2021

City of Fairfax, Virginia
Solid Waste Management Plan
Five Year Update

David Summers, Director
City of Fairfax Department of Public Works 10455 Armstrong St, Room 200 A
Fairfax, VA 22030

This page intentionally left blank

City of Fairfax, Virginia

City Council

Mayor David Meyer

Councilmember Joseph D. Harmon
Councilmember So P. Lim
Councilmember Janice B. Miller
Councilmember D. Thomas Ross
Councilmember Jon R. Stehle, Jr.
Councilmember Sang H. Yi

Office of the City Manager

Rob Stalzer, City Manager

City Staff

David Summers, Public Works Director
Rob Goodman, Superintendent of Operations Division

Cathy Salgado, Parks & Recreation Director
Michael "Mac" Ryan, Parks Manager

Brooke Hardin, Community Development and Planning Director
Stefanie Kupka, Sustainability Coordinator

Solid Waste Management Plan Advisory Committee

George Blackman, City resident
Chris Bowles, City resident
Charles D. Forbes, Fairfax County Recycling, Compliance, and Planning Division
Tim Killian, Environmental Sustainability Committee
Chris McGough, City resident; City of Falls Church Solid Waste & Environmental Programs Coordinator
David Meyer, Fairfax City Council
Tyler Orton, George Mason University Office of Sustainability
Jeff Richards, Fairfax County Public Schools
CAS Shiver, City businessperson, Sundog Productions
Debbie Spiliotopoulos, Northern Virginia Regional Commission
Mary Valenta, City businessperson, On the Green LLC

Environmental Sustainability Committee:

Billy Bates
Marian Carroll
Diana Dakik
Judy Fraser
Timothy Killian
Benjamin Lebron
Michael Lee
Alice Lippert
Mitchell Sutterfield

••••••

The City of Fairfax is grateful to all who participated in the public input process of this Solid Waste Management Plan

This page intentionally left blank

RESOLUTION NO. R-15-55

RESOLUTION TO ADOPT THE SOLID WASTE MANAGEMENT PLAN FOR THE CITY OF FAIRFAX

WHEREAS, the Virginia Waste Management Board (hereinafter the State) has been authorized by Virginia State Code to promulgate and enforce such regulations as may be necessary to carry out its duties and powers and the intent of the Virginia Waste Management Act and related federal acts; and

WHEREAS, it is the policy of the Site to require each city, county, and town to develop and maintain comprehensive and integrated solid waste management plans that, at a minimum, address all solid waste generated in the jurisdiction, and consider all components of the following waste hierarchy:

- Source reduction
- Reuse
- Recycling
- Resource Recovery (Waste to Energy)
- Incineration, and
- Landfilling

WHEREAS, the State has mandated that all localities sustain a recycling rate of 25%; and

WHEREAS, the State has required all local governments to update their Solid Waste Management Plans for current conditions and to address the solid waste management needs for the new 20 years; and

WHEREAS, City staff has presented the final draft of the Solid Waste Management Plan for the City of Fairfax for the City's review and approval; and

WHEREAS, goals of the plan are to:

- Goal 1: Lead by example. Reduce waste and increase diversion by City of Fairfax government;
- Goal 2: Reduce waste and increase diversion from detached homes and townhouses;
- Goal 3: Reduce waste and increase diversion from commercial, multi-family and institutional entities;
- Goal 4: Reduce waste and increase diversion from development projects;
- Goal 5: Collaborate with non-profits, schools and municipalities in Northern Virginia region to reduce waste and increase diversion; and
- Goal 6: Improve City-wide waste reduction and diversion.

WHEREAS, the Solid Waste Management Plan includes 23 objectives and 65 actions to consider and evaluate for possible further action, subject to City Council approval and appropriation of funds; and

WHEREAS, the Solid Waste Management Plan provides a road map for decision making and program prioritization for the management of solid waste in the City of Fairfax over the course of the next twenty years; and

NOW THEREFORE BE IT RESOLVED, by the City Council of the City of Fairfax that the Solid Waste Management Plan for the City of Fairfax, dated November 10, 2015, is hereby adopted; and

BE IT FURTHER RESOLVED, that a copy of the Solid Waste Management Plan be forwarded to the Virginia Department of Environmental Quality for review and approval.

Adopted: December 8, 2015

Mayor

ATTEST:

City Clerk

The vote on the motion to approve was recorded as follows:

VOTE:

Councilman DeMarco	Aye
Councilman Greenfield	Aye
Councilmember Loftus	Aye
Councilman Meyer	Aye
Councilmember Miller	Aye
Councilmember Schmidt	Aye

Table of Contents

Table of Contents

Tables

Table of Contents

Figures

Table of Contents

This page intentionally left blank

Executive Summary

Solid Waste Planning in Virginia and the Waste Management Hierarchy

Title 10.1, Chapter 14 of the Code of Virginia, entitled The Virginia Waste Management Act (VWMA), requires that all localities be part of an active and updated solid waste management plan (Chapter 1). A solid waste management plan, or SWMP, is a comprehensive document that performs several functions:

- Describes the locality(ies) within the solid waste planning unit at the time of the plan issuance and projected development over the course of the planning period (Chapter 2);
- Documents the characteristics and components of the solid waste management system in the planning unit at the time of the plan issuance and projects system needs and changes during the course of the planning period (Chapter 3 and Chapter 6);
- Serves as the planning backbone for regulatory compliance by detailing solid waste facility permits and how the planning unit will comply with the Virginia minimum recycling rate mandate (Chapter 7 and Chapter 8); and,
- Provides a road map for decision making and program prioritization (Chapter 5 and Chapter 7).

In Virginia, SWMPs have a 20-year planning horizon and are updated every five years through a prescribed process implemented by the Virginia Department of Environmental Quality (VDEQ). VDEQ receives, reviews, and approves the plan documents, and is also a repository of the information.

Planning Horizon

The following factors and assumptions were identified and considered when projecting the waste management needs for the City during the planning period of 2020 to 2040.

- The City will experience moderate population growth of less than 10 percent and, accordingly, modest growth in the generation of refuse and recyclables;
- The City expects that the intensive redevelopment of individual homes to contemporize them and of commercial locations into more dense and multi-use properties will continue, generating an ongoing source of construction and demolition debris;
- The Fairfax County Energy / Resource Recovery Facility (E/RRF) will continue to operate and be available for the City as a disposal facility;
- The region's material recovery facilities will continue to operate and be available for the City;
- The City will continue to report on its recycling and disposal tonnages annually to the VA DEQ; and,
- The City will maintain its agreement with Fairfax County enabling City residents to utilize the County solid waste facilities and events, including household hazardous waste.

City of Fairfax Solid Waste Management Plan

Virginia has adopted the U.S. Environmental Protection Agency (U.S. EPA) waste management hierarchy, which prioritizes waste management techniques from reduction to land disposal. To address the waste management hierarchy and plan for a more sustainable future, the City of Fairfax has used an approach that establishes clear goals, objectives and actions. Each goal is a broad idea of what the City wants to

Executive Summary

achieve. It is fulfilled via objectives, which are specific targets for achievement, and actions, which are detailed steps to reach the objectives and, therefore, the goals. The goals, objectives, and actions, and how they will implement the City's SWMP, are laid out with more detail in Chapters 5 and 7. Below is an explanation of how the City strategizes to support and promote the VDEQ waste management hierarchy, highlighting some of the relevant objectives and their components.

Source Reduction

The City is placing renewed and intense focus on waste reduction as part of its sustainability efforts. The following initiatives and policies are laid out in the objectives to address this priority:

- Encouragement of composting by residents.
- Continuation of the partnership with Fairfax County for City residents to participate in the waste reduction programs it offers.
- Implementation of a City sustainable procurement program.
- Promotion of waste reduction in outreach materials to residents and businesses.

The City also offers a web page linking to information, such as environmental details from the U.S. EPA, names of charities that take particular items, and resources that help residents immediately take action to stop generating certain waste products.

Reuse

The City is seeking ways to build on its "Reduce & Reuse" information and actively encourage residents and businesses to reuse materials rather than discarding them.

- As with source reduction, the City plans to update solid waste regulations for businesses who to find beneficial reuse opportunities for their materials, rather than discarding them.
- The City is also planning to evaluate a pay-as-you-throw system for bulky items such as furniture and appliances, which many curbside collection program customers could repair, sell, or donate, but instead simply discard.
- The City will also partner with local organizations, businesses, charities, etc., to promote donation and collection events for items that can be reused by others.

Recycling and Composting

The City currently provides a comprehensive and full-service curbside collection program, which includes the collection of refuse and recycling from single-family homes and townhomes. Curbside collection occurs once a week on a designated collection day (except for holidays). The City provides curbside collection for recycling or reuse, including single stream recyclables, yard waste, metal, lumber, brush/stumps, and vacuumed leaves. The City also provides curbside collection of routine household trash, construction debris (generated by residents), and bulky items (such as furniture and household appliances). In addition, some items collected as construction debris or "bulky" may be recycled (e.g. metal from appliances). The City provides blue 18-gallon bins for setting out single stream recyclable materials. The materials accepted are plastic bottles, jugs and tubs; glass bottles and jars; metal food cans; aluminum cans, trays and foil; empty aerosol cans; paper; newspapers with inserts; books, catalogs and

magazines; milk and juice cartons; and, flattened cardboard and paperboard. The curbside collection program operates efficiently and is very popular with residents.

There are 13 residential apartment complexes containing 1329 units, and nine residential condominium developments containing 1262 units. Collection of recyclables from these, as with businesses, is conducted by private sector service providers. This is typical of other localities in the Northern Virginia region.

The City's recycling rate, as calculated according to VDEQ methodology, has exceeded 50 percent for five years; however, like many suburban communities, the rates are greatly bolstered by tonnages associated the recycling of yard waste, brush, and vacuum leaves. The City wants to see a greater proportion of the recycling rate arising from materials directed into single stream recycling bins (e.g. plastic, metal, glass, and paper) from all sectors: business, institutions, multi-family dwelling units, and its own curbside collection program customers.

- The City will evaluate its current requirements for businesses with regard to recycling, considering the requirements for planning, materials, and reporting. The aim of this undertaking is to devise goals and requirements that result in the best diversion while not burdening businesses unduly.
- Multi-family residents have been underserved, and the City will evaluate options for improving outreach and service levels so that all residents, regardless of housing type, have—and are aware of—exceptional access to waste reduction and recycling opportunities.
- The City will evaluate converting its curbside collection program customers to large, 96-gallon rolling carts, an upgrade from the current system of small, 18-gallon City-provided bins supplemented by residents' own containers. It is anticipated that this measure could increase the weight of the materials recycled by as much as 40 percent.
- The City will also evaluate ways to support a larger, regional approach to organics diversion, particularly of food waste.

Composting

The City currently provides a comprehensive, full-serviced compost drop-off location for those who live and work in the City. The Composting Center accepts organic materials, including: fruit and vegetable scraps, meat and bones, leftover and soiled foods, tea and coffee grounds, food soiled paper products and certified compostable products. As much as a quarter of Fairfax City's residential waste is organic material that can be composted. By providing a city composting drop-off center, organic waste is being diverted, and turned into nutrient-rich compost which can be used as fertilizer.

Resource Recovery (waste to energy)

The City supports the recovery of energy from waste that cannot be recycled or otherwise diverted. Therefore, to the greatest extent within its power, the City has and will continue its program of sending MSW for disposal to the Fairfax County I-66 Transfer Station, which currently utilizes the I-95 Energy/Resource Recovery Facility as its primary disposal option. In the event that this facility would become unavailable, the City would next seek to send its waste for disposal at the Alexandria/Arlington waste to energy plant.

Executive Summary

Incineration

Section 9VAC20-130-10 distinguishes "incineration" from "resource recovery" as the simple controlled combustion of waste as a means of disposal. The City of Fairfax does not intend for any of its MSW to be disposed of in this manner.

Landfilling

The City of Fairfax intends that MSW generated by its residents and businesses will be sent for land disposal only on a "back-up" or emergency basis. At present, construction debris—both that collected by City forces and the private sector—is disposed in one or more debris landfills. The City has several objectives in its goals framework to encourage greater diversion of this material:

- Connect recycling requirements with the building permitting process.
- Evaluate and implement economic incentives for recycling and diversion of construction and demolition materials.
- Evaluate curbside collection program operations for opportunities to divert more home construction material from disposal.

Debris is the only material currently actively landfilled by the City, and it is the only material facing a necessary change during the planning period. The City currently hauls its debris to the Potomac Landfill, which will close for landfilling within a few years. In fact, nearly all debris landfill capacity in the Commonwealth of Virginia will end during the planning period. This presents an opportunity to move debris up the waste hierarchy across the region.

Public Participation

Section 9VAC20-130-130 requires a public participation process during SWMP development through such means as public meetings or citizen advisory committees. To fulfill this requirement, the City of Fairfax developed a public outreach plan that included an advisory committee; an in-person survey at a non-environmental event; an electronic survey; a public meeting; and, the required public hearing. The outreach is described more in-depth in Chapter 4, and the results of the initial in-person survey are provided there, as well.

1. Introduction

1.1 Virginia Solid Waste Management Regulations

Title 10.1, Chapter 14 of the Code of Virginia, entitled The Virginia Waste Management Act (VWMA), requires that all localities be part of an active and updated solid waste management plan (SWMP). A SWMP is a comprehensive document that performs several functions:

- Describes the locality(ies) within the solid waste planning unit at the time of the plan issuance and projected development over the course of the planning period;
- Documents the characteristics and components of the solid waste management system in the planning unit at the time of the plan issuance and projects system needs and changes during the course of the planning period;
- Serves as the planning backbone for regulatory compliance by detailing solid waste facility permits and how the planning unit will comply with the Virginia minimum recycling rate mandate; and,
- Provides a road map for decision making and program prioritization.

In Virginia, SWMPs have a 20-year planning horizon, and are updated every 5 years through a prescribed process implemented by the Virginia Department of Environmental Quality (VDEQ). VDEQ receives, reviews, and approves the plan documents, and is also a repository of the information.

1.2 Regulatory Authority and Administrative Code Implementation

The Code of Virginia contains the VWMA and the regulatory power for the Virginia Waste Management Board to promulgate and enforce regulations to implement its charge. These regulations are manifested in the Virginia Administrative Code, which implements such intentions. Therefore, the specific requirements of the solid waste management planning process are found in Title 9 Agency 120 Chapter 130 of the Virginia Administrative Code, "Solid Waste Planning and Recycling Regulations," cited as 9VAC20-130-120.

As the implementing agency, VDEQ provided guidance on how the planning units should proceed in order to comply with the regulations. In March 2014, VDEQ provided a PowerPoint presentation, which was also distributed via its website, which gives specific guidance as to how to comply with the five year updates. The City of Fairfax has adhered closely to the guidance in this document to ensure regulatory compliance with the SWMP process.

1.3 History of the City of Fairfax Solid Waste Planning Unit

In Virginia, a solid waste planning unit (SWPU) is the entity that creates and files a SWMP with VDEQ. It may be composed of one or more localities (counties, cities, and towns). Several SWPUs, for example, are coterminous with the established planning districts (also known as the regional commissions or the Planning District Commissions (PDCs)), while others might be one or more counties and the towns within their borders. Any change of membership to a SWPU constitutes a major amendment to its SWMP that has to be approved by VDEQ.

Since 1991, the City of Fairfax has served as its own SWPU, electing not to join with other cities, counties, or towns for the purpose of solid waste management planning. This is in keeping with the actions of the other cities in Northern Virginia (Falls Church, Manassas, and Manassas Park) and the towns in Fairfax County (Herndon and Vienna).

1. Introduction

In 1992, the City's original SWMP was approved, and it was then updated in 1997. Virginia Waste Management Board moved the 5-year update scheduled for 2002 update to 2004. This was in part due to changes from the Commonwealth's side in how the plans should be done, and updates to the recycling requirement. The City filed a revised SWMP in 2005, 2010 and 2015. The next revision is due in 2020. This revision to the SWMP will provide the VDEQ with the information it has requested.

1.4 Purpose of SWMP

This document constitutes the update of the SWMP for the City of Fairfax. There are several motivations for this new version of the plan, both internal and external:

- Changes in the marketability of recyclable commodities and the development of new recycling facilities in the region over the past ten year present new economic opportunities for recycling.
- The introduction of new waste management technologies—both in the recent past and the near future—have changed and will change many aspects of waste management in the region.
- A renewed focus by the City on reducing the environmental impact of its operations, residents, and businesses, and waste management is a key component of that impact.
- The need for the SWMP document to take a more integrated approach to waste management, including expanded waste reduction activities and diversion from disposal of potentially polluting materials such as household hazardous waste.

The SWMP is relevant for the City and better integrated with the City's sustainability programs.

The City of Fairfax is dedicated to preserving the resources of our built and natural environment and to ensure our community has clean air and water, safe and healthy neighborhoods, a resilient economy, and access to housing and transportation choices.

Over the last 35 years, like much of the region, the City has experienced a 70 percent increase in the amount of waste each person creates, from 2.7 to 4.6 pounds per day. For this reason, waste reduction and recycling are critical.

The city supports a multi-faceted approach to responsibly manage waste as follows:

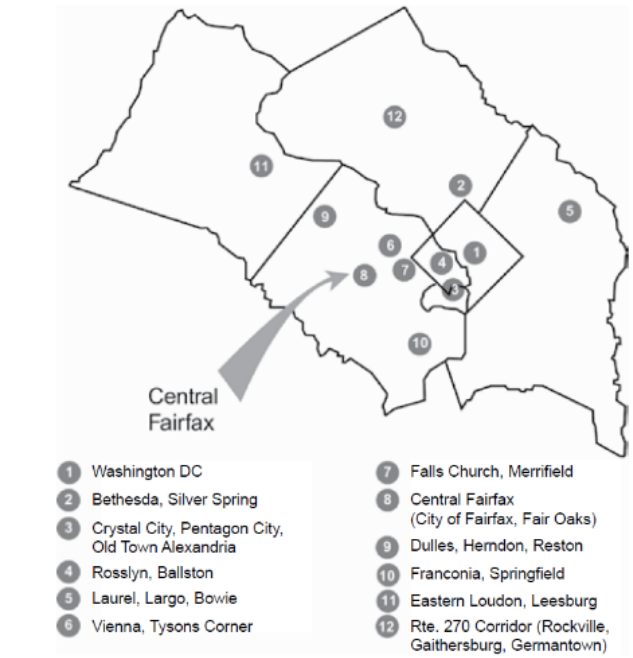
- Reduce the source of waste by consuming and disposing less;
- Reuse materials;
- Recycle goods; and,
- Buy products made from recycled content.

These actions save money and reduce greenhouse gas emissions by decreasing the consumption of raw materials and energy used during manufacturing, transportation, and disposal.

2. Description of the Planning Unit

This chapter presents information pertaining to the planning unit, such as urban concentrations, geographic conditions, economic growth and development, markets for the reuse and recycling of materials, and transportation conditions.

2.1 City Description and Geographic Conditions



Source: City of Fairfax

Figure 2-1 City of Fairfax and Regional Vicinity, Economic Centers

The City contains no major bodies of water, although Accotink Creek, North Fork of Accotink Creek, Daniels Run, and several smaller streams of the Potomac River watershed cross the City, and there are restricted floodplains associated with those runs.[1](See Figure 2-2 Source: Kmusser via creative Commons, Wikipedia)

2.2 Urban Concentrations

The primary land use is residential, with commercial corridors along Lee Highway/

The City of Fairfax was originally founded in 1805 and was incorporated as an independent City in 1961. The City has a total area of 6.34 square miles, and is located 15 miles west of Washington D.C., in the heart of Northern Virginia. As shown in Figure 2-1, the City is also in close proximity to other major employment and economic centers such as Tysons Corner, Merrifield, Chantilly, Centreville, Dulles Airport, Seven Corners and Falls Church, and Arlington County. Bounded by Interstate 66 to the north and less than five miles west of the Capital Beltway, the City is the crossroads of the area's major north/south and east/west highways. Two major airports, Washington Dulles International Airport and Reagan National Airport, are within thirty minutes; and the City – run bus system provides direct access to rail mass transit at the Vienna/Fairfax/GMU metro station, less than three miles from the center of the City.

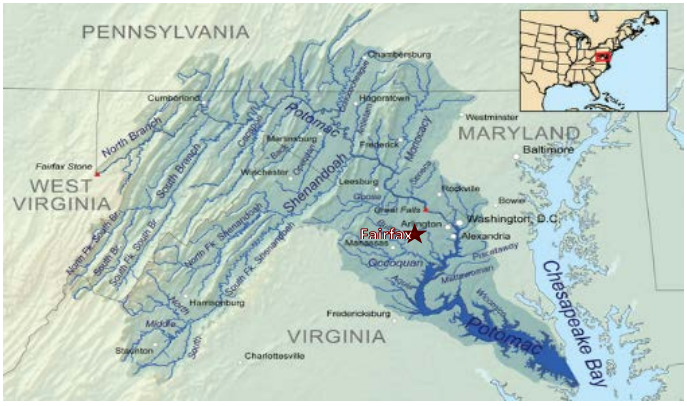


Figure 2-2 Potomac River Watershed with City of Fairfax Starred

2. Description of the Planning Unit

Fairfax Boulevard (Routes 29 and 50), Main Street (Route 236), Chain Bridge Road (Route 123), and Pickett Road (Route 237), and at intersections thereof, known as Kamp Washington, Northfax, Fairfax Circle, and Old Town Fairfax.

Figure 2-3 shows the long range recommendations for the general development of the City with appropriate land uses. The City is primarily built out and there are few opportunities for large new development. However, there is consistent pressure for the City's variety of land use types to adapt to environmental, economic and cultural demands. The Fairfax County Courthouse and Adult Detention Center, which is not part of the City's territory, is shown in white.

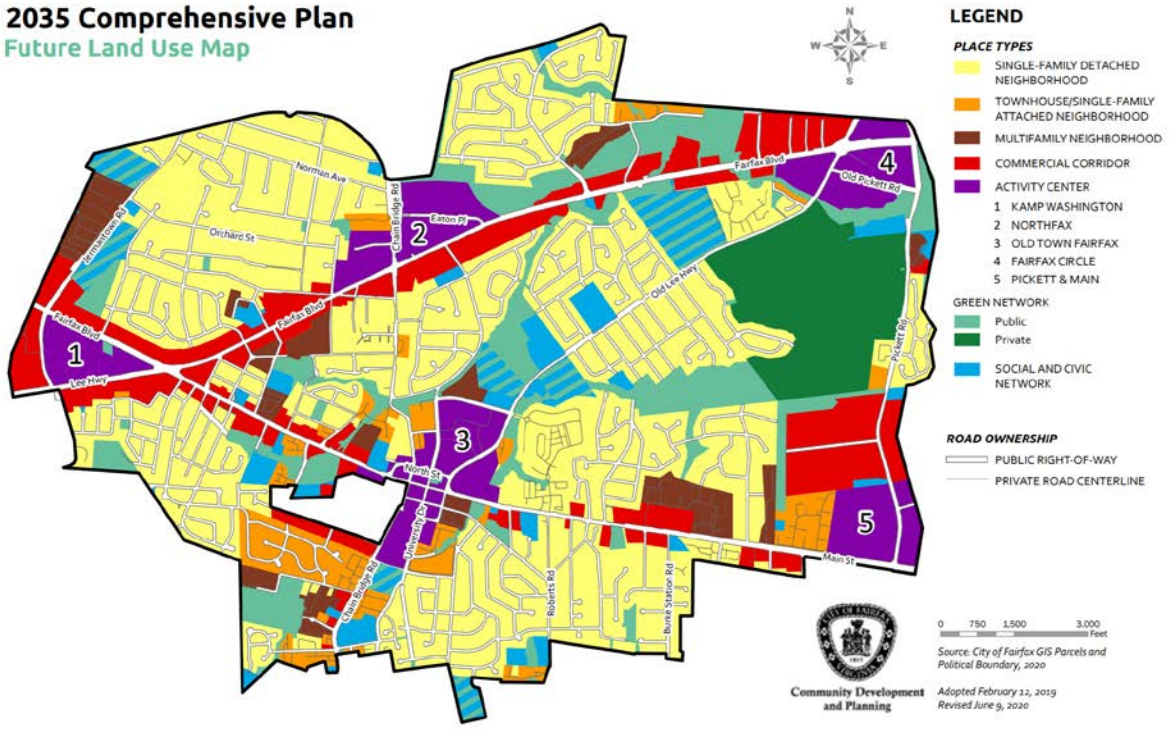


Figure 2-3 Future Land Use Map of City of Fairfax, Comprehensive Plan

2.3 Economic Growth and Development

The City's strong economy is supported by three primary pillars: its ideal location along major thoroughfares in the area, attracting business establishments; its proximity to large-scale governmental facilities and institutions, making it a convenient place to live or spend money for people utilizing those locations; and, its strong residential base, including both City residents and the surrounding areas.

In addition to a strong retail core, many of which are specialty shops that attract customers from across the region, nearby George Mason University (GMU) has a significant economic impact on the area and the City. Enrollment for the fall 2018 semester was nearly 36,000 students, with over 25,000 of those being "traditional" degree-seeking undergraduate students and over 6,000 students living on campus. In addition, GMU employs 4,500 full-time equivalent (FTE) staff and has an annual payroll of $387 million.

2. Description of the Planning Unit

GMU is an active partner of the City in efforts to improve the community and enhance the cultural opportunities available to students and to resident.

Since creating its Economic Development Office in 1990, and then the Economic Development Authority in 1994, the City has developed an aggressive economic development program utilizing innovative and comprehensive strategies to address issues as they arise. At present, these include:

- The aging of the City's infrastructure and business corridors;
- The effect of rapid commercial and residential development to the west of the City;
- The creation of an adequate supply of modern office space; and,
- The desire of residents to retain the prevailing sense of community and enhance the attractiveness of the City's small town atmosphere.

As projects, these efforts are manifested as a new Master Plan for Fairfax Boulevard (Route 50/29 Corridor) and the significant Downtown Redevelopment which included construction of a new Regional Library and the Old Town Village mixed-use project.

The City is committed to working to "maintain a balance between different sectors of its economy, avoiding relying too much upon retail, or any other economic sector." Careful planning will make the economic offerings of the City attractive both to its own residents and to customers across the region.

2.4 Markets for Reuse or Recycling

For reuse, the National Capital region is served by both formal and informal networks. Online and social media resources like Craigslist, Freecycle, and Facebook groups such as online "yard sales" connect people and their reusable goods to those who want or need them. Charitable organizations accept a wide variety of items, ranging from cars and boats to unwearable clothing and broken bicycles. Figure 2-4 shows examples of reuse networks and charitable donation requests, such as a Facebook Marketplace, Freecycle.org, Art for Humanity, and Bikes for the World.

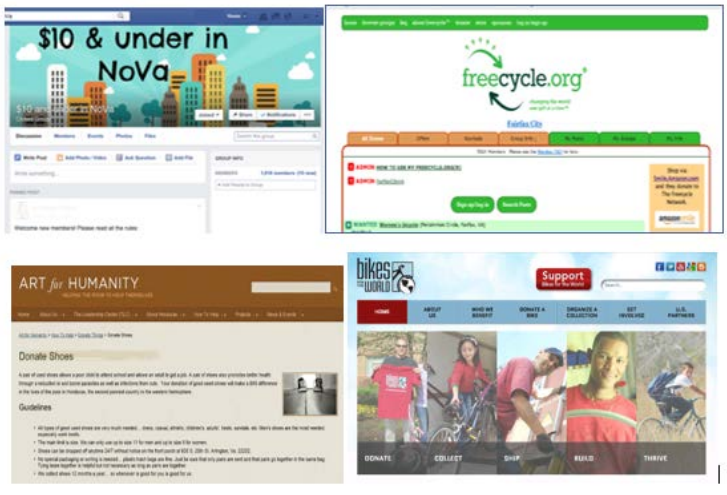


Figure 2-4 Examples of Online Reuse Networks

The immediate region and the surrounding, farther-out areas, are home to material recovery facilities (MRFs) and specialty recyclers (such as metal or paper) that are more than adequate to meet the needs of the City of Fairfax and its neighbors. Ownership of the MRFs has been largely consolidated over the past five years under Waste Management Recycle America; however, a new MRF opened in Manassas in 2014 operated by American Recycling. This reflects that there is both supply and demand for recovered materials in

2. Description of the Planning Unit

the region. A complete list of recycling and MRF facilities in the region can be found in Section 3.3 of this document.

2.5 Transportation for the Locality or Region

In both the City of Fairfax and most of the surrounding region, transportation is dependent largely on automobiles, followed by buses and passenger rail. The Virginia suburbs are served by the regional Washington Metropolitan Area Transit Authority (WMATA), which operates Metrorail and Metrobus, and intersecting networks of buses operated by each of the localities: Arlington Transit (ART), DASH (Alexandria), Fairfax (County) Connector, and the City-University Energysaver (CUE) operated by the City of Fairfax. The Virginia Railway Express (VRE) operates two heavy-rail commuter lines through Virginia to Union Station in Washington, DC. There are no public transit routes connecting Virginia and Maryland without passing or connecting through Washington, DC.

The primary road arteries in Northern Virginia are I-66, the I-495 Beltway, the Dulles Greenway and Dulles Toll Road, and I-395. Secondary (but still major) roads through Virginia include Rt. 1, Rt. 7, Rt. 28, Rt. 29, Rt. 50, Rt. 123, Rt. 234, Rt. 236—which all have different street names as they pass through the various jurisdictions—along with the Fairfax County Parkway (SR286) and the George Washington Parkway (SR90005). Figure 2-5 shows the City and its location on the nearby roads network.

Figure 2-5 City of Fairfax and Vicinity, Major Roads and Highways

Metrorail, with a traditional hub-and-spoke design, was originally intended to transport people to or through Washington, DC. In Northern Virginia, the Orange Line extends to Vienna. Many bus lines, including the CUE bus, connect to the Metrorail Orange Line at the rail stations. Northern Virginia is also served by the Silver Line, opened in 2014, which runs out of Washington, DC, and through Arlington County in tandem with the Orange Line until the East Falls Church Station, at which point it branches off and runs northwest to Reston, in Fairfax County, where it terminates.[2] Ultimately, the Silver Line is planned to extend to Dulles International Airport on the eastern edge of Loudoun County.

[2] In Maryland, Silver Line trains mirror the Blue Line, which tracks out of Washington, DC, and into Prince Georges County, where they co-terminate at Largo Town Center.

2. Description of the Planning Unit

The CUE bus runs four routes (two “Green”, two “Gold”, one in each direction of each color) which serve internal stops in the City in addition to connecting with the Vienna Metro Station, which is just outside the City boundaries in Fairfax County. The City is also served by one Fairfax Connector bus, which runs from the George Mason University campus (directly adjacent to City boundaries) through Burke in Fairfax County and then shuttles to the Pentagon campus in Arlington County. Two Metrobus lines also pass through the GMU campus, with one connecting to the Vienna Metro Station and both passing through the Annandale portion of Fairfax County and the City of Alexandria to connect to the King Street Metro Station.

The schedules on both VRE heavy-rail lines are primarily inbound in the mornings and outbound in the afternoons and evenings. The Manassas Line originates at the Broad Run Airport in Prince William County, passes through the cities of Manassas and Manassas Park, the Burke and Springfield areas of Fairfax County, and Arlington County. The Fredericksburg Line originates in Stafford County and parallels Interstate 95 through Prince William, Fairfax, and Arlington Counties.

2. Description of the Planning Unit

This page intentionally left blank

3. Projections Data and Waste Quantities

3.1 Population Data and Projections

3.1.1 Population Information and Projections

The number of City residents, which had stabilized and then slightly decreased in the 1990s and early 2000s, has once again begun to increase. According to the 2010 Census, there were 22,565 people living in the City of Fairfax. While the City's population during the decade of the 2010s has been steady and modest, the City has approved several large-scale residential development projects, many of which are currently under construction. As a result of these projects, and other likely residential projects, the City forecasts significant population growth during the 2020s.

Table 3-1 shows the City's estimated population growth through 2040, as forecast by City of Fairfax and Metropolitan Washington Council of Governments.

Table 3-1 City of Fairfax Population Estimates, 2010-2040

Year	Population	Year-over-year Change	Change over 2010
2010 (Census)	22,565	-	-
2018 (estimate)	23,865	0.71%	5.76%
2020 forecast	25,588	1.34%	13.40%
2025 forecast	29,232	2.85%	29.55%
2030 forecast	31,566	1.60%	39.89%
2035 forecast	32,740	0.74%	45.09%
2040 forecast	33,929	0.73%	50.36%

3.1.2 Household Information and Projections

A household consists of all persons occupying a single housing unit. Among the types of housing units represented in the City are single-family houses, townhouses, condominiums and individual apartment units. In 2020, the City of Fairfax calculated that there were 9316 households within its borders. Table 3-2 presents the number and type of housing units in the City of Fairfax, as of November 20, 2020. The table doesn't include houses under construction and not yet occupied.

Table 3-2 Housing Unit Summary

Type of Unit	Number of Units	Number of Units w/ City Curbside Collection Service
Detached	4,907	4,907
Duplex	268	268
Attached (2 units)	62	62
Attached (3 units)	122	122
Townhouse	1,141	1,117
Apartment	1,529	0
Condominium	1,287	0

3. Projections Data and Waste Quantities

TOTAL	9,316	6,476 (70%)

New building activity affects the City's refuse and recycling services, as many more curbside collection program refuse and recycling customers have been added in recent years. The addition of both new units and renovations generate significant amounts of demolition debris, and greatly impact the residential-to-commercial proportions of municipal solid waste (MSW) generated in the City of Fairfax.

3.1.3 Household Income and Employment Information

The Northern Virginia region is one of the most affluent in the United States. In 2019 City of Fairfax residents had one of the higher median household incomes ($111,574) in the region, according to the U.S. Census Bureau American Community Survey and cited in the City Comprehensive Plan.

Most jobs in the City are concentrated in services, trade, financial services, and government. The largest employment sector, the services sector, supplied approximately 54 percent of the jobs in the City (See Figure 3-1). Examples of the services in this sector include professional and technical services, health care; administrative services, and education. The second largest employment sector, at 26 percent of all jobs, is "trade," and nearly all of those are in retail/restaurant. Financial services, which includes insurance and real estate, provides approximately 5 percent of jobs, and government, including federal and local agencies, provides nearly 7 percent. Major private employers in the City include The Wackenhut Corporation, Ted Britt Ford Sales, Inc., Fairfax Nursing Center, Zeta Associated, Inova Health System, Dominion Virginia Power, The largest public employers in the City include the Federal Acquisition Service (a division of the General Services Administration) with 350 employees, as well as the City of Fairfax, Fairfax County, and Fairfax County Public Schools.

By 2040, City employment is forecast to grow to 37,500 (see Figure 3-2). While this will numerically be a slightly smaller share of the regional market due to stronger forecast job growth in the outer suburbs, it is a rebound from the early 1990s, when the number of jobs in the City declined to 26,900 due to the effects of the recession and the relocation of County employees to other facilities.

