean Air Partners is a volunteer, nonprofit, public-private consortium dedicated to improving air quality in the Washington and Baltimore regions. It was formed by the Metropolitan Washington Council of Governments and the Baltimore



Metropolitan Council to educate the public regarding ground-level ozone and to reduce public exposure to ozone and its creation through voluntary citizen action. Alex-DEQ is currently a member of the Clean Air Partners coalition. This coalition coordinates the Air Quality Action Day program, a workplace-based outreach effort to encourage individuals to alter their behaviors to reduce ground-level ozone and particulate matter production, particularly on Air Quality Code Red Days. Air Quality Code Red Days are days that are deemed to have unhealthy air that occur primarily in the summer months.

**Description:** Various companies, government agencies, educational institutions, and individuals participate in Air Quality Action Days throughout the Washington, D.C. region. Participants in the Clean Air Partners Air Quality Action Days are notified by 4 p.m. the day prior to an Air Quality Code Red Day so that they can distribute information on the Air Quality Action Day to their employees and encourage them to transit or use alternative forms of transportation the following day. Participating organizations are also asked to educate their employees and customers about other individual actions they can take to reduce their production of volatile organic compounds (VOCs) nitrogen oxides (NOx) and particulate matter less than 2.5 microns. Busses are free on Air Quality Code Red Days and Air Quality Code Orange Days.

Participating firms and institutions in the Clean Air Partners are also asked to examine their own operations to determine ways that they can modify them to reduce impacts on air quality during Air Quality Action Days. Some participants in the Air Quality Action Days program fly Air Quality Action Days flags at their place of business.

While the City of Alexandria currently participates in the Clean Air Partners and their Air Quality Action Days as an individual member, the next phase of the Clean Air Partners work will involve a public relations campaign to generate more members. The Alex-DEQ staff will be involved in assisting the Clean Air Partners with this endeavor as much as their time allows. Alex-DEQ staff serves on the Air Quality Action Day Advisory Team to monitor the success of the free bus ride program.

## **Metropolitan Washington Air Quality Committee/MWCOG**

**Department:** Alex-DEQ

**Background:** The Metropolitan Washington Air Quality Committee (MWAQC), established by the MWCOG, is responsible for the development of the ground-level ozone and fine particulate matter (PM2.5) NAAQS attainment plans for the Washington, D.C. region. According to the MWCOG the committee's function is to "coordinate air quality planning activities among COG, other external committees, and the Transportation Planning Board; reviews policies; resolves policy differences; and adopts an air quality plan for transmittal to the District of Columbia, Maryland, and Virginia." There are 2 staff overseeing this program and it is authorized under Section 174 of the federal Clean Air Act Amendments of 1990.

**Description:** Alexandria recently submitted a voluntary commitment under the "weight of evidence" to the 8-hour state implementation plan (SIP) for MWAQC. SIPs are reports to the U.S. Environmental Protection Agency (EPA) that outline activities taken towards compliance with the Clean Air Act. The purpose of submitting a "weight of evidence" is to provide additional commitments of what programs and policies the City of Alexandria will implement to ensure compliance with future targets for criteria pollutant emissions. For example, Alexandria has committed to using low volatile organic compound paints, promoting green buildings, purchasing wind energy, LED lights, and alternative fuel vehicles.

Vice Mayor Redella S. Pepper is City's representative at the MWAQC. Mr. William Skrabak, the Division Chief of Alex-DEQ is currently serving on the MWAQC Technical Advisory Committee. Alex-DEQ's staff is also very involved in work of MWAQC and MWCOG's Intergovernmental Green Building Group.



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*Alexandria's Clean Air Partners Program, which promotes the use of alternative forms of transportation—such as biking on Alexandria's extensive network of off-road trails and bike routes—is aimed at changing individual behavior to reduce ozone and particulate matter production.*



## LAND USE

- 1 Guiding Plans
- 2 Planning Process
- 3 Brownfields



### 1. Guiding Plans

#### Master Plan and Small Area Plans

**Department:** Planning and Zoning oversees changes to the Master Plan, including Small Area Plans. Numerous City departments collaborate to create each Small Area Plan contained within the City's Master Plan. All City departments and City Council participate in the review and approval of these plans.

**Background:** The Master Plan and associated Small Area Plans are adopted by City Council, and guide land use planning efforts within the City. The Plan is broken up into 15 Small Area Plans (SAPs), each guiding future development in its respective part of the City, and chapters on topics of citywide interest, such as Historic Preservation, Urban Design, and Open Space. Several of these plans are currently under review; chapters of the Master Plan are updated on an ongoing basis as needed either through Council-adopted Master Plan Amendments or neighborhood studies initiated by Planning and Zoning. The current Master Plan, as amended, was adopted in 1992 and is authorized by the Virginia State Code Section § 15.2-2223.

**Description:** Each SAP provides a detailed analysis of the specific planning area, while other chapters in the Master Plan cover topics of citywide interest along with goals, objectives, and policies. The Plan and its components guide future land use decisions in the City. Goals outlined within can then be implemented via the City's zoning ordinance, zoning map, and through review of development applications.

