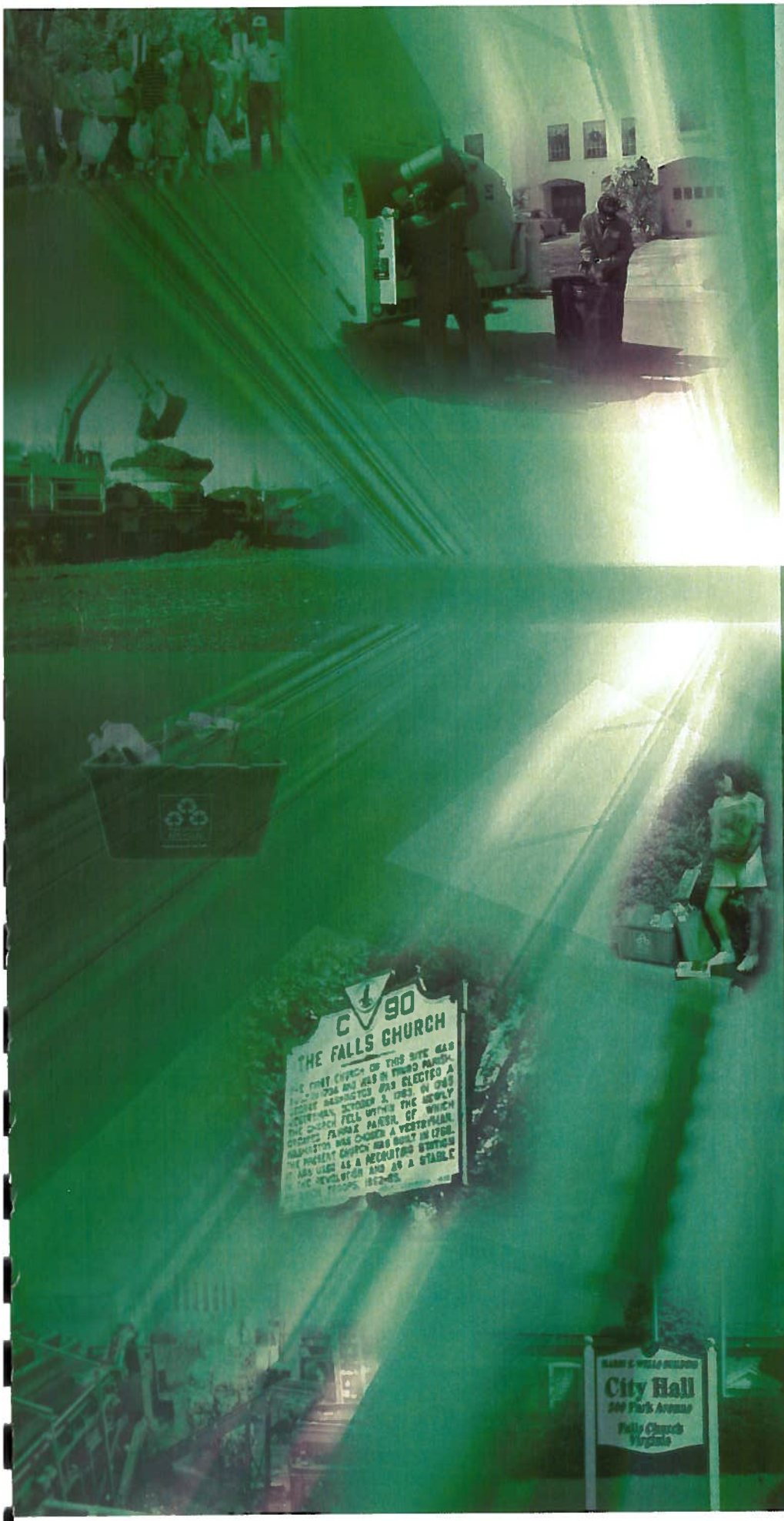


# City of Falls Church Solid Waste Management Plan

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BE A GOOD NEIGHBOR– HELP CREATE CURB APPEAL

Chapter 1

# Introduction

## *Introduction to the City of Falls Church Solid Waste Management Plan*

This solid waste management plan (SWMP) describes the City's integrated strategy for the management of solid waste generated within the City over the next 20 years.

## Virginia Solid Waste Management Regulations

**The City developed this SWMP in accordance with the VDEQ Solid Waste Management Planning Regulations.**

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

The City of Falls Church developed this SWMP in accordance with the Virginia Department of Environmental Quality (VDEQ) Solid Waste Management Planning Regulations, Amendment 1 (9 VAC 20-130-10 et seq.), promulgated in 2001. These regulations require each jurisdiction to provide a complete, revised SWMP to VDEQ no later than July 1, 2004. The primary purposes of these regulations are as follows:

- Establish minimum solid waste management (SWM) standards and planning requirements for protection of the public health, public safety, environment, and natural resources throughout the Commonwealth.
- Promote local and regional planning that provides for environmentally sound and compatible SWM with the most effective and efficient use of available resources.
- Establish state and local government responsibility for meeting and maintaining the minimum recycling rates of 25 percent.

## Plan Development Approach and Goals

The City of Falls Church is using this comprehensive SWMP both to satisfy the VDEQ regulatory requirements and as a strategic planning tool. This plan lays the groundwork for solid waste source reduction, reuse, recycling, collection, transfer, and disposal initiatives in the City from 2004 through 2024. It establishes goals and strategies for the operational and financial management of its SWM system.

**The City of Falls Church selected SWMP actions that address its future waste management needs and meet its SWM goals.**

The City of Falls Church developed the SWMP by first evaluating its current SWM activities and its future waste projections to identify future waste management needs over the SWMP planning period. It then selected SWM actions for the next 20 years that address future waste management needs and meet the following goals:

- Become a community of citizens whose actions reflect an ethic of resource conservation and waste minimization.
- Develop and maintain a secure, cost-effective, environmentally sound and resource-efficient SWM program.