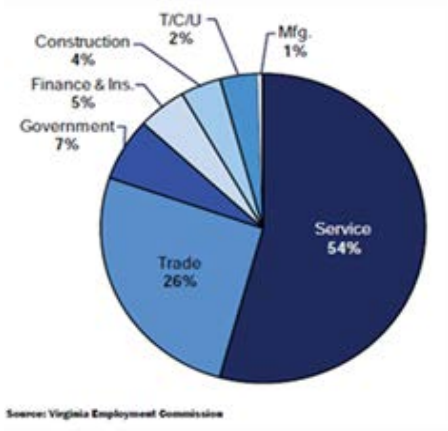
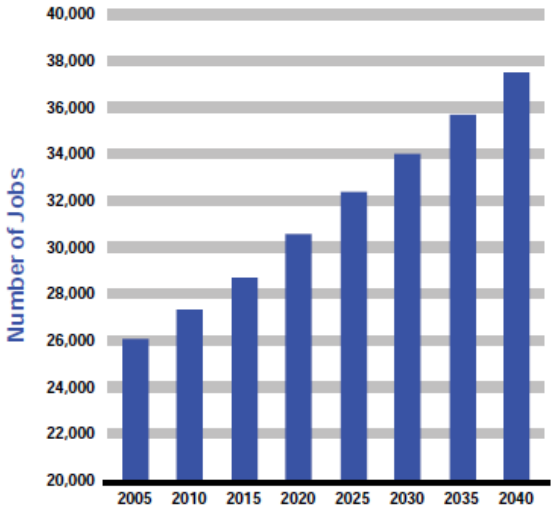


Figure 3-1 City of Fairfax Employment by Industry

3. Projections Data and Waste Quantities

3.1.4 Development Information and Trends

The rate of new development in the City will continue to decrease in the next decades as the supply of vacant land decreases. Conversely, redevelopment of existing commercial and light industrial properties with more land-intensive development should increase in the next decades. Most future development activity is projected to be in the form of urban infill, whereby older structures and properties are redeveloped, residential lots are re-classified for higher density, transportation facilities are redesigned to reclaim parking lot spaces, and land uses are amended to allow these changes. Many single family homes have been and will be demolished, expanded, and otherwise updated to attract contemporary residents.



Source: Metropolitan Washington Council of Governments, Round 7.0a Cooperative Forecasting. Does not include Fairfax Co. Public Safety Center.

Figure 3-2 City of Fairfax Employment Projections

Various types of office space are found in the City. The majority of the City's office space is located along the commercial corridors. In the Old Town area, several residential and commercial structures dating back to the early nineteenth century are now used as offices, alongside new buildings in the redevelopment projects. Historically, office development in the City has been stable and has generally reflected regional trends. At of the end of 2010, the City's supply of office space stood at over 4.7 million square feet of rentable area, with a vacancy rate at 12.0 percent, or 544,000 square feet. This compared favorably with both the Northern Virginia and Washington, D.C. submarkets. Likewise, rates for office space were strong, having remained relatively stable since 2008 despite worldwide economic uncertainty.

The demand for new office space in the City and these other Central Fairfax markets is projected to increase, especially for Class A office space. Due to the City's location and office lease rates, this trend should reinforce the City's efforts to encourage redevelopment along Fairfax Boulevard, and to provide acceptable access to and from Metrorail.

The City's retail base is comprised of a mix of freestanding establishments and shopping centers. More than half of the City's shopping centers, and many of the freestanding stores outside of Old Town were built prior to 1980 – in fact, 81 percent of the City's shopping center floor area is contained in centers built before 1980. Many of these establishments have been refurbished and renovated in recent years. These areas have helped to update and change the face of the City's commercial corridors and enhance the City's economy. This sort of activity is expected to continue, and will impact construction and demolition debris generation.

As noted in the Comprehensive Plan, the City's retail businesses serve not only those who live or work in the City but also those who visit the City for business or pleasure. Old Town Fairfax experiences a higher percentage of tourist-related sales because it serves both the local area residential market, nearby office

3. Projections Data and Waste Quantities

workers, as well as a broader market of visitors seeking specialty goods and services in a traditional commercial district. Foot traffic is significant.

The City's trade area has undergone many changes since 2000. In addition to a general increase in household incomes in the trade area, there has been an explosion of new residential projects primarily to the south and west of the City along Route 29 (Lee Highway) and Braddock Road. There has also been an increase in retail construction in the Route 29 Corridor alongside several of these residential developments. City businesses will not be the only businesses to share in this market increase. In summary, both the market population and regional median incomes have increased, and will increase more in the future as the City's trade area continues to make room for further growth. This growth will impact the need for waste reduction, recycling, and other aspects of solid waste management planning.

3.2 Solid Waste Generation and Management

This section addresses the generation and management for the following waste streams:

1. Refuse and Recycling (Residential, Commercial, and Institutional)
2. Construction and Demolition Debris
3. Industrial Waste
4. Vegetative Waste
5. Food Waste
6. Special Waste
    1. Household Hazardous Waste (HHW)
    2. Regulated Medical Waste
    3. Tires
    4. Used Oil and Antifreeze
    5. Batteries

3.2.1 Refuse and Recycling

For the purposes of this SWMP document, "refuse and recycling" includes packaging, papers, food waste and scraps, clothing, and discarded durable goods like appliances and furniture. It does not include construction and demolition debris, vegetative or yard waste, or special wastes like household hazardous waste (HHW), regulated medical waste, tires, used oil and antifreeze, or batteries.

Waste Generation

Before developing plans for growth and improvement for managing the City's solid waste, it is important to first understand what is currently occurring. The City provides collection services for its residential single family and townhouse households. So, the City has good records of the quantities of waste that is generated by this sector of the City. Multi-family units and commercial establishments, however, contract directly with private haulers for trash collection services. Therefore, records of the waste generated by these sectors are not within the City government's control. Because of this, it was necessary to estimate some of the quantities of materials generated and disposed by the multi-family and commercial sectors. These estimates were extrapolated from what is being tracked by the City through deliveries to facilities and what is reported on the "Commonwealth of Virginia Locality Recycling Rate Reports" submitted annually to the VA Department of Environmental Quality. Using this information, Table 3-3 was developed; showing the tonnage of materials recycled and disposed by both the residential and

3. Projections Data and Waste Quantities

commercial sectors in 2019. By adding these tonnages it can then be determined what waste was generated before being collected. This forms the baseline data from which plans for the future will be made.

Table 3-3 City of Fairfax Total Generated Waste 2019

	Total Generated Tons of Waste	Total Recycled Tons	Total Disposed Tons	Percent Recycled (%)
Residential (including Multi-family)	19,107	10,014	9093	52%
Commercial	12,515	5,188	7,327	41%
Total	31,622	15,202	16,420	48%

Based on City of Fairfax data from 2019, the City is generating about 32,000 tons of material a year. About 60% of this is generated by the residential sector (including multi-family units) and 39% by the commercial sector. It is expected that waste quantities will increase as the City's population grows and as businesses expand in the future.

Residential and Commercial

To determine how to best manage these quantities, it is important to know what types of materials are in these waste streams. Waste composition studies are conducted to obtain this data. The City of Fairfax does not collect waste composition data. The most recent and relevant waste composition data comes from a 2014 waste composition study done in Prince William County, VA. Prince William County is in the same metropolitan region; it is largely residential in nature with little or no industrial and agricultural use.

The study conducted by Prince William County examined loads of waste brought to that County's landfill. The figures compiled revealed the composition of what was being "thrown away" by County residents. Combining this information with the County's detailed tonnage report to VDEQ for 2019, one can get a proportional picture of the overall waste stream.

A pie chart showing the composition is here in 3, which includes both residential and commercial tons; it also includes both source-separated materials and materials discarded as trash.

3. Projections Data and Waste Quantities

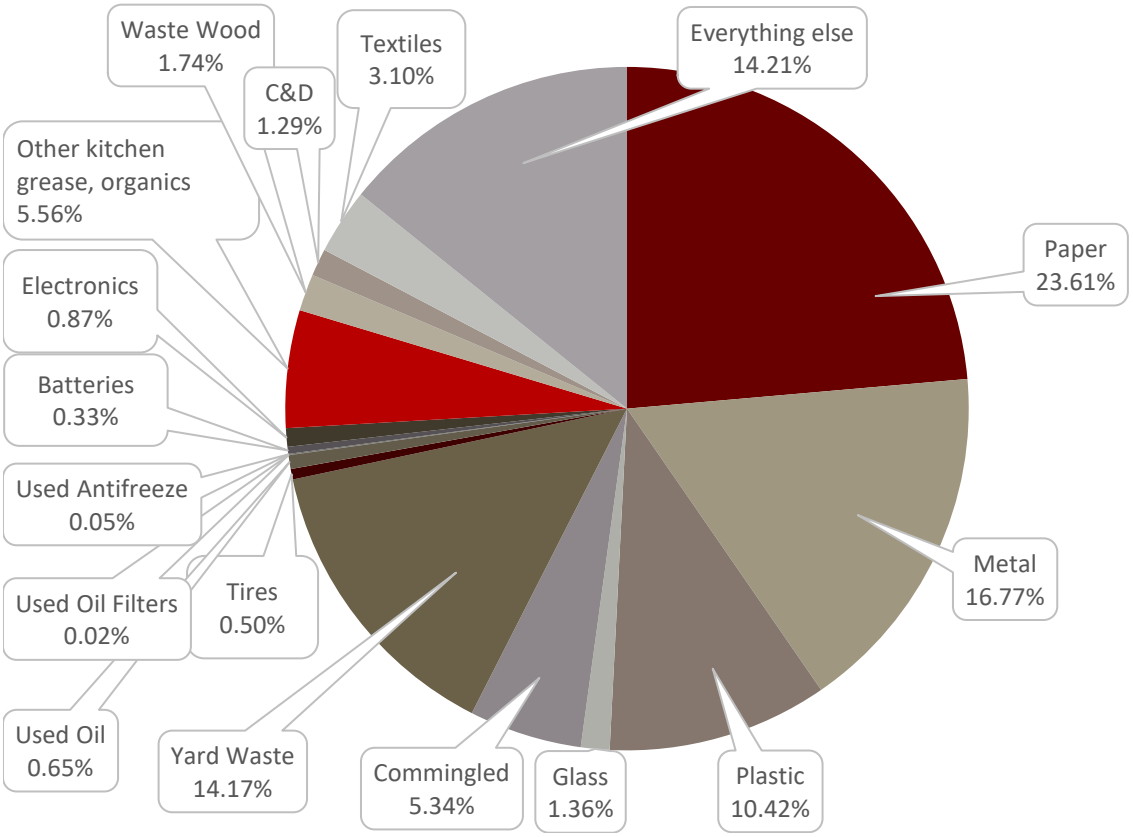


Figure 3-3 Prince William County, VA, Total Waste Composition, 2014 (Source: GBB)

Prince William County's composition study revealed what recyclable materials are currently being thrown away. This was separated into residential generators and commercial generators. Figure 3- shows the residential sector, and that a considerable portion of that waste could have been recycled. It is important to note that Prince William County does not require yard waste recycling, although many customers do have it of their own accord. Therefore, in this particular instance, the composition compared to the City of Fairfax would probably have less yard waste and the other materials would constitute a greater proportion of the whole.

3. Projections Data and Waste Quantities

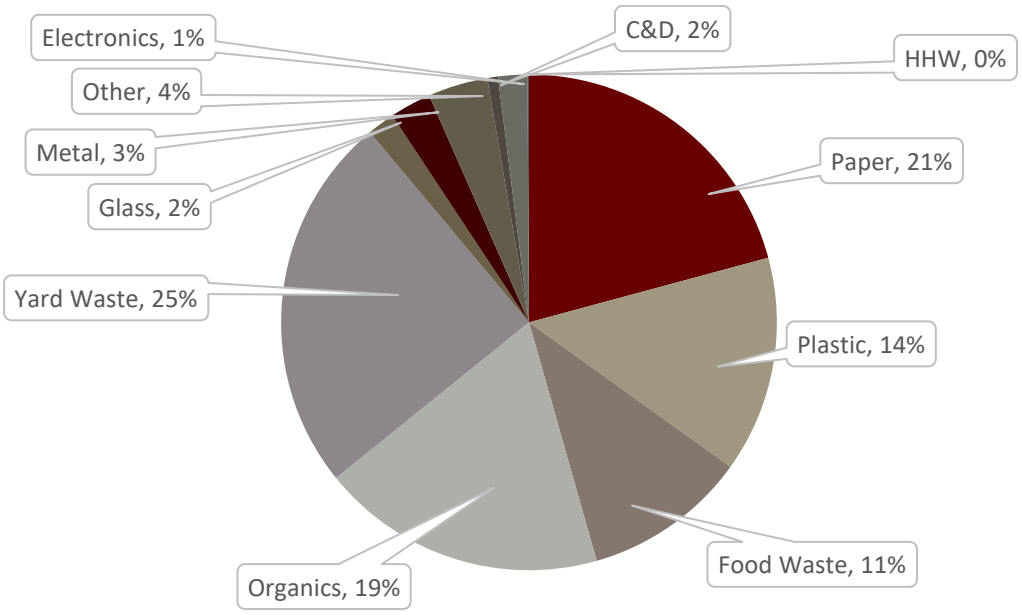


Figure 3-4 Residential Trash Composition, Prince William County, 2014

Figure 3- shows the Prince William County composition data for commercial generators. Since 63 percent of Fairfax's waste stream is generated by commercial sources, including businesses, multi-family dwelling units, and industries, this composition represents the majority of the City's waste. This, alone, makes it an important part of the City's solid waste management plan.

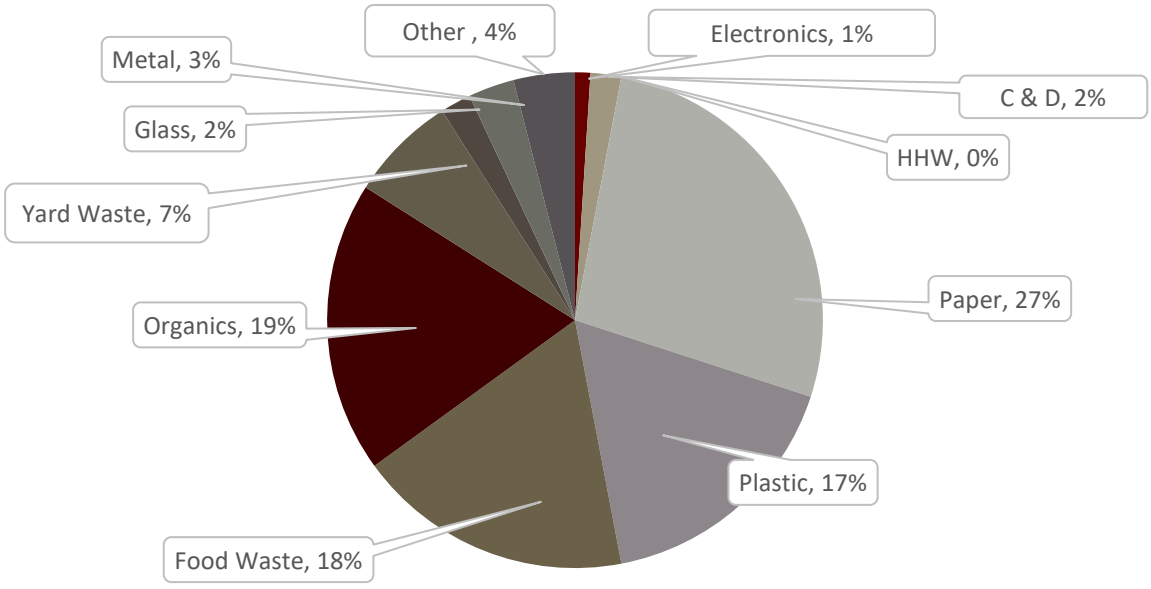


Figure 3-5 Prince William County 2013 Commercial Waste Composition

3. Projections Data and Waste Quantities

Institutional

Institutional generators of solid waste include the City and County government facilities, four public schools, and several private schools. These waste streams are much like those from offices in the commercial sector. By definition, institutional waste also includes nonmedical waste discarded by hospitals and material discarded by nonmanufacturing activities at prisons[3]; however, there are no such facilities within the City boundaries.

Waste Management

Residential

The City currently provides a comprehensive and full-service curbside collection program for refuse (trash) and recycling to 6,517 single-family homes and townhomes on a once-per-week basis, all on the same day of the week, and there is no need to call in for any services.

The City provides curbside collection of routine household trash, bulky items (such as furniture and household appliances) and construction debris (this material is covered in Section 3.2.2 of this document). In addition, some items collected as construction debris or bulky may be recycled (i.e. items containing metal). The City also provides curbside collection of materials for recycling or reuse, including single stream recyclables, yard waste, metal, lumber, brush/stumps, and vacuumed leaves. The City provides blue 18-gallon bins for setting out single stream recycling. The materials accepted are plastic bottles, jugs and tubs; glass bottles and jars; metal food cans; aluminum cans, trays and foil; empty aerosol cans; paper; newspapers with inserts; books, catalogs and magazines; milk and juice cartons; and, flattened cardboard and paperboard.

The materials collected are delivered to various facilities in the region, as shown in Table 3-4.

Table 3-4 Destination Facilities for Materials Collected at the Curb by City of Fairfax

Material Type	Destination Facility	Cost per ton as of October 2021
Trash	Fairfax County I-66 Transfer Station	$66
Single Stream Recyclables	American Recycling Center	We have a cost share contract which is dependent on the recycling market values
Yard Waste	Fairfax County I-66 Transfer Station Loudoun Composting	$64 $37
Brush	Fairfax County I-66 Transfer Station	$47
Vacuumed Leaves	Loudoun Composting	$0
Metal	Milestone Metals	Pays $150 or more

The curbside collection program operates efficiently and is very popular with residents. The recycling rate, as calculated according to the VDEQ methodology, has exceeded 45 percent for over five years; however, like many suburban communities, the rates are greatly bolstered by tonnages associated the recycling of yard waste, brush, and vacuum leaves. The City wants to see a greater proportion of the recycling rate

[3] 49 CFR 1155.2

3. Projections Data and Waste Quantities

arising from materials directed into single stream recycling bins (e.g. plastic, metal, glass, and paper) from all sectors: business, institutions, multi-family dwelling units, and its own curbside collection program customers.

Commercial

There are 13 residential apartment complexes containing 1,329 units, and nine residential condominium developments containing 1,262 units. Collection of refuse and recyclables from them is conducted by private sector service providers. This is typical of other localities in the Northern Virginia region. Condos and apartments are unique in that they generate material of a residential nature which is collected in a commercial style. In the past, apartments and condos were somewhat treated like businesses, with different recycling requirements. At present, multifamily dwelling unit owners must provide a recycling system for their residents that conforms to the city requirements for such systems, and must provide residents with regular notifications (74-9(c)) City of Fairfax Code of Ordinances). Owners of multifamily dwelling units must provide each unit with notification regarding the use and participation in such system upon occupancy and at least once annually thereafter. Notification may be in the form of community newspapers or other outreach techniques.

Collection of refuse and recyclables from businesses is also conducted by private sector service providers. Again, this is typical of Northern Virginia. All businesses in the City of Fairfax, no matter their size or number of employees, are required to implement a recycling program in the workplace and submit an annual report to the city regarding this program(74-9(a)1 City of Fairfax Code of Ordinances). This includes all those with a business license in the city, including home-based businesses and small businesses.

Institutional

The City of Fairfax collects refuse and recyclables from fifteen public facilities including City Hall, Cemetery buildings, Property Yard, Sisson House, Fire Station 33, Ratcliff Allison House, Old Town Hall, Police Department Station, Pumping Stations, Fairfax Museum and Visitor Center, Barker House, Green Acres Community Center, Grandma's Cottage, Historic Blenheim and Civil War Interpretive Center, and Stacy C. Sherwood Community Center. The public facilities have recycling containers in place, but their use and implementation is uneven.

Also falling under the waste management responsibility of the City are the 34 parks and open spaces, large and small, in the City. In addition, there are many pedestrian areas in the downtown area and along the City thoroughfares. A key mission component of the Parks and Recreation Department, according to the 2004 – 2024 Strategic Plan, is to have recycling in the parks. There are 150 trash cans throughout the parks. Currently, there are 35 recycling containers across nine parks. New recycling containers for parks cost approximately $1,000 to $1,100 each. Fully-implemented recycling in the parks is a key goal of this SWMP document, in addition to the Parks Strategic Plan.[4]

3. Projections Data and Waste Quantities

3.2.2 Construction and Demolition Debris

Waste Generation

Construction and demolition debris (CDD) is the portion of MSW arising from building projects, development projects, renovations, and tear-downs. It can be generated by individuals at their homes, by builders at construction sites, or institutions. CDD primarily consists of inert materials such as concrete, lumber, drywall, roofing, siding, plastic, metal, glass, brick, and other building products. Many of these items can be recycled as commodities or reused as components; however, most material in this region is deposited in a debris landfill. CDD does not include land clearing debris like stumps or soil.

The two most prominent features of the CDD landscape in the City of Fairfax over the planning period will be intensive redevelopment and renovation and the expected closing of several regional debris landfills. Commercial redevelopers will likely salvage or recycle material as a business practice, but only when there are net cost savings unless compelled to do otherwise. An exception would be facilities that are being constructed to a green standard, such as LEED (Leadership in Energy & Environmental Design, granted by the U.S. Green Building Council).

A notable source of CDD in the City is generated from home renovations. Some of these are do-it-yourself, or DIY, projects executed by the homeowner or resident; however, others are professional jobs completed by contractors. The collection of debris at the curb from City residential customers is restricted to the former type of project; however, the City has observed many cases and set-outs where the amount and nature of the materials suggests a professional remodeling is taking place. This issue will need to be addressed as significant amounts of remodeling continue during the planning period.

Waste Management

There are many materials in CDD that can be recycled or recovered; however, there are no regulations requiring contractors or developers to do so in the City of Fairfax or Northern Virginia. The disposal facilities to which most refuse is sent for disposal, the energy resource facilities in Fairfax County and Alexandria/Arlington, accept only small, incidental amounts of debris. Inert materials that do not fully combust are undesirable feedstock for those processes. For this reason, and due to the relatively high disposal cost per ton to dispose at an MSW facility, CDD is delivered to one of the debris landfills or recycling facilities in the region. The City currently hauls its debris to the Potomac Landfill.

The CDD recycled could be counted towards a locality's recycling report; however, the amount of CDD disposed would need to be included in the calculation. Due to the low rate of CDD being recycled, including this number would numerically decimate the recycling rate.

3.2.3 Industrial Waste

Waste Generation

Industrial waste is material generated by an industrial process which is no longer useful to the generator. Examples include some MSW, like food scraps or spent sandpaper; recyclables, like paper and scrap metal; and non-MSW products like solvents or paints. It does not include scrap material which is re-incorporated into the manufacturing process. There is very little industrial waste generated in the City of Fairfax. No data is currently provided to the City from this sector.

3. Projections Data and Waste Quantities

Waste Management

Some industrial wastes are regulated by the Commonwealth of Virginia and the Federal Government. Regulation and enforcement is the jurisdiction of those agencies. Except for the fact that the industrial generators are businesses operating in the City of Fairfax, and therefore subject to any business recycling requirements, management of industrial waste is outside the scope of this plan.

3.2.4 Vegetative Waste

Waste Generation

Vegetative waste is the term for the portion of MSW that is generated through regular landscaping, gardening, and maintenance such as trimming bushes and trees. It applies both to residential and commercial sources, and is a significant source of tonnage, as shown in Figure 3-66. Vegetative waste usually does not include land clearing debris such as stumps and roots. The larger term, organics, includes vegetative waste plus food scraps.

Waste Management

In the City of Fairfax, residential vegetative waste is collected from the curbside collection program customers in three streams: vacuumed leaves, containerized yard waste (paper bag or self-provided can), and brush (includes limbs and trunks). Each stream goes to a different facility. The leaves are delivered to Loudoun Composting to be processed; the yard waste goes to the Fairfax County Transfer Station to be ground or composted; and, the brush and limbs are sent to JL Tree to be chipped and mulched. In general, vegetative waste generated by landscapers working at commercial sites is similarly delivered to processors, rather than disposed of as trash.

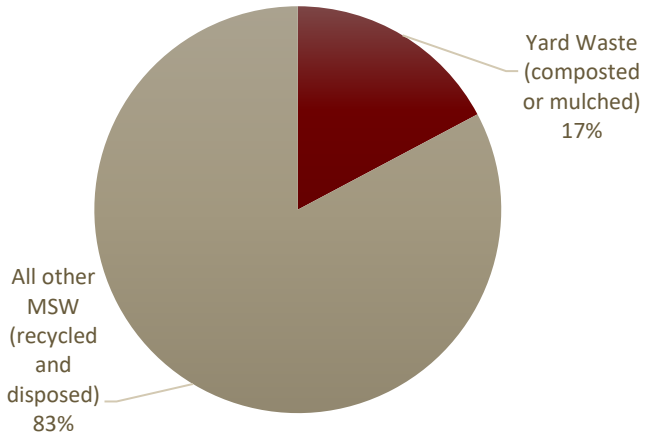


Figure 3-6 Yard Waste as Proportion of MSW Reported to VA DEQ,

3.2.1 Food Waste (Compost)

Waste Generation

Compost is the natural aerobic decomposition of organic matter into nutrient rich soil as a means of waste stream aversion. As much as 25% of the City's waste stream is organic material that could be composted instead. The City has established a composting drop-off center for residents who wish to participate.

3. Projections Data and Waste Quantities

Waste Management

The City provides a 24-hour drop off comprehensive and full-services composting center for residents and employees to use at their means. Under our current contract with Compost Crew, organic materials that are acceptable to be composted include fruits and vegetable scraps, egg shells, coffee grounds and filters, meat and bone scraps, seafood shells, leftover and soiled foods, dairy products, tea bags, food soiled paper, paper bags and plates, napkins, wax paper and other certified compostable bags or products. Under the current operating contract with Compost Crew, food scrap collected get taken to the PG County Organics Composting Facility owned by Prince George's County and operated by Maryland Environmental Services.

3.2.2 Special Wastes

Special wastes includes a wide variety of materials that are potentially polluting and merit special handling to prevent them from harming people or the environment. When generated by people at their homes, they are not required to be managed separately; however, these materials when generated by a commercial location are regulated by local, state, or Federal law. For this SWMP document, "special wastes" includes HHW; medical waste; tires; used oil and antifreeze; and, batteries

Waste Generation

- HHW includes many chemicals generated on a day-to-day basis, including herbicides, pesticides, fungicides, pool chemicals, some cleaning products, oil-based paints and paint thinners, petroleum products, and mercury-containing products like fluorescent tubes, thermostats, and compact fluorescent lamps (CFLs). Latex-based paint is frequently brought to HHW facilities or events by residents; however, it is safe to dispose of in the trash.
- Medical waste from a home is allowed to be disposed of in the regular trash; however, individuals who generate sharps are strongly encouraged to isolate and identify them for the safety of workers collecting the material. Regulated medical waste, commonly called "red bag" waste due to the red containers in which is it collected in institutions, is regulated by the states or localities, whereas the federal government develops regulations for hazardous waste such as mercury or radioactive wastes.[5]
- Tires are accepted from residents usually for free up to a certain number or for a nominal fee. The Commonwealth collects a per-tire tax on new purchases, the proceeds from which are used to coordinate the recycling of waste tires, clean up tire piles, and subsidize end users of waste tires.[6] Used oil and antifreeze are highly recyclable, although their generation by at-home mechanics is waning; commercially generated automotive fluids are regulated.
- Batteries come in many shapes, sizes, and chemistries. Automotive batteries are highly recyclable and accepted both in HHW programs and, many times, by auto battery retailers. Any rechargeable battery can be recycled at HHW programs or through the industry-funded Call2Recycle program,[7] with dozens of drop-off locations at retailers nationwide. Alkaline batteries have been banned by Federal law from containing mercury since 1996, and are generally safe to dispose of in the trash;

[5] http://www.epa.gov/wastes/nonhaz/industrial/medical/mwfaqs.htm
[6] http://www.deq.virginia.gov/Portals/0/DEQ/Land/RecyclingPrograms/WasteTires/WTMP_FAQ.pdf
[7] http://www.call2recycle.org/what-can-i-recycle/

3. Projections Data and Waste Quantities

however, smaller "coin" or "button" batteries still contain mercury and should be taken to an HHW program.[8]

- E-waste includes electronic products, such as televisions, DVD players, radios, computers, phones, and video equipment, etc. Many of these products can be reused or recycled. Virginia law requires manufacturers that sell (or offers for sale) more than 500 units of computer equipment in Virginia to provide an opportunity for customers to return or recycle their equipment at no charge.

- Debris waste includes scattered items and materials that were broken, destroyed, or displaced by a natural disaster or man-made disaster, such as severe weather, urban fires, and terrorist incidents, etc.

Waste Management

Residents of Fairfax are welcomed to bring their HHW and e-waste to either of the Fairfax County collection centers, located at the I-66 Transfer Station and the I-95 Landfill Complex. Tires that are delivered to the County are processed for recycling or beneficial reuse. Batteries can be brought to the HHW facilities, or to one of many retail locations in the area, provided by Call2Recycle. The management of medical waste is largely outside the scope of this plan document other than encouraging residents to manage it safely. The City of Fairfax Debris Management Plan establishes the framework within which the City will respond and coordinate the removal and disposal of debris generated by potential manmade and natural disasters.[9]

3.3 Solid Waste Quantities, Projections, and Capacity

A major requirement of a solid waste management plan is to project the future demand for the management system and demonstrate that there is—or will be—sufficient capacity available. This section shows the historic and projected quantities and the available capacity, and that due to the presence of the Fairfax County and Alexandria/Arlington WTE facilities and a network for modern, vertically-integrated MRFs in the region, there is sufficient capacity available for the City of Fairfax to recycle and dispose of waste for the planning period. CDD capacity is expected to change dramatically during the period, which condition the City can assuage by encouraging or regulating that more material go to recycling and less to disposal. This is a statewide condition, as the Virginia DEQ projects there is only a combined 11 years of CDD landfill capacity remaining statewide.[10]

Data Sources and Assumptions

To complete these projections, baseline assumptions were made using the following sources:

- Annual tonnage reports provided filed with VA DEQ by the City;
- The most recent population and dwelling data available, provided by the City of Fairfax and Metropolitan Washington Council of Governments;
- Household data retrieved from the U.S. Census Bureau;
- The most recent EPA information available for per household and per capita per day waste generation; and,

[8] http://www.epa.gov/mercury/consumer.htm#bat
[9] City of Fairfax Debris Management Plan, July 2014
[10] "Solid Waste Managed in Virginia, 2019"

3. Projections Data and Waste Quantities

- Projected trends in growth and generation.

3.3.1 Refuse and Recycling Quantities and Projections

5 shows projected waste generation using the baseline population figures and the reported tonnages. It forecasts waste generation in five-year increments. The average population increase over the 20 years is estimated to be 1.5% per forecast period and the waste projections. At the time that the projections were calculated, CY2019 was the most recent data available. Overall generation is expected to increase by about 18% percent between 2019 and 2040.

Table 3-5 Projected Tons of Material Generated (by Type) Over the 20-year Planning Period

Year	Annual Waste Generation (Tons)					
	2019	2020	2025	2030	2035	2040
Total Tons of Material Generated	31,622	32,660	33,746	34,885	36,079	37,332
Residential Tons Generated	19,107	19,394	19,685	19,980	20,279	20,584
Commercial Tons Generated	12,515	13,266	14,062	14,906	15,800	16,748

Table 3-6 shows projections for residential disposed and recycled tons. The projections use the assumptions above and assumes that the recycling rate remains steady.

Table 3-6 Projected Residential Disposed and Recycled Tons, 20-year Planning Period

Year	Residential Material (Tons)					
	2019	2020	2025	2030	2035	2040
Residential Tons Generated	19,107	19,394	19,685	19,980	20,279	20,584
Residential Tons Disposed	9,093	9,229	9,368	9,508	9,651	9,796
Residential Tons Recycled	10,014	10,164	10,317	10,471	10,628	10,788

Table 3-7 shows projections for commercial refuse and recycling generation, and assumes that the recycling rate remains steady.

Table 3-73 Commercial Refuse and Recycling Generation, 20-year Planning Period (Source: GBB)

Year	Commercial Annual Waste Generation (Tons)					
	2019	2020	2025	2030	2035	2040
Commercial Tons Generated	12,515	13,266	14,062	14,906	15,800	16,748
Commercial Tons Disposed	7,327	7,767	8,233	8,727	9,250	9,805
Commercial Tons Recycled	5,188	5,499	5,829	6,179	6,550	6,943

3. Projections Data and Waste Quantities

3.3.2 Construction and Demolition Debris Quantities and Projections

Table 3-8 shows projected generation by Commercial customers of building materials and metals. These quantities are based on baseline data, household projections, customer increase projections, and average annual tons per household of 244.7 pounds for building materials and 10 pounds for metals.

Table 3-8 City of Fairfax Commercial CDD Waste Generation, 2019-2040

Year	Commercial Annual CDD Waste Generation (Tons)					
	2019	2020	2025	2030	2035	2040
Building Materials	777	789	795	801	807	813
Metals	32	32	32	33	33	33

3.3.3 Industrial Waste Quantities and Projections

As noted previously, relatively little of the land use in the City of Fairfax is industrial, and much of the waste-generating activity taking place on that land is more commercial in nature than industrial. Table 3-9 shows the projected generation of waste from buildings in industrial land use parcels, using square footage figures of primary facility use, provided by the City, and a multiplier of 5 pounds per 1,000 square feet per day (does not include any construction debris generated), provided by CalRecycle.[11] It is critical to note, however, in reporting and projecting waste generation, both the City and this report have already counted most of these tons as "commercial,"; therefore, this table serves primarily to show "industrial" waste as a subset of the refuse and recycling generated by the City, overall. It should not be added directly to the tonnages in the accompanying tables.

Table 3-9 Industrial Waste Generation by Square Footage of Use, 2015 (Source: GBB)

Primary Building Use	Square Footage	Pounds per day	Pounds per year	TPY
Industrial - Bulk Petroleum	78,654	393.27	143,543.55	71.77
Industrial - Flex	527,964	2,639.82	963,534.30	481.77
Industrial - Heavy	24,817	124.09	45,291.03	22.65
Industrial - Self Storage	170,560	852.80	311,272.00	155.64

3.3.4 Vegetative Waste Quantities and Projections

Table 3-40 shows projections for residential vegetative waste generation. These quantities are based on the baseline data, household projections, and average annual tons per household of 511 pounds of loose leaves; 778.2 pounds of brush; and, 444 pounds of yard waste.

[11] California Department of Resources Recycling and Recovery, http://www.calrecycle.ca.gov/WasteChar/WasteGenRates/Industrial.htm

3. Projections Data and Waste Quantities

Table 3-40 City of Fairfax Projected Residential Vegetative Waste Generation, 2020 – 2040

Year	Residential Vegetative Waste Generation (Tons)					
	2019	2020	2025	2030	2035	2040
Loose Leaves	1,363	1,373	1,384	1,395	1,406	1,416
Brush	1,967	1,983	1,998	2,014	2,029	2,044
Yard Waste	1,527	1,539	1,552	1,564	1,575	1,587

Table 3-51 shows projections for commercial vegetative waste generation. These projections use baseline data and the assumption that approximately 17 percent of the overall waste stream (commercial) of refuse and recyclables is vegetative waste.

Table 3-51 Projected Commercial Vegetative Waste Generation, 2020 – 2040

Year	Annual Refuse/Recycling and Vegetative Waste Generation (Tons)					
	2019	2020	2025	2030	2035	2040
Tons Disposed (all sources)	12,515	13,266	14,062	14,906	15,800	16,748
Vegetative Waste Tons	2,128	2,255	2,391	2,534	2,686	2,847

3.3.5 Solid Waste Management Capacity

As shown in the tables above, the City's waste generation is expected to increase only moderately over the planning period. All currently-operating MSW facilities in the region which serve individuals and commercial haulers are expected to remain doing so for the planning period. Because the City delivers its refuse to a transfer station (and then to a WTE facility) and most of its other waste streams to recycling or processing facilities, it is not limited as much by capacity as it is operational life.

Note that some of the facilities shown in the tables below are not currently open to waste from outside the jurisdiction on a "merchant" basis; however, they are expected to be in operation. Therefore, it is possible that the City could bring its waste in as a contractor, if necessary.