Several of the ideas promoted in the Master Plan and Small Area Plans, such as the preference for higher densities and mixed use, transit oriented development, help foster sustainability. For instance, high density mixed use development is called for

*The relocation of the U.S. Patent & Trademark office to Alexandria has helped spur mixed-use development on an old brownfield site.*



in several of the Small Area Plans. Locating varied uses in one compact area allows residents and employees to fulfill their daily needs locally instead of having to travel long distances. Moreover, mixed use areas are typically occupied throughout the day and night, providing street life and activity and encouraging walking and social interaction. Density also creates a critical mass of people who will use transit systems and maximizes use of other infrastructure as well. Transit oriented development, which is also promoted in the Master Plan, calls for clustering high density and mixed use development near Metro rail stops, reducing dependency on automobile travel, fuel consumption, and minimizing air pollution. In addition to outlining visions for planning, transportation, and economic development, the plans also call for parks and open space to be acquired and maintained in each Small Area.

## Zoning Ordinance

**Department:** Planning and Zoning

**Background:** The current zoning ordinance for the City of Alexandria, enabled by Virginia State Code Section § 15.2-2280, and adopted by the City Council on June 24, 1992, regulates land use and bulk area requirements within the City. The ordinance is adopted by City Council and generally represents the implementation of the City's Master Plan. The zoning ordinance and related map categorize the City into different zones, depending on use and other guidelines.

**Description:** Each zone has specific standards that regulate what type of uses can occur within it, as well as limiting the intensity of the uses. Each zone is created to offer a different blend of uses and intensity, and is based on the recommendations of the Master Plan.

Several of the City's zones permit eco-friendly development consistent with the recommendations of the Master Plan. For example, there are several mixed use categories (see Article V. of the Ordinance) which support walkable communities, where residents and workers have access to a variety of uses within walking distance. The City also permits several higher intensity zones, generally located in the Old Town area and near Metro stops. The City has also created zoning along King Street and Mt. Vernon Ave to support "Main Street" retail which offer commercial services in walking distance to local residents.

The zoning ordinance also details many of the site design and parking requirements in the City (see Article VIII of the Ordinance). Parking requirements vary by use to allow adequate parking based on the intensity of the use and apply to all development projects in the City. The provisions are in place to ensure orderly development, the availability of public and private services and amenities, and to minimize any adverse effects of development.

Parking has different standards based on parking districts, allowing parking requirements to be crafted based on the development pattern of the district instead of having a blanket-standard across the City. For example, lower parking requirements exist in areas that are more urban or in close proximity to a Metro station, accounting for the reduction in expected parking when public transportation is available. In addition, there are requirements for carpool space to encourage carpooling. The ordinance also creates the King Street parking district which has reduced parking requirements in that area. It also requires that parking located in the historic districts be accessible by alley or interior parking court to reduce the impacts of auto use on the pedestrian-oriented streetscape. Furthermore, the Central Business Parking District exempts certain uses from parking requirements, while the Waterfront Parking District eliminates all parking requirements.



## 2. Planning Process

### “Plan for Planning”

**Department:** Planning and Zoning

**Background:** In order to take a more active role in defining and shaping its future, the City has identified a series of steps designed to ensure that future development and redevelopment reflect community goals and values. The first step to this process was the development of a policy analysis, Plan for Planning, which was adopted by the Mayor and City Council in June 2001. The Plan, which is based on and consistent with the Master Plan and zoning ordinance, outlines a structured framework for development planning, strategies, and procedural changes for planning in the City. City Council now annually adopts a work plan according to the priorities outlined in the original plan.

**Description:** The original Plan outlines eight priority geographical areas to be studied by the Planning Department and nine citywide planning issues (infill development, parking, etc.) that were to be immediately addressed. The Planning Department has since added five additional priority areas to be studied. There is also a section of the Plan outlining procedural changes.

### Development Review Process

**Department:** Planning & Zoning, Transportation & Environmental Services, Recreation, Parks and Cultural Activities, Code Enforcement, and other departments, as necessary

**Background:** In 2002, based on one of the recommendations of the Plan for Planning policy analysis, the City carried out a study of the development review process. From that study the report: City of Alexandria, Virginia, Development Review Process and Policies, Analysis and Recommendations, identified areas for improvement which were primarily based on the determination that the review process was extraordinarily complex, requiring input from various different departments, yet lacking coordination. As a result, the principal recommendations of the report were: 1) that there be a single point of contact within the City for each development project; 2) that a team composed of City staff members from the various offices and agencies be responsible for each development project; and 3) that the applicant meet with development review staff in Planning & Zoning for an initial concept meeting and pre-application process prior to submission of any application.

**Description:** In accordance with the recommendations of the development review analysis, a Development Review Team Leader from Planning & Zoning is now selected to direct and coordinate each development review proposal. In addition, department directors or designees for—at minimum—the Department of Planning & Zoning; Transportation & Environmental Services; Code Enforcement; and Recreation, Parks and Cultural Activities designate a department staff member to a Development Review Team for each proposal. Team members can also be chosen from Housing, the Police Department, General Services, and/or Historic Preservation/Archeology, as necessary. The Team then works together to identify and resolve issues and process plans in accordance with the City’s goals and regulations. There are also regularly

*Planning & Zoning translated City Council’s Strategic Plan into the following major planning themes that shape current planning initiatives, finished plans, and approved development applications:*