## Plan Organization

The remainder of this SWMP is organized as follows:

- Chapter 2 (Projections and Waste Quantities) describes the City's current waste stream characteristics, estimates of waste quantities and material types, and projections of the waste stream over the next 20 years. The chapter also examines pertinent demographic data, including population, urban concentration, households, and employment, and City characteristics, including climate, geology, and traffic conditions, that may influence waste collection, waste disposal, and type of materials disposed of over the next 20 years.
- Chapter 3 (Solid Waste Management Hierarchy) describes the SWM hierarchy (defined in the Virginia Solid Waste Management Regulations) and discusses the consideration of the hierarchy in developing this SWMP.
- Chapter 4 (Solid Waste Management Goals) presents the overall goals of the City's SWM program and discusses the manner by which the SWMP actions will accomplish these goals.

- Chapter 5 (Solid Waste Management System Overview) presents an overview of the City's current SWM system, including organizational structure and funding strategies.

- Chapter 6 (Municipal Solid Waste) describes the current SWM activities for municipal solid waste (MSW) in the City of Falls Church, organized using the waste hierarchy. It uses the hierarchy as the framework for determining how to bridge the gaps between the current SWM activities and the strategies needed to manage the City's MSW in the future. The chapter presents the City's SWMP actions for MSW over the next 20 years.

- Chapter 7 (Construction/Demolition/Debris) describes the current City SWM activities, anticipated gaps in waste management, and SWMP actions for construction/demolition/debris (CDD).

- Chapter 8 (Yard Waste) describes the current City SWM activities, anticipated gaps in waste management, and SWMP actions for yard waste.

- Chapter 9 (Special Wastes) describes the current City SWM activities, anticipated gaps in waste management, and SWMP actions for special wastes.

- Chapter 10 (Litter Control) describes the current and future City litter control program.

- Chapter 11 (Solid Waste Management Plan Actions and Implementation Plan) presents the City's integrated actions planned for the SWM system over the next 20 years, organized from top to bottom of the waste hierarchy. The chapter also describes the City's plan for the implementation of its SWMP actions.

- Chapter 12 (Future SWM System Waste Quantities) presents the future waste quantities projections for the City's SWM system after implementation of the SWMP actions.

- Chapter 13 (Funding) describes the City's plan for funding its SWM system over the next 20 years. It discusses the modifications to the current funding structure to support the SWMP actions.

- Chapter 14 (Public Participation) discusses public participation in development of this SWMP, including both citizen and private-sector involvement, the consideration of public/private partnerships, and the public education and

outreach strategies to execute the future vision of the SWM system.

- Appendix A discusses the development of MSW generation, disposal, and recycling projections over the SWMP planning period.
- Appendix B discusses recycling markets.
- Appendix C shows potential best practices for source reduction and reuse in the City.
- Appendix D includes a copy of the initial flyer explaining the SMWP requirements and requesting citizen's input.
- Appendix E presents articles in the Spring 2004 "Falls Church Environment" newsletter about the Draft SWMP.
- Appendix F presents brochures distributed to City residents highlighting the SWMP recommendations.
- Appendix G presents City Council resolution approving the SWMP.

Chapter

2

# Projections and Waste Quantities

## *Description of the City's Current Solid Waste Stream and Projections for the Next 20 Years*

**This chapter describes the City's current waste stream characteristics, waste stream projections for the next 20 years, and pertinent demographic data that may influence waste management.**

This chapter presents a description of the City's current waste stream characteristics, estimates of waste quantities and material types, and projections of the waste stream over the next 20 years. The chapter also examines the pertinent demographic data, including population, urban concentration, households, and employment, and City characteristics, including climate, geology, and traffic conditions, that may influence waste collection, waste disposal, and type of materials disposed of over the next 20 years.

## Description of Plan Area

### City Characteristics

The City of Falls Church, an independent municipality in northern Virginia, is the smallest county-level political subdivision in the United States. The City has a total area of approximately 2.2 square miles. Located seven miles west of the District of Columbia, the City is bordered on the north, west, and south by Fairfax County. Arlington County forms the eastern boundary of the City.

### Geographic Conditions

Located in the Piedmont physiographic province, the City is characterized by gently rolling terrain. The soils in the City are shallow and, during periods of low rainfall, are susceptible to drought conditions.

The climate of the region is characterized by four distinct seasons, with spring and fall typically cool and moist. Summers tend to be hot and

humid, with an average temperature of 82°F. Winters are characterized by mild weather, with temperatures near freezing, punctuated with periods of cold temperatures and heavy snowfall. The normal annual precipitation for the area is 39 inches. The average growing season is from April 20 to October 20.

The vegetation of the region is characterized by a blend of deciduous trees, predominantly of the oak family, and conifers, primarily pines. The vegetation in the area ranges from small herbaceous plants and wildflowers to shrubs and trees.

## Transportation Conditions

**Northern Virginia is the third worst congested traffic area in the nation. Traffic is forecasted to worsen over the next 20 years.**

Northern Virginia, which includes the City of Falls Church, is the third worst congested traffic area in the nation, both in terms of percentage of congested roadways and time spent in traffic.[1] Of the lane miles in the area, 44 percent are rated "F" or worst for congestion. Northern Virginia residents spend an average of 46 hours a year stuck in traffic.

**The impact of increased truck traffic and congestion will need to be addressed in selecting solid waste management alternatives.**