Table 3-62 shows the facilities available to City of Fairfax residents and small businesses to self-haul their refuse, recyclables, HHW, and vegetative waste.

Table 3-62 MSW and Recycling Facilities Available to City of Fairfax Residents and Businesses

Facility Name	Location	Materials Accepted	Remaining Capacity
Fairfax County Residents' Recycling and Disposal Center at the I-66 Transfer Station	4618 West Ox Road, Fairfax	This is a full-service solid waste management facility, and most any type of MSW—including trash, recyclables, yard waste, HHW, and small amounts of debris—are accepted. Some fees apply.	3,000 TPD[(1)]

3. Projections Data and Waste Quantities

Facility Name	Location	Materials Accepted	Remaining Capacity
Fairfax County Residents' Recycling and Disposal Center in Lorton	9850 Furnace Road, Lorton	This is a full-service solid waste management facility, and most any type of MSW—including trash, recyclables, yard waste, HHW, and small amounts of debris—are accepted. Some fees apply.	4,351,506 tons(1)

(1. Source: VDEQ Solid Waste Managed in Virginia During Calendar Year 2019)

The City prioritizes energy recovery from waste as a disposal technology, as called for in the waste hierarchy (See Figure 5-1). Table 3-73 shows that the life expectancy of the available facilities in this region meets the City's need during the planning period. There is another Covanta facility in Montgomery County, MD, which is not currently open to outside waste.

Table 3-73 Available MSW Energy-from-Waste Facilities

Public WTE Facilities				
State	**Name**	**Location**	**Capacity (TPD)**	**Life Expectancy**
VA	Covanta Alexandria/Arlington	Alexandria	975	>20 years; City of Alexandria has a disposal contract in place valid until 2038
VA	Covanta Fairfax	Lorton	3,000	>20 years; Fairfax County projects this in 2015 SWMP update

Should the WTE facilities become unavailable, Table 3-84 shows public transfer stations which could be utilized to move waste to other disposal options.

Table 3-84 Available MSW and Debris Transfer Stations

State	Permit #	Name	Location	Private/ Public
VA	PBR154	Madison County	Madison	Public
VA	PBR555	Fairfax I-66	Fairfax	Public
MD	2006-WPT-0617	Shady Grove PF&TS	Derwood	Public
DC	Not available	Ft Totten Transfer Station	DC	Public
DC	Not available	Benning Road Transfer	DC	Public
MD	2007-WPT-0578	Alpha Ridge Processing Facility & Transfer Station	Howard	Public

(Source: Northern VA Regional Commission 2019 Solid Waste Report)

3. Projections Data and Waste Quantities

If both WTE and transfer are unavailable, the City can long-haul to a landfill. There are several "mega-landfills" in Virginia with ample capacity and life, located within hauling distance of the City, as shown in Table 3-95.

Table 3-95 Available MSW Landfills

State	Permit #	Name	Location	Capacity (Tons)	Remaining Life (Years)	Private/ Public
VA	SWP562	Atlantic Waste Disposal	Sussex County, VA	45,497,743	74	Private
VA	SWP554	BFI King and Queen	Little Plymouth, VA	6,957,506	17	Private
VA	SWP553	BFI Old Dominion	Henrico County, VA	8,186,234	24.3	Private
VA	SWP583	Brunswick Waste Management	Lawrenceville, VA	9,982,219	72	Private
VA	SWP575	Fauquier County	Warrenton, VA	316,495	32	Public
VA	SWP103	I-95 Landfill	Lorton, VA	3,668,639	39.7	Public
VA	SWP586	King George	King George, VA	16,795,933	22	Private
VA	SWP001	Loudoun County	Leesburg, VA	10,818,209	69	Public
VA	SWP029	Prince William County	Prince William, VA	5,171,743	13	Public
VA	SWP589	R-Board Landfill	Stafford, VA	5,856,129	38	Public
VA	SWP547	Spotsylvania County	Spotsylvania, VA	476,000	4.2	Public
VA	SWP572	Middle Peninsula	Glenns, VA	13,995,988	52	Private
VA	SWP531	WMI Charles City Landfill	Charles City, VA	12,805,824	37	Private
MD	2005-WMF-0110	Alpha Ridge Municipal Landfill	Howard	4,156,958	36	Public
MD	2003-WMF-0589	Brown Station Road Municipal Landfill	Prince George's	3,575,566	10	Public

3. Projections Data and Waste Quantities

State	Permit #	Name	Location	Capacity (Tons)	Remaining Life (Years)	Private/ Public
MD	2005-WMF-0076	Charles County Municipal Landfill No. 2	Charles	1,686,069	19	Public
MD	2005-WMF-0240	Millersville Municipal Landfill	Anne Arundel	5,214,656	25	Public
MD	2003-WMF-0582	Reichs Ford Site B Municipal Landfill	Frederick	1,960,066	17	Public

(Sources: VDEQ 2019 Annual Solid Waste Report for CY2018; Maryland Solid Waste Management and Diversion Report, Calendar Year 2018)

Table 3-106 shows facilities accepting CDD for disposal and for recycling.

Table 3-106 Debris Landfills Accepting Waste in the Northern Virginia Region

State	Permit #	Name	Location	2013 Life Expectancy	Private/ Public
CDD Disposal					
VA	SWP441	Potomac CDD Landfill	Dumfries	10 yrs. (2028)	Private
VA	SWP327	Rainwater Landfill	Lorton	10 yrs. (2028)	Private
CDD Materials Recycling					
VA	PBR536	Broad Run Recycling	Manassas	Not applicable as long as permit condition remains valid	Private
VA	PBR101	Potomac Landfill Inc.	Alexandria		Private
VA	PBR521	CFP LLC C&D recovery	Manassas		Private
VA	PBR528	Fauquier C&D recovery	Warrenton		Public
VA	PBR102	LFF Recycling Inc./MRF	Sterling		Private
VA	SWP327	Rainwater landfill -	Fairfax		Private
MD	2004-WRF-0126	Lawrence St C&D	Hyattsville		Private
VA	PBR537	J&E Recycling	Fredericksburg		Private
VA	PBR544	Culpeper Regional	Culpeper		Private
VA	PBR536	Broad Run Recycling	Manassas		Private
VA	PBR111	WM Virginia	Merrifield		Private
VA	PBR093	WM Virginia	Sterling		Private

(Source: VDEQ 2019 Annual Solid Waste Report for CY2018)

3. Projections Data and Waste Quantities

This page intentionally left blank

4. SWMP Public Participation

Public outreach and involvement is a required component of the development of a SWMP in Virginia, and frequently involves a mix of strategies to engage a diverse and targeted group in dialogue about the Plan, such that the Plan contents are reflective of the culture and will of the people it serves. In addition, there was an advertised Public Hearing that preceded adoption of the Plan. To fulfill the outreach requirement, the City of Fairfax developed a public outreach plan. The components of the outreach required as part of the 2015 major rewrite were:

- A survey of City curbside collection program customers regarding two significant aspects of the draft goals which would be high-profile and customer-facing: conversion to rolling carts for recyclables and promotion by the City of backyard composting. The survey was administered at the Derby-Q event (May 2), Fall Festival (Oct 10) and online.
- Promotion of the SWMP process via the City's electronic and print communications.
- Assembly of a Solid Waste Management Advisory Committee (SWMPAC) which met to review the current solid waste management system in the City and provide feedback on the draft goals, objectives and actions prepared by City staff.
- A public meeting to engage the public at large in the SWMP process. A copy of the documents and presentation from the Public Meeting can be found in Appendix 1.
- A public hearing regarding the final draft document and adoption thereof by the City Council. A copy of the public hearing and City adoption documents can be found in Appendix 2.

In addition, in 2020 the City fulfilled a research grant which studied the effectiveness of recycling practices and policies within the City's curbside program.

4.1 Outreach Plan Elements

4.1.1 Survey residents

Intercept Interviews

The City developed a survey instrument in order to conduct intercept (i.e., in-person) surveys at two non-environmental events (Derby-Q – May 2, Fall Festival – October 10) and obtain qualitative input from a disinterested audience. The survey was written with the following constraints:

- The questions should number approximately ten, in order to keep the time required to answer them at an acceptable level.
- The survey will be limited to two topics in the 2015 SWMP scope which are customer-facing and very visible to City residents: the type of recycling container(s) distributed by the City to curbside collection program customers, and the level of interest or engagement with backyard composting.
- The questions must be written in such a way that they are neutral and elicit natural or "truthful" answers—they should not encourage or "lead" respondents to give a particular answer, either purposefully or inadvertently.
- The questions will focus on asking respondents for attitudes and acceptance of the two topics (recycling containers and backyard composting) in order to gauge how residents might respond to one or more new or changed programs from their City.

4. SWMP Public Participation

Online Survey

The City launched the same survey that was administered in the intercept interviews in an online format. The survey was administered using the popular and no-cost Survey Monkey tool, and promoted using the following parameters:

- The survey was launched on April 30 to make sure it was functioning properly prior to the May 2 Derby-Q event, so that interviewers could advise attendees who might decline to participate in person that they could still participate online;
- The online survey was kept open for six months (May – October);
- A newsletter article was written describing the project and providing information about the online survey in the August Cityscene; and,
- The survey was promoted on the City's refuse and recycling web site.

Survey Results

Over a six month period, 202 residents took the survey. The results of the survey are summarized below.

When asked "what type of recycling container do you use for curbside pick-up", 44 percent of respondents said they use one City blue bin to recycle; 32 percent said they used two or more blue bins; and remaining respondents indicated that they use various combinations of containers to create more capacity.

When asked "how often is your container full," 80 percent responded "always." This indicates many residents could be recycling much more material, if they were willing and able to do so. Response to the idea of a larger wheeled cart was positive; with 72 percent of respondents saying a wheeled cart would be helpful. When presented with the idea of reduced collection frequency accompanying the carts, the most frequent praise was controlling costs and reducing truck pollution, and the most frequent concern was keeping track of the schedule.

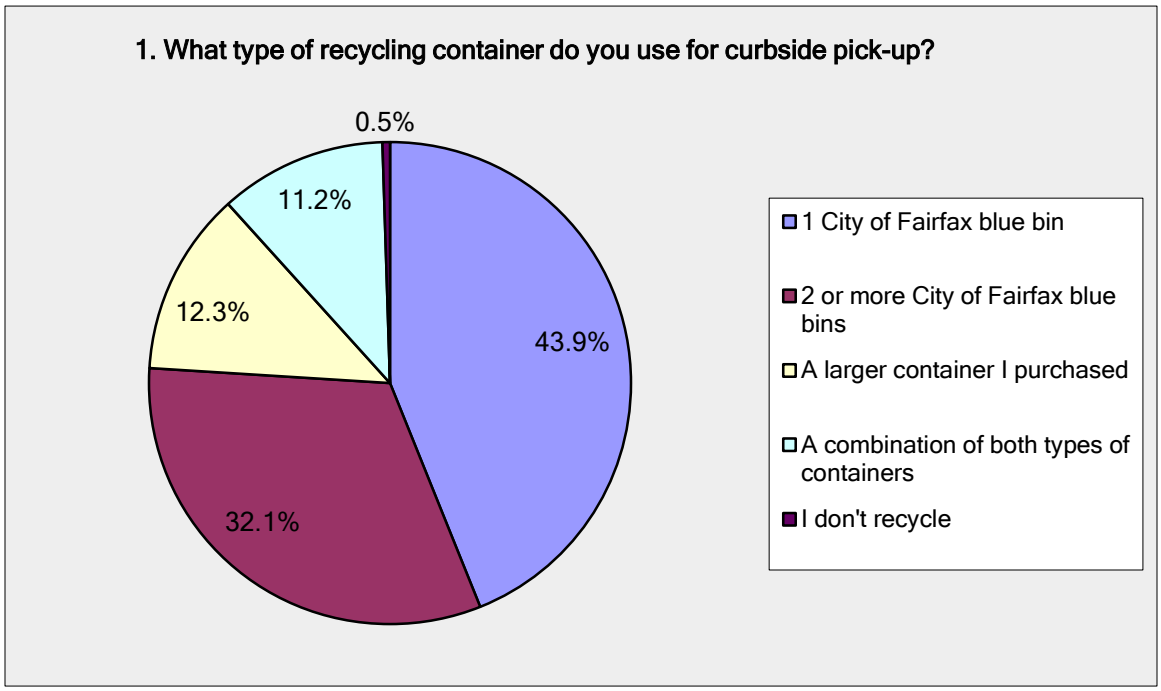
Over half of the respondents indicated that they already compost at home (27 percent) or would be interested (29 percent). The remaining respondents said they were unsure or unlikely to compost at home. However, respondents said free composting containers (60 percent) or a property tax discount (48 percent) would motivate them to compost. The most frequently cited concerns were fear of attracting animals or generating a bad smell. Interest in participating in a curbside collection program was stronger, with 78 percent saying "Yes" or "Maybe" they would participate; however, respondents were not enthused about paying for the service, with more than half saying they would be willing to pay $0 and about one-third saying they would pay up to $5.

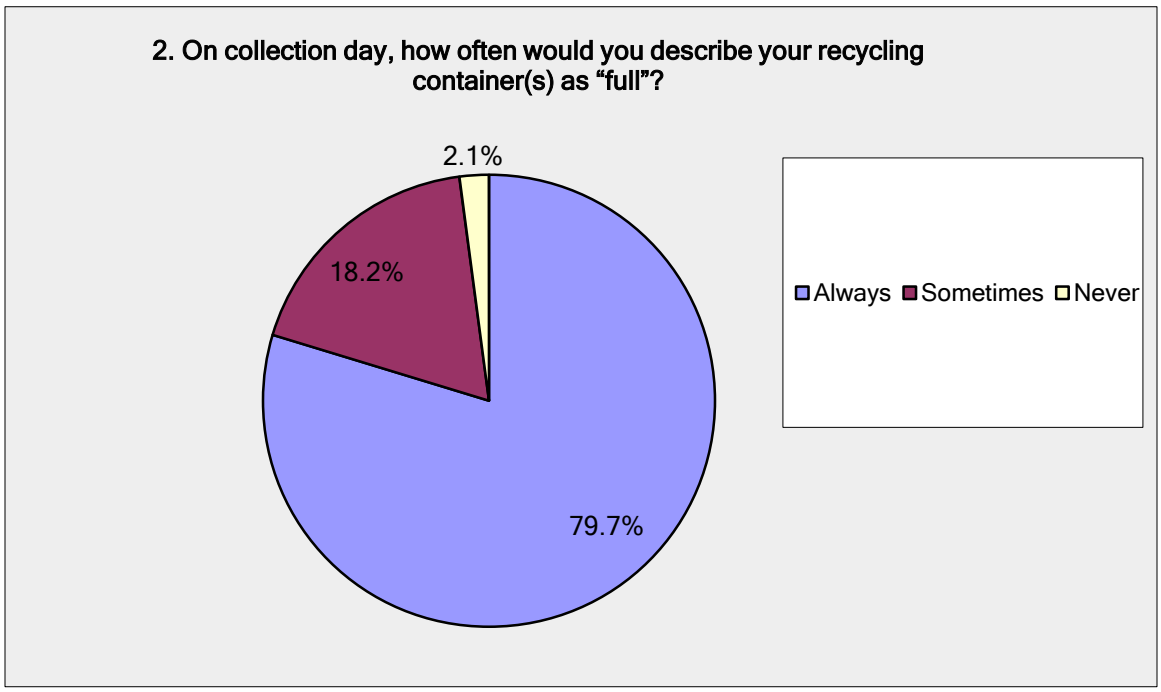
There was a shortage of knowledge about the legality of using a backyard compost bin: 26 percent of respondents said they were unsure if backyard composting was allowed, and slightly over 40 percent said they think it is allowed but do not know for certain.

4. SWMP Public Participation

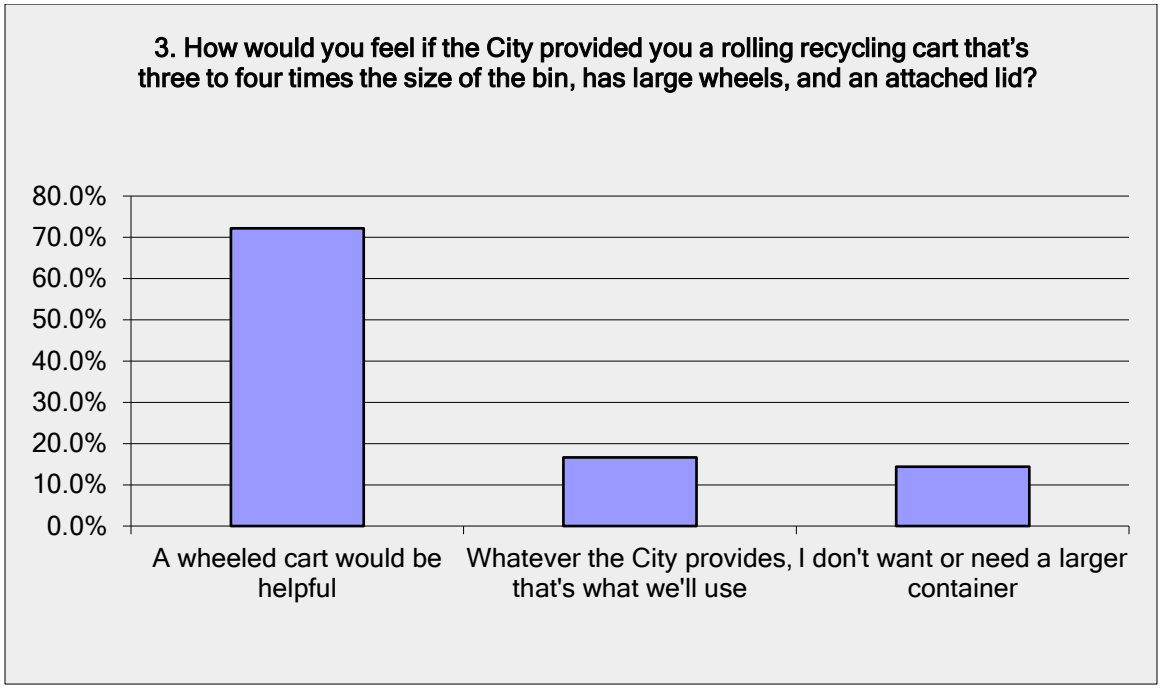
Question-by-question responses

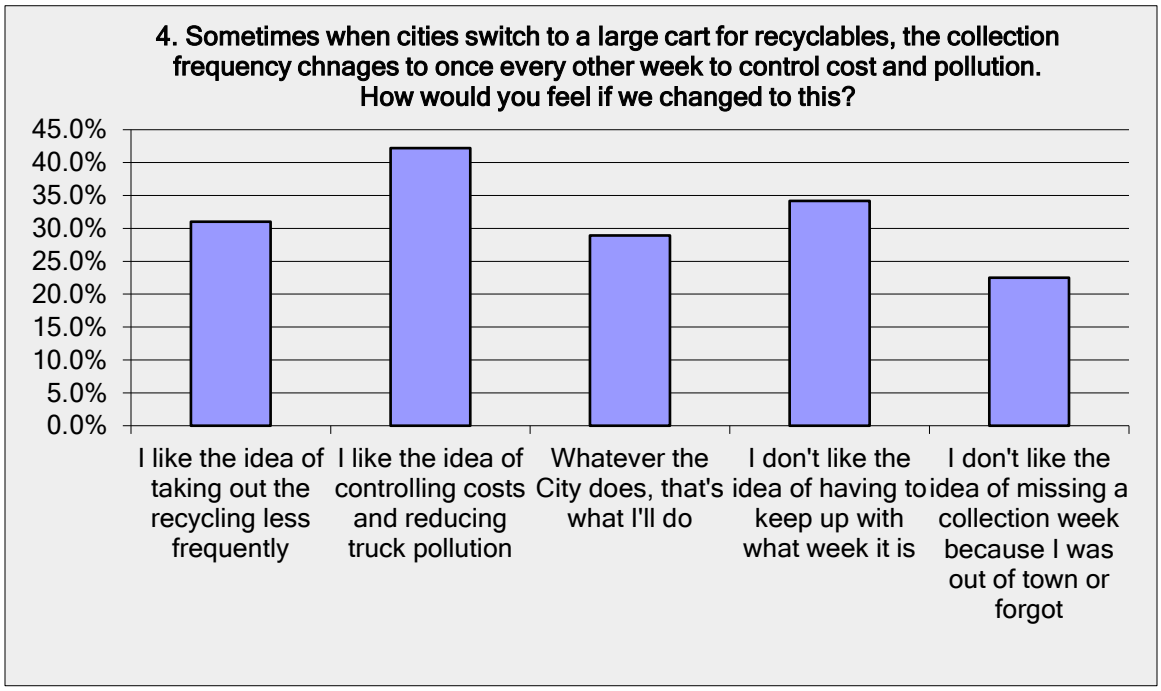
The figures below show the proportion of responses given to each material question. Not every respondent answered every question.