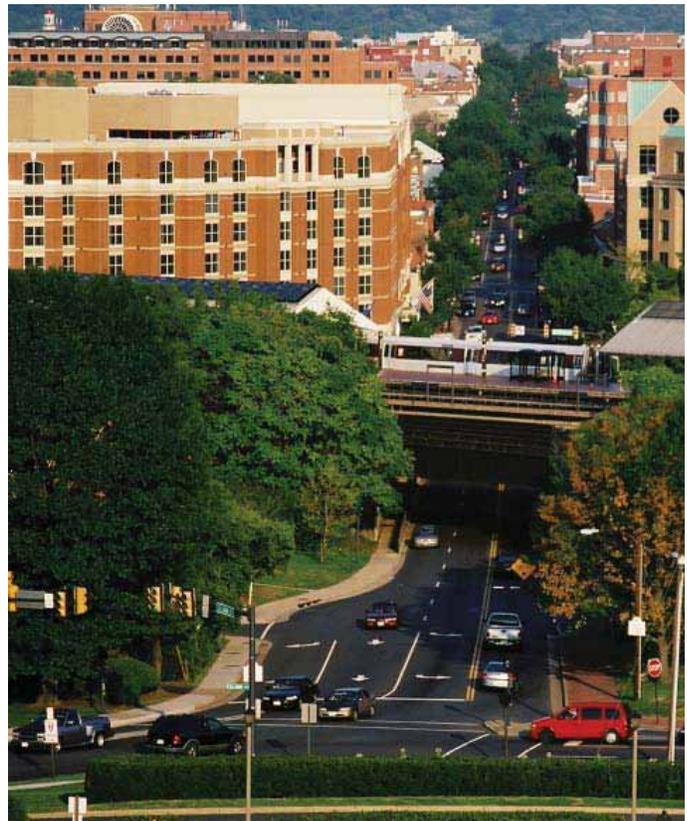
**Preserve our history and culture.**

**Create transit oriented development.**

**Create livable places with housing choices for all residents.**

**Strengthen our main streets.**

**Preserve and enhance neighborhoods.**



scheduled Interdepartmental Review meetings during which staff can discuss his/her particular project. Additionally, regularly scheduled monthly senior staff level Development Overview Committee meetings are held where the various City departments can jointly review and address long-term, cross-cutting issues posed by large or complex development proposals.

The result of this development review analysis and subsequent changes made to the development review process promote sustainability in a couple of ways. First, they enable communication among the various City departments, assuring that City goals are consistently upheld. This service-oriented approach also clearly communicates expectations, which will help to attract high quality development proposals that are in line with the City's vision and goals.

## Special Use Permit (SUP) Review Process

**Department:** Planning and Zoning

**Background:** Authorized under Virginia State Code Section § 15.2-2286. Special use permits are required for certain proposed development and non-development uses in a Zoning District (for example, a SUP may be required for a church in a residential area or for a private residence to be used as a day care center). The permit requires a review process to minimize or mitigate any adverse effects of potentially harmful uses on the neighborhood as a whole, or other properties in the vicinity (see Sec. 11-500 of the City zoning ordinance for development review procedures for SUPs). Furthermore, the process provides multiple stakeholders—including City staff, elected officials, neighboring residents or business owners—the opportunity to review and provide input for development projects.

**Description:** For each SUP application an internal staff meeting is held with representatives from different departments to identify the site and any known environmental issues or features, among other concerns outlined in the zoning ordinance. They also take into consideration the following:

- > Whether the proposed development or use will destroy, damage, detrimentally change or interfere with the enjoyment and function of any significant topographic or physical features of the site;
- > Whether the proposed development or use will result in the destruction, loss or damage of any natural, scenic or historic feature of significance.

Staff conducts this internal review and drafts conditions for the application. The application then goes before the Planning Commission and City Council for approval. Some of the conditions of SUP approval in the past have included the following, where appropriate:

- > Limited amount of paving and the use of pervious paving materials which help reduce stormwater run-off;
- > Efforts in tree preservation and alternative designs to preserve existing vegetation;
- > Context sensitive plantings, such as shade tolerant shrubs for areas that will not get significant sunlight ensuring the success of new plantings;
- > Design of street tree pits to incorporate BMP practices improving stormwater quality;
- > Creating streetscapes with multiple pedestrian access points and active retail to create a pedestrian-friendly street and promote walking;
- > Creation of outdoor dining areas in order to create a vibrant streetscape to promote walkability;
- > Bike storage facilities with locker rooms inside the structure to promote multi-modal transportation;



- > Promotion of van and carpools with transit and rideshare programs;
- > Addressing environmental issues such as air noise and contaminated land.

All of the efforts noted above highlight steps Alexandria has taken, through the SUP review process, to create a more environmentally-friendly city.

## 2005 Livable Communities Summit

**Department:** Planning and Zoning

**Background:** The Summit consisted of two forums held in 2005 to give residents an opportunity to learn about the benefits of the City's planning efforts for a walkable and sustainable community. The City recognizes that an informed citizenry is important to understanding what sustainability means and the many benefits it offers.

**Description:** Citizens and Planning staff came together for two workshops, at which leading professionals were invited to speak on sustainable techniques, walkable communities, and steps for Alexandria to take to reach its sustainability goals. Residents were given the opportunity to talk to Planning staff, offer suggestions and opinions, and learn more about why Alexandria is planning for sustainability.

## 3. Brownfields

### Brownfield Remediation and Redevelopment

**Department:** Transportation and Environmental Services

**Background:** Due to the high value of land in Alexandria, as large tracts of brownfields have become available for purchase in Alexandria developers have quickly seized the opportunity to remediate and redevelop them. The City encourages re-development of brownfields to not only improve the ecology of the area, but also to serve economic and social needs of the City.