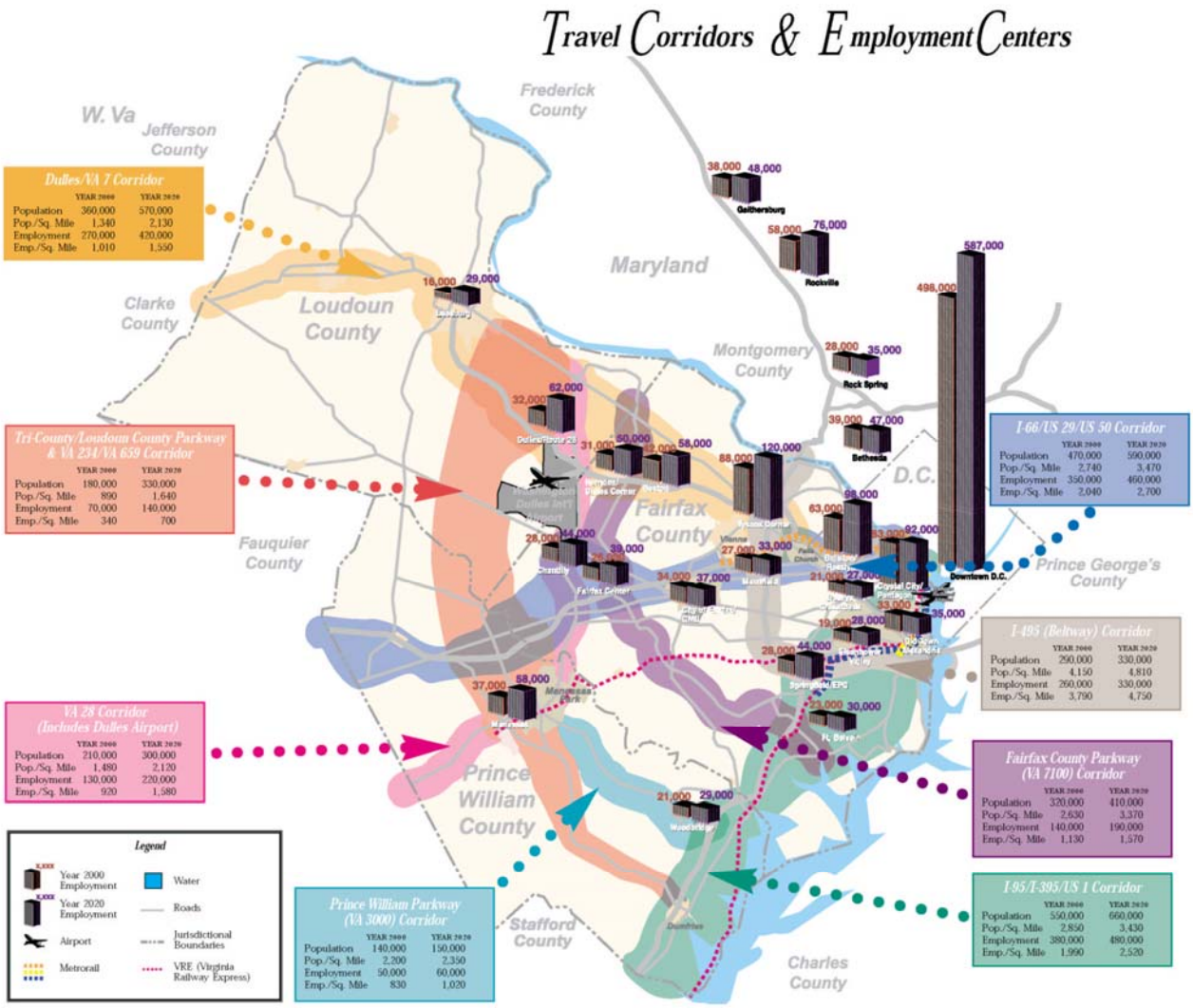
Traffic conditions factor significantly into the development of the City's Solid Waste Management Plan (SWMP). As the traffic conditions worsen, the time and cost of collection and disposal methods will increase. The City will need to address the impact of increased truck traffic and congestion in selecting future solid waste management (SWM) alternatives.

The forecast over the next 20 years is that traffic conditions will worsen. By 2025, vehicle miles traveled in Northern Virginia are forecasted to increase 41 percent, while the planned lane miles are forecasted to increase by only 13 percent.

Figure 2-1 shows the traffic corridors and employment centers in Northern Virginia. All the traffic corridors have significant traffic congestion issues. To make matters worse, the Virginia Department of Transportation predicts that the area will experience significant growth in traffic congestion over the next 20 years.

[1] David Schrank and Tim Lomax, *The 2002 Urban Mobility Report*, Texas Transportation Institute, June 2002.

*Figure 2-1. Travel Corridors and Employment Centers in Northern Virginia*




Source: Virginia Department of Transportation, *Northern Virginia 2020 Transportation Plan*, Dec. 1999.

## Population Data and Projections

**In 2000, there were 10,377 people living in the City of Falls Church.**

### Population

According to the 2000 Census, there are 10,377 people living in the City of Falls Church. From 1970 to 1980, the City's population decreased from 10,722 to 9,515, roughly 11 percent. The population increased from 1980 to 1990 by 0.7 percent, to 9,578 residents. Population growth was much greater over the next decade, an increase of roughly 8 percent to 10,377 residents in 2000.

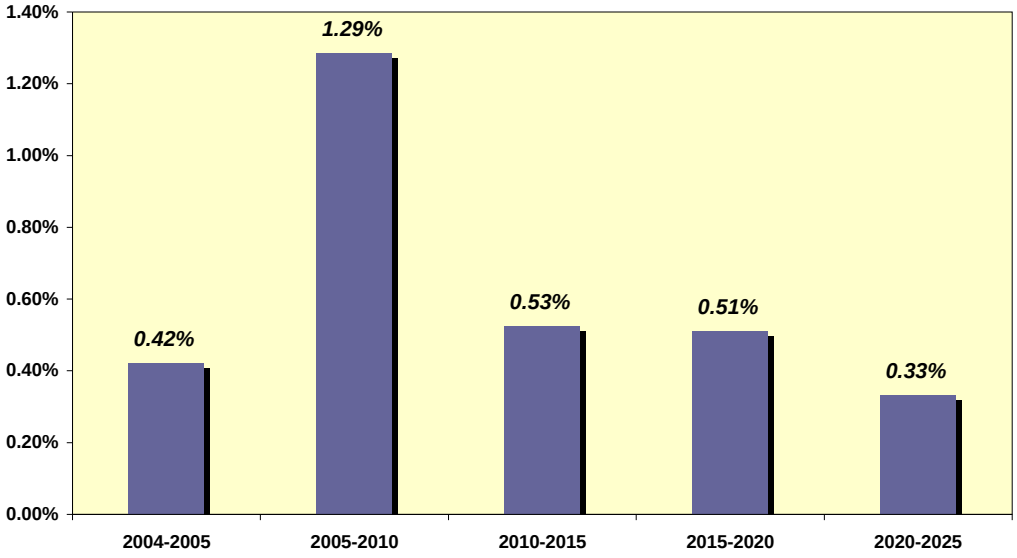
**Population will grow over the next 20 years, but at diminishing rates.**