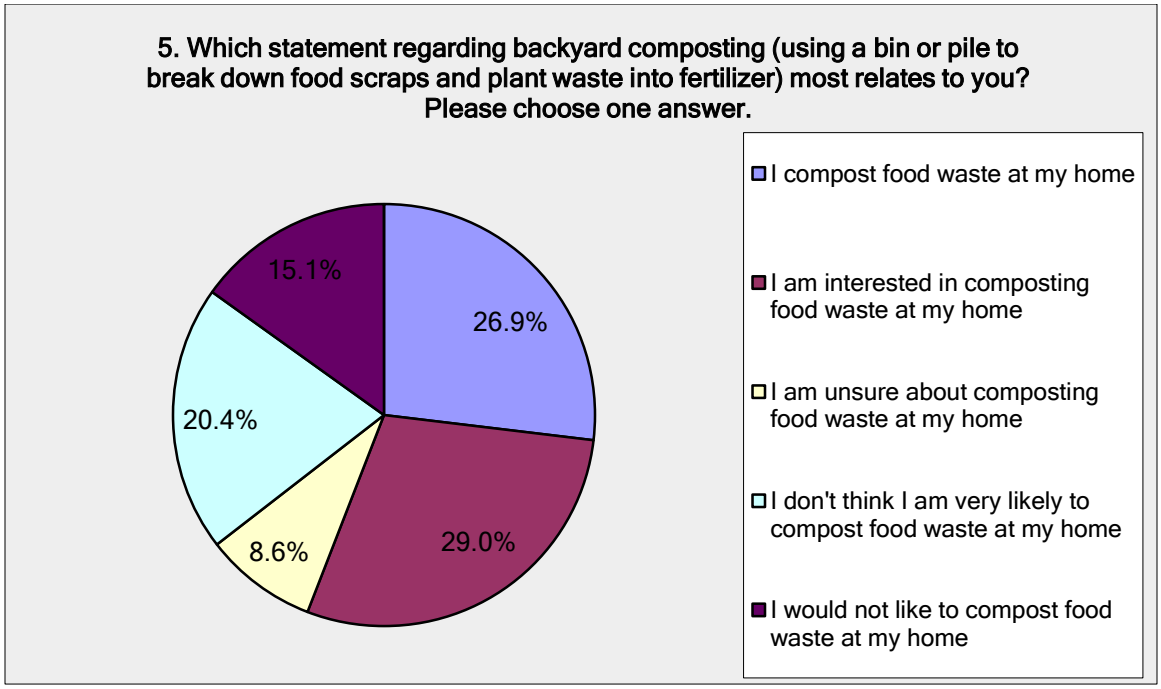


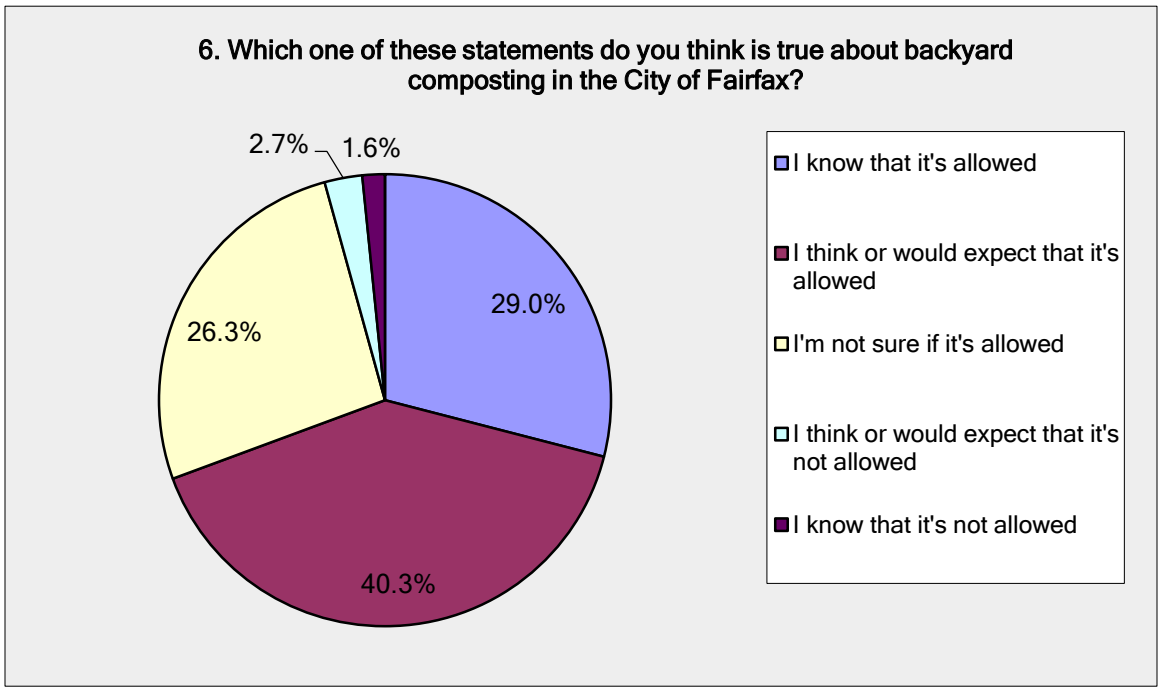
4. SWMP Public Participation



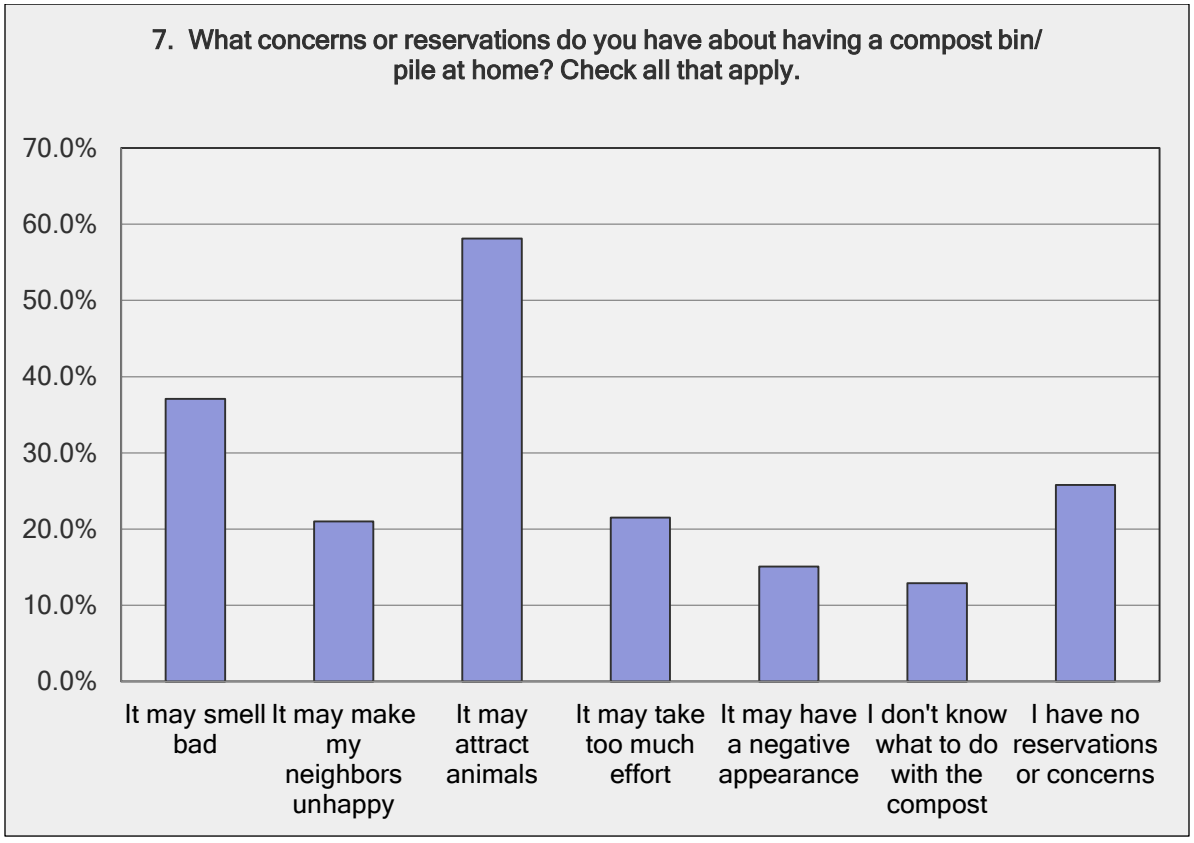


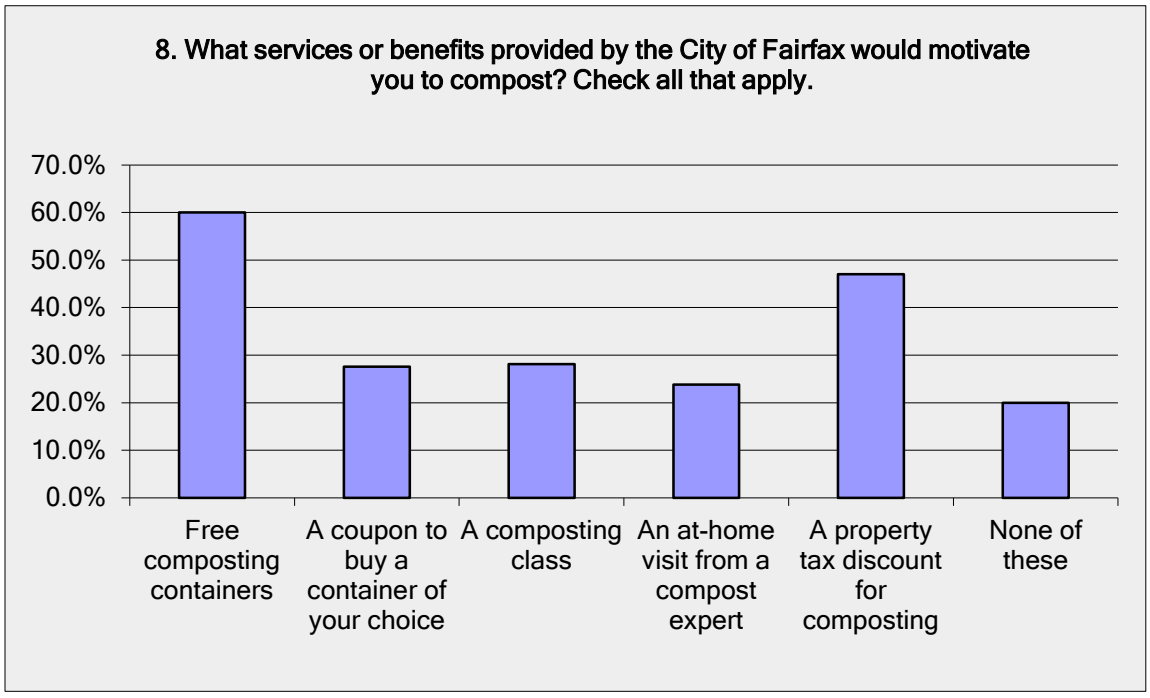
4. SWMP Public Participation



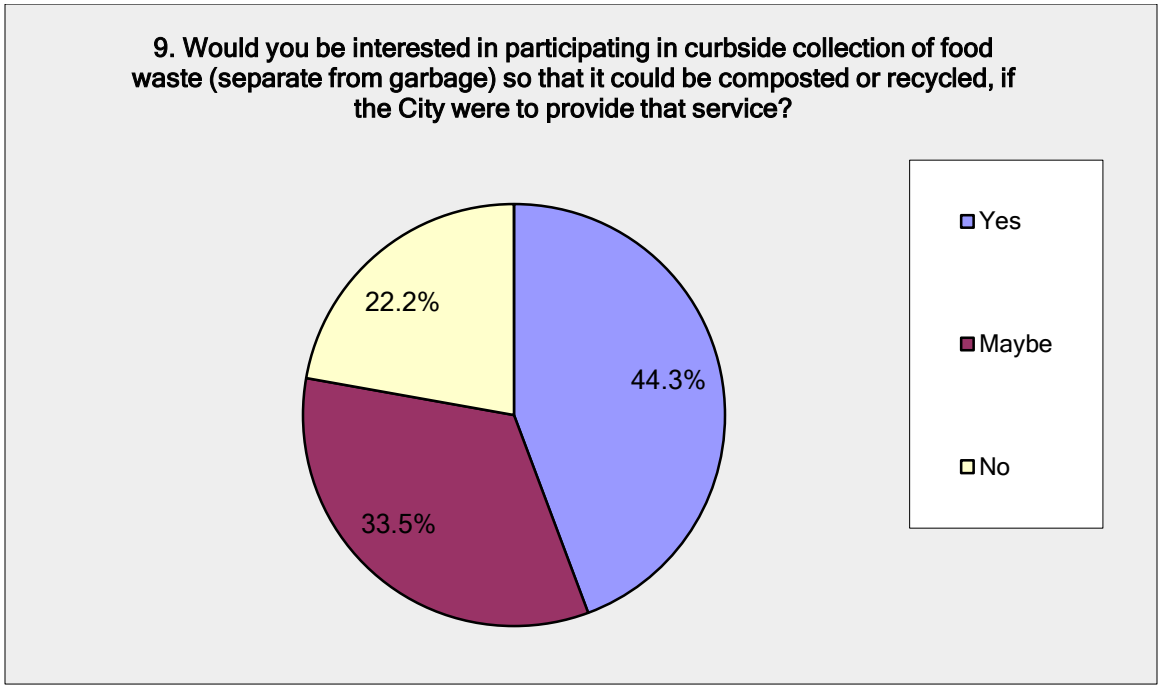


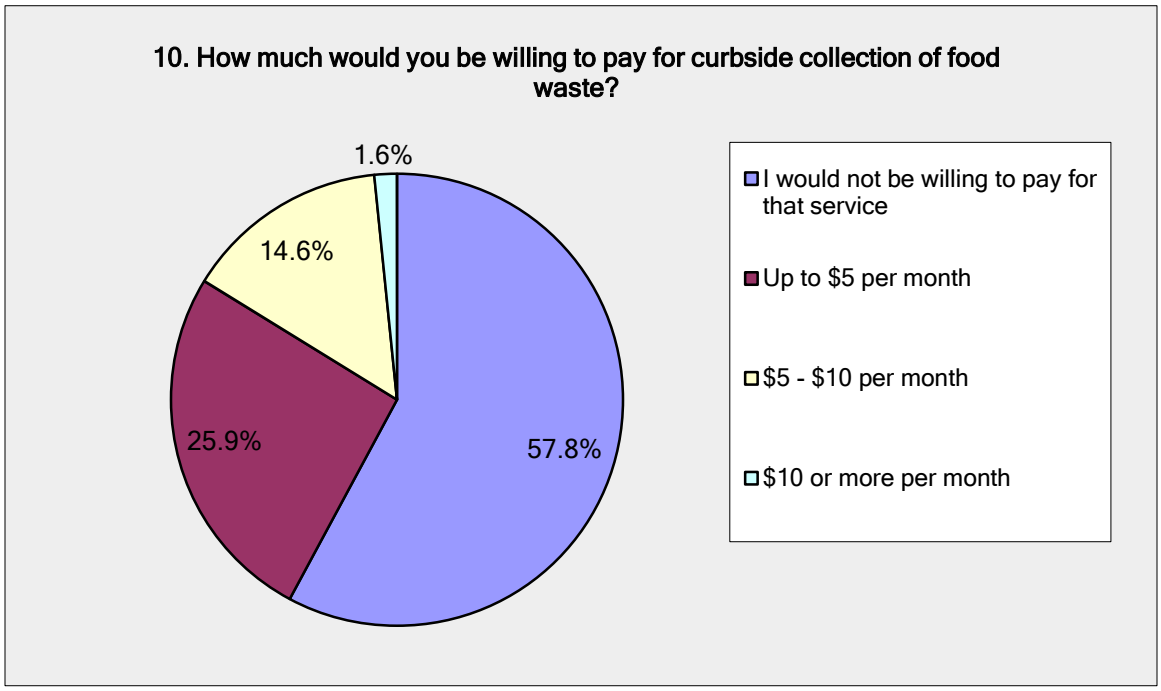
4. SWMP Public Participation



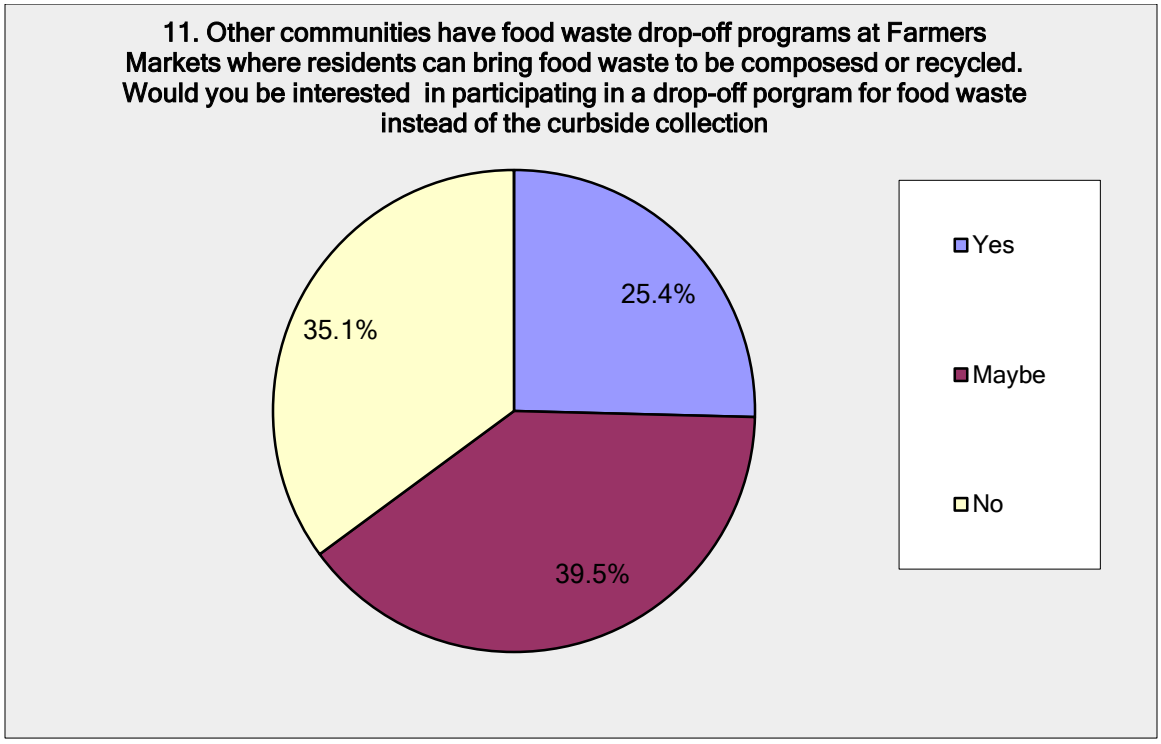


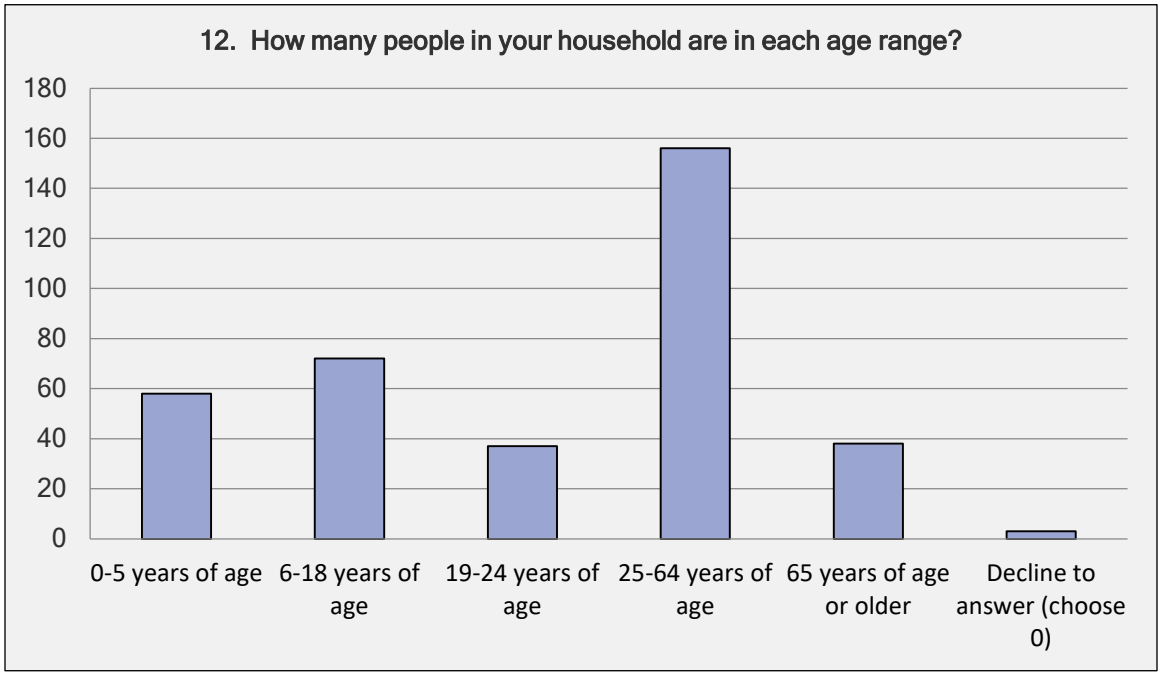
4. SWMP Public Participation





4. SWMP Public Participation





4. SWMP Public Participation

4.1.2 Recycling Survey and Research Grant

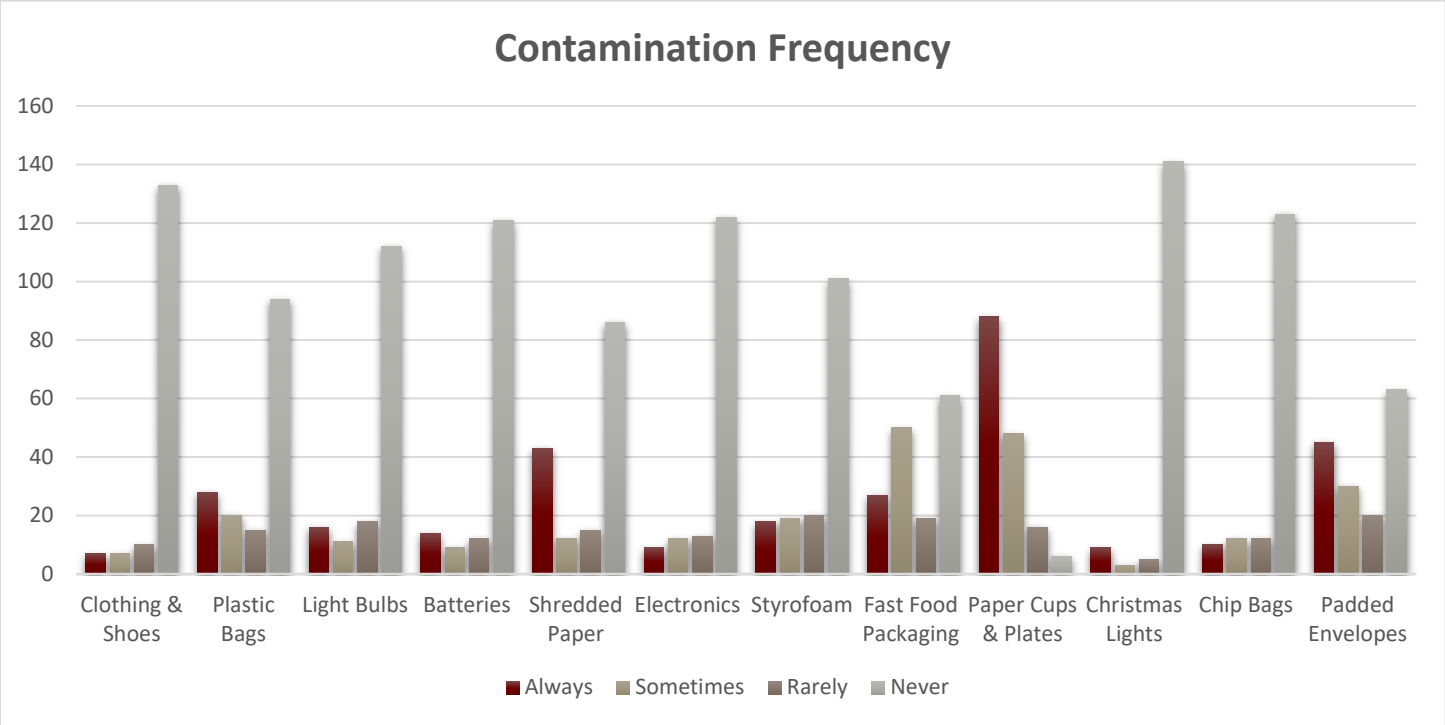
During the spring of 2020, the Sustainability Intern, a George Mason University student, conducted a research grant in conjunction with the City of Fairfax. This research, entitled "Myths and Perceptions of Recycling Practices: Analyzing the effect of curb-side recycling practices in the City of Fairfax" aimed at look at key variables dedicated to understanding the household and city-level recycling practices that contribute to contamination of curbside recycling collections, and why these practices are happening.

To conduct this research, a random sample of the 433 households who receive residential curbside recycling collection by the City of Fairfax were sent a survey. Of the random sample, 158 households responded to this survey. The survey was aimed to gauge their recycling knowledge and practices to be able to determine what residents were placing in the collection bin.

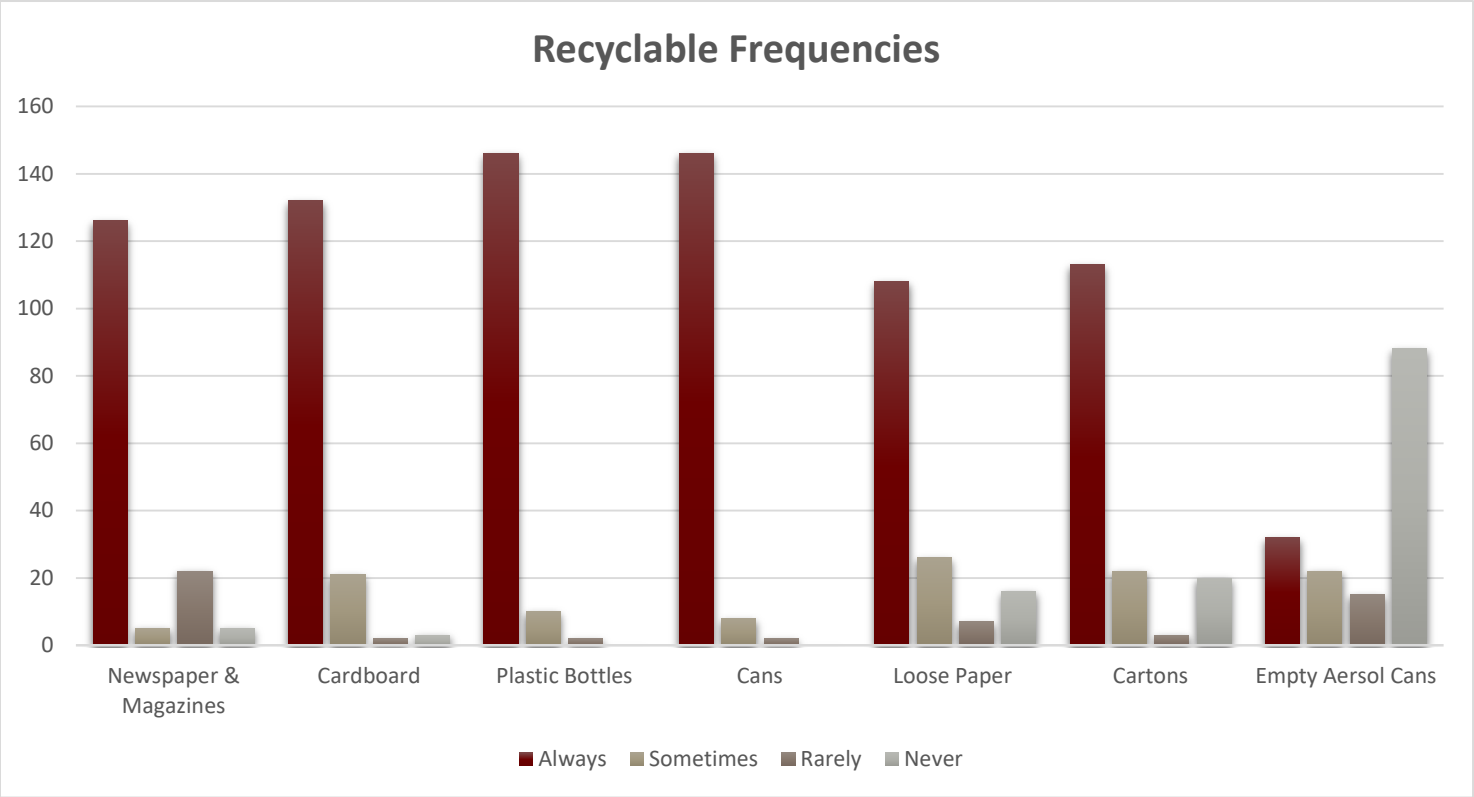
Survey Results

The survey was random sample that predicts the population of the City of Fairfax's curbside recycling habits. The survey results from the City of Fairfax residents are as follows.

1. Please note the frequency in which your household recycles each item in curbside collection:

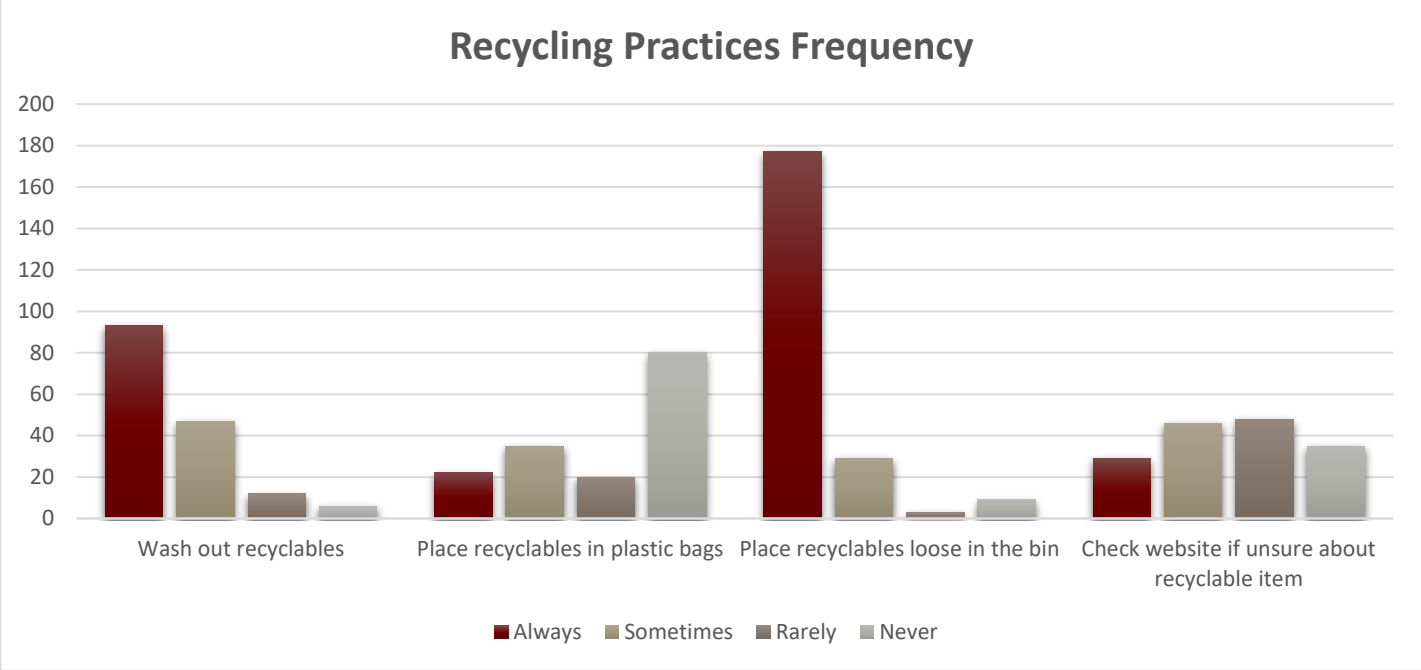


4. SWMP Public Participation



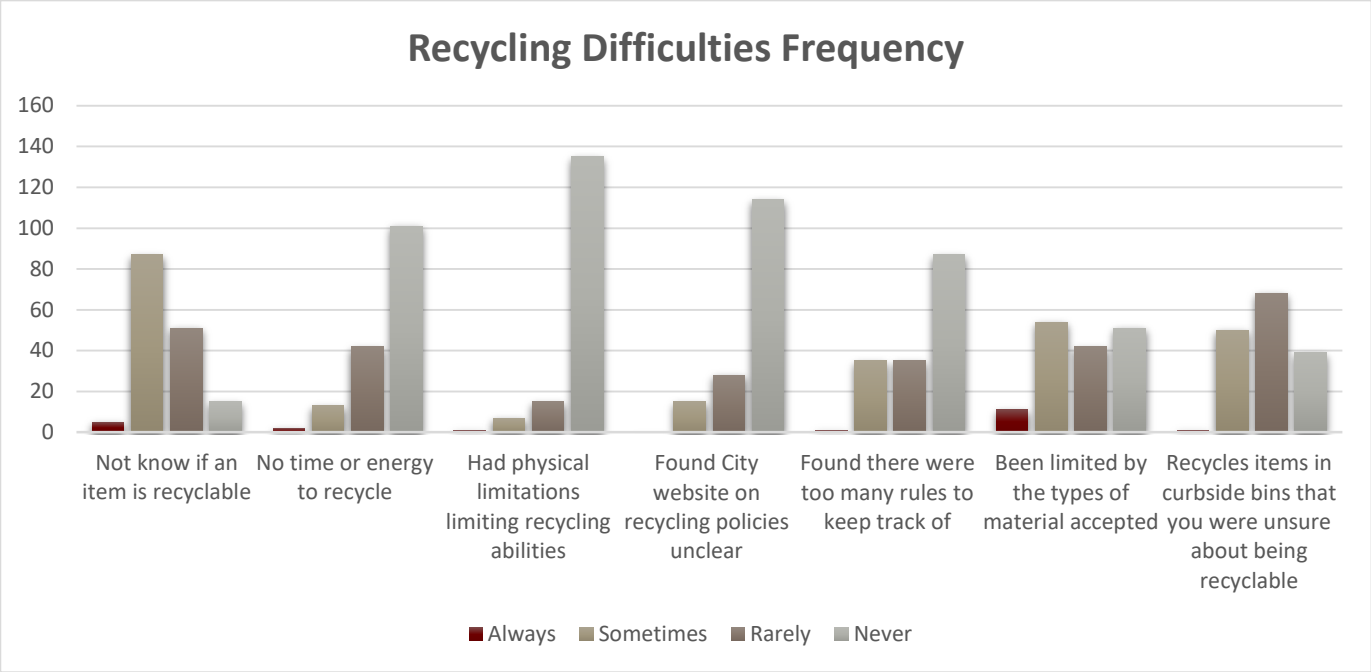
2. Select the frequency that your or your household participates in each activity related to curbside recycling:

4. SWMP Public Participation



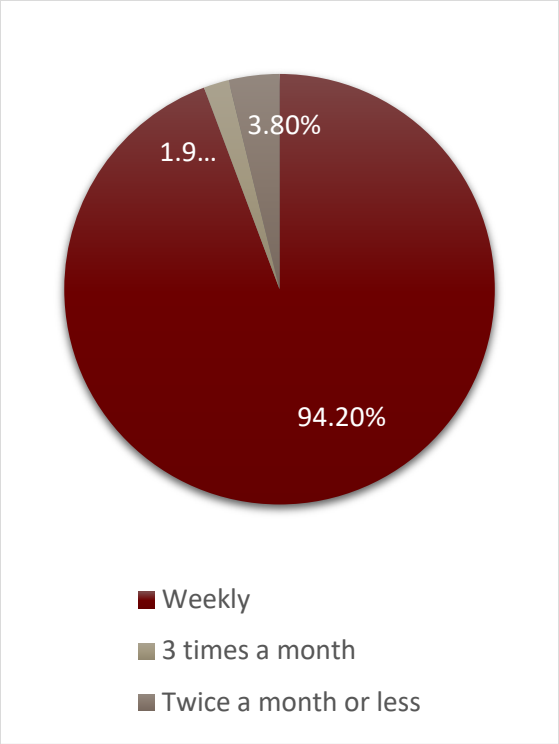
3. Consider your households' typical recycling practices and then check the frequency at which you or members in your household experienced the following difficulties when it comes to curbside recycling collection and participation:

4. SWMP Public Participation

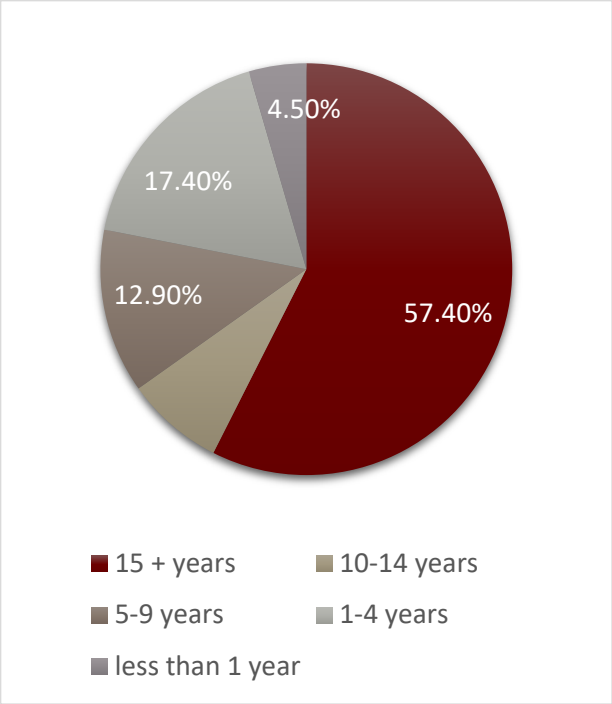


4. SWMP Public Participation

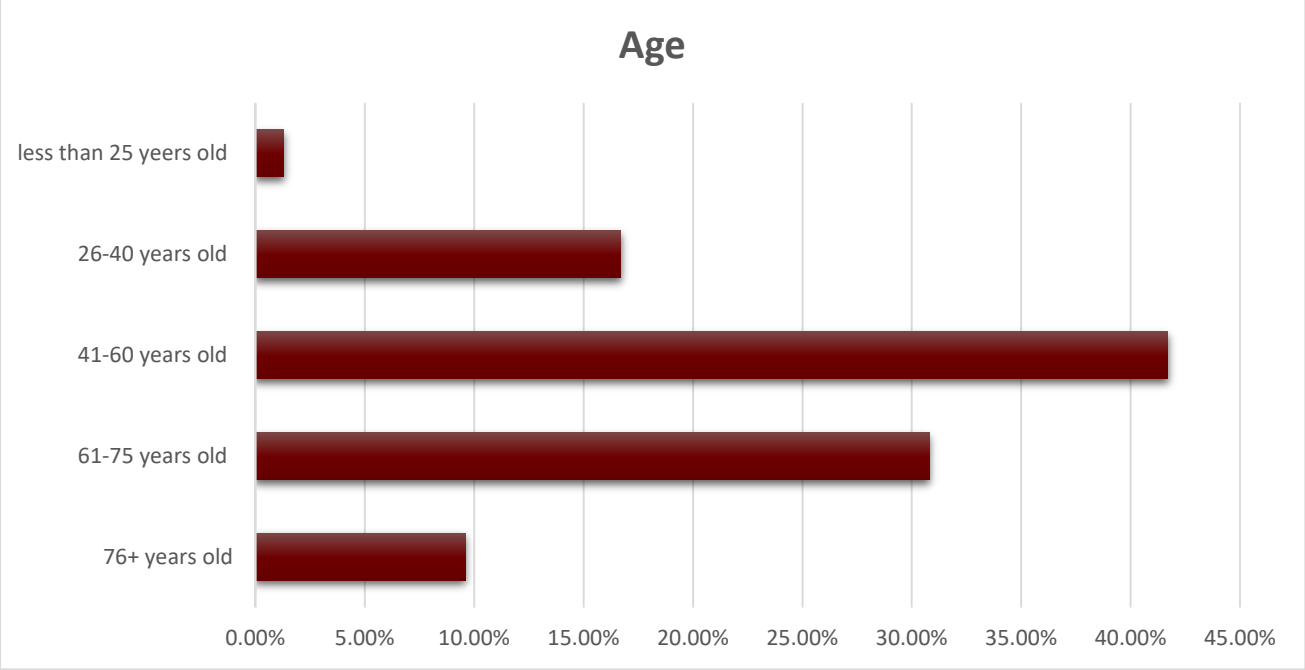
4. How often do you participate in curbside recycling?



5. How long have you lived in the City?

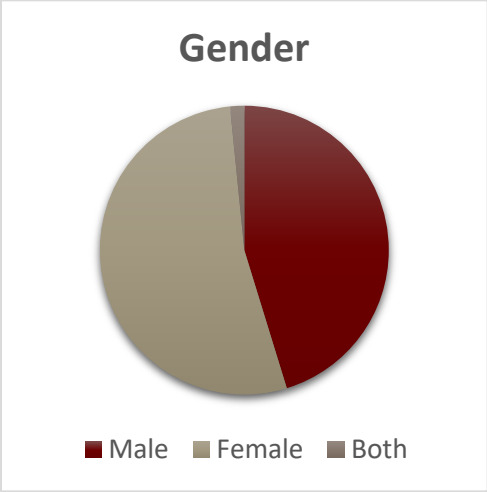


6. How old is the person who typically sorts recycling?

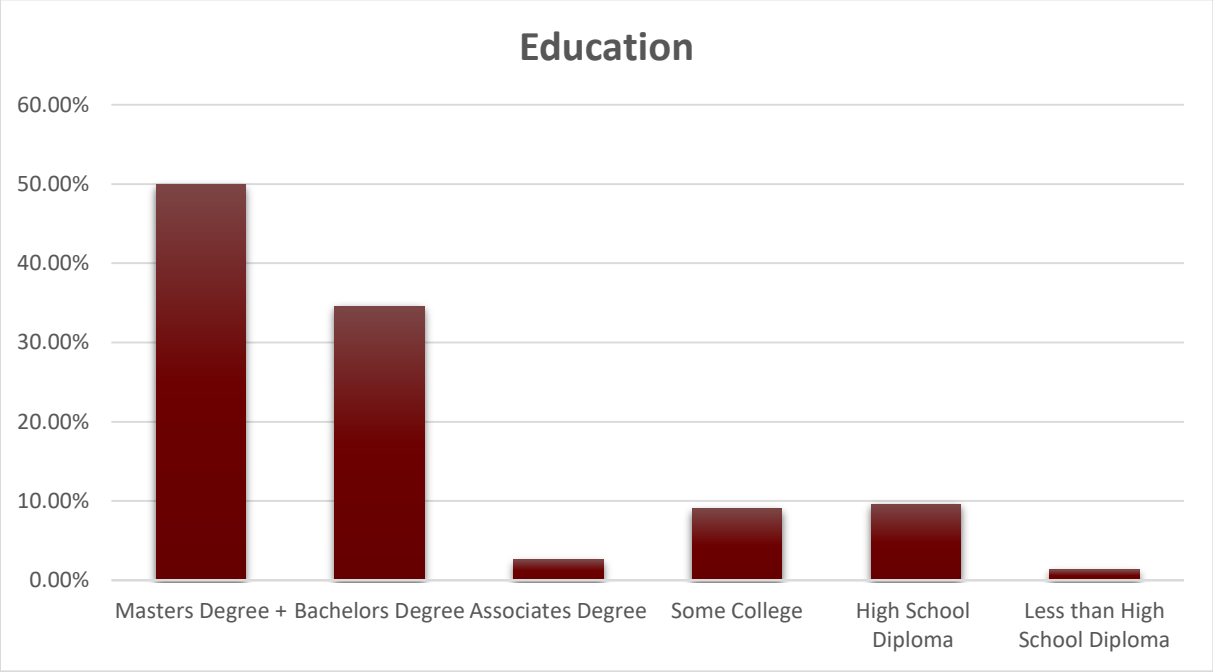


4. SWMP Public Participation

7. What is the gender of the person who typically recycles in your household?

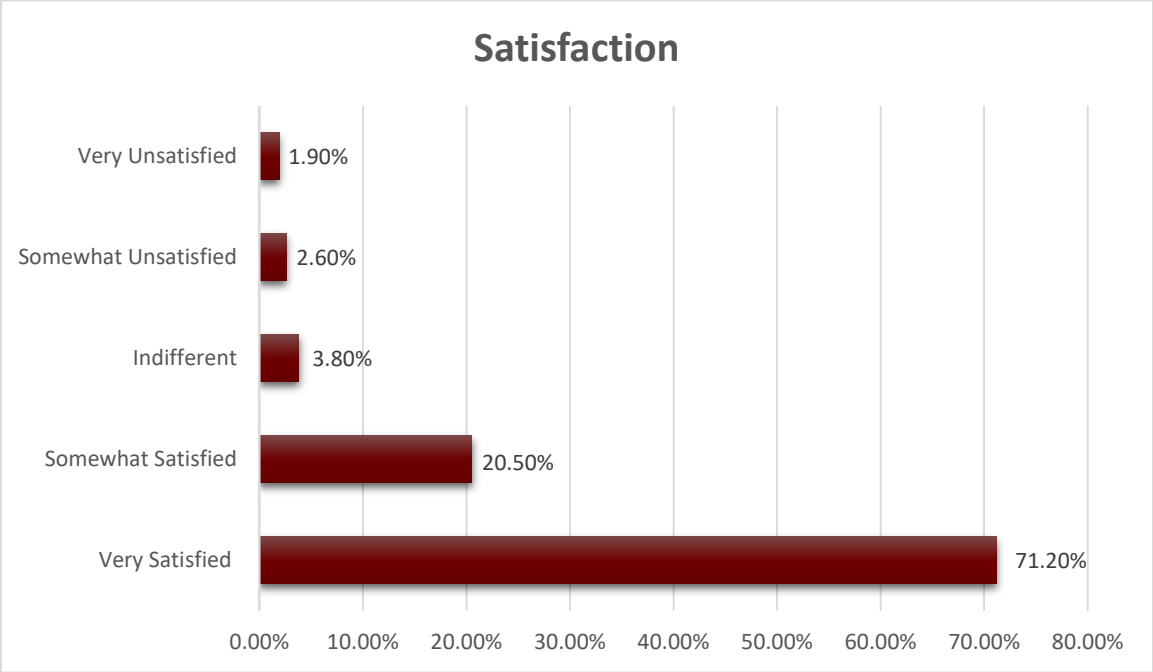


8. What is the level of education obtained by the person who typically sorts recycling in your household?



4. SWMP Public Participation

9. What is your level of satisfaction with the City's curbside recycling collection program?



Interpretation of Results: Key Issues of Contamination

Paper Contamination

The highest rate of contaminated items placed in curbside recycling collection is paper products: shredded paper, fast food packaging, and paper cups and plates. These contaminated items are a common misconception because they are paper products, which are common recyclable, but fast food packaging and paper cups and plates are laced with food residue and often times a wax coating, both of which are unrecyclable.

- 60% frequently recycle fast food packaging – of those, 71% felt limited by the types of materials accepted in curbside collection
- 96% frequently recycle paper cups and plates – of those, 66% felt limited by the types of materials accepted in curbside collection
- 27% frequently recycle shredded paper (this is an skewed variable since shredded paper is not a common household item) – of those, 70% felt limited by the types of materials accepted in curbside collection

Batteries and Electronics Contamination

4. SWMP Public Participation

Batteries and electronics placed in the curbside collection make up a very small fraction of contamination, where the average individual is rarely to place these items in curbside collection, but nonetheless make up 14% of contaminated items.

- 14% of those who receive curbside recycling place batteries frequently in the bin. Of those, 7% felt limited by the types of materials accepted, and 10% have admitted to placing items in the recycling bin (i.e. batteries) even if they were unsure if they were recyclable
- 3% of those who felt limited by the types of material accepted wanted a recycling 'event' that would collect more items
- 14% of those who receive curbside recycling place electronics in the curbside collection bin. Of those, 14% felt limited by the types of materials accepted, and 22% of those admitted to placing items in the recycling bin (i.e. electronics) even if they were unsure if they were recyclable

Styrofoam

Styrofoam is one of the only contaminates that receives regular negative attention in the news media. From this negativity, there has been a steady decline in styrofoam use over recent years from its detrimental environmental impacts. Even with a steady decline, 23% of residents frequently place styrofoam in their curbside recycling bin. While there has been a steady decline in styrofoam use, it is still heavily used in the packaging industries.

- 72% of those who frequently place stryofoam in their curbside recycling bin have a bachelors degree of higher in education and 62% do not know if an item is recyclable or not
- 68% of those who frequently place styrofoam in curbside recycling feel limited by the types of materials collected in recycling.

Bagged Recyclables

In Northern Virginia, recyclables that are placed in plastic bags will discarded as trash waste. 49% of the residential population who receive curbside collection place their recycling in a bag. This has a severe consequence for the integrity of our recycling program, and the increase price gouging based on contamination rate.

- 31% of the residents who frequently washout their recyclables (cans, cartons, etc.) never bag their recycling items
- 18% of residents who always bag their recycling do not washout their recyclables (cans, cartons, etc.)

Overall

In general, the City of Fairfax has a considerable low contamination rate of their recyclables. City residents scored an average of 14.4 out of 60 for knowledge and 3.5 out of 12 for practices. The lack of knowledge of the City's recycling policy leads towards the trend of wishful recycling (placing an item in the curbside collection bin hoping it will be recycled). This ideological practice of wishful recycling leads to higher levels contamination.

4. SWMP Public Participation

- 74.2% of residents have placed items in the curbside collection bin that they were unsure about their recyclability
- 76% have a bachelor's degree or higher and 63% have lived in the City for more than 10 years.

The City of Fairfax has a highly educated population that has lived in the City for over a decade. From the variables of recycling knowledge and practices, this research concludes that wishful recycling is the continual cause of contamination in curbside recycling. The best way to combat this issue, as specified by the residential survey, is to have an annual or bi-annual circulation of recycling information. This would include an array of information, including: the recycling and trash guide, information on leaf collection, important dates, glass recycling updates, composting information etc., as well as a magnet with a recycling guide.