**Description:** In Alexandria, the market has driven the process of brownfield remediation and redevelopment. Thus far there has not been a shortage of interested parties to redevelop the brown and grayfields within the City, so there has been no need to provide incentives. Once a tract of brownfield land is purchased in the City, the Department of Transportation and Environmental Services works closely with the developer through the special use permitting process to regulate and guide the remediation efforts. In some cases, the Virginia Department of Environmental Quality must review remediation plans provides an additional level of review and inspection to insure that appropriate levels of contamination clean-up are achieved prior to reuse. The typical requirements to be included in development applications for brownfields include: a site characterization, risk assessments, a remediation plan, and health and safety plans. Potomac Yard, currently under development, and Carlyle in Eisenhower Valley are examples how City's policies have been effective in getting the best use of large brownfields in the City.

### Spotlight | Infill Task Force

On January 20, 2007, Mayor Bill Euille signed a zoning ordinance amendment that regulates the threshold height for additions and new construction in single-family neighborhoods and the subdivision of existing lots. This text amendment was established to ensure that new urban infill and redevelopment projects within residential neighborhoods were consistent with adjacent properties and that the design of these structures would respond to the character of the neighborhood context. The interim ordinance expires in December 2007.

Furthermore, on April 2007, the City Council passed a resolution establishing an Infill Task Force to study the impact of new housing construction on existing single-family neighborhoods. This task force is chaired by a member of the Planning Commission and is composed of a private sector builder, a realtor, and two architects as well as four residents from various neighborhoods around the City. The task force is charged with analyzing existing City regulations that pertain to limiting infill impacts and make recommendations to the Planning Commission and City Council for any regulatory changes. This task force will report its findings and recommendations directly to the Planning Commission and the City Council in 2008, and will keep the public informed as to their analysis of the infill issue.



## Remediation of Oronoco Site

**Department:** Transportation & Environmental Services

**Background:** Historically a coal gasification plant was located at this site that resulted in landfilling of creosote, a by-product of coal gasification. As a result, creosote discharge and contamination have been a longstanding issue at the Oronoco site, polluting groundwater and surface water.<sup>1</sup> An in-depth study of the site was carried out between 1999 and 2001, which led to the City to set aside \$3.2 million to address the groundwater contamination.<sup>2</sup> Surface water contamination issues have been handled by booms and the removal of contaminated outfalls.<sup>3</sup> A site characterization assessment was completed in 2004 which identified remaining issues at the site.

**Description:** The City is participating in Virginia Voluntary Remediation Program for clean-up of this site. A Corrective Action Plan has been submitted and approved by VDEQ.<sup>4</sup> With this action plan in place, remediation of the site has started and the City is currently developing a pump and treat program for the remaining groundwater contaminants on site. It is the intent of the City to continue remediation of the site until it is ecologically safe.

## Remediation of Potomac Yard

**Department:** Transportation & Environmental Services, Planning & Zoning, General Services

**Background:** This 342-acre former railroad yard is being redeveloped primarily with commercial and residential uses. Fire Station 209, a U.S. Green Building Council registered project, will also be located on the site. An assessment of the site, contaminated with metals, fuels and oils, showed a "lowered abundance and diversity of aquatic and bottom-dwelling species in Four Mile Run and the Potomac River" could occur as a result of this



*Plan for Potomac Yard: Extensive remediation and redevelopment has occurred on this 342-acre former railroad yard.*

<sup>1</sup> Marshall, Miller & Associates Voluntary Remediation Support for Oronoco Gas Site

<sup>2</sup> City of Alexandria Proposed Fiscal Year 2002 Operating and Capital Budgets.

<sup>3</sup> City of Alexandria. Annual Report on the Environment.

<sup>4</sup> City of Alexandria. Approved Budget for Capital Improvement of Sewers.



contamination.<sup>5</sup>

**Description:** The Environmental Protection Agency has ended its monitoring of the Potomac Yard site due to the extensive remediation and redevelopment that has occurred. The City of Alexandria, however, still closely monitors the site for compliance with stormwater standards. As further portions of the site are developed over time (such as the recently approved community facilities), the Department of Transportation & Environmental Services is responsible for ensuring that each of the sites is carefully redeveloped such that all possible environmental concerns are properly handled.

### **Business Center Drive Brownfield Projects (Witter-Wheeler Tract)**

**Department:** Transportation & Environmental Services; General Services; Police Department

**Background:** This industrially zoned site is approximately 15 acres and is the old Fruit Growers Express property. Multiple City-owned facilities will be located on the property, allowing Alexandria to meet the current and future needs of a several City agencies while enhancing the appearance of the overall area.

**Description:** The property extends from the City-owned property at Duke Street and Wheeler Avenue on the west, behind Lockett Field at the foot of Quaker Lane, continuing east to Telegraph Road, and behind the Duke Street businesses to the east. Facilities to be located on the site include:

DASH Facility – Plans have been approved and state urban grant funding in the amount of approximately \$30 million has been obtained to acquire property and to build a new facility for the DASH bus system on Business Center Drive, adjacent to the Roth Street property. The new 60,000 square foot DASH facility is expected to be completed by 2008 and will replace the current facility, which is too small to meet the needs of the transit system.