### Population Forecasts

The City's population is expected to grow over the SWMP planning period, but, after 2010, growth will be at diminishing rates. Figure 2-2

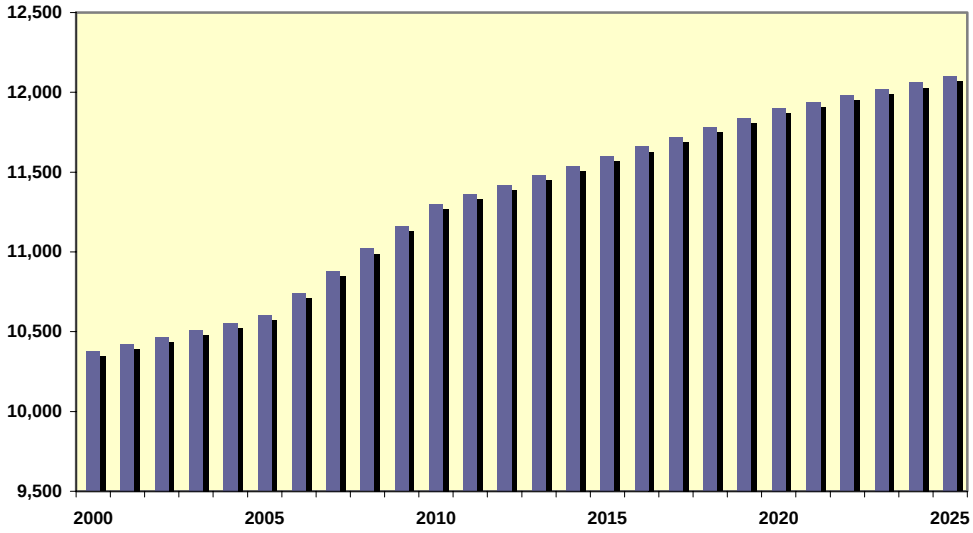
shows the City's estimated annual growth rates through 2025, and Figure 2-3 shows its projected population through 2025.

*Figure 2-2. City of Falls Church Annual Population Growth, Projected 2004–2025*




Source: City of Falls Church, Planning Division, 2003.

*Figure 2-3. City of Falls Church Total Population, Projected 2000–2025*




Source: City of Falls Church, Planning Division, 2003.

**The City's population density is 5,226 persons per square mile, classifying it as "very dense urban".**

## Urban Concentrations

The U.S. Census Bureau calculated that the City's population density in 2000 was 5,226 persons per square mile (or 2,013 persons per square kilometer). This density classifies the City as very dense urban, almost twice the average U.S. central city population density of 2,716 persons per square mile. In contrast, the 2000 population density was 80 persons per square mile in the United States and 179 persons per square mile in Virginia.

In the Washington metropolitan area, the City's population density is most comparable to Arlington County. Table 2-1 compares the City's population density with its neighboring counties.

*Table 2-1. Population Densities of Bordering Counties*

| Bordering county | Population density (persons/mi$^2$) |
|---|---|
| Arlington | 7,323 |
| Loudoun | 326 |
| Montgomery | 1,763 |
| Prince William | 831 |
| Fairfax County | 2,455 |
| City of Falls Church | 5,226 |

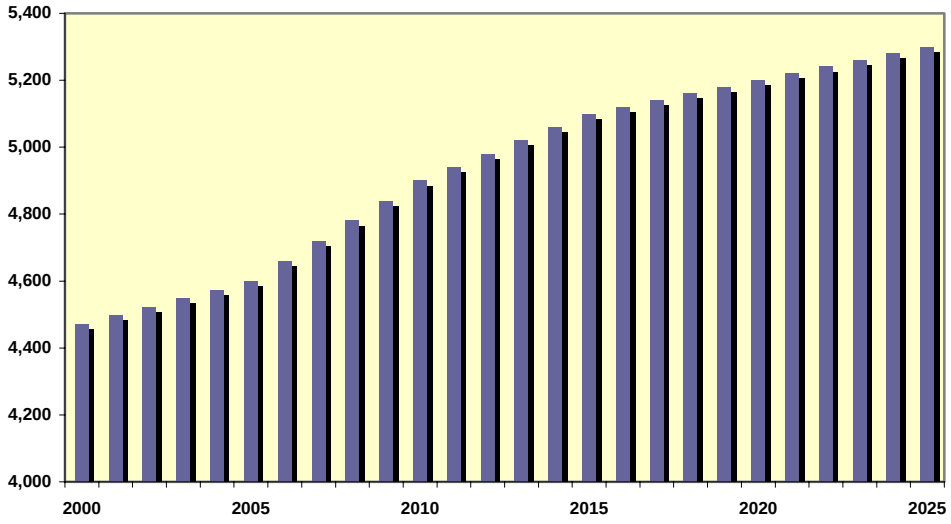
**The City of Falls Church projects that its households will grow by more than 725 over the next 20 years.**

## Household Forecasts

In 2000, the City of Falls Church counted 4,471 households within its borders. The City projects that the number of households will increase through 2025 at roughly the same annual rate as the population (discussed above). Figure 2-4 shows the City's estimate of total households through 2025.

.

*Figure 2-4. City of Falls Church Total Households, Projected 2000–2025*




Source: City of Falls Church, Planning Division, 2003.

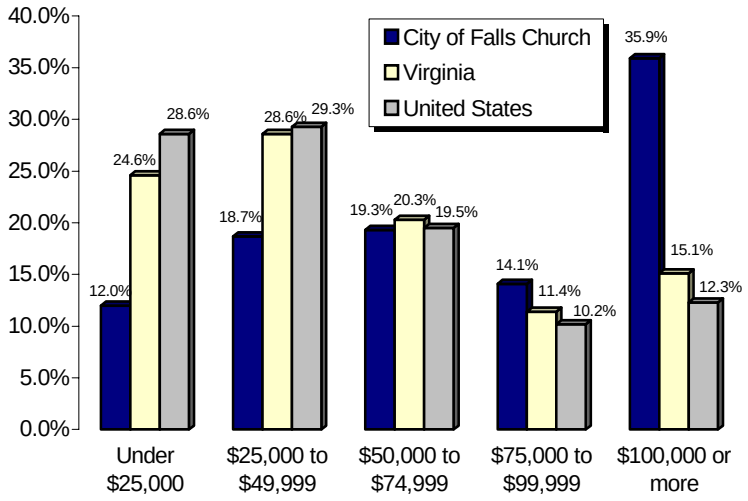
**In 2000, the average household size in the City of Falls Church was 2.31 persons.**

In the U.S. Census 2000, the average household size in the City of Falls Church was 2.31 persons, smaller than the national average of 2.59 and Virginia average of 2.54.