In an open ended response question, 23% of respondents wanted another magnet to remind them of updated recycling policies. Similarly, an information guide mailed to each resident on an annual or bi-annual basis would drastically reduce the 74% of residents who place items in the curbside collection bin that they were unsure about their recyclability.

Wishful recycling is a problem is the City, but with targeted education and outreach, continual messaging and consistent sustainability campaigns can increase the use of recycling best practices.

4.1.3 Solid Waste Management Plan Advisory Committee

City staff used interagency collaboration and other networking to populate a 12-person SWMPAC. Originally, a half-day workshop was envisioned; however, the team determined that two shorter evening meetings would be more suitable. The team worked together to develop the two agendas, and the City scheduled the location and times for the meetings. The consultant facilitated the meetings and recorded the results, generating a summary of the input from the participants.

SMWPAC members were asked to commit to two evening meetings and to voluntarily participate in other public outreach activities, such as the public hearing, as they might be able. The participants consisted of solid waste managers in the region, interested residents, a member of the City Council, a member of the Environmental Sustainability Committee, a staff representative from George Mason University, and local business people. In addition to the working meetings, some members visited the Fairfax County I-66 Transfer Station on West Ox Road on October 23rd, which is the destination of most of the trash from City of Fairfax and also hosts many other operations such as brush and pallet grinding, scrap metal recycling, and household hazardous waste collection.

The first working meeting was completed on April 9 and introduced the purpose of the plan update, highlighted items for consideration, and answered the committee members questions about their knowledge and thoughts about solid waste management in the City and generally. The second meeting was held May 21 to glean feedback from the committee members regarding the draft goals, objectives and actions that the project team has drafted.

The second meeting was held May 21 to obtain guidance and feedback from the committee members regarding the draft goals, objectives and actions that the project team drafted.

4. SWMP Public Participation

The SWMPAC meeting agendas, presentations, meeting minutes and documentation are included in Appendix 3.

4.1.4 Establishment of Goals and Priorities

The SWMPAC was asked to give feedback on the goals, objectives, and actions, in order to evaluate them for potential impact and cost, and then prioritize them for action over the planning period. The SWMPAC evaluated the actions for low, medium, or high impact; low, medium, or high cost; and, low, medium, or high priority, which could also be thought of as urgency. Figure 4-1 explains the categories. The results of their evaluation are included in Appendix 3.

Impact

- Low – Streamlines processes or better implements existing systems/policies; changes likely more perceived than measured.
- Medium – Results in measurable change to actions or outcomes.
- High – Results in notable change to actions or outcomes, such as an entire new feature/service, significant tonnage, percentage points on the recycling rate, etc.

Cost

- Low – Can largely be accomplished using current or marginally greater staffing levels or expenditures, usually rearranging priorities.
- Medium – Will require additional levels of allocated funding, a modest grant, or reassignment of duties, but reason would dictate that the need could be accommodated.
- High – Will require significant additional fund allocation.

Priority

- Low – Longer term projects or initiatives; not critical for other projects or initiatives to be successful.
- Medium – Mid-term projects or initiatives; the next priority after accomplishing the most critical or pressing actions.
- High – The most important, critical, or nearest-term projects and initiatives.

Figure 4-1 Description of Rating Factors for the Goals

After these two meetings were concluded, the SWMPAC members were requested to attend the public hearing if they were able, so that if during the course of that hearing a member of the City Council or the public asked about the SWMPAC process, one or more members would be present to respond. To further its outreach and seek citizen input, the City held a public meeting on November, 2 2015. A copy of the documents and presentation from the Public Meeting can be found in Appendix 1.

4.1.5 Public Hearing

As required by Virginia law, a public hearing with the City Council was scheduled for November 10, 2015. A PowerPoint presentation was given to inform the Council and the public about the SWMP and its development. A copy of the public hearing and City adoption documents can be found in Appendix 2.

4. SWMP Public Participation

4.1.6 Summary of Outreach Process

Throughout the public outreach process, notes and memos were prepared to document the work of the City staff and the consultant. The results of the intercept interviews and the online surveys were compiled, summarized, and evaluated.

4. SWMP Public Participation

This page intentionally left blank

5. Solid Waste Management Goals

To support and promote the six levels of the waste management hierarchy set forth in 9VAC20-130-30 (see **Error! Reference source not found.**) and plan for a more sustainable future, the City of Fairfax has established a set of goals for the 20-year planning period.

A goal is a broad idea that we want to achieve. Goals are general intentions and are not specific enough to be measured and are typically long term. The strategic goals for the City's solid waste management program are as follows:

Goal 1: Lead by example. Reduce waste and increase diversion by City of Fairfax government.

Goal 2: Reduce waste and increase diversion from detached homes and townhouses.

Goal 3: Reduce waste and increase diversion from commercial, multi-family and institutional entities.

Goal 4: Reduce waste and increase diversion from development projects.

Goal 5: Collaborate with non-profits, schools and municipalities in Northern Virginia region to reduce waste and increase diversion.

Goal 6: Improve City-wide waste reduction and diversion.

For a more complete discussion of the Goals, see Chapter 7.

5. Solid Waste Management Goals

This page intentionally left blank

6. Solid Waste Management System

MSW consists of everyday things that people use and throw away. Regulatorily, it includes and excludes specific items. MSW *does* include packaging, yard waste, food scraps, household hazardous waste, waste products from commercial activity, and some potentially polluting items like paint and batteries. MSW *does not* include sewage, industrial process wastes, agricultural wastes, or mining waste. This chapter presents an analysis of the City's current and projected solid waste management activities for MSW, including trash, recyclables, construction and demolition debris, vegetative waste, compost, and special wastes, organized using the structure of the waste management hierarchy and an integrated approach to waste management.

The waste management hierarchy (as seen here as a duplicate of Figure 5-1.) has been adopted by the Commonwealth of Virginia and the U.S. EPA as an order of preference for waste management techniques and technologies. It is usually represented or illustrated using an "upside-down" pyramid, with source reduction at the top, being the most-preferred method, and disposal at the bottom, being the least-preferred. The inverted orientation of the pyramid further emphasizes the order of preference by allotting the largest piece of the chart to source reduction and reuse and, correspondingly, the smallest portion of the chart to disposal.

Integrated waste management is the concept of solid waste managers considering all aspects of the waste system, from the point of generation, through collection, transportation, and storage, and on to the material's ultimate destination for recycling, composting, resource recovery, or disposal. It also includes litter control and illegal dumping abatement and applies the waste management hierarchy to identify the methods and responsible parties which are most appropriate to provide for all of these activities in an efficient and environmentally sound manner.[12]

6.1 Refuse and Recycling

In this document, "refuse and recycling" refers to the portion of MSW generated by residential and commercial activities on a day-to-day basis, which is generally deposited by the generators in trash cans or recycling bins, or otherwise set out for collection by the City or a private hauler. "Refuse and Recycling" is also the name of the City agency that runs the curbside collection program.

Table 6-1, and the corresponding tables in the subsequent subsections, will outline the current City programs, anticipated future needs to achieve the SWMP Goals from Chapter 5, and the recommended

[12] "Elements of Virginia's Solid Waste Management Program," Virginia DEQ, 2005.

6. Solid Waste Management System

strategies to meet those needs over the SWMP planning period. The table content is categorized in a framework of integrated waste management in keeping with the waste management hierarchy.

Table 6-1 Refuse and Recycling - Current City Programs, Future Needs and SWMP Strategies by Category

	Current programs	Future Needs	SWMP Strategies
Source Reduction and Reuse	Public education and outreach efforts, including online resources, mailers, Cityscene articles, and more. Environmental Sustainability Outreach and Education	Overall waste generation is expected to increase 18 percent by 2040. Need for increased source reduction and reuse of MSW to reduce generation quantities.	Improvements to public education and outreach efforts (for residents, city staff, schools and businesses) to promote source reduction and reuse. Monitor, report and publicize waste generation. Provide incentives for businesses who find beneficial reuse or source reduction opportunities for their materials. Partnerships to promote donation and organize collection events for reusable items. Evaluation of a pay-as-you-throw system. Implementation of internal source reduction and reuse programs. Implementation of organics source reduction programs (survey answers expressed interest in at-home composting).

6. Solid Waste Management System

	Current programs	Future Needs	SWMP Strategies
Collection	A comprehensive and full-service curbside collection program for refuse and recycling to 6,517 single-family homes on a once-per-week basis, the same day, no need to call in for any services, including special collection services for elderly and disabled. Spring Cleanup Day and part-time staff in the summer for litter control.	Diversion of more organics; (survey answers expressed interest in curbside collection of food waste.) Greater diversion of recyclable materials like bottles, cans, jars, and paper.	Issue rolling carts to City customers to set out recyclables (survey answers were generally supportive of this idea.) Evaluate providing refuse and recycling collection services to multi-family properties. Provide technical support for initializing recycling collection at businesses.

6. Solid Waste Management System

	Current programs	Future Needs	SWMP Strategies
Recycling and composting	Curbside collection of single stream recyclables, yard waste, metal, lumber, brush/stumps, and vacuumed leaves. Some items collected as construction debris or "bulky" may be recycled (e.g. metal from appliances). Recycling containers at City facilities. Recycling containers at 9 City parks. Glass recycling container located at 10700 Page Avenue Composting drop-off center at City Hall that accepts and transports food scraps to be composted City recycling policy administration through City Code, Section 74-9. Public education and outreach efforts, including online resources, mailers, Cityscene articles, and more.	Reported recycling rates are carried by yard waste tonnages. The City wants to see more source separation of single stream recyclables from all sectors: business, institutions, multi-family dwelling units, and its own curbside collection program customers.	Evaluate requirements for multi-family dwellings and businesses, including planning, materials, and reporting. Increase in access to recycling containers away-from-home, such as in parks or pedestrian areas. Issue rolling carts to City customers to set out recyclables. Improve and expand recycling efforts at City facilities and public events. Continue to report recycling and disposal figures to VA DEQ, annually. Evaluate a curbside composting program.

6. Solid Waste Management System

	Current programs	Future Needs	SWMP Strategies
Energy Recovery	All MSW collected by the City is delivered to the Fairfax County I-66 Transfer Station, which currently utilizes the I-95 Energy/Resource Recovery Facility as its primary disposal option.	The Fairfax County facilities are expected to be available during the planning period. Facility capacity is addressed in greater detail in Chapter 3 of this SWMP document.	In the event that the I-95 facility became unavailable, the City would seek to negotiate to send its waste for disposal at the Alexandria/Arlington waste to energy plant.
Treatment and Disposal	No refuse or recycling is currently delivered directly to a landfill for disposal.	None	The City of Fairfax intends that MSW generated by its residents and businesses be sent for land disposal only on a "back-up" or emergency basis.

Highlights of Refuse and Recycling Management

- The City offers a web page linking to waste reduction information, such as environmental details from the U.S. EPA, names of charities that take particular items, and resources that help residents immediately take action to stop generating certain waste products.
- The Environmental Sustainability Committee (ESC) is committed to guiding the City of Fairfax to become an environmentally sustainable "green city." The ESC recommends programs and policies and undertakes actions that will engage residents and businesses in the creation of a sustainable city.
    - The Committee is comprised of nine members. Eight members are appointed by the City Council for a two-year term. The ninth member is a member of the City School Board who is designated annually by the Board.
    - The Committee advises and assists the City Council and all Boards and Commissions on policies and practices dealing with the environment and energy conservation. In this capacity, the Committee will act as an advocate for protecting, preserving and enhancing the environment.
    - The Committee will also provide a means for promoting discussion between the public and private sectors on issues related to the environment. Its mission includes advising and supporting the neighborhood recycling program.
    - The Committee writes an annual report on the state of the environment in the City, City environmental programs, and its own activities.
- At the request of the Mayor and City Council, the ESC completed an evaluation of the City's existing recycling program and provided recommendations on how to improve upon the program. The report was submitted on May 8, 2013, and affirms recycling as a "vital component" of waste reduction and a keystone of the City's "gold standard" services. The report identified commercial recycling, public space and event recycling, rolling carts and education for residential programs, and organics (including yard waste) as areas for effort and improvement. The report concluded

6. Solid Waste Management System

by noting that effective solid waste planning, outreach, and program management are also critical. The text of the report is included in Appendix 4 and can be found on the City's website at www.fairfaxva.gov/esc.

- Source reduction of organics, particularly food waste, is critical. Respondents to the Solid Waste Management Survey expressed interest in at-home composting or curbside collection. More education and resources will be needed to promote this activity.
- The current curbside collection program system of unlimited "free" bulky collection does not encourage residents to reuse, repair, or sell usable items. The collection and disposal of each item has an environmental and cost impact.
- The City's recycling rate is above average, but it is bolstered heavily by the recycling of yard waste, brush, and vacuum leaves. The City wants to see a greater proportion of the recycling rate arising from materials directed into single stream recycling bins—plastic, metal, glass, and paper.
- The City will evaluate converting its curbside collection program customers to large, 96-gallon rolling carts, an upgrade from the current system of small, 18-gallon City-provided bins supplemented by residents' own containers. It is anticipated that this measure could increase the weight of the materials recycled by as much as 40 percent.

6.2 Construction and Demolition Debris

With regard to facilities, all disposal and recycling capacity in the region is currently owned and operated by private companies. It is expected that recycling facilities will expand to absorb some materials, and other closed facilities may convert to transfer operations to send material to farther away debris landfills.[13] While these eventualities may result in higher per-ton costs than the present conditions, disposing of debris in a Subtitle-D permitted MSW facility (an action that is *allowed* but not *required*) would likely still have higher costs than transfer or recycling off the material through a debris system.

[13] Fairfax County 2015 Solid Waste Management Plan Data

6. Solid Waste Management System

Table 6-2 Construction and Demolition Debris - Current City Programs, Future Needs and SWMP Strategies by Category

	Current programs	Future Needs	SWMP Strategies
Source Reduction and Reuse	The City does not currently operate any programs aimed at CDD.	In some communities unwanted building materials are donated to non-profits or schools. There needs to be an organization to orchestrate the exchange. This could also be done by the City.	Develop and improve public education and outreach (for residents, city staff, and developers) to promote source reduction and reuse of CDD. Develop and implement incentives for developers to reduce and reuse CDD.
Collection	Curbside collection from City customers of homeowner-generated debris from do-it-yourself projects, once weekly, no need to call in.	Renovations and teardown/rebuilding of existing homes are expected to continue, increasing volumes of material improperly set out at the curb. Curbside collection program service is frequently abused by contractors working in the homes of customers.	The City will evaluate how to use regulatory tools, such as permits or enforcement, to discourage improper set-outs.
Recycling and composting	Scrap metal is recycled when collected at the curb.	Due to uncertain disposal options and increasing home-based debris generation, the City needs to identify ways to divert more material to recycling.	Update the Public Facilities Manual to reduce construction waste. Connect the audit and management of proper waste management systems with the

6. Solid Waste Management System

	Current programs	Future Needs	SWMP Strategies
			building permit process.
Energy Recovery	Not applicable: The relatively high cost per ton combined with facility rules that ban non-combustible materials result in little to no CDD being delivered to energy-from-waste facilities.		
Treatment and Disposal	At present, construction debris—both that collected by City forces and the private sector—is disposed in one or more debris landfills.	Due to uncertain disposal options and increasing home-based debris generation, the City needs to identify ways to divert more material to recycling.	Connect recycling requirements with the building permitting process. Evaluate and implement economic incentives for recycling and diversion of construction and demolition materials. Evaluate curbside collection program operations for opportunities to divert more home construction material from disposal.

Highlights of Construction and Demolition Debris Management

Discussion during the SWMPAC sessions revealed that there is significant abuse of the City's curbside collection of construction material. Homeowners are not supposed to put material generated by contractors at the curb, but many do so, anyhow. The system was designed to bear the quantities usually associated with professional work. City staff have little recourse for enforcing against this disallowed behavior.

6.3 Industrial Waste

There are very few industrial waste generators in the City of Fairfax. Many scraps or wastes generated in an industrial activity are recycled back into the manufacturing process or marketed to other users as a business practice; neither of these actions constitutes "recycling." The only land in the City zoned Industrial is the Pickett Road tank farm and the buildings across Pickett Road from it, which are generally occupied by offices or retailers. The primary interaction by the City with regards to these generators will

6. Solid Waste Management System

be as businesses operating in the City, which businesses would be subject to any recycling requirements or other regulations.

Table 6-3 Industrial Waste - Current City Programs, Future Needs and SWMP Strategies by Category

	Current programs	Future Needs	SWMP Strategies
Source Reduction and Reuse	The City does not currently operate any programs aimed at industrial generators.	Much industrial waste is highly regulated and does not enter the MSW management system; however, those generators are also businesses operating in the City.	Industrial generators would be subject to all City programs aimed at businesses, such as outreach encouraging reuse, donation, and source reduction, and regulatory recognition for businesses who develop source reduction opportunities for their materials.
Collection	The City does not currently operate any collection programs for industrial waste.	None anticipated	None
Recycling and composting	The City does not currently operate any programs aimed at industrial generators; however, as businesses operating in the City, they are welcome to bring MSW recyclables to the drop-off center.	Much industrial waste is highly regulated and does not enter the MSW management system; however, those generators are also businesses operating in the City.	Industrial generators would be subject to all City programs aimed at businesses, such as recycling requirements and regulatory recognition for businesses who develop beneficial reuse opportunities for their materials.

6. Solid Waste Management System

	Current programs	Future Needs	SWMP Strategies
Energy Recovery	The City does not currently operate any energy recovery programs for industrial waste.	Not applicable—most industrial materials are not accepted by energy-from-waste facilities.	None
Treatment and Disposal	The City does not currently operate any disposal programs for industrial waste.	Not applicable—most industrial materials require regulated management.	None

6.4 Vegetative Waste

The City of Fairfax collects vegetative waste from curbside collection program customers in three streams: loose vacuumed leaves, brush and stumps, and yard waste set out in cans or paper bags. Typically, activities that generate vegetative waste at a commercial site are done by a landscaper, who usually takes the waste offsite upon completion of the service. These companies transport the vegetative waste to a designated facility, where the per-ton cost is much lower than disposing of it as MSW. In addition, in most of the localities in Northern Virginia, mixing vegetative waste with trash is prohibited and not acceptable.

Table 6-4 Vegetative Waste - Current City Programs, Future Needs and SWMP Strategies by Category

	Current programs	Future Needs	SWMP Strategies
Source Reduction and Reuse	Public education and outreach efforts, including online resources, mailers, Cityscene articles, and more	To further encourage and empower residents to reduce vegetative waste by composting, grass cycling, or mulching their leaves with a mower, the City will need educational resources.	Evaluate a subsidization of at-home composting bins and expansion of the outreach program.
Collection	Collection of yard waste and brush weekly, no need to call-in; seasonal collection of vacuumed leaves.	As homes are infilled, new customers will come online.	Continue to provide a high level of service, capturing and recycling or composting as much vegetative waste from curbside collection program customers, as possible.

6. Solid Waste Management System

	Current programs	Future Needs	SWMP Strategies
Recycling and composting	The City currently recycles all the vegetative waste it collects from its customers.	The current collection program should be able to add customers easily as new homes are built; curbside collection yard waste program could be modified to add food waste.	The City will evaluate ways to support a larger, regional approach to organics diversion, particularly of the possibility of collecting food waste with vegetative waste.
Energy Recovery	Not applicable: Vegetative waste is generally not accepted in controlled combustion energy-from-waste systems like those in Northern Virginia		
Treatment and Disposal	The City currently delivers all collected vegetative waste to recycling or composting facilities; presumably, commercial vegetative waste is also going to such facilities via landscapers.	None anticipated; delivering vegetative waste to an MSW disposal facility is poor business practice.	None

Highlights of Vegetative Waste Management

Although food waste is not technically part of vegetative waste, it is co-collected with vegetative waste in many of the communities that have added food waste to their diversion services. “Include the food!” is the slogan used to communicate this in Portland, OR, for example. If one or more facilities were to come online within hauling distance of the City which accepted all organics, the City might be able to add food scraps to its yard waste collection program, thereby increasing diversion.

6.5 Special Wastes

The single largest special waste source reduction, recycling, and proper disposal opportunity available to City residents, besides individual action, is an agreement with Fairfax County for City residents to participate in the special waste programs it offers. These include acceptance of computers and other items for electronics recycling; use of the HHW drop-off program (which includes rechargeable batteries); acceptance of automotive fluids and batteries; and, disposal of tires at the I-66 Transfer Station or I-95 Waste Management Facility.

6. Solid Waste Management System

Table 6-5 Special Wastes Current City Programs, Future Needs and SWMP Strategies by Category

	Current programs	Future Needs	SWMP Strategies
Source Reduction and Reuse	Public education and outreach efforts, including online resources, mailers, Cityscene articles, and more. Agreement with Fairfax County to open programs and facilities to City residents.	None anticipated; these programs are comprehensive and free of charge.	Continued education and outreach encouraging more residents to use the programs.
Collection	The City does not collect any special wastes separately at the curb Medicine drop-off events are held annually.	None anticipated	None
Recycling and composting	Some of the special wastes collected at the Property Yard, such as used oil and batteriesfrom fleet vehicles are recycled.	None anticipated	None
Energy Recovery	Not applicable	None anticipated	None

6. Solid Waste Management System

	Current programs	Future Needs	SWMP Strategies
Treatment and Disposal	Although they are not specifically City programs, some special wastes are combusted: Over 90% of potentially infectious medical waste is incinerated, according to the EPA; tires are often processed to perform as tire-derived fuel in industrial boilers; and, some HHW chemicals are combusted as fuel in kilns and furnaces.	None anticipated	None

6. Solid Waste Management System

This page intentionally left blank

7. Implementation Plan

7.1 Explanation of the Approach

The method of planning whereby the high-level, long-term goals are first identified has been the approach used for this SWMP. Once the goals are established, one or more objectives are created, which are more specific and delimited by time, such as a milestone year or time period to start or complete the objective. The third level of planning is the strategies, which are specific activities the implementing organization will do to accomplish the objectives and, eventually, the goals. The definitions and examples in Figure 7-1 were used by City staff, the members of the SWMPAC, and the City Council to make sure all parties had the same understanding of the goals system.

Goal

- Definition: A goal is a broad idea that we want to achieve. Goals are general intentions and are not specific enough to be measured. They are also typically long term.
- Example: Increase source reduction, reuse and recycling in the City in order to minimize waste generation and waste disposal requirements.

Objective

- Definition: Objectives are much more in depth than goals. An objective is a specific target within a general goal. Objectives should be specific, measurable, attainable, relevant, and time-bound. They typically have a short to medium timeframe. There will be one or more objectives associated with each goal.
- Example: Decrease single family/townhouse residents' per capita waste generation to five hundred (500) pounds per person per year by 2025.

Action

- Definition: Actions are detailed steps we plan to take to reach our goals and objectives.
- Examples: Provide large roller recycling bins to single family/townhouse residents to promote increased recycling.

Figure 7-1 Goals System used for the SWMP

As shown in this chapter, the actions not only fulfill the goals, they also fulfill the requirements of the SWMP.

The following tables present the Goals, Objectives, and Actions reviewed by the SWMPAC. Each objective has a milestone year associated with it, and the actions are listed in chronological order for each objective. Also shown in the tables are the resources needed to implement and the party within the City that is responsible for implementation.

7. Implementation Plan

Goal 1. Lead by example. Reduce waste and increase diversion by City of Fairfax government

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party[14]
1	1	Develop and implement a waste reduction and recycling education and incentive program for the City staff by 2024	Train managers and maintenance staff of city buildings and facilities on the SWMP after each 5 year update.	N/A	Sustainability Coordinator
			Develop and implement annual employee education and outreach programs to increase participation in waste reduction and recycling efforts.	Educational materials	Sustainability Coordinator
			Annually evaluate waste and recycling containers at all City of Fairfax office buildings and public facilities and make improvements to containers and/or signage.	Signage, solid waste & recycling containers	Facilities Maintenance Supervisor
			Establish an Office "Green Team" to encourage other employees to reduce/recycle, continually evaluate reduction efforts and recycling services and recommend improvements to the City's departmental programs.	N/A	Environmental Sustainability Specialist
			Evaluate and implement employee incentives to encourage waste reduction and recycling biennially.	Employee incentives (e.g. prizes)	Environmental Sustainability Specialist
			Perform a waste audit biennially to evaluate the effectiveness of the waste reduction and recycling education and incentive program starting in 2024.	Temporary staff or professional auditing contractors to conduct the audit	Environmental Sustainability Specialist

[14] See Chapter 9 for a discussion of a recycling coordinator position and the funding levels associated with it.

7. Implementation Plan

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party[14]
1	2	Implement a sustainable procurement program by 2025	Prioritize and then pursue sustainable purchasing opportunities that maximize environmental, health and economic benefits in major purchasing categories, utilizing the "Sustainable Procurement Playbook for Cities."	N/A	Environmental Sustainability Specialist
	3	Update the Public Facilities Manual by 2025 to reduce construction waste	Research ways to reduce construction waste and update PFM. For example: Require the use of recycled materials in sub-base (e.g., recycled concrete aggregate), road mixes (e.g., crumb rubber) and surface treatments (e.g., glass traffic beads) in all public projects.)	N/A	Environmental Sustainability Specialist

7. Implementation Plan

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party[14]
1	4	Fully implement recycling in City parks by 2030[15]	Provide messaging and signage for recycling in City parks starting in 2016. Evaluate and improve every 3 years.	Signs, educational material	Sustainability Coordinator
			Pair all permanent trash bins with recycling bins by 2030.	Containers, installation materials (See Section 9.1 for detailed cost estimate)	Parks & Recreation Director
			Manage the pick-up and delivery of trash and recycling material at the parks.	Trucks, full time staff to manage the collection and transportation of recyclables (see Section 9.1 for detailed cost estimate)	Parks & Recreation Director
			Evaluate and improve placement of trash and recycling bins to improve effectiveness every 5 years starting in 2020.	Materials for installation and/or removal (for potential moving containers)	Parks & Recreation Director
			Phase out old cement-construction trash containers.	New trash containers (See Section 9.1 for detailed cost estimate)	Parks & Recreation Director

[15] See Chapter 9 for a discussion of the costs associated with recycling in the parks.

7. Implementation Plan

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party[14]
1	5	Provide best practice access to recycling in public spaces by 2030	Evaluate and improve placement of trash and recycling bins to improve effectiveness every 5 years starting in 2025.	Materials for installation and/or removal of containers	Environmental Sustainability Specialist
			Pair all city-owned outdoor permanent trash bins with recycling bins.	Recycling containers, installation materials	Environmental Sustainability Specialist
			Provide messaging and signage for recycling in public spaces. Evaluate and improve every 3 years.	Signs, educational material	Environmental Sustainability Specialist
			Provide access to recycling at all City-hosted and permitted events, starting with large events.	Recycling containers and bags, collection and transportation	Parks & Recreation Director

7. Implementation Plan

Goal 2. Reduce waste and increase diversion from detached homes and townhouses

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party
2	1	Decrease single family/townhouse residents' per capita waste generation to five hundred (500) pounds per person, per year by 2035	Evaluate alternative forms of collection financing, to provide greater incentive for residents to reduce waste, such as a "Pay as you Throw" program.	N/A	Environmental Sustainability Specialist
			Transition from the 18 gallon recycling bins to the 95 gallon rolling recycling carts.[16]	95 gallon rolling recycling carts (approximately 6,500 carts) (See Section 9.1 for detailed cost estimate)	Environmental Sustainability Specialist
			Continue implementation and enhance operations of the City's Composting Center.	Composting collection services and operating supplies	Sustainability Coordinator
			Develop and implement a backyard composting workshop program by 2024.	Workshop materials	Environmental Sustainability Specialist
			Evaluate the viability of curbside collection of food waste (including examination of regional facilities and participant attitudes) every two years, beginning in 2023.	N/A	Environmental Sustainability Specialist

[16] See Chapter 9 for a discussion of this activity and the costs associated with it.

7. Implementation Plan

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party
			Conduct a waste audit of curbside collected waste and recycling every 5 years to evaluate how well waste and recycling is sorted starting in 2023.	Temporary staff or professional auditing contractors to conduct the audit	Sustainability Coordinator
			Continue implementation and enhance operations of the City's Purple Can Recycling Center.	Glass collection equipment, signage, and contractors to haul and recycle glass	Sustainability Coordinator
2	2	Annually provide exceptional curbside collection service by meeting or exceeding performance measures, annually	Create performance measures other than # of misses in 2022.	N/A	Refuse and Recycling Supervisor
			Annually evaluate and report performance measures beginning in 2023.	N/A	Refuse and Recycling Supervisor
	3	Annually educate residents that receive curbside collection services about recycling, waste reduction and the City's solid waste services	Develop, implement and continually update an outreach and education program that promotes waste reduction and recycling; and informs residents about the City's solid waste services.	Educational material, postage	Sustainability Coordinator
	4	Maintain City curbside collection program services for single family homes	Evaluate and update contracts with solid waste and recycling facilities.	N/A	Operations Division Superintendent

7. Implementation Plan

Goal 3. Reduce waste and increase diversion from commercial, multi-family and institutional entities

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party
3	1	Increase baseline commercial recycling rate by 15% by 2035	Evaluate planning and reporting requirements for businesses in 2024	N/A	Environmental Sustainability Specialist
			Continue to partner with Fairfax County to estimate multi-family and commercial waste and recycling data.	N/A	Sustainability Coordinator
			Evaluate the greater use of enforcement of regulations on businesses by 2025. Re-evaluate enforcement during any regulatory or programmatic change.	N/A	Environmental Sustainability Specialist
			Implement enforcement changes within 12 months of any regulatory or programmatic change.	Enforcement staff and materials	Refuse and Recycling Supervisor
			Evaluate having the City provide curbside collection services to multi-family dwelling units.	N/A	Operations Division Superintendent
			Evaluate and update solid waste management regulations for commercial, multi-family and institutional entities (e.g. require recyclables, planning requirements, reporting requirements) to reflect the marketplace every 5 years starting in 2025.	N/A	Environmental Sustainability Specialist

7. Implementation Plan

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party
3	2	Develop and implement a commercial outreach and education program by 2026	Develop, implement and continually update a commercial outreach/education program that focuses on target audiences (multi-family, restaurants, shops, etc.) starting in 2026.	Education materials, postage	Environmental Sustainability Specialist
			Annually evaluate use of alternative funding sources for outreach and education programs starting in 2026.	N/A	Environmental Sustainability Specialist
			Visit 20 businesses per year starting in 2027.	Temporary staff or students to visit businesses (1 staff member: $15/hr., 20hrs/week)	Environmental Sustainability Specialist
			Visit each multifamily property at least once every two years starting in 2026.	Temporary staff to visit multi-family dwelling units	Environmental Sustainability Specialist

7. Implementation Plan

Goal 4. Reduce waste and increase diversion from development projects

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party
4	1	Update solid waste management regulations by 2025	Develop and enact a construction and demolition (C&D) materials and debris recycling ordinance.	N/A	Environmental Sustainability Specialist
			Increase messaging to developers and residents regarding C&D materials and debris awareness efforts to increase building material diversion.	Educational materials	Environmental Sustainability Specialist
	2	Connect the audit and management of proper waste management systems with the building permit process by 2028	Evaluate updating regulations to reduce waste and increase diversion from development projects by 2027 (e.g. require waste management systems to be shown on site plans or requiring certain sight line or distances from exits.)	N/A	Environmental Sustainability Specialist
			Adopt regulatory changes to go into effect January 1, 2028.	N/A	Environmental Sustainability Specialist
	3	Develop and implement incentives for developers to reduce and recycle waste by 2030	For projects that appropriately document they reused, recycled or composted a certain percentage of their construction/demolition materials, return a portion of their deposits based on the percentage of diversion.	Percentage of deposit reimbursements	Environmental Sustainability Specialist
			Based on the percentage of diversion achieved for development projects, return a portion of the deposit when appropriate and sufficient documentation is available on reuse, recycling, and composting activities for C&D materials and debris.	Percentage of Deposit reimbursement	Environmental Sustainability Specialist

7. Implementation Plan

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party

Goal 5. Collaborate with non-profits, schools and municipalities in Northern Virginia region to reduce waste and increase diversion

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party
5	1	Regularly attend regional solid waste management meetings	Regularly attend regional solid waste management meetings.	Travel expenses	Sustainability Coordinator
	2	Develop and implement a waste reduction and recycling education program for City of Fairfax public school students by 2028	Partner with Fairfax County on their existing waste reduction and recycling education program.	Agreement with Fairfax County	Environmental Sustainability Specialist
			Coordinate with Fairfax County give presentations at each City School on waste and recycling once a year to generate impressions to at least 100 students per school annually.	N/A	Environmental Sustainability Specialist
	3	Partner on waste reduction and/or recycling projects	Promote recycling opportunities through nonprofit organizations, local universities, thrift shops, home stores, supermarkets and shopping malls.	Educational materials	Environmental Sustainability Specialist

7. Implementation Plan

Goal 6. Improve City-wide waste reduction and diversion

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party
6	1	Integrate waste reduction into the City legislative agendas	Be a strong advocate for legislation and programs regionally, statewide and nationally to make businesses responsible for their packages and products	N/A	Sustainability Coordinator
			Include reinstatement of annual statewide reporting in the City's platform.	N/A	Sustainability Coordinator
	2	Maintain a City-wide solid waste and recycling database	Collect and track solid waste and recycling data using the database for the annual DEQ recycling rate report.	Software costs	Sustainability Coordinator
			Enhance the solid waste and recycling database and data management process every five years.	Software costs	Sustainability Coordinator
			Report refuse and recycling data annually to the DEQ.	N/A	Sustainability Coordinator
	3	Develop and update City-wide information on waste reduction and recycling, annually	Update www.fairfaxva.gov/recycling website annually.	N/A	Sustainability Coordinator
			Use communications tools (e.g. Cityscene, gov delivery, etc.) to publish waste reduction and recycling tips on a regular basis.	N/A	Environmental Sustainability Specialist
			Engage City social media outlets; periodically update content according to best practices.	N/A	Environmental Sustainability Specialist

7. Implementation Plan

Goal	Objective Number	Objective	Action	Resources needed	Responsible Party
			Develop and implement a food waste reduction education program beginning in 2025.	Educational materials, postage	Environmental Sustainability Specialist
	4	Develop and implement a City-wide composting program by 2020	Provide free or reduced cost composting bins to all residents.[17]	Composting bins	Sustainability Coordinator
			Continue implementation of the City's drop-off Composting Center program.		Sustainability Coordinator
			Encourage and support on-site composting at homes, schools, colleges, businesses and institutions with sufficient space (e.g. vermicomposting.)		Environmental Sustainability Specialist

[18] Webinar training by VDEQ, "Solid Waste Management Plans Update," March 5, 2014.

This page intentionally left blank

8. Implementation Plan

8.1 Amendments to Solid Waste Management Plan

SWPUs must notify VDEQ every five years of any SWMP updates. Minor amendments are for notification purposes only. Major amendments require a public hearing and must be approved by VDEQ.

Examples of Minor Amendments include:

- Any addition, deletion, or cessation of operations of any facility that is not a solid waste disposal facility.
- Any change that moves higher in the waste management hierarchy.
- Any non-substantive administrative change such as a name change.

The City has one minor amendment to report. The City closed the Property Yard Recycling Center on April 3, 2020. The Property Yard Recycling Center, used to accept single stream recyclables, used clothing, and some special wastes (antifreeze, waste oil and oil filters, rechargeable batteries, tires, and car batteries). The Property Yard Recycling Center was closed due to ongoing issues associated with illegal dumping.

The City does not have major amendment to report for this reporting period. Examples of Major Amendments include:

- Any addition, deletion, or cessation of operation of any solid waste disposal facility;
- Any increase in landfill capacity;
- Adoption of a Recycling Action Plan;
- Any changes that move lower in the waste management hierarchy; and/or
- Any change to membership in the approved area.