Police Station –The proposed police headquarters, which is expected to be completed by 2010, would provide a single site in which to locate the operations of the Alexandria Police Department, which are now located at several locations: the Public Safety Center on Mill Road and in rental space at 2034 and 2900 Eisenhower Ave. In order to use the Duke Street/Wheeler Avenue site for a police headquarters, the City proposes to relocate the maintenance operations of the Departments of Transportation and Environmental Services and Recreation, Parks and Cultural Activities from that location to a City-owned facility located at Roth Street and Business Center Drive by 2008. The City's salt dome and neighborhood recycling center would also be moved from Wheeler Avenue to other locations within the City complex. Currently, environmental testing is being carried out for the site.

Witter Property Athletic Facilities – The facility will include multipurpose recreation fields with lights and irrigation, a diamond ball field with lights, maintenance and concession facilities, parking to accommodate daily use, and an existing cemetery will be preserved.

All of these City facilities on the Business Center Drive Brownfield are expected to be completed by FY2010.

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<sup>5</sup> United States Environmental Protection Agency. Mid-Atlantic Superfund Site Information: Potomac Yard.



## Industrial Land Use Study

**Department:** Planning and Zoning

**Background:** This study is being carried out to determine the effects of industrial land uses on neighboring land uses, neighborhoods, the City's land development patterns, and future land use planning. The study will determine if industrial land uses should be part of Alexandria's future, or if/when they will be incompatible and undesired. These industrial areas are remnants of a very industrial Alexandria, and although City residents rely on many of these uses for energy and trash dumping, for example, there may be better uses for the City's land. Therefore, the City is undertaking this study to find out if these land uses will be compatible with the environmental goals of the City, if they should be relocated, or if they should be redeveloped.

**Description:** Although the study is not yet complete the City seeks to understand the economic and other benefits of having industrially zoned land in the City in order to guide future public policy on industrial uses.

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## PARKS AND OPEN SPACE

- 1 Parks Overview
- 2 Recreation, Parks, and Cultural Activities Plans
- 3 Ordinances and Regulations
- 4 Environmental Education
- 5 Volunteers and Partnerships



*Alexandria's 978.25 acres of parks and open spaces are used for a variety of activities.*

### 1. Parks Overview

**Department:** Recreation, Parks, and Cultural Activities

The City of Alexandria's parks and other open space includes:

- 127** Parks & Open Space Areas (totaling 978.25 acres)
- 17,000** Street Trees
- 187** Flower Beds & Horticultural Sites
- 59** Boat Slips at the City Marina
- 52** Multi-use Athletic Fields
- 45** Playgrounds
- 39** Tennis Courts
- 29** Basketball/Multipurpose Courts
- 20** Miles of Off-Street Trails
- 20** Miles of On-Street Trails
- 17** Dog Parks
- 14** Picnic Shelters
- 6** Outdoor Pools



## 2. Recreation, Parks, and Cultural Activities Plans

### Strategic Master Plan for Recreation, Parks and Cultural Activities

**Department:** Recreation, Parks, and Cultural Activities

**Background:** The Alexandria Master Plan was originally adopted in 1992. The Strategic Master Plan for Recreation, Parks, and Cultural Activities is one section of that Master Plan. All Master Plan components are updated periodically, with all components of the plan being updated at least every five years.

**Description:** The Strategic Master Plan for Recreation, Parks, and Cultural Activities, revised again from 2001-2004, describes the status of the City's open space, park, and recreation holdings; outlines needs for greater quality, quantity and equity of park facilities; and identifies department and community goals and strategies. Current goals include creating more trails to connect parks and provide greater citizen access, acquire an additional 100 acres of open space, and create new funding sources.

#### Open Space Master Plan

**Department:** Department of Recreation, Parks, and Cultural Activities

**Background:** The goal of the Open Space Master Plan, adopted in 2003, is to acquire, maintain, and provide adequate and diverse open space options for a growing and equally diverse city. In 2000 the City had a ratio of 7.3 acres of open space per 1,000 residents. In an effort to maintain the current ratio with an ongoing increase in population, the City set a goal of preserving at least 100 acres of open space within ten years of the adoption of the Plan.

**Description:** The Open Space Master Plan establishes and prioritizes fifteen open space goals. As a result of the Open Space Master Plan the City has been actively pursuing the acquisition and/or preservation of open space through its Small Area Plans, which all include open space provisions. The Pocket Park program was also established to acquire smaller neighborhood parks. Furthermore, the City has also obtained historic and conservation easements through voluntary mechanisms for several highly valuable parcels through the use of easements.

Since 2003, the City has preserved 64 acres of open space toward its goal of 100 acres through acquisitions, dedications, and public access on conservation easements. The plan also provides various funding strategies for the City to acquire open space. For example, an open space fund has been created with one percent of the real estate tax to be used for open space acquisition.

#### Pocket Park Program

**Department:** Department of Recreation, Parks, and Cultural Activities in conjunction

### Spotlight | Pocket Park Program

In March 2005 the City Council approved a Pocket Park Program that would allot a minimum of 20% of the City's Open Space Fund towards acquiring pocket parks. This fund would be used to purchase small tracts of land that could be converted to open space. The Pocket Park Program was developed through the combined efforts of the Department of Recreation, Parks & Cultural Activities and the Open Space Steering Committee.

"Pocket parks" are defined as areas of less than 20,000 square feet that are intended to serve residents within a tenth of a mile. Therefore, no parking is required and these parks are within walking distance of a great number of people. These open spaces may include play equipment, preservation of natural features, gardens, seating, etc.

The benefits of pocket parks include more open spaces closer to residents and a more comprehensive network of open spaces connected throughout the City. This program expands on the existing Open Space Program which is intended to acquire open spaces for public and City use. The first such space was acquired on April 30, 2007. The City is now beginning the planning and design of this space, including demolition of the existing building and preservation of portions of a stream on the property. Citizen participation is being encouraged throughout the design process.



with the Open Space Steering Committee.