### Household Income Distribution

The City of Falls Church is one of the wealthiest cities in the country. The City's 1999 median household income of $74,924 is 78 percent more than that of the United States ($41,994) and 61 percent more than that of Virginia ($46,667). Figure 2-5 shows the distribution of incomes in the City of Falls Church and the United States in 1999.

*Figure 2-5. City of Falls Church and U.S. Income Distribution, 2001*




Source: U.S. Census Bureau.

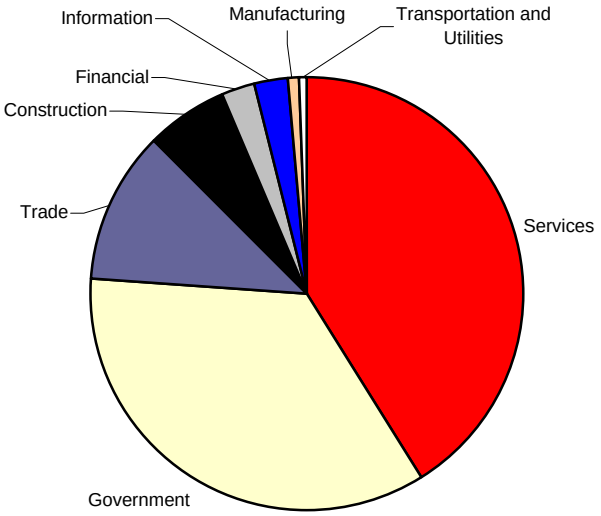
**In 2000, establishments in the City employed approximately 9,400 people.**

## Employment

In 2000, establishments in the City of Falls Church employed approximately 9,400 people.

The City of Falls Church has one of the most highly skilled and educated work forces in the nation. Over half of all those employed are college educated, one-quarter have an advanced degree, and most are in professional, managerial, clerical and skilled craft positions. The major businesses in the City consist of service (including defense and information technology), government, construction, trade, financial, and information firms. Figure 2-6 shows a breakdown of employment in the City of Falls Church by industry.

*Figure 2-6. Employment in the City of Falls Church by Industry*



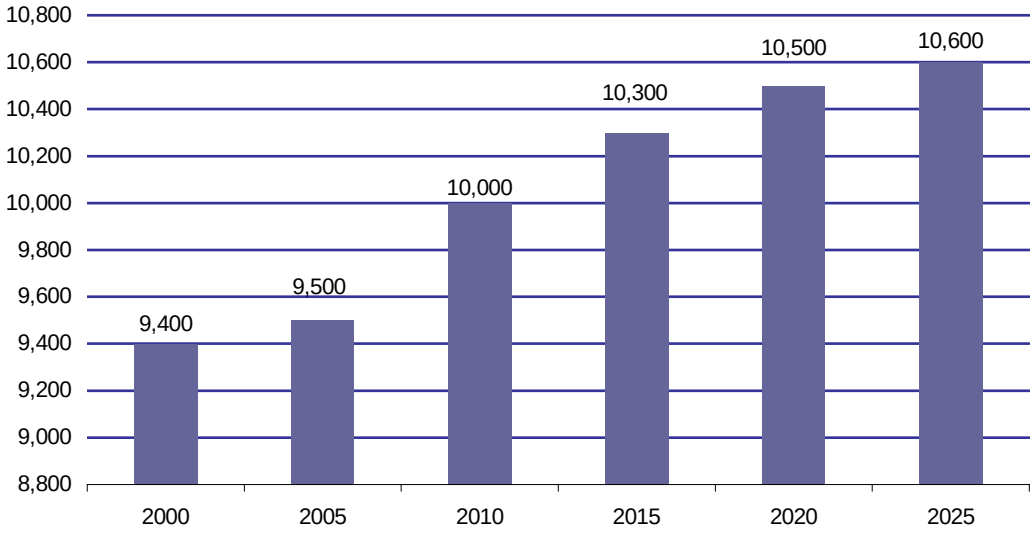

Source: Virginia Economic Development Partnership, 2003.

**Since the City predicts population growth to outpace employment growth, commercial waste will likely decrease as a percentage of the total waste stream.**

## Employment Forecasts

The City of Falls Church expects employment to grow by roughly 13 percent between 2000 and 2025. Therefore, employment growth is predicted to be less than the growth of population in the City (17 percent) over the same period. As a result, the City of Falls Church will likely experience a decrease in commercial waste as a percentage of the total MSW stream over the next 20 years. Figure 2-7 shows the employment projections for the City of Falls Church from 2000 to 2025.

*Figure 2-7. City of Falls Church Employment Projections, 2000–2025*




Source: City of Falls Church, Planning Division, 2003.

# Composition of Solid Waste

## MSW

### Waste Generation Activities

**Municipal solid waste (MSW) includes trash produced by households, apartment buildings, hotels, motels, businesses, industry and institutions.**

Municipal solid waste (MSW) includes solid waste generated by residential, commercial, industrial, and institutional establishments. This includes trash produced by households, apartment buildings, hotels and motels, and businesses, including offices, stores, and restaurants, and institutions such as schools and hospitals. Fairfax County, which accepts and maintains data on City of Falls Church MSW, does not track waste receipts based on residential, commercial, industrial, or institutional origin; therefore, the City used data representing the combined MSW stream to develop the future projections in this section. The MSW totals *include* yard wastes and certain special wastes described further in this chapter, such as used oil, antifreeze, tires, batteries, and household hazardous waste (HHW).