Presently, there are no disposal facilities located in the City of Fairfax, nor are there any anticipated during the planning horizon. The City has no intention of moving downward on the waste management hierarchy, and it is the sole member of this planning unit. Due to meeting and exceeding the mandated recycling rate, and in anticipation of continuing to do so, the City has no need to adopt and file a Recycling Action Plan.

8.2 Recycling Requirements and Reporting

Section 9VAC20-130-125 sets out the mandatory recycling requirements for localities in Virginia. Most localities are required to recycle 25 percent of their MSW using a provided calculation. If a locality has a population density of less than 100 persons per square mile, or if it does not have a seasonally adjusted civilian unemployment rate for the immediately preceding calendar year that is at least 50% greater than the state average as reported by the Virginia Employment Commission for such year, the requirement is to maintain a 15 percent recycling rate. By these guidelines, the City of Fairfax is required to maintain a 25 percent recycling rate. In 2019, the City's recycling rate was 48%.

Section 9VAC20-130-165 sets the schedule and frequency for recycling rate reporting. When the regulation was initially promulgated, every city, county, town or region was to report its recycling rate by April 30 of each year. Under revised legislation, after 2012 reporting, some jurisdictions (SWPUs with

8. Implementation Plan

populations of 100,000 or less) are only required to report every 4 years. The next reportable year would be 2024. The 17 (of 71) SWPUs who are required to report annually represent 86% of the tonnage of recyclable materials collected.[18] A number of those eligible to report only every 4 years have indicated that they will continue to track their annual recycling, and will submit an annual report to DEQ. This includes City of Fairfax. Table 8-1 shows the 17 planning units required to report annually.

Table 8-1 Planning Units Required by 9VAC20-130-165 to Report Recycling Rates Annually

Northern Virginia	Within 100 miles of Fairfax	Other Regions of Virginia
Alexandria	Northern Shenandoah Regional Commission	Augusta-Staunton-Waynesboro
Arlington County	Rappahannock-Rapidan Regional Commission	Central Virginia Waste Management Authority
Fairfax County	Thomas Jefferson Planning District Commission	Hampton Roads Regional
Loudoun County		Montgomery Regional
Prince William County		Mt Rogers PDC
Spotsylvania County		Newport News
		Region 2000
		Virginia Peninsulas PSA

The methodology for calculating the recycling rate is prescribed by the VDEQ, and is as follows:

Recycling Rate = [PRMs recycled] ÷ [MSW generated] + [all Credits in C]

Where:

- "PRMs recycled" equals the amount of principal recyclable materials received for recycling each calendar year. PRMs are a specified list of materials eligible to be counted.
- "MSW generated" equals the sum of PRMs recycled and "MSW disposed."
    - "MSW disposed" equals the amount of MSW delivered to landfills, transfer stations, incineration and waste-to-energy facilities.
- "All Credits" refers to percentage points that may be added for various activities. The possible credits are:
    - A credit of one ton for each ton of any non-municipal solid waste material that is recycled;
    - A credit of one ton for each ton of any solid waste material that is reused;
    - A credit of one ton for each ton of recycling residue generated in Virginia and deposited in a landfill permitted under § 10.1-1408.1 of the Code of Virginia;
    - A credit of two percentage points of the minimum recycling rate mandated for the solid waste planning unit for a source reduction program that is implemented within the solid waste planning unit. The existence and operation of such a program shall be certified by the solid waste planning unit; and

[18] Webinar training by VDEQ, "Solid Waste Management Plans Update," March 5, 2014.

8. Implementation Plan

- A credit of one ton for each inoperable vehicle for which a locality receives reimbursement from the Virginia Department of Motor Vehicles under § 46.2-1407 of the Code of Virginia.

The amounts shall be expressed in tons using one of the methods below:

1. The actual weight of each component in tons; or
2. The volume of each component, converted to weight in tons, using a conversion chart provided by VDEQ

Page intentionally left blank

9. Funding

The City of Fairfax has historically used appropriations from the General Fund for the Refuse and Recycling programs. The tax base is diverse: roughly half of the General Fund is sourced from real property taxes, and that fund base is split evenly between the residential and commercial tax bases.[19] Refuse and recycling program expenditures in FY15 budget expenses were adopted at $2,561,979. The 2013 population estimate was 23,938 persons, yielding a per capita cost for refuse and recycling of $107.03 per person. Alternatively, there were approximately 6,400 curbside collection program customers. Refuse and recycling operations in FY2015 were predominantly a direct service provision to these customers.

The closest price and service comparison available is to the Fairfax County Sanitation Districts. In select areas, the County provides a high level of curbside collection service for a "base rate," which was $345 for FY2015.[20] The service level is slightly less generous than that enjoyed by City customers—for example, bulky collections are limited to 5 per fiscal year, and any beyond that are charged by the cubic yard—but County customers do receive large rolling carts for setting out their trash, recyclables, and yard waste at no addition charge. Some Sanitary District customers also receive vacuum leaf collection, as City of Fairfax customers do, for which they pay an additional fee. The vacuum leaf fee in Fairfax County is $0.015 center per $100 of assessed real estate value. In FY2015, the estimated revenue was $2,122,695 for approximately 25,000 homes,[21] or an average of about $84.90 per customer. This gives a combined cost of $429.91 per County customer for service comparable to that provided to City customers.

The City of Fairfax plans to continue using this funding mechanism to operate its refuse and recycling program. The new programs and initiatives described in the goals, if implemented, would be funded similarly, or with grants such as the Virginia Litter Prevention and Recycling Grant, or other special appropriations. One of the actions involves evaluating a pay-as-you-throw program for one or more portions of the waste streams at the curb; however, this program is aimed at incentivizing waste reduction, not completely funding the Refuse and Recycling program.

9.1 Projected and Estimated Costs for Near-term Actions

The following cost projections were generated for some of the SWMP actions (see Chapter 7 for detailed list of actions) that had sufficient data to estimate future costs; they were anticipated to be of high priority and most likely to take place within the near term.

1. Environmental Sustainability Specialist
   Many of the ongoing, expanded, or new staff responsibilities described in the Implementation Plan (Chapter 7), will require new staffing as there is currently no appropriate staffer in the Public Works Operations Division. This position is critical for the implementation of the SWMP. Notably, The City is currently the only jurisdiction in Northern Virginia without a designated staff person to coordinate and implement a solid waste and recycling program. The duties of the Environmental Sustainability Specialist, at the onset of the SWMP implementation, would constitute one FTE.

[19] FY2016 budget document
[20] Fairfax County sets the base rate annually based on the previous year's operating costs and necessary capital expenditures—i.e., it fluctuates on a "break-even" basis.
[21] County of Fairfax, Va., FY2015 Budget Document, "Volume 2: Capital Construction and Other Operating Funds."

9. Funding

This staff person would require the knowledge, skills, and abilities comparable to a City of Fairfax GS 116, which salary would be $59,397-$94,867 annual compensation (FY23). This does not include benefits or any operational costs for the employee to complete his/her duties as assigned. The responsibilities of this employee include, but are not limited to:

- Develops, implements and maintains all solid waste programs as required in the SWMP;
- Updates solid waste regulations and policies;
- Administers contracts and agreements;
- Performs lead enforcement role for City's solid waste regulations and policies;
- Partners with surrounding jurisdictions;
- Researches new waste reduction and recycling opportunities;
- Develops grant applications; and
- Tracks solid waste and recycling tonnages and prepares state required reports.

2. Residential Solid Waste & Recycling Education and Outreach
   The City of Fairfax has allocated funding annually over the past few years for recycling education and outreach. The City has used past funding for developing and conduction educational campaigns. As an example, the City distributed a Solid Waste Services Guide and recycling magnet to residents who receive refuse and recycling services from the city. The guide featured information on residential curbside collection services such as recycling, yard waste, large items, hazardous waste, etc. The spending was primarily confined to printing costs and postage, as opposed to media buys or staff expenditures.

3. Recycling Containers in City Parks
   In 2015, the Parks and Recreation Department estimated that in order to fully implement recycling in the parks, 115 containers were needed at a cost of $1,100 each along with a new truck to service them at a cost of $100,000. The total outlay for the purchases would be $226,500.

4. Purchase of Recycling Carts
   The cost to purchase a 96-gallon recycling cart for each curbside collection program customer was spot-priced in May 2015 at $370,281 to $376,865. The price per cart varies based on whether or not the City would choose to have a radio frequency ID tag (RFID) installed in each cart and the price for the assembly and distribution to customers.

5. Home Composting Bins
   To assist residents with purchasing at-home composting bins, the City can negotiate a direct-sale with a vendor to provide residents with a discount of 15 to 40 percent. This would have no cost outlay; however, the City could subsidize the bins by funding further discounts. See www.cboinc.com/cvwma. In the example given, these discounts are in the range of $4.00 per unit for a simple compost pile containment device to $20.00 per unit for a more sophisticated product which retails for $94.50

Appendix 1 – Public Meeting Documents and Presentation

- Advertisement in CityScene newspaper announcing the public meeting and the public hearing
- Presentation given at public meeting

Appendix 1 – Public Meeting Documents and Presentation

This page intentionally left blank

Don't Bag It! Curbside Leaf Collection Begins November 2

The City of Fairfax will offer curbside leaf collection November 2 through December 31. Information: 703-385-LEAF.

Residents who receive city refuse service are asked to rake loose leaves to the curb. *Bagged leaves will not be collected through December 31.*

Light yard debris (such as grass clippings and weeds) may be included in leaf piles — but not stones, branches and other large items, which may cause injury to workers and damage equipment.

Please have all leaves raked to the curb by December 23 for prompt collection.

The city is divided into six sections, and leaves are collected in rotation by neighborhood about once every two weeks (soften more frequently). Heavy leaf fall or inclement weather may affect leaf collection. The city is among the only local jurisdictions to provide this service at no additional charge to its residents.

Sign up for electronic leaf collection updates on Fairfax City Alert, the city's electronic message system: *www.fairfaxva.gov/fairfaxcityalert.*

General Election will be Held November 3

- **Polls open from 6 am to 7 pm**
- **Election results posted on Cityscreen-12 and city website as available**
- **Remember: bring acceptable, valid photo identification to polls**

Information: *www.fairfaxva.gov* • *Registrar@fairfaxva.gov* • 703-385-7890

Police Department Creates 'Exchange Zone' For E-Commerce Transactions

City residents who seek a public location to conduct transactions with strangers for electronic-based sales/purchases now may use the Exchange Zone, a designated area in the City of Fairfax Police Department parking lot, 3730 Old Lee Highway.

The Exchange Zone was created for person-to-person legal, private e-commerce transactions.

Property may not be left unattended, and police personnel will not assist with transactions. Information: 703-385-7924.

Designating the police station parking lot as a meeting place may provide a deterrent for those with criminal intentions.

Practice caution when conducting e-commerce transactions. For example:

- Consider public locations, such as the Exchange Zone.
- Make exchanges during daylight hours.
- Avoid going alone to exchanges with strangers.
- Always tell someone the time and place of an exchange.
- Don't give strangers personal information.
- Avoid dark, remote or secluded locations.

Almanac

Offer Input on Solid Waste Management Plan at November Meetings

The city seeks public input on its proposed solid waste management plan and will hold meetings to provide the public opportunities to learn more and respond.

The city is developing a Solid Waste Management Plan with specific and measurable goals and objectives. The plan will provide direction for managing the city's solid waste for the next two decades.

Residents are invited to a public meeting at 6:30 p.m. November 2 at the Stacy C. Sherwood Community Center, 3740 Old Lee Highway.

The City Council will hold a public hearing on the city's proposed Solid Waste Management Plan at its November 10 meeting, scheduled to begin at 7 p.m. in the City Hall Annex.

A copy of the proposed solid waste management plan will be posted on the city website for public review before the meetings. Information: 703-385-7816.

Replacement Recycling Bins Available

Residents with city recycling service may request replacement or additional recycling bins. Information: 703-385-7837, *RefuseRecycling@fairfaxva.gov.*

Solid Waste Services Guide Available

For refuse and recycling information, see the city's *Solid Waster Services Guide*, available online and by request. Information: *RefuseRecycling@fairfaxva.gov,* 703-385-7837.

Stay Connected

City of Fairfax Sustainability
www.facebook.com/CityFfxSustain
Profile name: FfxSustainability
Twitter Handle: @CityFfxSustain

Solid Waste Management Plan

City of Fairfax

City Council Work Session

November 3, 2015

Presenters:
Stefanie Kupka
Sustainability Coordinator, City of Fairfax

Kate Vasquez
Sr. Consultant, Gershman, Brickner & Bratton, Inc.

AGENDA

Solid Waste Planning

Public Participation

Implementation Plan

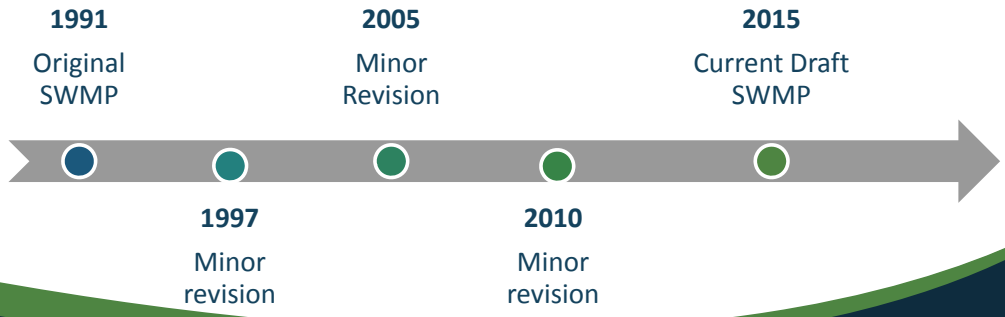
Highlighted Actions

Next Steps

SOLID WASTE PLANNING

Solid Waste Management Plan (SWMP)

- 20 year strategic plan
- Virginia Administrative Code 9 VAC 20-130-10 et seq.



City of Fairfax Waste Streams

Refuse and Recycling

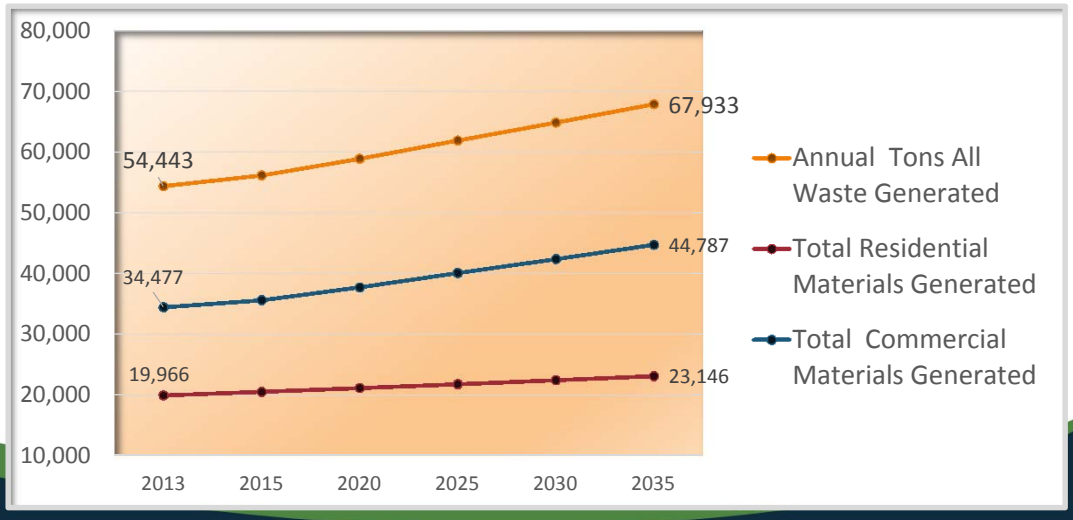
Construction and Demolition Debris

Industrial Waste

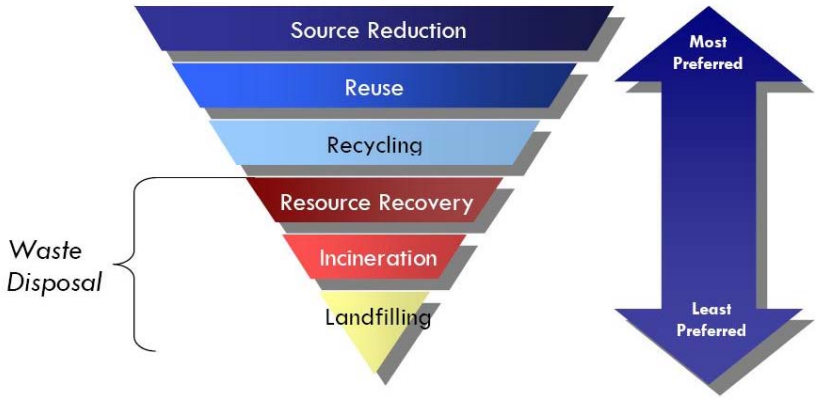
Vegetative Waste

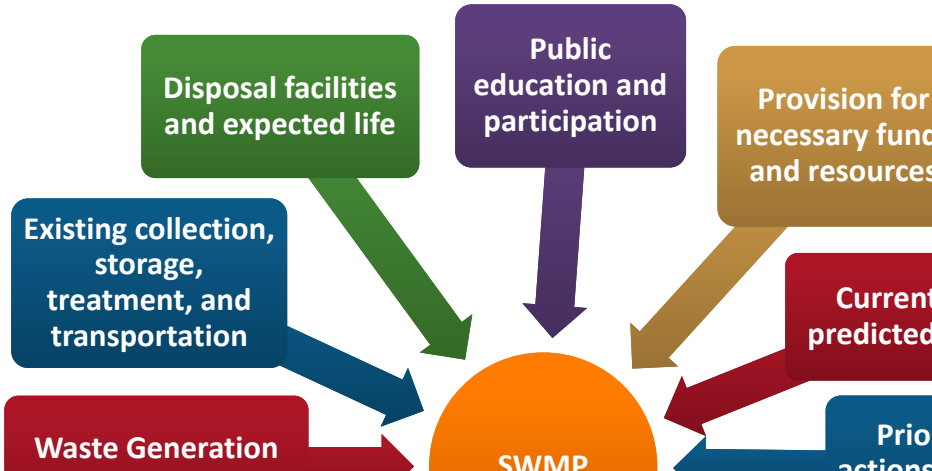
Special Wastes

City of Fairfax Waste Generation Projections



U.S. EPA Waste Management Hierarchy





The SWMP process set and achieved these intentions:

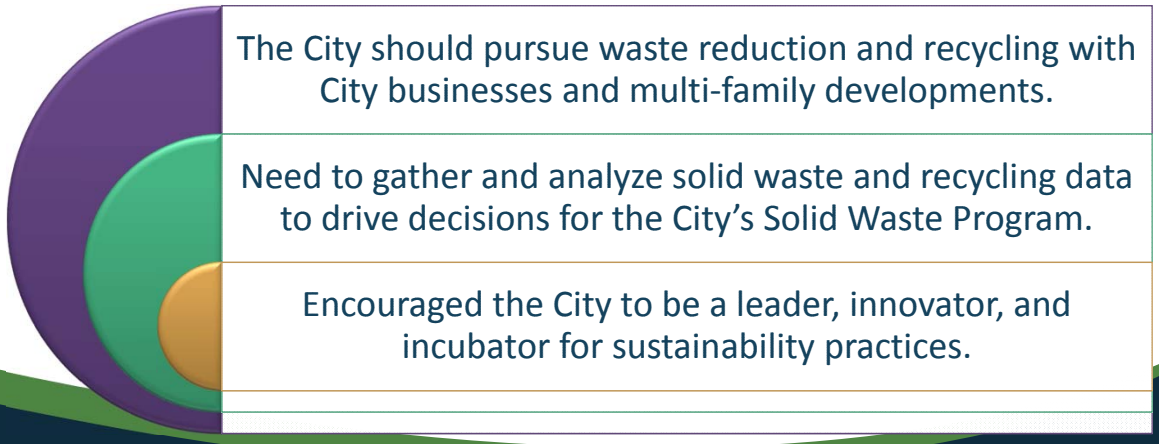
- Consider best practices
- Develop options for all elements and materials
- Engage stakeholders in the process and the plan
- Have positive and lasting impacts
- Provide and plan for capacity and diversion
- Serve the needs of the City, its residents, and its businesses

PUBLIC PARTICIPATION

SWMP Public Participation

- Solid Waste Management Plan Advisory Committee
- Survey of City residential curbside customers
- Promotions and features in electronic and print communications
- Public meeting - November 2
- Public hearing - November 10

Solid Waste Management Plan Advisory Committee Recommendations



Survey Results Highlights

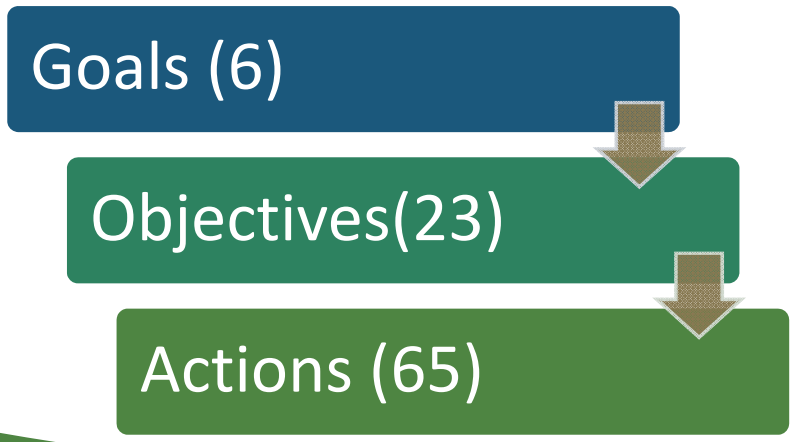
80% said their recycling bin was always full on collection day

72% said wheeled carts would be helpful

60% said free home composting bins would motivate them to compost

IMPLEMENTATION PLAN

Turning Goals into Actions



SWMP Goals

Goal 1: Lead by example. Reduce waste and increase diversion by City of Fairfax government.

Goal 2: Reduce waste and increase diversion from detached homes and townhouses.

Goal 3: Reduce waste and increase diversion from commercial, multi-family and institutional entities.

Goal 4: Reduce waste and increase diversion from development projects.

Goal 5: Collaborate with non-profits, schools and municipalities in Northern Virginia region to reduce waste and increase diversion.

Goal 6: Improve City-wide waste reduction and diversion

Goal 1: Lead by example. Reduce waste and increase diversion by City of Fairfax government.

Objectives:

1. Develop and implement a waste reduction and recycling education and incentive program for the City staff by 2017
2. Implement a sustainable procurement program by 2017
3. Update the Public Facilities Manual by 2018 to reduce construction waste
4. Fully implement recycling in City parks by 2020
5. Provide best practice access to recycling in public spaces by 2022

Goal 2: Reduce waste and increase diversion from detached homes and townhouses.

Objectives:

1. Maintain City curbside collection program services for single family homes
2. Annually provide exceptional curbside collection service by meeting or exceeding performance measures
3. Annually educate residents that receive curbside collection services about recycling, waste reduction and the City's solid waste services starting in 2017
4. Decrease single family/townhouse residents' per capita waste generation to five hundred (500) pounds per person, per year by 2035

Goal 3: Reduce waste and increase diversion from commercial, multi-family and institutional entities

Objectives:

1. Establish a baseline of commercial waste and recycling data by 2017
2. Develop and implement a commercial outreach and education program by 2018
3. Increase baseline commercial recycling rate by 15% by 2035

Goal 4: Reduce waste and increase diversion from development projects

Objectives:

1. Update solid waste management regulations by 2018
2. Connect the audit and management of proper waste management systems with the building permit process by 2021
3. Develop and implement incentives for developers to reduce and recycle waste by 2025

Goal 5: Collaborate with non-profits, schools and municipalities in Northern Virginia region to reduce waste and increase diversion

Objectives

1. Regularly attend regional solid waste management meetings
2. Develop and implement a waste reduction and recycling education program for City of Fairfax public school students by 2017
3. Partner on at least one waste reduction and/or recycling project, annually, beginning in 2018

Goal 6: Improve City-wide waste reduction and diversion

Objectives

1. Develop and update City-wide information on waste reduction and recycling, annually, beginning in 2015
2. Integrate waste reduction into the City legislative agenda beginning with 2017 General Assembly session
3. Evaluate and improve the services provided at the Property Yard Recycling Center beginning in 2017
4. Develop and maintain a City-wide solid waste and recycling database by 2020
5. Develop and implement a City-wide composting program by 2020

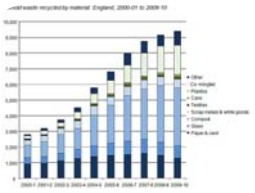
HIGHLIGHTED ACTIONS

Solid Waste and Recycling Coordinator

- Position is critical for the implementation of SWMP
- 0.5 Full Time Equivalent (FTE)
- Grade 23, $34,338 to $53,270 annual compensation (FY16)
- The City is currently the only jurisdiction in Northern Virginia without a full-time designated Solid Waste & Recycling Coordinator

Solid Waste and Recycling Coordinator

- Responsibilities include, but not limited to:
  - Develops, implements and maintains all solid waste programs as required in the SWMP;
  - Updates solid waste regulations and policies;
  - Administers contracts and agreements;
  - Performs lead enforcement role for City's solid waste regulations and policies;
  - Partners with surrounding jurisdictions;
  - Develops grant applications; and
  - Tracks solid waste and recycling tonnages and prepares state required reports.



2016: Refuse Recycling Database

2017: Education and Outreach Programs

2017: Sustainable Procurement Program

2017: Update Solid Waste Regulations

2018: Rolling Carts for Curbside Recycling

2020: Recycling Bins and Services at all City Parks

2020: Free or reduced price composting bins

NEXT STEPS

Next Steps

- Public Hearing – November 10th
- Formal approval of SWMP by City Council
- Final edits and production
- Submission to the VA Department of Environmental Quality
- Staff Solid Waste and Recycling Coordinator
- Implement SWMP


Questions?
Thank you!
Stefanie Kupka
Sustainability Coordinator
City of Fairfax
Phone: 703.385.7816
Stefanie.Kupka@fairfaxva.gov
Kate S. Vasquez
Senior Consultant
Gershman, Brickner & Bratton, Inc.
Mobile: 703-863-8512
kvasquez@gbbinc.com

Appendix 2 – Public Hearing and City Adoption Documents

Public Notice and Advertising

Text of the notice publicizing the Public Hearing

Presentation

The same presentation was given at the November 10, 2015, public hearing, as was delivered at the November 3, 2015, Council work session. The presentation can be found in its entirety in Appendix 1 of this Solid Waste Management Plan document.

Public Comment

Appendix 2 contains two letters of support for the Plan, which were submitted as part of the public hearing process. Mr. Tim Killian of the Environmental Sustainability Committee also spoke briefly at the public hearing in support of the Plan document.

Adoption Resolution

The official adoption resolution can be found at the front of this document, preceding the Table of Contents.

Appendix 2 – Public Hearing and City Adoption Documents

This page intentionally left blank

NOTICE OF PUBLIC HEARING
CITY OF FAIRFAX, VIRGINIA

Notice is hereby given that the City Council of the City of Fairfax at its meeting on Tuesday, November 10, 2015 at 7:00 p.m. in the City Hall Annex, Room 100, 10455 Armstrong Street, will hold a Public Hearing to consider the following:

The City of Fairfax will be presenting the Draft Solid Waste Management Plan, which is posted to www.fairfaxva.gov/recycling. The purpose of the Plan is to outline how the City will manage solid waste and recycling, generated by businesses and residents in the City of Fairfax, over the next twenty years.

Public involvement is an integral part of the development of the Solid Waste Management Plan. We encourage public input and comments on the plan or about solid waste in general. You may do so by attending the public hearing or submitting comments to Stefanie.Kupka@fairfaxva.gov.

All reports will be available five (5) days prior to the meeting date in the City Clerk's Office, Room 316, City Hall. The City will make reasonable accommodations for the disabled upon request received at least five days prior to the meeting; please call 703.385.7935 for assistance.

Melanie Crowder, City Clerk

Christopher K. Brown
[redacted]

November 10, 2015

Stefanie Kupka
Sustainability Coordinator
City of Fairfax
City Hall Annex, Room 207
10455 Armstrong Street
Fairfax, VA 22030

Ms. Kupka:

Thank you for the opportunity to review and provide comment on the October 2015 draft Solid Waste Management Plan (SWMP). As a resident of the City, I appreciate the opportunity to provide input on the draft plan.

While I am pleased to see the City's initiative toward updating its SWMP in accordance with the requirements of the Virginia Waste Management Act, I believe that the plan fails to recommend a sufficiently forceful course of action to the City Council for improving the City's environmental sustainability through recycling. There is little discussion in the implementation plan about ways to compel city residents, particularly those in detached residential units served by the city's Refuse and Recycling services, to divert all suitable recyclables into the City's recycling steam.

Given that the City-run recycling program is of no cost to residents already served by curbside collection of single-stream recyclables and only requires a conscious effort to sort materials into City-provided containers, there is no reason that the City Council should not adopt an ordinance making 100-percent recycling mandatory, at least for all residents in such dwelling units. Leading by example through improved recycling at City facilities and venues, while important, may be insufficient to effect more universal recycling by residents. The SWMP mentions the waste management programs of several other cities/municipalities; and I encourage the SWMP Advisory Committee, Environmental Sustainability Committee, City Council, and City staff to explore in greater detail implementation of mandatory recycling requirements in cities such as San Diego, San Francisco, Seattle and Pittsburg.

Particularly in Section 7 – Implementation Plan, the SWMP also seems to rely too heavily on participant attitudes to inform decision-making about key aspects of waste reduction/diversion improvement programs. For example, the City will continue to evaluate participant attitudes toward curbside collection of food waste every two years. No one particularly enjoys certain other measures that are geared toward improving

environmental sustainability, such as vehicle emissions testing. Yet participants' attitudes do not preclude the state from requiring vehicle registrants to comply with emissions testing requirements—and this is an arguably equally important environmental sustainability and protection measure.

Though I have no knowledge of what best practices may be for evaluation of municipal solid waste generation or management, it does not make sense to me as a general reader of the SWMP for the plan and the specific metrics it describes to include yard waste tonnage in the measurement of recycled materials. That is, single-stream recyclables should be considered on their own if the SWMP and the City aim to characterize recycling most accurately. It is imperative that we accurately evaluate diversion of metal, plastic, certain types of paper, and other non-biodegradable materials from landfills without using the large volume of biodegradable yard waste to artificially inflate the City's recycling figures.

Two additional points are of particular concern to me professionally. First, the SWMP includes only one mention of protecting worker safety and health (e.g., that residents disposing of sharps should do so in special containers). Under the federal Occupational Safety and Health Act and the Virginia occupational safety and health requirements applicable to public sector employers in the Commonwealth, the City is required to protect workers from recognized occupational hazards in their jobs. I firmly believe that the updated draft SWMP should describe specific measures that Refuse and Recycling is taking or will implement to ensure continued worker protections. These may include revised hazard assessments, evaluation of controls (including engineering and administrative controls), training for workers, selection and provision of personal protective equipment for workers, medical surveillance for workers who suffer sharps injuries or other exposures to hazards on the job, and other protective measures. While many of these aspects of worker protection programs likely exist in other documents, such as the City's human resources and safety and health policy manuals; including a section on worker safety and health in the SWMP would emphasize the City's commitment to protect the workers who serve the residents and businesses of the City.

The second point is also related to worker safety and health, as well as to protection of public health in general. I am concerned about how the City's waste management structure would handle waste contaminated with Category A infectious agents or other highly pathogenic materials in the event of a disease outbreak impacting the city. As we learned during the recent Ebola outbreak, management of waste containing infectious material was not just a challenge associated with hospitals (and none of which are located in the City's jurisdiction). Rather, municipalities were faced with determining how to handle waste from dwelling units where quarantined or isolated ill individuals lived. While the City would presumably have considerable support—both resources and expertise—from State and federal agencies in the event of an isolated emerging infectious disease (e.g., a case of Ebola virus disease); pandemic conditions like those associated with influenza or certain other communicable diseases, may overwhelm the State's ability to support infectious waste management for all counties or municipalities. The City should take the opportunity associated with revising the SWMP to determine how it

would collect, handle, transport, treat, and dispose of waste from individuals with highly pathogenic or otherwise high-consequence infectious disease if the State or federal government was unable to provide support for such an incident. If it has not already done so, I would also strongly advise the City staff to consult with the Fairfax County Health Department on how it might proceed during such an incident. Inclusion of language to this effect, and more generally with regard to management of infectious waste that does not typically invoke requirements for medical waste or hazardous materials, in the SWMP would be useful.

In summary, I believe the SWMP should be more proactive in its recommendations regarding mandatory recycling for City residents, use more accurate metrics to characterize separation of recyclables from other waste, and include discussions of worker safety and health and management of infectious waste. Thank you for considering my comments. Please do not hesitate to contact me with any questions. You may reach me at my email address ([redacted]) or by phone ([redacted]).

Sincerely,

Christopher K. Brown, MPH, CPH

Appendix 3 – SWMPAC Documents

Agendas, presentations, meeting notes, and draft Goals as reviewed by the Committee

Appendix 3 – SWMPAC Documents

This page intentionally left blank

Agenda April 9, 2015

City of Fairfax Solid Waste Management Plan Advisory Committee Kick-off Meeting

Art Room, Sherwood Community Center, 3740 Old Lee Highway, Fairfax, VA

07:00 – 07:10 Welcome and introductions

07:10 – 07:40 Background
- Virginia Department of Environmental Quality Requirements
- History of the City of Fairfax's Solid Waste Management Plan
- Project schedule
- Solid Waste Management Plan Advisory Committee responsibilities and expectations

07:40 – 08:00 Review by GBB of the current waste management system
- Quality of service
- Waste and recycling service components
- Compliance with City and Virginia codes and goals
- Potential action areas identified by staff
    - Business recycling
    - Construction and Demolition Debris recycling and diversion
    - Public space recycling
    - Single Family/Townhouse: Conversion to rolling recycling carts
    - Multifamily recycling
    - Backyard composting
    - Pay as you throw
    - Data tracking and reporting

08:00 – 08:50 Discussion Questions

08:50 – 09:00 Conclusion and closing
- Summary of agenda completion
- Next steps and next meeting

City of Fairfax Solid Waste Advisory Committee Kickoff Meeting

April 9, 2015

7:00 p.m. – 9:00 p.m.

Sherwood Center

GBB SOLID WASTE MANAGEMENT CONSULTANTS

Today's Agenda

Welcome and Warm-up

Background Information

Review of Current System

Discussion Questions

Conclusion & Closing

2

WELCOME & INTRODUCTIONS

3

City of Fairfax Staff

- Stefanie Kupka
- Terry Lawver
- Gregg Tonge

4

Gershman, Brickner & Bratton, Inc.

- A National Firm with Local Roots
- In-depth industry knowledge and know-how from multiple sectors
- Comprehensive understanding of integrated waste management
- Decades of experience across the country and around the world
- Quality – Value – Ethics – Results

5

Your GBB Team

"We can ensure the City of Fairfax leads by example"

"We can connect people to their government and their environment"

"SWMPs plan for the future and empower excellence"

"We can help Fairfax create a sustainable long-term materials management strategy"

6

BACKGROUND INFORMATION

7

Solid Waste Management Plans

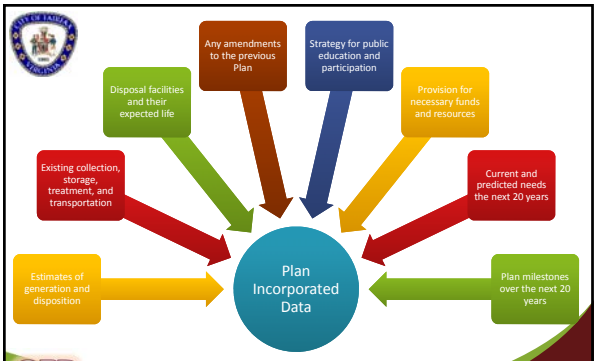
- A SWMP is your 20 year blueprint. It needs to reflect what is current and planned for the required 20-year term for solid waste management.
- Regular reviews of the SWMP are necessary to track changes that should be documented and reported to the Virginia Department of Environmental Quality (DEQ).