**Background:** This program was started in March 2005. Pocket parks are intended to be small neighborhood-serving parks that meet the needs of people living and working within a 1/10th mile radius. These parks are easily accessible to the public and are prioritized in areas where such access to public open space is currently limited.

**Description:** The Pocket Park Program is the result of efforts by City Council and the Open Space Steering Committee to create small neighborhood parks. A list of proposed pocket park sites that the City would consider purchasing with the Open Space Fund can be found on the Pocket Park Site List. This list, approved in February 2007 by City Council, is based on nominations by citizen and neighborhood groups, which were reviewed according to the following criteria:

- 1 Public benefit
- 2 Defined park use
- 3 Neighborhood commitment to development and maintenance
- 4 Land status shows that the parcel is suited for a park
- 5 Public support for the park
- 6 Geographical need

The first property under this designation was acquired in April 2007.

## Open Space Fund

**Department:** Department of Recreation, Parks, and Cultural Activities

**Background:** The Open Space Fund was first approved by City Council in 2003, and has been re-approved on an annual basis.

**Description:** The Open Space Fund, which is used to purchase and improve additional open space and parkland, receives one percent of City revenue generated from real estate taxes. Of this one percent, a goal of twenty percent was set for the acquisition of land that meets Pocket Park Program criteria. Citizens can also make contributions to this fund.

## Living Landscape Fund

**Department:** Department of Recreation, Parks, and Cultural Activities

**Background:** The Open Space Fund was first approved by City Council in 2003, and has been re-approved on an annual basis.

**Description:** The Living Landscape Fund offers citizens a personal opportunity to participate in the ongoing endeavor to beautify Alexandria while remembering an important occasion. Donations are used to plant trees or gardens, place park benches and to install play equipment and water fountains throughout the City. Contributions may be made in honor or memory of a person or important occasion. Funds can also be made to assist the City in realizing a goal in beautifying parks and enhancing open space.



## Dog Park Master Plan

**Department:** Recreation, Parks, and Cultural Activities

**Description:** The City has developed a Dog Park Master Plan in order to plan for and manage the 19 dog parks located in Alexandria. Alexandria provides two types of dog-related open space areas – dog exercise areas and fenced dog parks. While these are scattered throughout the City, the eastern half of Alexandria contains the greatest number of such facilities, particularly in Old Town. This Dog Park Master Plan requires new dog parks to be located farther from streams.



*19 dog parks are located in Alexandria.*

## 3. Ordinances and Regulations

### Temporary Infill Ordinance

**Department:** Department of Planning & Zoning

**Description:** In 2006 the City Council approved a temporary ordinance to address concerns over infill development that is out of character with the surrounding neighborhood. This ordinance will remain in effect until it is replaced by the City's infill design guidelines which are currently being developed by the Department of Planning & Zoning.

The proposed infill design guidelines may address open space issues through new building setback regulations, through stricter regulations for development on steep slopes, and lot coverage limitations.

### Landscape Guidelines

**Department:** Department of Recreation, Parks and Cultural Activities; Department of Planning and Zoning; Department of Transportation and Environmental Services.

**Background:** The stated purpose of the document, which was first approved in December 1997, then revised in April 2007, is to promote landscaping practices that are environmentally friendly, reduce necessary maintenance, and reduce long-term costs. Protection standards for existing vegetation and tree canopy coverage are also addressed.

**Description:** The Landscape Guidelines establish minimum standards for tree cover, open space designation, installation of plant material, and crown coverage. The Guidelines also lay out specific standards for the protection of existing vegetation and mitigation of damaged vegetation and list allowable trees. Bioretention planting guidelines include required native material and slope stabilization.

A tree survey that documents the types of trees, their caliper, size, and where they are on the property is required with all submitted site plans. The City may require that the developer hires a certified arborist to make recommendations on how existing trees can best be preserved. In environmentally sensitive areas the City may recommend that conservation methods such as easements be applied.

The Landscape Guidelines also include the methods by which trees are to be



protected. For example, development is not to occur within the drip line of a single tree or grove of trees that have been identified for preservation. Recommended methods for how and where to plant trees and shrubs are also provided. These recommendations include the depths at which to plant trees and the appropriate times of year to plant them. The Landscape Guidelines also provide a list of approved trees as well as a list of non-native trees and plants that are prohibited.

Finally, long term maintenance must be provided for in all new and existing landscaping. The list of long-term maintenance requirements includes mowing, irrigating, pruning, and fertilizing.

#### 4. Environmental Education

##### Environmental Educational Programs

**Department:** Park Planning Division, Department of Recreation, Parks and Cultural Activities

**Description:** This initiative seeks to improve environmental awareness among the City's elementary, junior and high school students. Programs are tailored to schools' needs. For example, in Hammond Middle School a "Stream Team" was formed to monitor the health of part of Holmes Run as well as to teach the importance of the stream. Furthermore, the City educates students on recycling and helps to form environmental clubs and youth groups in the schools.

The Park Planning Division and the Jerome "Buddie" Ford Nature Center (see description below) also work with Boy Scouts and other groups on projects such as erosion control and litter clean-ups, and the Office of Recycling conducts presentations and participates in recycling promotional events such as America Recycles Day and Earth Day events.