### Waste Stream Material Types

**The plastic component of the MSW stream in the U.S. has been increasing, and the paper component has been decreasing over the last five years.**

The City of Falls Church does not collect waste characterization data; the best estimates of City MSW stream composition are the recent national solid waste composition data in the U.S. Environmental Protection Agency (EPA) biennial survey report *Municipal Solid Waste in the United States: 2000 Facts and Figures*. (Table 2-2 includes the waste composition characterization from this study.)

Table 2-2 also presents the 1995 EPA data to illustrate the changing composition of MSW. The MSW stream's plastic component has been

increasing over the last five years (10.7 compared with 8.9 percent), while the paper component has been decreasing (37.4 compared with 38.6 percent).

**Paper and organics represent the largest components of MSW.**

*Table 2-2. City of Falls Church Estimated Waste Stream Composition (%)*

| Category | 2000 USEPA mean | 1995 USEPA mean |
|---|---|---|
| Paper | 37.4 | 38.6 |
| Plastic | 10.7 | 8.9 |
| Yard Waste | 12.0 | 14.0 |
| Organics | 23.4 | 21.6 |
| Glass | 5.5 | 6.1 |
| Aluminum | 1.4 | 1.4 |
| Ferrous Metals | 5.8 | 5.5 |
| Misc. Inorganics | 1.5 | 1.5 |
| Other Waste | 1.7 | 1.7 |

Source: USEPA, 2002

*Residential and Commercial Waste Percentages*

**The City estimates that currently residential sources generate 56 percent and commercial sources (businesses, institutions, and industries) generate 44 percent of the waste stream.**

Based on City of Falls Church waste generation data, 56 percent of the MSW stream is generated by residential sources and 44 percent is generated by commercial sources, including businesses, institutions and industries. Wastes generated by these sources have similar components:

| | |
|---|---|
| ***Residential.*** **Single- and multi-family homes.** | Newspapers, clothing, disposable tableware, food packaging, cans and bottles, food scraps, and yard trimmings |
| ***Commercial.*** **Office buildings, retail and wholesale establishments, and restaurants.** | Corrugated boxes, food wastes, office papers, disposable tableware, paper napkins, yard trimmings |
| ***Institutional.*** **Schools, libraries, hospitals, prisons.** | Cafeteria and restroom trashcan wastes, office papers, classroom wastes, and yard trimmings |
| ***Industrial.*** **Packaging and administrative (not process wastes).** | Corrugated boxes, plastic film, wood pallets, lunchroom wastes, and office papers |

These statistics correlate well with national waste percentages; for example, the national EPA survey estimates that in 2000, the breakdown of MSW generation was 55 to 65 percent from residential sources and 35 to 45 percent from commercial.

*Waste Generation Rates*

**The average City MSW generation rate over the last three years is 7.10 pounds per capita per day.**

The City compiled data from Fairfax County scale records and recycling reports for 2000, 2001, and 2002 to determine the City MSW per capita generation rate for each year (see Table 2-3). The City calculated the total waste generation by adding the City waste disposed and recycling totals for each year. The average City waste generation over the last three years is 7.10 pounds per capita per day (pcd).

*Table 2-3. Recent City of Falls Church MSW Generation Rate Data*

| Year | Waste Disposal (tons) | Recycling (tons) | Total Generation (tons) | Population | MSW Generation Rate (pcd) |
|---|---|---|---|---|---|
| 2000 | N/A | 10,754 | N/A | 10,377 | N/A |
| 2001 | 6,254 | 7,152 | 13,406 | 10,422 | 7.05 |
| 2002 | 6,769 | 6,905 | 13,674 | 10,466 | 7.16 |
| **Average** | | | | | **7.10** |

N/A - Data not available

Formulas:

*Waste Disposal* (tons/yr) + *Recycling* (tons/yr) = *Total Waste Generation* (tons/yr)

*Waste Generation (pounds) Per Capita Per Day* (pcd) = *Total Waste Generation* (tons/yr) x 2000 pounds/ton x 365 days/yr divided by *Population*

*Recycling data*

**In recent years, the City MSW recycling rate has ranged from 46.1 to 53.4 percent.**

The annual City recycling reports calculate total recycling tonnage for each calendar year. Table 2-4 summarizes City recycling totals for 1999 through 2003. Recycling data include residential and commercial recyclables, yard waste, and special waste recyclables.

*Table 2-4. City of Falls Church Recycling Data (tons)*

| Material | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| Paper | 2,634 | 4,271 | 2,663 | 2,413 | 2,650 |
| Metal | 814 | 1,545 | 1,159 | 1,153 | 1,326 |
| Plastic | 48 | 79 | 38 | 39 | 103 |
| Glass | 258 | 537 | 140 | 160 | 125 |
| Commingled bottles and cans | 0 | 66 | 157 | 209 | 223 |
| Yard waste | 2,577 | 3,993 | 2,718 | 2,621 | 1,637 |
| Wood | 533 | 20 | 6 | 15 | 24 |
| Textiles | 34 | 21 | 52 | 36 | 26 |
| Waste tires | 73 | 67 | 60 | 117 | 133 |
| Used oil | 112 | 117 | 118 | 94 | 101 |
| Used oil filters | 0 | 0 | 2 | 3 | 1 |
| Used antifreeze | 0 | 0 | 14 | 11 | 11 |
| Batteries | 0 | 9 | 15 | 15 | 12 |
| Electronics | 0 | 13 | 15 | 20 | 25 |
| Chemicals and solvents | 11 | 15 | 1 | 1 | 0 |
| **Total material recycled** | **7,100** | **10,754** | **7,152** | **6,905** | **6,396** |
| **Waste disposed** | **8,111** | **Not Available** | **6,254** | **6,769** | **7,465** |
| **Total waste stream** | **15,211** | **Not Available** | **13,406** | **13,674** | **13,861** |
| **City recycling rate** | **46.7%** | **Not Available** | **53.4%** | **50.5%** | **46.1%** |

## CDD

### Waste Generation Activities

**Construction/ Demolition/Debris (CDD) includes waste generated during (1) construction, remodeling, or repair of buildings or pavements, (2) destruction of structures and their foundations, and (3) land clearing operations.**

Construction/Demolition/Debris (CDD) constitutes a major portion of the City's solid waste stream. As defined by the Virginia Solid Waste Management Regulations, CDD includes the following:

- *Construction waste*. Solid waste produced or generated during construction, remodeling, or repair of pavements, houses, commercial buildings, and other structures. Construction wastes include lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, paving materials, and metal and plastics if the metal or plastics are part of the materials of construction or empty containers for such materials. Paints, coatings, solvents, asbestos, any liquid, compressed gases or semi-liquids, and garbage are not construction wastes.