8

It's the law

- § 10.1-1411 of the Code of Virginia lays out the regulatory authority. The scope of the authority informs the Plan components.
- The Virginia Administrative Code (9 VAC 20-130-10 et seq.) describes the SWMPs, their specific requirements, the process for amendments, and the update cycles.

9



10

Waste Management Hierarchy

11

Required recycling in Virginia

- 25% minimum; Annual reporting*

$$\text{Rate} = \frac{[\text{Tons Recycled}]}{[\text{Tons Recycled} + \text{Tons Disposed}]} + [\text{all Credits}]$$

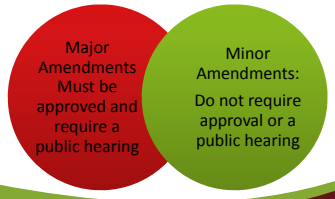
- Credits can add up to 5 points to your recycling rate.

City of Fairfax currently reports 58% and takes no credits

12

SWMP Updates and Amendments

- Updates: Due every 5 years
- All amendments should be included in the updates.



13

Public participation

- Public participation during plan development with activities like public meetings or citizen advisory committees.
- Prior to submission of a SWMP or major amendment, there has to be a public hearing on the plan.

14

City of Fairfax Current SWMP

- Original SWMP written 1991
  - minor revisions in 1997, 2003, and 2010
- Drivers for change:
  - Reducing environmental impact
  - Economic opportunities
  - New technologies
  - Reducing greenhouse gases

15

The SWMP prepared for Fairfax will:

- Consider best practices
- Develop options for all elements and materials
- Engage stakeholders in the process and the plan
- Have positive and lasting impacts
- Provide and plan for capacity and diversion
- Serve the needs of the City, its residents, and its businesses

16

Project Schedule

Activity	Mar			Apr				
Draft Findings Report to City								
Waste projections; draft memo to City								
Facility inventory; draft memo to City								
Analysis and options; draft memo to City								
Input with SWMPAC								
2035 Needs assessment; draft memo to City								
Public Outreach Implementation								

17

Project Schedule

Activity	May				Jun				Jul				Aug				Sep ?
Input meetings with SWMPAC																	
Preparation of SWMP document																	
Preparation for Public Hearing					?	?	?	?	?								
Public Hearing										?	?	?	?	?	?	?	
Finalization of SWMP document																	
Public Outreach Implementation																	

18

SWMP Advisory Committee

- Members represent the City Council, City Schools, the Environmental Sustainability Committee, residents, businesses, the solid waste industry and other interested parties.
- Committee will guide the development of the plan and ensure extensive public participation in the plan's development.

19

SWMP Advisory Committee

Responsibilities

- Act as advisory committee to the City of Fairfax on the development of the SWMP
- Attend 2 to 3 scheduled meetings during the development of the SWMP (approximately 6 months)
- Review information and provide comments and suggestions
- Encouraged to attend other public meetings/hearings

20

SWMP Advisory Committee

Expectations of Committee Members

- Arrive on time; notify the Sustainability Coordinator a.s.a.p. if you cannot do so
- Contribute, and please be respectful of others' contributions
- Actively participate in the discussions and use your experience, education, and insight to speak freely about any issues or opportunities to be considered

21

CURRENT SYSTEM IN CITY OF FAIRFAX

22

Overview

- City Collection
  - Detached homes and townhouses
  - Property yard recycling center
  - Public space and events
- Private Collection
  - Commercial
  - Multi-family

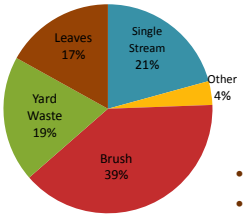
23

City Collection Services

- 6,466 Detached homes and townhouses
  - Once-per-week curbside collection
  - Trash, recycling, yard waste, bulky, metal, lumber, brush/stumps, vacuum leaf, debris
  - Containers
    - Recycling bins are provided by City
    - Trash/yard waste: Residents use own containers
- Property Yard Recycling Center
  - Single stream recycling, used motor oil, used oil filters, tires, batteries, scrap metal
- Public space and events
  - Recycling at nine parks and major events

24

What gets recycled / recovered

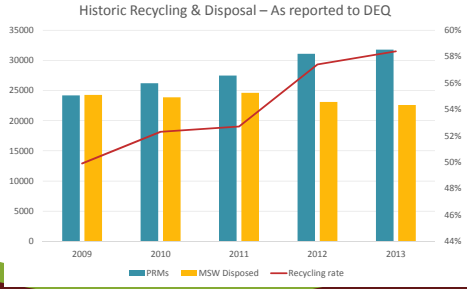


- Single stream
  - Plastic bottles and containers
  - Glass bottles and jars
  - Metal and aluminum cans/foil/trays
  - Paper: newspaper/cardboard/books
  - Aerosol cans
  - Milk and juice cartons
- Yard waste, brush, and leaves
- Other: scrap metal, batteries, tires, used oil and oil filters

GBB SOLID WASTE MANAGEMENT CONSULTANTS

25

Recycling and Disposal



GBB SOLID WASTE MANAGEMENT CONSULTANTS

26

Where does material go?

- Trash & Yard Waste: I-66 Transfer Station
  - $53 for trash, $53 for YW, $32 for brush
- Debris: Lorton landfill, $60
- Vacuum leaves: Loudoun Composting, $16
- Brush: JL Tree, $50 (per truck)
- Recyclables: Waste Management, $0
- Metal: Potomac Metals, +$150

GBB SOLID WASTE MANAGEMENT CONSULTANTS

27

Characterization of the System

- Quality of service
  - City operations offer or provide a comprehensive system of integrated waste management to residents
- Popularity
  - Very low miss rate
  - Informal background indicates satisfactory
  - Staff reports positive feedback from the field

GBB SOLID WASTE MANAGEMENT CONSULTANTS

28

City Action Areas

- Composting
  - Backyard, drop-off center, curbside
- Pay-as-you-throw
- Rolling recycling carts
- Recycling education & outreach
- Commercial & multifamily
  - Regulation, education, enforcement
- Public space recycling
- Construction & demolition debris
- Data tracking and reporting

GBB SOLID WASTE MANAGEMENT CONSULTANTS

29

DISCUSSION QUESTIONS

GBB SOLID WASTE MANAGEMENT CONSULTANTS

30

Question 1

What new technologies or strategies are available to increase source reduction, reuse and recycling that we can utilize in the short and long term?

GBB SOLID WASTE MANAGEMENT CONSULTANTS

31

Question 2

What are the barriers that keep people from recycling or composting more than their current level? How can this be improved?

GBB SOLID WASTE MANAGEMENT CONSULTANTS

32

Question 3

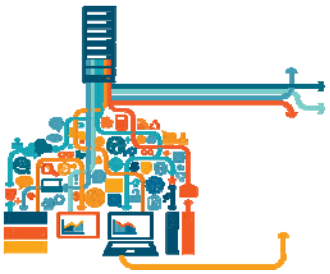
As redevelopment within the City of Fairfax increases, how can we address waste management and waste reduction?

GBB SOLID WASTE MANAGEMENT CONSULTANTS

33

Question 4

What kind of data should the City require and track for evaluating and reporting on sustainability?



GBB SOLID WASTE MANAGEMENT CONSULTANTS

34

Question 5

What targets would you like to see the City of Fairfax reach for disposal, diversion and/or recycling rates?

Recycling rate?

Diversion rate?

Generation rate?

Disposal rate?

GBB SOLID WASTE MANAGEMENT CONSULTANTS

35

Question 6

What new partnerships we can forge?

GBB SOLID WASTE MANAGEMENT CONSULTANTS

36

CONCLUSION & CLOSING

37

Agenda Completion

Background Information

Review of Current System

Discussion Questions

38

Thank you very much!

Next meeting is ____

Meeting Notes Thursday, April 9, 2015

City of Fairfax Solid Waste Management Plan Advisory Committee

In attendance:

Committee Members

David Meyer
Tim Killian
Jeff Richards, on behalf of Scott Larson
Debbie Spiliotopoulos
Chris McGough
Charlie Forbes
Tyler Orton
Chris Bowles
George Blackman
Cas Shiver
Mary Valenta

City of Fairfax Representatives

Stefanie Kupka
Terry Lawver
David Summers
Gregg Tonge

Gershman, Brickner & Bratton, Inc. Staff

Kate Vasquez
Roshaun Tyson

Presentation by GBB, with comments and questions from the Committee

The comments about the current City collection program is that they are very comprehensive, and residents have excellent access to a high level of service. The residents receive free recycling bins and are offered information through the City website to educate them about participating in the services. The City's diligent staff is another factor in the City's popular program. Residents are also satisfied with the system due to its keeping the neighborhoods clean, in regards to their health and keeping out unwanted pests. The City also maintains an extensive list of elderly or disable people who receive "back door" service, in which workers will come on the porch or in the house and pick up items.

The City also picks up construction debris for those residents who are doing "DIY" projects. City staff did report, however, that there is a major problem of abuse of that system, and no good way to determine what is actually generated by residents and what is contractor construction debris.

The Committee members asked several questions about various materials and streams, and how they are represented in the available reporting. The answers clarified from the questions were:

- Food waste is currently in "trash" or "garbage" in the recycling reporting—i.e., it is not considered a Principal Recyclable Material (PRM) by the Commonwealth of Virginia.
- A chart entitled "What gets recycled / recovered" was displayed (see Figure 1). This chart showed the breakdown of the recyclables that the **City** collects—both from curbside collection and from the drop off centers at the Property Yard. It does not include recyclables collected from commercial generators; if it did, for example, the proportion representing "single stream" would be much larger.

- Discussion also confirmed that the "What gets recycled / recovered" chart shows that of the tons recycled through City efforts, three-quarters of it is yard waste, brush, and leaves. Just 21 percent of the reported recycling is from single stream such as bottles and cans.
- Any construction or demolition material that is getting recycled is not currently reflected in any City reporting. This is a common practice in communities where construction recycling rates are low, because if tons of construction recycling were added to the numerator of the recycling equation, all the construction debris that was disposed would accordingly have to be added to the denominator of the recycling calculation, and the recycling rate would be "tanked." In addition, Virginia does not require construction recycling to be reported—i.e., it is not a PRM.

Figure 1 "What gets recycled / recovered" slide from presentation

The committee requested to receive a breakout of individual recycled streams in the historic recycling and disposal reports. This information is available to a limited degree, and City staff said they would transmit it to the committee members. Members concurred that more tracking of commercial information is needed. The challenge is having the commercial sector buying into the recycling effort by telling business what they need to do. The Northern Virginia Regional Commission (NVRC) has developed a universal haulers form, but only 5 localities are currently using it.

The committee wants a defined category of Commercial. They feel it is not unfair, but it depends on the culture. Commercial sectors can take it to the recycling service but they are required to hire hauler services. A committee member noted that part of the problem is there are three different entities to determine what or who is responsible for choosing the hauler – property manager, property owner or business owner.

Questions to the Committee Members and Guided Discussion

Question 1: Source reduction

The committee says it's hard to track and evaluate with small communities when there is no control group.

The discussion provided examples of waste reduction for the committee to consider: community garden composting, reblending and reusing latex paint, and pay-as-you-throw.

A general discussion of possible ways to reduce waste initialized. Discussion of curbside food waste composting in San Francisco, Seattle, and Portland. The committee mentioned negative attributes to residents' backyard composting, such as: attracting rodents, and little to no knowledge of how to dispose properly. One committee member provided a handout and mentioned that this is ahead of its time with food waste and leaf disposal.

Another committee idea was red worm vermicomposting. It is the best route for creating compost, in his opinion. It reduces water consumption, the compost will hold 90% of the water, and the pre-compost is given to worms as food. By using humus, the worms creates the best compost, low technology and low costs. City of Alexandria brings compost to farmers markets (approximately 100 people participate - could get potentially $30,000 worth of compost). It is high quality material.

Another committee member asked about anaerobic digesters and staff answered that they can be easier to site than windrows because of no stormwater issues, however, they require a lot of effort, the incoming material has to be pre-proocessed, extra energy is needed, and it creates methane. It is technilogically challenging. The per-ton cost is very expensive to operate.

Paint reuse is another idea where residence can use bulletin boards and create a website for reuse networks.

One committee member stated that half of the waste data is from non-residential sectors. The biggest room for improvement is education for businesses. The idea is to take the success of residential and transfer it to commercial. There was a response from a business owner committee member that efforts from home ARE passing over into commercial for some businesses; however, the group agreed that is an unreliable way to ensure that business recycling is accomplished.

Another idea/opportunities is to engage nearby City and business to collaborate with each other like Fairfax County. Engage NoVA to share resources and work with GMU.

A bold strategy is to monetize or fine businesses if they don't report recycling. Alternatively, the City can use recognition as an approach for businesses by offering stickers for businesses that are green. Right now there are no enforcement rules in place or an enforcement program active.

Question 2: What are the barriers and how can it improve?

The committee members were asked to respond briefly with one word or idea for what is holding people back from recycling:

- Education
- Composting - the unknown/uncertainty
- Gold-medal Service - too much access
- Collectors

- Commercial - how does trash get to bins (point of service)? Does it take longer to get to the recycling bin? Not enough education
- Residential - more education on recyclables - what can/cannot be recycled - more information
- Recycling cart size
- (In)Convenience

Question 3: Redevelopment issues, construction/demolition debris

The Committee members were asked to think specifically of actions that could spur diversion of CDD at redevelopment projects, discourage abuse of the City residential services, and provide usable information for the City to track.

- Strengthen regulatory ordinances. Have contractors put down deposits on permits that they will get it back if they prove they disposed of their waste properly.
- Fast track permitting for contractors who demonstrate a recycling plan is an idea incentive
- House renovation work - 3 to 5 calls - contractor debris (who the homeowner is vs contractor). The ordinance needs to be stronger - ordinance needs to be redefined. Mature neighborhoods are being flipped. Before they get a building permit, perhaps require that they need a dumpster.
- Report to code enforcement. Make enforcement stronger. Get funding from fines to pay for system.
- Demolition - Create and implement incentives for developers
- Zoning ordinances - create green building policy to encourage reuse and reduction
- Solid Waste issues - if you have a permit have a tiered system for handling regulation
- Development agency - the planners that work with developers - cross train building inspectors on solid waste so they could refer problems to Public Works. Look for opportunities to cross train.

Question 4: Data collection and reporting

The Committee members were asked to consider data that would be both useful for the City and not overly burdensome to collect—i.e., not data for "its own sake."

Committee members would like to know the "miss rate" of what could've been recycled or was lost to disposal. They want a Waste report of the City with demographics of the daytime population vs residents. Tease out the information for commercial and figure out per capita. For non-residents they want the quality of data; collections data; set out data.

Another business committee member would like to make the reporting for businesses take minutes compared to hours. They also suggest giving some sort of incentive for filling out the reports.

Tracking cost savings to figure out how to be creative. Track the success and ROI.

If this is what the City expects then global acceptance is needed. As kids grow, recycling grows so starting early with education is a must…education and outreach!

Questions from the committee:

- What are the cost savings?
- Could the City bid out and create a franchise contract with one waste hauler?
- Do large businesses have national contracts (e.g. CVS has a contract with a specific hauler) and is it possible to get around that?

- What are the best practices? Maybe tracking and sharing with other businesses will increase their knowledge and connect businesses.

Question 5. What targets should the city focus on? How can we measure success?

- Review the Federal experience, consider tracking a diversion rate (e.g., donations would count)
- Maintain the recycling rate while reducing the disposal rate
- Reduce waste per capita and focus on pounds per person
- How can we reward businesses who divert wastes to beneficial reuse? Example given up Safety Kleen taking printing sludge which is reused to make tiles. It's been diverted instead of becoming a waste.
- Leave things open to businesses to be creative for diversion
- Focus on the main types of demographics - solutions for bars, offices, retailers
- Create an alternative approach
- Have a recycling rate goal for residential and a waste reduction goal for Commercial

Question 6. What new partnerships can be forged?

The committee members would like to see interdepartmental partnerships and within Counties. Partner with colleges like GMU and/or become the market for whatever we're doing. If the City produces compost, encourage and promote growth and demand. Create regional partnerships that generate those markets.

May 12th is tentative date for the next SWMPAC meeting

This document, printed, was provided by George Blackman at the SWMPAC Meeting, to support comments he made about vermicomposting during the meeting.

City of Fairfax Solid Waste Management Plan Advisory Committee 4/9/15

From: George Blackman Please direct any questions to gmblackman@icloud.com

Suggested Solutions for Food Waste and Yard Waste into Quality Compost

Identifying Problem areas:

1. Food Waste is approximately 30% of a household's garbage.
2. Landfills account for approximately 30% of potentially compostable organic food waste.
3. Food waste in a Landfill is buried and results in a long anaerobic decomposition.
4. The improperly composted Food Waste results in stench and creates methane and carbon.
5. Most people don't understand the composting process with the goal of creating Humus.
6. Most people don't generate enough material to do quality composting efficiently.
7. Most people are not going to commit to the time and effort to do any composting regularly.
8. Landfills are closing while the Food and Yard Waste are increasing.

Solutions for Food and Yard Waste are opportunities to improve the environment, create better health for the community and save money for municipalities in a sustainable long term solutions resulting in Zero Waste.

Currently in the USA in the cities of San Francisco, Portland and Seattle **Recology** is the largest organic waste collector in the USA converting waste in a composting process.
However the absolute best way to make Humus the end result of successful composting is in the vermiculture composting operation utilizing the red worm referred to as the composting worm. Charles Darwin referred to the worm as the most important animal on the planet. This statement is justified because the worm is the only animal on the planet who's secreted waste is pure Humus. Humus is the point when the plants can absorb the nutrients.

Advantages for a worm Humus operation known as vermicomposting.

1. It is the microbes within the worm's gut that are transforming the parent material into Humus.
2. Whatever the parent material nutrient value is (N-P-K calcium etc.) it will be enriched 5-7% in nutrient value existing the worm known as worm castings which are pure Humus.
3. The worm's gut will kill pathogens.
4. The worm's gut will neutralize pesticides and herbicides.
5. The worm's gut will neutralize heavy metals.
6. Humus will hold 80-90% of it's weight in water. This results in having to water plants less helping to conserve this valuable resource.
7. Humus gives the highest 'cation exchange capacity' so the plant is able to take in more nutrients.
8. Plants grown in Humus will be healthier and require less care with harmful intervention.
9. People who eat plants grown in Humus will be healthier because of the added nutrients available in the plants and by not consuming toxic pesticides and herbicides.
10. Worm will balance the parent material if it is too alkaline or too acidic resulting in a pH of 7.

Suggested Revenue Sources and Savings from a Vermicomposting operation.

1. A in-house sustainable system would result in not purchasing wood mulch used for mulching city wide landscape.
2. Income saved in not sending 'Waste' to a landfill or yard waste collector.
3. The high quality Humus would be purchased by landscapers, farmers, gardeners and other horticulturalist.
4. Once established this sustainable system could be taught to other municipalities in the USA for a reasonable fee.
5. Once established because the red worm are the most prolific breeding worm excessive worms could be sold.
6. As mentioned above saving in water used in watering less with Humus.
7. As mentioned above out of pocket health care costs for people within the community should come down because they can eat more nutrient dense food resulting in better health.
8. Revenue source in bulk pick ups from yard waste or businesses.
9. Fines for not disposing of Food or Yard waste properly.

Collection suggestions for Food Waste within the community.

1. Create semi-enclosed community collection sites in neighborhoods, parks or schools. Locations sites would have a food waste drop off in GREEN containers labeled as food waste only. A BLACK container could be on site to dump the bag the food waste was transported in.
2. Home pick up especially when yard waste like leaves, grass and small brush is in bulk.
3. Farmers Market waste collection similar to Alexandria, Va.
4. Containers for Businesses for more frequent collections from grocery stores, restaurants and hospitals. ETC.

Collectors would have to count the material collected upon pick up based upon the containers or compostable bags in yard waste.

Suggestions on how to Practically do this Transition towards Zero Waste

1.Experience in composting and vermicomposting efficiently and safely.
2. In 2 days the compost pile will reach 160 degrees F. This high heating kills pathogens. Two other cooler stages with different microbes complete the initial composting process in 6 weeks.
3. No turning of the pile is needed for the composting operation.
4. The pre-composting stage is complete and the material greatly reduced in size is available for the vermicompost operation.
5. Equipment needed would be land. a front loader, worm harvester. Perhaps a sheer for brush.
6. Supplies needed would be smaller amounts of hay, alfalfa meal or bales (grown on site later), H2O, rock dust and worms.
7. 1000 worms = 1lb. The worm will consume its weight in material within a 24 hour period. 1 red worm in a year with the right conditions will yield 100 more worms.
8. Haulers are available or are already established.
9. Pick up of the finished Humus can be worked out with landscapes per load or delivery within the community by the municipality.
10. Mid size operations can be created at schools or hospitals.

Agenda May 21, 2015

City of Fairfax Solid Waste Management Plan Advisory Committee Meeting

Review of Goals, SMART Objectives and Actions

Art Room, Sherwood Community Center, 3740 Old Lee Highway, Fairfax, VA

7:00 – 7:20 Welcome and warm-up; review of previous meeting

7:20 – 08:50 Presentation of draft goals, SMART objectives and actions

- Definitions and examples
  - Goals
  - SMART Objectives
    - Specific
    - Measureable
    - Attainable
    - Relevant
    - Time-bound
  - Actions
- How will they be part of the Solid Waste Management Plan?
- Review of the draft goals, SMART objectives and actions
- Response and comments from SWMPAC
  - Consider both the content and timeframe
  - Suggestions for alternate or additional objectives need to be “SMART”

08:50 – 9:00 Conclusion and closing

- Summary of agenda completion
- Next steps and public meeting

City of Fairfax Solid Waste Advisory Committee Meeting

Review of Goals, SMART Objectives and Actions

May 21, 2015
7:00 p.m. – 9:00 p.m.
Sherwood Center

Today's Agenda

Welcome and Warm-up


Background Information


Review of Goals, Objectives, and Actions


Discussion Questions


Conclusion & Closing

2

WELCOME & INTRODUCTIONS

3

City of Fairfax Staff

- Stefanie Kupka
- Terry Lawver
- Gregg Tonge

4

Samantha Villegas, APR

GBB Principal Associate
Development of the public information program

20+ years experience in strategic communications

- Developed engagement strategy to turn around public opinion of waste plan in Cleveland, OH
- Comprehensive analysis of Division of Solid Wastes' communications program in Prince William County, VA
- More than 10 years experience developing local and regional outreach strategies in the metro-DC area and suburbs

*"A robust and meaningful public involvement program that seeks to understand the needs and concerns of stakeholders both enhances the legitimacy of the project and actually **strengthens** the connection a government has with its citizens."*

5

Elizabeth Rice

GBB Senior Consultant
Analysis and projections of waste management data

Expert at in-depth research and data management and analysis

- GBB's extensive curbside collection database
- Feasibility studies and planning projects for GBB clients
  - Waste characterization and projections
  - Environmental impact analysis and modeling
- In-depth involvement in Wasatch Integrated Solid Waste Management Plan, from initial data to final editing

"Having a good understanding of what is generated and collected will help the City to anticipate waste management infrastructure needs in future years"

6

BACKGROUND & RE-CAP

7

The SWMP prepared for Fairfax will:

- Consider best practices
- Develop options for all elements and materials
- Engage stakeholders in the process and the plan
- Have positive and lasting impacts
- Provide and plan for capacity and diversion
- Serve the needs of the City, its residents, and its businesses

8

SWMP Advisory Committee

- For the required content of the SWMP, the Advisory Committee is providing input on:
  - Public education
  - Funding and policy priorities
  - Plan milestones (accomplishments)
- At tonight's meeting, please:
  - Actively participate in the discussions and use your experience, education, and insight to speak freely about any issues or opportunities to be considered
  - Respond to but be respectful of others' contributions

9

Previous Meeting: April 9, 2015

- City service is popular and a key service; issues discussed included customer knowledge base and "DIY" debris
- Committee members also discussed:
  - Food waste diversion
  - The degree to which the recycling rate relies on yard waste
  - Increasing reduction and recycling in the commercial sector
  - Being proactive to induce more recycling from development projects
  - Generating more opportunities to reduce waste or reuse
  - Capturing more data/information, but not just for "its own sake"
  - Stronger partnerships to support waste reduction and management, both within City government and with other organizations or jurisdictions

10

GOALS, OBJECTIVES, ACTIONS

11

Goals and SMART Objectives

Specific
- Who, What, Where, Why?
- Identify requirements and constraints.

Measureable
- Indicators should be quantifiable

Attainable
- How realistic is the goal based on other constraints?

Relevant
- Does this match our other efforts/needs?

Time-bound
- When?

12

SMART Goals and Objectives

- As we review:
  - How will they be part of the Solid Waste Management Plan?
  - Consider both the content and timeframe
  - Suggestions for alternate or additional objectives need to be "SMART"

GBB SOLID WASTE MANAGEMENT CONSULTANTS

13

Goals

- Lead by example. Reduce and recycle City of Fairfax government waste.
- Reduce waste from detached homes and townhouses.
- Reduce waste from commercial, multi-family and institutional entities.
- Reduce waste from development projects.
- Collaborate with non-profits, schools and municipalities in northern Virginia region to reduce waste.
- Improve City-wide source reduction and recycling

GBB SOLID WASTE MANAGEMENT CONSULTANTS

14

Goal – Lead by Example

Lead by example. Reduce and recycle City of Fairfax government waste.	Fund and staff programs and initiatives identified in the Solid Waste Management Plan
	Develop and implement a City staff waste reduction/recycling education and incentive program by 20XX
	Implement a sustainable procurement program by 2016
	Update Public Facilities Manual by 20XX to reduce construction waste
	Provide best practice access to recycling in public spaces by 2022
	Fully implement recycling in the parks by 2020

GBB SOLID WASTE MANAGEMENT CONSULTANTS

15

Goal – Reduce Detached/Townhouse Waste

Reduce waste from detached homes and townhouses.	Decrease single family/townhouse residents' per capita waste generation to five hundred (500) pounds per person, per year by 2025
	Provide exceptional curbside service by maintaining performance measures annually
	Develop and implement an outreach and education program by 2017 for residents living in detached homes and townhouses.

GBB SOLID WASTE MANAGEMENT CONSULTANTS

16

Goal – Reduce Commercial Waste

Reduce waste from commercial, multi-family and institutional entities.	Ensure access to recycling for multifamily residents equivalent to that enjoyed by single-family residents
	Establish a baseline of commercial waste and recycling data and develop a plan to improve upon it by 2025
	Update solid waste management regulations for commercial, multi-family and institutional entities by 20XX
	Develop and implement a multi-family and business outreach and education program by 2017

GBB SOLID WASTE MANAGEMENT CONSULTANTS

17

Goal – Reduce Development Waste

Reduce waste from development projects.	Update solid waste management regulations by 20XX
	Connect the audit and management of proper waste management systems with the building permit process by 20XX
	Evaluate and implement incentives for developers to reduce and recycle waste by 20XX

GBB SOLID WASTE MANAGEMENT CONSULTANTS

18

Goal – Partner with Community

Collaborate with non-profits, schools and municipalities in northern Virginia region to reduce waste.	Regularly attend regional solid waste management meetings
	Develop and implement a waste reduction and recycling education program for City of Fairfax public school students by 20XX
	Partner on at least one waste reduction and/or recycling project annually

GBB SOLID WASTE MANAGEMENT CONSULTANTS 19

Goal – Improve City-wide

Improve City-wide source reduction and recycling.	Integrate waste reduction into City legislative agenda beginning with 2017 General Assembly session
	Emphasize the role of data in sustainability efforts beginning in 2015
	Develop and maintain a City-wide waste and recycling database by 2018
	Develop and update City-wide information on waste reduction and recycling annually beginning in 2015
	Develop and implement a City-wide composting program by 2019
	Evaluate and improve the services provided at the Property Yard Recycling Center at Pickett Road

GBB SOLID WASTE MANAGEMENT CONSULTANTS 20

SMART Actions

- Objectives will be met through actions
- Every action needs to have:
  - A timetable for completion
  - A plan for who will be involved in completion
  - An understanding of costs to implement
- Great action plans:
  - Anticipate problems and challenges
  - Have mechanisms for tracking accomplishment

GBB SOLID WASTE MANAGEMENT CONSULTANTS 21

Lower Impact on Recycling & Reduction Tons

Low Cost
- Evaluate PAYT
- Evaluate use of fees to fund education
- Develop backyard composting workshop
- Promote on-site composting to homes, Biz, & institutions
- Develop standard data reporting for MF & Biz
- Re-evaluate enforcement policy
- Create new performance measures
- Enter historical figures into new database
- Re-focus data collection for recycling reporting
- Report to VDEQ annually
- Lobby for reinstatement of VA statewide recycling reporting
- Add design-for-environment to City legislative packages

Medium Cost
- Train City staff on SWMP components
- Develop City employee outreach & education program
- Evaluate & implement incentives for City employees to reduce & recycle
- Implement new R&R performance measures
- Develop new waste & recycling database

High Cost
- Require use of recycled materials in concrete, road-building, & other City projects
- Phase out all old-style cement trash receptacles for new paired containers

Medium Impact on Recycling & Reduction Tons

Low Cost
- Biannually, evaluate curbside food waste collection
- Report food waste diversion feasibility to Council
- Review needed regulation changes to implement SW planning in site planning
- Visit each FCPS campus in the city annually
- Generate impressions to at least 100 students per school annually
- Set up partnership with GMU sustainability coordinator
- Meet with GMU twice annually to discuss partnership
- Add support of fees or bans on retail bags to legislative package

Medium Cost
- Annually evaluate trash & recycling containers at City buildings and facilities
- Evaluate and improve the volunteer Recycling Coordinator Program
- Evaluate content of business recycling requirements for appropriateness
- Evaluate expanded planning and/or reporting requirements for businesses
- Evaluate greater use of enforcement for business recycling requirements
- Adopt needed code changes for policy changes
- Develop reports to track SWMP progress
- Publish waste reduction & recycling tips in CityScene monthly
- Publish educational content in the BusinessScene quarterly

High Cost
- Provide free or reduced cost composting bins
- Evaluate and improve the services at the Pickett Road Recycling Center

GBB SOLID WASTE MANAGEMENT CONSULTANTS

High Impact on Recycling & Reduction Tons

Low Cost
- Evaluate various levels of service provision by the City to multi-family properties
- Evaluate business recycling requirements to reflect the marketplace

Medium Cost
- Establish "green teams" in City agencies
- Implement "Sustainable Procurement Playbook for Cities"
- Provide access to recycling at all City-hosted and -permitted events
- Evaluate public space recycling bins on a 3-year rolling schedule
- Require MF properties to provide single-stream recycling
- Develop and update robust recycling education & outreach program
- Promote 3 reuse opportunities with partners annually
- Update www.fairfaxva.gov/recycling annually
- Engage City social media with best practices
- Develop & enact C&D recycling ordinance

High Cost
- Perform a bi-annual waste audit of City agencies
- Pair all City-owned outdoor trash bins with recycling bins
- Transition from 18-gallon curbside bins to 96-gallon rolling carts
- Waste audit of curbside program every 3 to 5 years
- Develop, implement, and maintain outreach and education to curbside customers
- Develop, implement, and maintain outreach and education to multifamily and biz
- Visit each MF property every 2 years
- Develop alternate route to compliance for Biz
- Implement any regulatory changes needed for policy changes within 12 months
- Update regulations for commercial waste haulers
- Develop & implement food waste reduction education program

GBB SOLID WASTE MANAGEMENT CONSULTANTS

QUESTIONS AND DISCUSSION

25

Conclusion and Closing

Summary of agenda completion

Next steps and public meeting

26

Thank you very much!

Meeting Notes Thursday, May 21, 2015

City of Fairfax Solid Waste Management Plan Advisory Committee

In attendance:

Committee Members

Tim Killian
George Blackman
Tyler Orton
Chris Bowles
Mary Valenta
David Summers
Charlie Forbes
Debbie Spiliotopoulos
Gregg Tonge
Jeff Richards
David Meyer

City of Fairfax Representatives

Stefanie Kupka
Carolyn Metcalf

Gershman, Brickner & Bratton, Inc. Staff

Samantha Villegas
Elizabeth Rice

Meeting Notes

Welcome and Warm-up; review of previous meeting

- Introductions
- Recap of the public involvement process
  - We are here to help complete the impacts of a SWMP, listed on slide 8
  - SWMP advisory committee role - reminder
    - Input on (subject areas)
    - Input on plan milestones, accomplishments, funding and policy priorities
- Review of what was discussed at the previous meeting

Presentation of draft goals; SMART objectives and actions

- The group reviewed the definition of SMART goals, and what makes a goal or objective SMART
  - Specific, Measurable, Attainable, Relevant, Time-bound
  - How can these become part of a solid waste management plan
- The presentation listed the goals before going into each on individual
  - GBB and the City team developed an initial draft list of goals before the 1st SWMPAC meeting.