##### Jerome "Buddie" Ford Nature Center

**Department:** Department of Recreation, Parks and Cultural Activities.

**Description:** The mission of the Jerome "Buddie" Ford Nature Center is to provide quality nature-based interpretive programs and services for City residents and aid in the management, conservation, and preservation of Alexandria's natural resources through informative recommendations and conservation projects. At the Nature Center, which has been newly renovated and expanded, one can see exhibits of live animals and learn about the cultural and natural history of Dora Kelley Nature Park, which lies just outside of the Nature Center. This nature sanctuary consists of 50 acres of native forest and contains a one-mile long nature trail that winds through wooded hills, streams and marshland.

The Center also offers a wide range of permanent exhibits and programming, including interpretive activities, hikes, art classes, games, science classes, camps, and more, while also hosting summer day camps, school field trips, and birthday parties. The Nature Center also has an activity room which can be rented by community groups.



*Alexandria's City Council members and Mayor Euille help promote the importance of tree planting and stewardship during Alexandria's annual Earth Day celebration.*



## Winkler Botanical Preserve

**Background:** Located in the west end of Alexandria, the Winkler Botanical Preserve is a 44-acre collection of plants and trees indigenous to the Potomac River Valley. The preserve is a surprising retreat of natural beauty adjacent to the busy Interstate 395 and the City. Established in 1979 by the Mark Winkler Family, the Winkler Botanical Preserve promotes the research, education and enjoyment of native plants and trees.

**Description:** The Winkler Botanical Preserve has developed a model environmental education program for students and educators of the Alexandria City Public Schools. The program provides hands-on, interdisciplinary and curriculum-based education in a living laboratory. All elementary and middle schools receive a year-long series of free environmental education programs based on the Virginia Standards of Learning, extensive teacher training, and unique outreach opportunities that include weekend family events and after school enrichment. The overall goal of the partnership program is to promote life-long learning for students, which results in extending their learning beyond the school day and beyond the classroom.

## Alexandria Earth Day

**Department:** Alexandria Earth Day is officially co-sponsored by the Alexandria Environmental Policy Commission, Transportation & Environmental Services, the Office of Special Events of the Department of Recreation, Parks and Cultural Activities, and the Virginia Cooperative Extension.

**Background:** Earth Day festivities began in Alexandria in 1994 and have grown every year. Activities are held at various parks within the City.

**Description:** This event is held to promote environmental awareness among the citizens of Alexandria. Events typically include: an open-space clean-up; educational exhibits provided by environmental organizations, local businesses and City departments; recycling and composting demonstrations; recycling contests; and hands-on activities.

The City also celebrates Arbor Day on Alexandria Earth Day. The National Arbor Day Foundation has recognized the City as a Tree City USA every year since 1983. The City plants a tree during Earth Day celebrations and the City Arborist office hosts a tree sale as part of the festivities.

In addition to Earth Day, the Division of Environmental Quality has participated in and sponsored the Annual Watershed Friendly Garden Tour, the Capital Region Earth Force Day, Holmes Run Park Clean-up, Monticello Park Clean-up, Four Mile Run Park Clean-up, and Adopt-A-Block Litter Program. The City Council has proclaimed May Watershed Awareness Month to recognize water quality initiatives.<sup>1</sup>

## Spotlight | Alexandria Earth Day

“Alexandrians: Reduce, Reuse and Recycle” was one of the many contests held at the 2007 Alexandria Earth Day. In keeping with the history of the environmental movement, the City of Alexandria hosts an annual Earth Day where residents and friends alike join in to beautify the city and to exchange knowledge on ways to help protect the environment. Earth Day activities include parks and open space clean up, composting and recycling education and tree purchasing all made possible by the City and with local businesses and organizations. The Earth Day festival also hosts a number of exhibits from several environmental organizations such as:

- > The Jerome “Buddie” Ford Nature Center
- > Alexandria Division of Environmental Quality
- > Alexandria Recycling Program
- > Arlington Gulf Branch Nature Center
- > Bike Walk Alexandria

<sup>1</sup> VPDES Annual Report, p. 7



## 5. Volunteers and Partnerships

### Volunteers

**Description:** Alexandria uses volunteers to help maintain its open space and parks. Some of these volunteer programs include: Adopt-A-Park, Adopt-A-Garden, and Tree Stewards.

Alexandria also encourages citizen volunteers to sit on various committees which help draft action plans on various City issues, including open space.

### Northern Virginia Conservation Trust

**Description:** The Northern Virginia Conservation Trust (NVCT) is a 501(c)(3) nonprofit land trust dedicated to preserving and enhancing the natural and historic resources of Northern Virginia. NVCT has been instrumental in the preservation of more than 1,844 acres across the region. Alexandria contracts with NVCT to manage the City's voluntary conservation easement program and to hold those easements. The Trust holds four conservation easements in Alexandria, including: Strawberry Run Headwaters, Corner (Russell Road and Lloyd's Lane) Woodlot, West Masonic Woodlands, and a Monticello Park Buffer.

## 6. Planned Initiatives

### Urban Forest Master Plan Draft

**Description:** This plan is currently being developed by Recreation, Parks and Cultural Activities and the Urban Forest Steering Committee. It will focus on increasing tree canopy, encouraging planting, and preserving and maintaining urban trees. The plan is anticipated to be completed in 2008.