- *Demolition waste*. Solid waste produced by the destruction of structures and their foundations, which includes the same materials as construction wastes.

- *Debris waste*. Wastes resulting from land clearing operations. Debris wastes include stumps, wood, brush, soil, and road spoils.

**Since no data are available for City of Falls Church CDD generation, the City used Fairfax County generation rate estimates.**

### Waste Generation Rates

No data are available for CDD generation in the City of Falls Church; the City used Fairfax County generation rate estimates for these wastes.

CDD generated in Fairfax County is primarily disposed of at three facilities in the county: Hilltop Sand and Gravel Company Debris Landfill (Alexandria), Lorton CDD Landfill (Lorton), and Rainwater Concrete Company Landfill (Lorton). In addition, three facilities in neighboring counties receive CDD generated in Fairfax County: Potomac Landfill (Dumfries), WMI (Manassas), and Corral Farm (Warrenton). Each of these facilities provided data on annual quantities of waste received and the estimated percentage attributable to Fairfax County. Table 2-5 shows the data submitted by the facilities. (Note that CDD is not weighed at these facilities; tonnage is estimated based on volumes.)

*Table 2-5. CDD Facility Estimated Waste Receipts for Fairfax County (tons)*

| Facility | | 1998 | 1999 | 2000 | 2001 | 2002 | Average |
|---|---|---|---|---|---|---|---|
| Hilltop Debris LF | Total | 350,000 | 300,000 | 250,000 | 200,000 | 200,000 | 260,000 |
| | Fairfax | 297,500 | 255,000 | 212,500 | 170,000 | 170,000 | 221,000 |
| Lorton CDD LF | Total | 868,000 | 955,000 | 1,050,000 | 1,155,000 | 1,040,000 | 1,013,600 |
| | Fairfax | 325,000 | 358,000 | 394,000 | 433,000 | 390,000 | 380,000 |
| Rainwater Conc. Co. LF | Total | 32,000 | 35,000 | 51,000 | 43,000 | 44,000 | 41,000 |
| | Fairfax | 24,000 | 25,000 | 41,000 | 33,000 | 30,000 | 30,600 |
| Potomac LF | Total | — | — | — | — | — | — |
| | Fairfax | 10,000 | 19,000 | 28,000 | 38,000 | 47,000 | 28,400 |
| WMI Manassas TS | Total | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 | 33,000 |
| | Fairfax | 11,000 | 11,000 | 11,000 | 11,000 | 11,000 | 11,000 |
| Corral Farm LF | Total | 165,000 | 165,000 | 165,000 | 165,000 | 165,000 | 165,000 |
| | Fairfax | 83,000 | 83,000 | 83,000 | 83,000 | 83,000 | 83,000 |
| **Total Fairfax CDD** | | **750,000** | **751,000** | **769,000** | **767,000** | **730,000** | **753,400** |
| **Fairfax Population** | | **962,910** | **978,038** | **1,001,624** | **1,016,406** | **1,032,205** | **998,237** |
| **CDD gen. rate (pcd)** | | **4.27** | **4.21** | **4.21** | **4.13** | **3.88** | **4.14** |

No City-specific CDD waste stream characterization data are available; the City used two CDD waste characterization studies, a 1998 EPA national study[2] and a 2003 State University of Florida study[3], to estimate the percentage composition of each CDD waste type. The City estimates that the CDD waste stream is composed of 51 percent construction wastes, 47 percent demolition wastes, and 2.3 percent land clearing debris wastes (including 0.3 percent stumps).

The 1998 EPA national study provided limited data on several waste characterization studies that have been conducted, and the CDD composition varied greatly depending on the type of project undertaken. The study found, in general, that the major components of CDD for residential projects are wood (14 to 67 percent), drywall (17 to 27 percent), roofing materials, concrete, and brick.

**The average Fairfax County CDD generation over the last five years is 4.14 pounds per capita.**

Fairfax County estimated its CDD per capita generation rate by dividing total annual CDD attributable to Fairfax County received by the facilities listed in Table 2-5 by the county population for that year. As presented in Table 2-5, the generation rate has decreased over the preceding five years from 4.27 to 3.88 pcd, a decrease of 10 percent. Over the last five years, the average CDD generation rate is 4.14 pcd.

## Special Wastes

### Waste Generation Activities

**Special wastes generated in the City of Falls Church include hazardous wastes, regulated medical wastes, household hazardous wastes, tires, used oil, used antifreeze, and batteries.**

Special wastes are components of the City's solid waste stream that have unique collection, disposal, or recycling requirements. Special wastes include hazardous wastes, regulated medical wastes (RMW), household hazardous wastes (HHW), tires, used oil, antifreeze, batteries, sludge, septage, mining wastes, agricultural wastes, and spill residues.

Hazardous wastes generated by commercial activities are regulated and must be disposed properly. Hospitals, clinics, and physician's offices generate RMW. Residents generate HHW at their homes, including aerosols, pesticides, oil based paints, and other hazardous materials. Households, auto shops, and the City government motor pool generate used tires, used oil, antifreeze, and used batteries.

Since the City does not contain a wastewater treatment plant, no wastewater treatment sludge is generated in the City of Falls Church. The City also generates minimal reportable septage, agricultural wastes, mining wastes, and spill residues. The City does not expect the annual generation quantities of these wastes to increase to measurable levels, so this SWMP does not include waste projections for these special wastes.

[2] USEPA, *Characterization of Building-related Construction and Demolition Debris in the United States*, Report No. EPA530-R-98-010, June 1998.
[3] Florida Center for Solid and Hazardous Waste Management, *Generation and Composition of Construction and Demolition Debris in Florida*, Report #03-08, February 27, 2003.