- The GBB+City team then revised goals following first meeting, which were presented for comment and reaction now.
- Comment: Edit goals to not only propose "reduce" but to "reduce waste and increase diversion from…"

With each Goal, the group was shown a slide with a goal and the objectives under it. The Actions were not yet shown at this time. Feedback and discussion notes follow:

Goal 1 - Lead By Example

- Second bullet – that's mainly aimed at City staff and businesses
- Last 2 bullets – those dates seem far away and reversed
  - Staff noted that dates are flexible
  - Councilman Meyer wants to achieve these earlier
- The cost for these items are high - the city only has one recycling truck but eight trash trucks
- In the past 10 years there have been 8000 homes added to the city but only one more employee to collect waste
- This is a 2020 strategic plan
  - 2020 is basically tomorrow when this has to move through public government - budget, staffing, zoning, so this type of commitment may take a while with all the process that goes into doing it
  - It was noted that, for the purposes of planning and for reference, the Department of Public Works has just adopted 2016 budget, now working on 2017
- Goals should be something that drives action - they should be audacious, but have a phased implementation
- Goals should say "from where we are now to where we need to be by X," defined
- Some of these are end-point goals - need to have a maintenance element in goals like goal about education, with staff changes and new employees coming in - having the program operating rather than having "everyone trained."
- Re-word "fully implement recycling in parks" to something more specific
- Getting change in city means engaging citizens – leading by example includes some education back to the citizens about what the City is doing.
- What is the sustainable procurement program?
  - City of Fairfax received a grant to develop a green procurement manual so the city can work with its procurement team to make sure that its contractors are purchasing "green"
- Construction waste: right now the City separates asphalt, brick, and soil and brings them to recyclers, via debris bins at the Property Yard
- City needs to be careful about meeting VDOT standards
- Leading by example - many of these are general best practices but they don't show how the City can push the envelope
- The city of Fairfax, with GMU nearby and as a fairly affluent community, there can be opportunity to be an "incubator" for sustainable waste management
- In Prince William County, HHW facility development was driven in part by storm water concerns - think beyond just solid waste and think about how solid waste can impact other programs in the city

Goal 2 - Reduce Waste from Detached Homes and Townhouses

- Item 1 - what is context? Average American generates 6-7 lbs. per day - or 2200 lbs. per year
    - Should this be to 500 or by 500?
    - To 500 is a very ambitious goal
        - This is only disposal
        - Low hanging fruit includes larger recycling bins
    - Does this have interim goals, rather than one big goal at the end?
        - Should this be broken down to every five years when the solid waste plan update happens
        - This is a unique goal for the city - other NVRC communities don't do it
- Performance measures - what are the exceptional levels?
    - The city does monitor some performance measures, but they not tracked in the same volume as in other communities. First step is to determine what performance measures are, then decide how to improve to make service better - exceptional
- Make the decrease single family waste to 500 lbs. per year per capita the goal, and make these other areas the objectives
- Education and outreach goals
    - How can we make this more quantifiable
        - Outreach - how many efforts are made to reach public - how many impressions
        - Outcomes - what is the effect on tons
    - City of Manassas is doing a lot of education - interesting approaches - on COG website under recycling committee. Partnered with KAB and ADS (hauler)
        - Have a consistent message and Fairfax City "look" on messaging items
- Reduce 500 lbs. - resident reaction may be "how?"
    - Need to understand the baseline and what residents need to do to get there
    - It's a City average goal - not a per-resident individual goal

Goal 3 - Commercial Waste - Includes Multifamily

- It would be meaningful to set measurable, consistent waste reduction goals, also education and data collection goals across all customer areas/service areas
    - Second item - establishing a baseline fulfils the reduction goal, but split this into 2 different objectives:
        - First, establish baseline of data,
        - Second, once we have that baseline, develop a plan to improve upon it by 2025.
- First objective - the goal does not mean collect from commercial
- Improving enforcement would make biggest impact
    - Hauler reporting is possible - require them to report on where they pick up and how much - but this is challenge as some haulers collect throughout the county
- Goal year for regulations - if there are example regs out there (which Debbie says they are) this can be done more quickly. Regulations don't mean a lot without enforcement
    - Some research and outreach is needed before the regulations can be changes because there will be commercial resistance
    - Suggest 2018 for the missing date

Goal 4 - Reduce Development Waste

- Should this include requirements to get sustainable materials, certain percentage of recycled content materials?
    - Arlington has expedited permitting when you use recycled materials

- The City doesn't yet have a green building policy that this feeds into
- The date for the building permit process should be as soon as possible - 2017
    - This can incorporate requirements for preferable materials use
    - This also includes a deposit program to get builders to recycle construction debris

Goal 5 - partner with community

- Rephrase second item to "support existing waste reduction and education program for City of Fairfax Public Schools"
    - They have a program already
    - Try to get them to stop using Styrofoam as much
- See how to get restaurants to go to recyclable or compostable packaging - does the city have the statutory authority to implement a regulation on this
- George has information on a vermicomposting program where food can be grown from compost - fairly small footprint
- Loudon County has organized a re-use program
- Opportunity for partnership with FFX high school to make video - get involved with outreach and education not only in the schools but also in the community
- Educate the students to take it home and spread education to their parents

Goal 6 - City-wide Improvement

- Local governments only have the authority that the General Assembly decides to give them - if someone brings City to court because they decided to do something they have not been given express authority to do - they can lose.
    - Putting items that the City wants to do - like plastic bag ban, Styrofoam ban into the legislative agenda lets other communities know that Fairfax City wants to do it - so there can be some consensus building
    - Change date to 2016 - to introduce the idea if not bring it forward that year
    - The City can work with others through NVRC or VA SWANA to build a packet of evidence and strategy to put this forward
    - Rephrase goal to make goal "starting in 2016" rather than just a one year goal
- Data - City doesn't have a database to track waste and recycling data - modify bullet point 2 - "create a data management program for waste management and recycling data" - emphasize both the need for data, the purpose of the data, and the rationale for a staff member
- Composting - includes composting classes, collection through farmers markets, industry partnership
    - Should this be an education goal right away?
    - Introduce smaller stepped milestones, over time
- Property Yard recycling center - difficult to monitor because don't have staff for this type of facility - contractors bring waste and people dump tires and other materials that aren't supposed to be there, and that the City has to pay to recycle or dispose of.

SMART Actions

- Review of what makes a SMART action
- The presentation reviewed the draft actions for achieving the goals and objectives, categorized by impact level on diversion and recycling tons and then by cost level.
    - Some of them fulfil more than one objective or goal.

"High impact" actions

- Does the website update and the green teams belong in the same box as requiring multifamily to recycle?
- The city used to contract out recycling, but was dissatisfied with quality and decided to bring it in-house
- Some high cost high impact things don't have to be as high cost
    - DC and Arlington do waste and recycling audits with fall leaf crews and job corps students - good way to partner with George Mason
- Multi-family recycling - change wording to enforce, not require multi-family property to provide single-stream recycling
- Waste audits probably not needed for every area every other year - turning this audit information into an opportunity - checking both what's in the waste (3-5 years) and a walk around that identifies recycling opportunities (annual at least)
    - Expensive - charging every business and multi-family $65/year
- Waste audits to curbside - opportunity to partner with schools for audit
- High-impact - enforcement and education needs to be added to many of these items - enforcement can have the highest impact on diversion

Medium Impact Actions

- VADEQ reporting - used to be required to report recycling and diversion but then requirement was removed - reporting makes sure that there is someone trained to do it, and they annually track good information about recycling
    - Move CityScene item to low cost
    - Can we add incentivize commercial businesses to use compostable or recyclable containers
        - Green City brand - to be a program member, you need to comply with commercial recycling rules, use certain container types for takeout
    - Under support of fees or bans on retail bags - change to retail packaging
    - Backyard composting - there are tradeoffs between supporting larger scale community composting vs backyard composting - need to have a cohesive communication strategy to residents - resident survey will help gauge the reactions to the idea of doing backyard composting or separating organic food waste for community composting.

Meeting Agenda Adjustment

- The agenda was adjusted due to time and the "low impact" items were moved to a request for written comment. The SWMPAC members would get comments on the others during the next week.
- Other comments
    - Commercial collections - why not weigh recycling or waste from businesses with on-board scales
        - The schools already have their recyclables weighed.

This concluded the meetings of the SWMPAC. A visit to the I-66 Transfer Station was tentatively planned for the members.

Draft Goals, Objectives & Actions

For circulation to the Solid Waste Management Plan Advisory Committee

The following six pages show the goals, objectives, and actions discussed during the SWMPAC meeting on May 21, 2015. Please provide feedback in the following areas:

1. **Do we have the right stated objectives under each goal?**
2. **Do we have the right actions to achieve the objectives?**
3. **For undated objectives and actions, please comment on the anticipated priority:**
   a) **High Priority– This action should be prioritized and completed before 2020**
   b) **Medium Priority – This is an action that the City should prioritize later in the planning term**
   c) **Low Priority – Due to low impact on diversion, or high cost, this is not something the City should prioritize**

Please note that the estimated cost to the City and potential impact on diversion rankings are shown for your reference.

Goal 1. Lead by example. Reduce waste and increase diversion by City of Fairfax government

Objective 1. Develop and implement a City staff waste reduction/recycling education and incentive program by 20XX

Action	Impact	Cost	Priority
Train managers and maintenance staff of city buildings and facilities on the SWMP.	Low	Medium	High
Develop employee education and outreach programs to increase participation in recycling and reduction efforts.	Low	Medium	High
Annually evaluate waste and recycling containers at all City of Fairfax office buildings and public facilities to evaluate where containers and/or signage needs to be improved.	Medium	Medium	High
Establish "green teams" in each department or office building to encourage other employees to recycle, continually evaluate reduction efforts and recycling services and recommend improvements to the City's departmental programs.	High	Medium	Hgh
Evaluate and implement employee incentives to encourage recycling (e.g. Department challenges that recognize departments that recycle the most).	Low	Medium	High
Perform a waste audit biennially to evaluate the effectiveness of the waste reduction education and incentive program.	High	High	Medium

Commented [KT[1]: If we referring to dumpster diving with sorting than yes; but there are also less invasive and costly audits that could be conducted more frequently. These would be visual only. Flybys of waste/recycle bins and peek in to see if proper items are placed therein.

Objective 2. Implement a sustainable procurement program by 2016

Action	Impact	Cost	Priority
Prioritize and then pursue sustainable purchasing opportunities that maximize environmental, health and economic benefits in major purchasing categories, utilizing the "Sustainable Procurement Playbook for Cities." The Playbook is currently being developed with grant funding awarded to the City of Fairfax and will include analytical tools, best practices, implementation tips, and recommendations.	High	Medium	Medium

Objective 3. Update the Public Facilities Manual by 20XX to reduce construction waste

Action	Impact	Cost	Priority
Require the use of recycled materials in sub-base (e.g., recycled concrete aggregate), road mixes (e.g., crumb rubber) and surface treatments (e.g., glass traffic beads) in all public projects.	Low	High	Low

Objective 4. Provide best practice access to recycling in public spaces by 2022

Action	Impact	Cost	Priority
Provide access to recycling at all City-hosted and permitted events, starting with large events.	High	Medium	High
Pair all city-owned outdoor permanent trash bins with recycling bins.	High	High	Medium
Evaluate placement of recycling bins and messaging to improve effectiveness on a 3-year rolling schedule.	High	Medium	High

Objective 5. Fully implement recycling in the parks by 2020

Action	Impact	Cost	Priority
Pair all permanent trash bins with recycling bins by 2020.	High	High	Medium
Evaluate placement of recycling bins and messaging to improve effectiveness on a 3-year rolling schedule.	High	Medium	High
Phase out old cement-construction trash receptacles.	Low	High	Low

Goal 2. Reduce waste and increase diversion from detached homes and townhouses

Objective 1. Decrease single family/townhouse residents' per capita waste generation to five hundred (500) pounds per person, per year by 2025

Action	Impact	Cost	Priority
Evaluate alternative forms of collection financing, to provide greater incentive for residents to reduce waste, such as a "Pay as you Throw" program.	Low	Low	Medium
Transition from the 18 gallon recycling bins to the 95 gallon rolling recycling carts by 20XX	High	High	Low
Develop and implement a backyard composting workshop program by 2016.	Low	Low	High
Evaluate the viability of curbside collection of food waste (including examination of regional facilities and participant attitudes) every two years, beginning in 2016.	Medium	Low	High
Conduct a waste audit of ~~the~~ curbside waste and recycling every 3 to 5 years to evaluate how well waste and recycling is sorted.	High	High	Low

Objective 2. Provide exceptional curbside service by maintaining performance measures annually

Action	Impact	Cost	Priority
Create performance measures other than # of misses in 2016.	Low	Low	Medium
Implement evaluation of performance measures in 2017.	Low	Medium	Medium
Report evaluation results to Council in 2018.	Medium	Low	Medium

Objective 3. Develop and implement an outreach and education program by 2017 for residents living in detached homes and townhouses

Action	Impact	Cost	Priority
Develop, implement and continually update a single-family outreach and education program.	High	High	Medium
Evaluate and improve the Recycling Coordinator Program, which consists of volunteers who act as advocates in the community.	Medium	Medium	Medium

Goal 3. Reduce waste and increase diversion from commercial, multi-family and institutional entities

Objective 1. Establish a baseline of commercial waste and recycling data

Action	Impact	Cost	Priority
Develop a standard procedure for estimating multi-family and business waste and recycling data	Low	Low	Medium

Objective 2. Develop a plan to improve upon it by 2025

Action	Impact	Cost	Priority
Evaluate required recycling by businesses to reflect the marketplace in 2016	Medium	Medium	Medium
Evaluate expanded planning and reporting requirements for businesses in 2016	Medium	Medium	Medium
Evaluate the greater use of enforcement of regulations on businesses by 2016	Medium	Medium	Medium
Re-evaluate enforcement during any regulatory or programmatic change	Low	Low	Medium
Implement enforcement changes within 12 months of any regulatory or programmatic change	High	High	Medium

Objective 3. Ensure access to recycling for multifamily residents equivalent to that enjoyed by single-family residents

Action	Impact	Cost	Priority
Create more expansive regulation by 2017, requiring properties to provide single-stream recycling of containers and papers	High	Medium	Medium
Evaluate various levels of service provision by the City to multi-family properties, reporting by 2018	High	Low	High

Objective 4. Update solid waste management regulations for commercial, multi-family and institutional entities by 20XX

Action	Impact	Cost	Priority
Update regulations for commercial waste hauling that specifies types of recycling services, and reporting requirements	High	High	Low
Evaluate required recycling to reflect the marketplace in 2016	Low	Low	Medium

Objective 5. Develop and implement a multi-family and business outreach and education program by 2017

Action	Impact	Cost	Priority
Develop and continually update a multifamily and business outreach/education program that focuses on target audiences (restaurants, shops, etc.)	High	High	Medium
Evaluate use of alternative funding sources for outreach and education programs in 2016	Low	Low	High
Visit each multifamily property at least once every two years	High	High	Low

Commented [KT[2]: What do we mean by "visit"? is this an audit?

Goal 4. Reduce waste and increase diversion from development projects

Objective 1. Update solid waste management regulations by 20XX

Action	Impact	Cost	Priority
Develop and enact a construction and demolition (C&D) materials and debris recycling ordinance	Medium	Medium	Medium
Expand C&D materials and debris awareness efforts to increase building material diversion	Medium	Medium	Medium

Objective 2. Connect the audit and management of proper waste management systems with the building permit process by 20XX

Action	Impact	Cost	Priority
Review necessary regulatory changes 2015-2016; examples include requiring waste management systems to be shown on site plans, or requiring certain sight line or distances from exits	Low	Medium	Medium
Adopt regulatory changes to go into effect January 1, 2017	High	High	Low

Objective 3. Evaluate and implement incentives for developers to reduce and recycle waste by 20XX

Action	Impact	Cost	Priority
For projects that appropriately document they reused, recycled or composted a certain percentage of their construction/demolition materials, return a portion of their deposits based on the percentage of diversion Based on the percentage of diversion achieved for development projects, return a portion of the deposit when appropriate and sufficient documentation is available on reuse, recycling, and composting activities for C&D materials and debris.	High	High	Low

Commented [KT[3]: Maybe alternate wording of the action.

Goal 5. Collaborate with non-profits, schools and municipalities in Northern Virginia region to reduce waste and increase diversion

Objective 1. Regularly attend regional solid waste management meetings

Objective 2. Develop and implement a waste reduction and recycling education program for City of Fairfax public school students by 20XX

Action	Impact	Cost	Priority
Support the waste education and recycling education program in the schools in the City	Medium	Medium	High
Visit each Fairfax County Public School within the City of Fairfax at least once annually	Medium	Medium	High
Generate impressions to at least 100 students per school annually	Medium	Low	High

Commented [KT[4]: I think this is low cost, 1 annual visit to 4 schools.

Objective 3. Partner on at least one waste reduction and/or recycling project annually

Action	Impact	Cost	Priority
Set up a partnership with GMU sustainability coordinator on waste reduction and recycling initiatives	Medium	Low	High
Promote three recycling opportunities through nonprofit organizations, thrift shops, home stores, supermarkets and shopping malls	High	Medium	High
Meet with GMU twice a year to discuss partnering opportunities (e.g. Participate in initial stages of GMU business recycling consulting program)	Medium	Low	High

Goal 6. Improve City-wide waste reduction and diversion

Objective 1. Integrate waste reduction into City legislative agenda beginning with 2017 General Assembly session

Action	Impact	Cost	Priority
Be a strong advocate for legislation and programs regionally, statewide and nationally to make businesses responsible for their packages and products	Low	Low	High
Support development of a bag fee on single-use retail bags, citywide	Medium	Low	Medium
Include Reinstatement of statewide reporting in platform	Low	Low	High

Objective 2. Emphasize the role of data in sustainability efforts beginning in 2015

Action	Impact	Cost	Priority
Program and fiscal information beginning July 1, 2015	Low	Low	Medium
Focus on data for recycling rate report beginning January 1, 2016	Low	Low	High

Objective 3. Develop and maintain a City-wide waste and recycling database by 2018

Action	Impact	Cost	Priority
Develop a waste and recycling database and data management plan	Low	Medium	Medium
Upload historic waste and recycling data from the past 5 years; Define what is in database - miss rates, "performance measures"	Low	Low	Medium
Develop reports that track the success of SWMP objectives	Medium	Medium	Medium
Report data annually to the DEQ	Low	Low	Medium

Objective 4. Develop and update City-wide information on waste reduction and recycling annually beginning in 2015

Action	Impact	Cost	Priority
Update www.fairfaxva.gov/recycling website annually	Medium	Medium	High
Publish waste reduction and recycling tips in the "Recycling Almanac" section in the CityScene on a monthly basis	Medium	Medium	High
Publish educational content in the BusinesScene on a quarterly basis	Medium	Medium	High
Engage City social media outlets by 2017; periodically update content according to best practices	High	Medium	High
Develop and implement a food waste reduction education program	High	High	High

Commented [KT[5]: I think this is a low cost.

Objective 5. Develop and implement a City-wide composting program by 2019

Action	Impact	Cost	Priority
Provide free or reduced cost composting bins to all residents	Medium	High	High
Evaluate a drop-off composting program at a local farmers market	Low	Low	High
Explore ways to encourage and support on-site composting at homes, schools, colleges, businesses and institutions with sufficient space (e.g. vermicomposting)	Low	Low	High

Objective 6. Evaluate and improve the services provided at the Property Yard Recycling Center at Pickett Road

Appendix 4 – Environmental Sustainability Committee Documents

- 2014 Annual Report of the Environmental Sustainability Committee
- Position paper by the Environmental Sustainability Committee regarding recycling

Appendix 4 – Environmental Sustainability Committee Documents

This page intentionally left blank

City of Fairfax
Environmental Sustainability Committee

2014 ANNUAL REPORT

Committee Members:

Judy Fraser (Chair)
Tom Kennedy
Tim Killian
Bruce Knight
Susan Crate
Matthew Cooper
Chris McGough
Jon Buttram
Kevin Lowery

TABLE OF CONTENTS

INTRODUCTION

This report summarizes the Environmental Sustainability Committee's (ESC) areas of focus in 2014, identifies current programs and initiatives related to the City's environmental sustainability and makes recommendations for the year ahead.

During 2014, the ESC solidified partnerships within the city, most notably with its closer ties with the City School Board through the creation of a permanent voting position to a designated member of the School Board. The ESC continued to develop community relationships through participation in the Parks and Recreation Strategic Master Plan process, participation on the zoning rewrite advisory Committee and attendance at the Vision Fairfax Mason charrette. The ESC supported City school environmental programs, and collaborated with several area non-profits including Lands and Waters, LEAP-VA and Transition Fairfax. The City Council adopted a resolution that created the ESC in 2009 and this past year the committee reviewed the original resolution and proposed changes based on its experience of the past five years.. The ESC submitted an amendment to the resolution to the City Council which was adopted on November 18, 2014.

COMMITTEE ADMINISTRATION

With the addition of City School Board representative Jon Buttram the ESC now has nine voting members. In October 2014 the ESC also welcomed a student representative from Fairfax High School for the 2014-15 year. The ESC also benefits from the input of several citizens who attend the ESC meetings on a regular basis. Stefanie Kupka, the City's Sustainability Coordinator, is the ESC's staff liaison.

At the revisions to the ESC's resolution that the City Council adopted included several minor changes to the Committee's structure, including adding an elected vice chair position, making the School Board member a voting member of the Committee, and adding the student liaison position. ESC members attended several Parks and Recreation Advisory Board (PRAB) meetings on an ad hoc basis in an informal liaison capacity. The ESC met with the City Council for a work session in February 2014 to present the 2013 Annual Report and stormwater update.

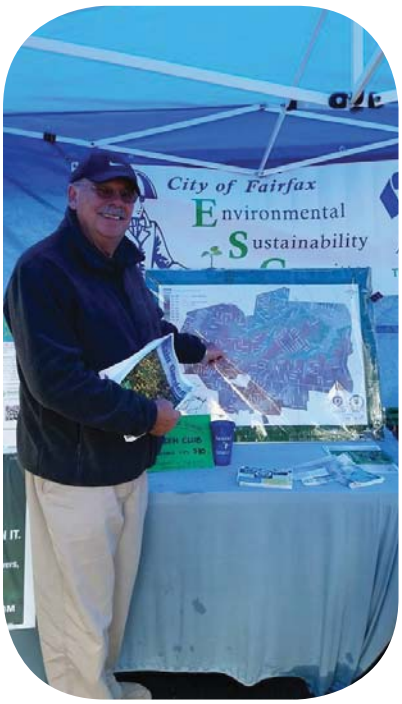
OUTREACH AND EDUCATION

The ESC's outreach initiatives this year included the fourth annual Earth Art Show, Earth Day proclamation, the 4th of July parade and an informational booth at the Fairfax Fall Festival.

This year the Earth Art Show included over 75 pieces of artwork from Daniels Run, Providence and Lanier. The ESC awarded prizes to two students from each school, and with the help of Cameron's, a city bakery, and city staff, held a reception in honor of the artists in our schools.

For the 4th of July parade, the ESC coordinated with Lanier's Eco Club and the non-profit group, Transition Fairfax, to highlight the importance of pollinators. Ted Britt Ford provided an all-electric Ford Focus for the parade.

The ESC's Fall Festival booth was popular with festival visitors. ESC members and citizen supporters distributed handouts on stormwater and pollution concerns, recycling information, free reusable shopping bags and dog waste bags. One noteworthy and popular draw to the booth was a demonstration beehive thanks to ESC volunteer Frank Linton. Mr. Linton spent the day educating visitors about the importance of bees to our environment and food crops. The ESC also provided space for the FHS Green Club and Transition Fairfax, whose volunteers helped staff our booth.



The ESC encouraged citizens to sign up for the new City Alert email, text and phone service and also maintains a page on Facebook as a tool for reaching citizens in addition to the official City website.

City Sustainability Coordinator Stefanie Kupka will be developing and launching a web-based Neighborhood and Workplace Sustainability Challenges in cooperation with several cities across the country under an innovative grant award. The challenges will encourage and recognize residents and businesses for being green, healthy and involved in the community. The development of the challenge website and implementation plan is currently in progress.

SCHOOLS

With the recent appointment of Jon Buttram as the School Board liaison to the ESC, the Committee looks forward to collaborating with the School Board on promoting stewardship of our environment, energy efficiency, and resource protection. Fairfax High School students have re-instituted a Green Club and are executing awareness raising projects for recycling. The non-profit group Lands and Waters is partnering with the high school's Advance Placement (AP) Environmental Studies teacher, Bradley Webster, to support division instruction and experiential learning about stormwater. The goal is to involve students in planning and implementing projects that will reduce the stormwater runoff from the school property.

The ESC is proud of the many environmental achievements and awards garnered by the City's schools including the Virginia Naturally School award, national and regional environmental-related competitions, and local school initiatives, culminating in the school division's second place (Silver Award) for the 2014 Virginia School Boards Association (VSBA) Green Schools Challenge for all Virginia School Divisions with less than 5000 students. The Green Schools Challenge is a friendly competition designed to encourage implementation of specific environmental policies and practical actions that reduce carbon emissions.

STORMWATER MANAGEMENT

The impact of stormwater on our streams, parks and on city coffers remains of utmost concern. The Committee continued its work to both understand and improve awareness in the City of stormwater issues and programs. The ESC used the Fall Festival as an opportunity to increase awareness about the impact citizens have on stream health through proper disposal of pet waste and use of low impact design methods, such as rain barrels and rain gardens, on their property. The city will be hosting a rain barrel workshop on April 11, 2015.

Developing adequate sources for stormwater funding continues to be a significant challenge for the City. The ESC recommends that the City develop a clear policy on the appropriate use of stormwater funds and continues to recommend that the City separate maintenance funds from environmental mitigation funds in the expenditure of the stormwater fund. In 2014 staff received grant funding for extensive stream restoration work and City Council approved matching funds. The ESC fully supports the restoration work and encourages the City Council to maximize the benefit of the work by encouraging other protection measures of adjacent and upstream stream areas. The ESC further encourages the City to investigate how other jurisdictions are funding stormwater management projects and TMDL commitments.

RECYCLING AND SOLID WASTE

Recycling efforts have ramped up in the City this year with the Parks and Recreation Department receiving funding for beginning a recycling program in the City parks and adding a part time position to help with recycling in the parks. Initial responses from residents and park users have been positive, and the ESC supports expanding efforts to encourage recycling and additional methods of reducing waste in and around City parks and properties.

Our staff liaison, Stefanie Kupka, is managing the development of a new Solid Waste Management Plan This Plan will be used to chart a course for administering solid waste programs and policies for the next twenty years. The ESC looks forward to the successful completion of a newly updated plan in 2015.

DEVELOPMENT REVIEW AND COMMENT

The ESC recommends that environmental issues in redevelopment proposals in the City should be addressed early in a proposal's review period. The ESC offers its services to comment on proposed development and redevelopment projects in the City or assist in other ways. Members of the ESC participated in the Vision Fairfax Mason Charrette held on November 6-8, 2014. The ESC looks forward to working with the Mayor, City Council, and staff on ways to address environmental and sustainability issues of proposed development.

PARKS AND RECREATION DEPARTMENT STRATEGIC PLAN

The ESC participated in the Parks and Recreation master plan process. Several concerns of the ESC were addressed in the strategic plan. For example, many of the City parks abut streams and thus play an important role in buffering and protecting our streams. Erosion, loss of vegetative areas, and impervious surface area are some of the most important factors to address. A second concern of the ESC is the extent to which invasive plants have overtaken many of our natural areas and are threatening the viability of native plants and ecosystems. The ESC supports the use of City park environments as optimal locations for raising awareness and education in our community, such as the Daniels Run Elementary habitat restoration. Finally, some of the buildings that Parks and Recreation oversees are aging and the ESC strongly supports energy conservation improvements and safe removal, containment, and disposal of toxic materials (e.g., lead-based paint, asbestos). The ESC looks forward to working with the Parks and Recreation Department staff and the Parks and Recreation Advisory Board in developing implementation steps for the approved strategic master plan that will further sustainability goals and achievements of the Parks and Recreation Department.

TREES, LAND AND PARK STEWARDSHIP

In September the ESC the City's manager of Parks, Gregg Tonge, and Public Works staff member and certified arborist, CJ Crabtree. The ESC appreciated the time of these staff members to help the ESC understand better how the City's publicly owned land is managed. While recognizing that the two departments, Public Works and Parks and Recreation, have separate missions, the ESC strongly supports the creation of a full time arborist position to assist both departments with the care and management of City owned trees, and who would be tasked with creating a common set of tree management guidelines. Similar coordination of the care and management of public land, including mowing, planting, integrated pest management, mulching, water management and resource protection will prove worthwhile for maximizing the value of City expenditures and labor.

ENERGY EFFICIENCY

The City teamed up with a non-profit group, LEAP-VA to offer homeowners low-cost energy home checkups or audits. Over 30 homeowners participated in the program. The ESC looks forward to analyzing the results of the program during 2015.

CONCLUSION

ESC members are residents who have volunteered to serve on the ESC in order to help the City improve its environmental sustainability. At the close of its fifth year, the ESC has become better known and more visible throughout the community, but the City's sustainability ultimately will rely on proactive leadership and informed citizenry. To these ends, the ESC recommends greater outreach on issues of the environment and sustainability that will encourage the City and its citizens to become active partners in protecting and supporting our natural resources in the local ecosystem. The ESC appreciates input from residents and welcomes all interested parties at ESC meetings. We thank the City Council and Mayor for their continuing support and staff members for their attention to our concerns as we all work together to improve the current and future sustainability of the City and its residents.

2015 WORK PLAN

In 2015 the ESC plans to address the following priorities:

- Increase stakeholder knowledge of the city's natural resources
- Current and future stormwater management actions and policies
- Development and implementation of an invasive plant species management plan
- Alternative energy and energy efficiency education and opportunities to citizens such as the LEAP audits.
- Identify more opportunities to educate citizens on environmental and sustainability issues. For example, stormwater management, invasive plants, non-native plants, low impact landscaping, and recycling
- School environmental program support
- Better bike facilities including marked lanes, paths and convenient bike parking
- Support for beekeeping and native pollinator programs
- Support the Sustainability Challenges grant implementation
- Review and comment on City policies such as the revision to the City's zoning code, and development of the new Solid Waste Management Plan, and land use and development proposals
- Identify ways to reduce the use of bottled water and one-time-use shopping bags in the city

HOW TO IMPROVE RECYCLING IN THE CITY OF FAIRFAX

submitted by the City of Fairfax Environmental Sustainability Committee

The ESC appreciates City Council's interest in improving the City's recycling program and appreciates the opportunity to make some recommendations it expects will improve the various elements of our recycling program. The ESC is of the belief that there are concrete actions the city can take to improve our program and improve our statewide ranking. Recycling is also a vital component of our efforts to reduce waste. While the traditional and primary goal of waste management is to remove waste efficiently and effectively, today it is acknowledged that there are significant environmental and financial costs of waste management that can be addressed through a waste reduction program. The ESC understands that the city will be undertaking an update of its 2009 Waste Management Plan and looks forward to playing a supportive role in that process.

The City is well known for delivering a “gold standard” waste management program to its citizens. Stories such as trash cans collected from inside the garage of an elderly neighbor are common, our staff tackle large piles of debris from basement or garage cleanouts on a regular basis at no additional cost to the resident. However, this gold standard program we enjoy does not specifically address City Council’s desire to have one of the best recycling rates in the State, as well as other developing demands, and as with other city programs, already faces cost pressures.

The ESC believes that the City’s “gold standard” reputation can be reframed to address these new challenges. The answer starts with a new vision – one that maintains excellent customer service, delivers the increased recycling opportunities that people have come to expect, applauds rather than regulates corporate recycling champions, and seeks to reduce the overall cost to taxpayers all while reducing our overall waste stream. We envision a future where the City's top ranking in recycling and waste reduction actions is paired with the City's friendly and responsive service reputation tradition.

The new gold standard can be operationalized through a Waste Management Plan prioritizing waste reduction, the concrete actions the ESC proposes below as well as countless future innovations by the Public Works Department who have successfully executed the “gold standard” we enjoy today. The ESC identified the following areas of recycling: commercial, residential, green recycling, e-recycling, and public recycling. This report briefly summarizes the ESC's findings and recommendations in each category.

I Commercial Recycling

Commercial recycling is the area of city recycling that offers the greatest opportunity to raise our recycling rate. Recycling is the law for businesses and many companies have internal recycling commitments. However, there is not currently in place a satisfactory means of tracking or reporting recycling, no imposed penalties for non-participation and little incentive for participation by businesses. Currently, the number of businesses reporting is small (less than 5% per 2011 data). The current report

format is difficult to calculate, for example it requires estimation of tonnages, which may be difficult or impossible, especially for small businesses. Yet many businesses in the city recycle large quantities of materials already. Improvement of commercial recycling participation and tracking thus could boost the city's recycling rate substantially.

1. **Improve reporting in the short term.** Coordinate with the County of Fairfax to capitalize on their labor intensive data collection program. Preliminary analysis added 2,800 tons or an increase of 7% in the City's recycling rate. Update City's questionnaire to include recyclables such as electronics, plastic bags, food waste, cooking oil, etc and simplify the way companies report their data. Finally, coordinate with high impact businesses/haulers to get recycling data with minimal effort.
2. **Improve future reporting - consider the benefits of a voluntary reporting program.** Rather than require all to submit a report, create incentives for City businesses to report recycling activities while applauding the ones who do it well. Pilot the use of the Federal Government's WasteWise program or create a custom VEP program.
3. **Nudge companies towards higher recycling rates**. Recycling offers direct financial benefits in the form of selling cardboard and other materials. Create additional financial incentives by waiving the 1x per week hauling requirement to those businesses who qualify as 'recycling champions.'
4. Pilot the use of a national reporting and tracking system called Re-Trac (free)in place of current reporting system.
5. Consider coordinating commercial recycling reporting with business license renewals.

II Recycling at Public Events, Parks and Facilities

This represents a major opportunity for increased recycling and increased awareness. A large component of municipal recycling programs is the development of recycling methods at government facilities, public events and related community activities.

1. **Offer 'rentable' recycling bins for public events**. Follow the lead of many localities by offering event coordinators the infrastructure needed to recycle. Fairfax and Loudoun Counties have offered to provide startup recycling bins at no cost. Even the use of spare residential bins might be sufficient at some events.
2. **Include recycling in rental agreements** for use of city parks and buildings
3. **Develop partnerships**. Seek volunteers from schools and civic organizations to help at events and facilitate park recycling activities.
4. **Install highly visible recycling bins in city buildings**. If installed over time, this can be a low cost, high impact solution.

III Residential Recycling

The current blue bin system is adequate but can be improved at relatively low cost by focusing efforts on improvement related to participation and engagement. Perhaps most importantly, residential

recycling represents the best opportunity for raising awareness and support for the city's waste management efforts.

1. **Offer large roller recycling bins.** The trends are clear – the bigger the container, the more people recycle. Many residents will find them easier to use as well. The City could provide larger bins through a phased approach or work with vendors to make larger bins available for purchase by interested residents and neighborhoods at area hardware stores.
2. **Strategic/Targeted Marketing**. Focus on high impact audiences. Rebrand with fresh material. Opportunities include:
    a. Marketing program, such as "City of Fairfax Recycles!" that would connect civic pride to act of recycling and waste reduction.
    b. Raise awareness and interest through existing sources - Cityscene, eMas, civic associations, and civic groups, with the assistance of Mayor and City Council members as spokespersons
    c. Provide copies of the illustrated guide to curbside recycling to neighborhoods for distribution - consider alternate formats such as refrigerator magnets
    d. Develop a parallel illustrated guide for all items that residents can recycle
    e. Translate recycling information into major second languages of city
    f. Continuation and improvement of the recycling notices, "Recycl-emails" program begun by the ESC that is sent to each homeowner and civic association on a regular basis to provide updates and information about recycling to share with neighbors through newsletters and emails.
3. **Develop an incentive and encouragement program** that will highlight the positive actions residents take to recycle and reduce waste. Possibly use friendly competitions (neighborhood vs neighborhood) to motivate increased recycling activities.

IV Green Recycling

The city currently collects yard waste, including grass clippings, plant material, trees and leaves. Commercial companies remove the yard waste that they create. The city also stipulates the size of debris, however, in practice generally collects what is left at the curb. Landscapers hired by residents often leave green material at the curbside as well despite city efforts to educate citizens. Currently homeowners use plastic bags, paper bags, no bags, bundles, and trash cans for yard waste. Program's success keeps the City's recycling rate among the best in the State.

1. **Standardize containers**. Determination should be made and publicized about appropriate containers and about acceptability of contractor generated green material left for curbside pickup.

2. **On-site residential composting of yard materials**, mulch mowing, and potentially in-city mulch production.

V E-recycling

The City Council expressed interest in starting an e-recycling program. The ESC researched the costs and returns of programs in other jurisdictions and found that these collections are expensive relative to the amounts collected. Assuming costs similar to Fairfax County's e-recycling contract ($.10/lb) and two public events ($1800 each), the City could expect to spend between $5,000-$10,000 hosting their own program. Instead the ESC recommends that the city partner with local businesses. In Fairfax County Best Buy stores alone collected 1/3 the amount of electronics Fairfax County's in-house program collected last year. Establish partnerships to increase the recycling rate, help local businesses and keep city costs low.

Conclusion: A successful recycling program will identify the specific goals, outreach plan, partnering opportunities and staff support necessary. There is great potential for improving the overall recycling program with the greatest improvement in recycling rates coming from tracking and encouraging commercial recycling efforts, while the best opportunity for increasing awareness of the city's waste management challenges will come from increased participation and awareness programs directed at residents. Lastly, recycling and waste reduction needs to occur at public events and public venues to make the city's commitment to recycling visible. The ESC has focused on opportunities that can be pursued at relatively low cost. However, there is evidence that a well thought out outreach program will help pay for itself in waste minimization and recycling improvements and the ESC recommends that the city investigate the potential of such a program.

Respectfully submitted 5/8/13