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## ENVIRONMENTAL HEALTH

### Programs and Partnerships

#### Food Safety Program

**Department:** Alexandria Health Department, Environmental Health Division

**Description:** The Environmental Health Division regulates and inspects all aspects of food preparation, storage and service in the City. Construction plans of new and remodeled food establishments are reviewed to ensure proper construction to meet health requirements. The Division conducts training and educational programs for food service managers and workers.

There are 622 permitted retail food service establishments in the City including fast food restaurants (176), carry outs (54), full service restaurants (165), grocery stores (80), meat markets (29), seafood markets (5), convenience stores (28), mobile food units/trucks (16), bakeries (17), delis/salad bars (18), caterers (18), hotel continental breakfasts (1), bed and breakfasts (3), vending machines that sell potentially hazardous foods (10), and farmers' markets (2).

There are 116 permitted food service facilities in the City that serve food to children including school cafeterias (27), child care centers (44), USDA summer feeding sites (43), a private college (1), and a community college (1).

There are 30 permitted food service facilities at medical care facilities, adult care facilities, and institutions in the City such as group homes (14), nursing homes (7), adult care centers (6), jails (2), and the hospital (1).

The Environmental Health Division also inspects and regulates food processing facilities (13), food commissaries (1), and food warehouses (5).

The Division also regulates food service at temporary events. In 2006 there were 60 special events in the City that served food to the public. 177 temporary food vendors were permitted and inspected at these events.

#### Environmental Illness Investigation and Surveillance

**Department:** Alexandria Health Department

**Description:** Health Department epidemiologists conduct daily surveillance for enteric diseases that may have food borne or waterborne causes. The Environmental Health Division investigates outbreaks of disease that may be environmentally linked and takes actions to stop further transmission of disease and prevent future disease outbreaks with the same causes. In 2006, the Alexandria Health Department investigated 40 laboratory-confirmed cases of probable food borne illness and 41 consumer complaints alleging food borne illness. There were two outbreaks of food borne illness in Alexandria in 2006. The Environmental Health Division conducts community assessments to determine what environmental health issues most affect local citizens.

#### Pool Safety Program

**Department:** Alexandria Health Department, Environmental Health Division

**Description:** Under this program the Health Department inspects and regulates 139 swimming pools and spas and 12 health clubs in the City; 123 of the pools are outdoor pools that operate only during the summer season. The Division assures that pools and spas are properly maintained, are free from safety hazards, and have





water that has been properly disinfected. The Division reviews plans of new and remodeled pools to ensure proper construction to meet health requirements. Certified lifeguards and pool operators are required at all public or semi-public pools.

#### **Personal Care Facility Sanitation Program**

**Department:** Alexandria Health Department, Environmental Health Division

**Description:** This Division regulates and inspects 231 personnel care facilities including barber shops and beauty shops (131), nail salons (28), tanning salons (4), electrolysis establishments (2), laser therapy establishments (3), skin care salons (15), waxing salons (6), and therapeutic massage establishments (42). The Division also licenses massage therapists (124).

#### **Complaint Investigation Program**

**Department:** Alexandria Health Department, Environmental Health Division

**Description:** All complaints within the City about environmental conditions that may cause injury or illness are investigated. Complaints may be about drinking water, sewage, food, lead paint, indoor air quality, radon, toxic chemicals, unsanitary conditions, solid waste, animal waste, and smoking in prohibited areas, rodents, insect infestations, mosquitoes or animal bites. In 2006 the Division investigated 212 complaints about permitted food establishments and 16 complaints about other permitted facilities. The Division coordinates the rabies control program with the Animal Welfare League, housing and rodent control investigations with Code Enforcement, and toxic chemical and air quality investigations with Environmental Quality. In 2006, 140 persons bitten by animals were tracked by the Division. Seventeen of these persons required post-exposure rabies prophylaxis.

#### **Mosquito-borne Illness Prevention Program**

**Department:** Alexandria Health Department, Environmental Health Division

**Description:** Under this program, the Environmental Health Division maintains an active surveillance program to detect West Nile virus and other arboviruses in mosquitoes, animals, and humans in the City. The Division conducts extensive mosquito trapping activities to determine the numbers and species of mosquitoes

*Alexandria's Department of Environmental Health protects the environment, promotes health for all of Alexandria's residents and visitors, and eliminates unsanitary and unsafe conditions and public nuisances.*



active in Alexandria. The Division applies larvicide to drop inlets, stormwater retention ponds and other mosquito breeding areas in the City. The Division carries out an active educational campaign to teach residents how to eliminate mosquito breeding sites and how to protect themselves from mosquito bites. In 2006, the Division responded to 133 citizen complaints about mosquitoes.

### **Hotel Inspection Programs**

**Department:** Alexandria Health Department, Environmental Health Division

**Description:** Sanitary conditions at hotels (24) and bed and breakfasts (4) are regulated by the Environmental Health Division. Complaints about bedbugs have increased greatly in recent years. There were 12 complaints about bedbugs at hotels in 2005 and 2006.

### **Other Inspection Programs**

**Department:** Alexandria Health Department, Environmental Health Division

**Description:** The Environmental Health Division inspects sewage pump-out facilities at marinas (6) under state regulations. The Environmental Health Division also inspects the cleanliness of laundromats (5) and coin-operated dry cleaners (1) under a local ordinance. By agreement with various human service agencies, the Division also conducts inspections and provides consulting services on environmental health issues to child care centers, adult day care centers, homes for adults, nursing homes, hospitals, group homes, jails, and other institutions.

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*The City of Alexandria is en route towards becoming an Eco-City.*