## Waste Stream Material Types and Generation Rates

### *Hazardous Wastes*

The EPA establishes criteria for the identification and classification of hazardous wastes and sets requirements for their proper management. In the City of Falls Church, private companies collect, transport and dispose hazardous wastes generated in the City. These wastes are disposed in certified facilities to prevent the release of hazardous constituents to the environment.

Businesses in the City of Falls Church that generate more than 220 pounds or 27 gallons of commercial hazardous waste per month are categorized as hazardous waste generators and must abide by EPA and Department of Transportation (DOT) hazardous waste regulations. These regulations include specific requirements for the transport, storage, and disposal of commercial hazardous waste; hazardous waste generators typically contract with permitted disposal companies for collection.

For conditionally exempt small quantity generators (CESQG) in the City—businesses that generate less than 220 pounds or 27 gallons of hazardous material per month—Fairfax County provides a CESQG collection program. Safety Kleen Services, Inc., and Curbside, Inc., which operate the program, collect and dispose of hazardous waste directly from the businesses.

### *Regulated Medical Waste*

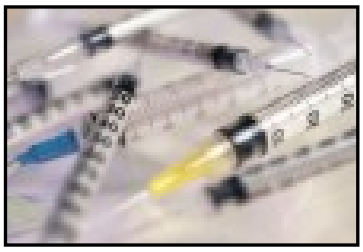
RMW is primarily generated by medical facilities. A solid waste is considered an RMW if it meets the following criteria defined by the VDEQ in 9VAC 20-120-140 of the Virginia Regulations:

> Any solid waste, as defined in this chapter is a regulated medical waste if it is suspected by the health care professional in charge of being capable of producing an infectious disease in humans. A solid waste shall be considered to be capable of producing an infectious disease if it has been or is likely to have been contaminated by an organism likely to be pathogenic to healthy humans, such organism is not routinely and freely available in the community, and if such organism has a significant probability of being present in sufficient quantities and with sufficient virulence to transmit disease. If the exact cause of a patient's illness is unknown, but the health care professional in charge suspects a contagious disease is the cause, the likelihood of pathogen transmission shall be assessed based on the pathogen suspected of being the cause of the illness.

Examples of RMW include human blood, body fluids or items contaminated with these fluids, organs, body parts, needles and syringes (sharps), bedding materials, and bandages.

Home-generated medical waste is not regulated and may be disposed of with other MSW.

*Generation Rates*



Currently, all commercially generated RMW in the City is transported outside the City for treatment and disposal by properly licensed commercial waste disposal facilities. No data exist on quantities of RMW generated within the City. However, the VDEQ collects data on solid waste managed in the state annually. RMW generation in Virginia ranged from 21,132 to 24,591 tons per year from 1999 to 2002. Table 2-6 shows the tons of RMW managed in Virginia from 1999 to 2002.

*Table 2-6. Virginia RMW Generation (tons)*

| | 1999 | 2000 | 2001 | 2002 | Average |
|---|---|---|---|---|---|
| RMW | 21,821 | 23,076 | 21,132 | 24,591 | 22,655 |
| Virginia Population | 6,872,912 | 7,105,900 | 7,196,750 | 7,293,542 | 7,117,276 |
| **Generation rate (pcd)** | **0.0174** | **0.0178** | **0.0161** | **0.0185** | **0.0174** |

Virginia's RMW management regulations set standards for the storage, transportation, and treatment of RMW. It must be either stored, steam sterilized, incinerated, or treated by an acceptable alternative mechanism in an acceptable facility. Innovative treatment technology may be allowed if the effectiveness of the treatment can be demonstrated.

In some cases, transportation of RMW by medical personnel requires no prior certification to VDEQ. However, commercial operators must file a certification that their businesses satisfy VDEQ's requirements before they can accept infectious material for transport. In all cases, the transportation of RMW is subject to the provisions in 49 CFR 171 through 178.

***Household Hazardous Wastes***

VDEQ defines HHW as any household waste material that would be classified as a hazardous waste (in accordance with 9VAC 20-60) if it came from a business.[4]

Households generate many types of HHW during daily activities. Generally, a substance is considered hazardous if it can catch fire, react or explode when mixed with other substances, or is corrosive or toxic. Hazardous substances are more specifically defined as follows:

[4] Virginia Waste Management Board, 9 VAC 20-80-10, "Definitions."

- *Corrosive*. A chemical, or its vapors, that can cause deterioration or irreversible alteration in body tissues at the site of contact and deteriorate or wear away the surface of a material.

- *Flammable*. A substance that can be ignited under almost all temperature conditions.

- *Irritant.* A substance that causes soreness or inflammation of the skin, eyes, mucous membranes, or respiratory system.

- *Toxic*. A substance that may cause injury or death upon ingestion, absorption, or inhalation.

The most common types of HHW generated in the City are:

| | | | |
|---|---|---|---|
| acids | driveway sealers | insecticides | polishes |
| aerosol sprays | floor care products | mercury products | pool chemicals |
| asbestos products | fungicides | moth balls | rust removers |
| automotive fluids | glue (solvent base) | paint (oil base) | varnish and stains |
| batteries | herbicides | paint thinner | weed killers |
| coal tar products | inks and dyes | poisons | wood preservatives |

*Generation Rates*

**City residents currently dispose of hazardous wastes generated from City households (Household Hazardous Wastes) at Fairfax County collection facilities.**

Currently, City residents may dispose of their HHW at Fairfax County's HHW collection center at the I-66 Transfer Station. This service is provided free-of-charge to Falls Church City residents. Fairfax County does not maintain separate HHW data for City residents. Therefore, the City is using Fairfax County data to develop HHW per capita generation estimates.

Table 2-7 shows quantities of HHW collected by the county over the preceding years by HHW material. Table 2-8 shows historical totals and per capita rates for county HHW generation.

*Table 2-7. Fairfax County Annual HHW Collection (pounds)*

| Material | 1998 | 1999 | 2000 | 2001 | 2002 | Totals | Average |
|---|---|---|---|---|---|---|---|
| Solvents | 96,850 | 108,600 | 89,300 | 73,600 | 80,950 | 449,300 | 89,860 |
| Oil paints | 89,600 | 85,750 | 71,000 | 87,050 | 100,750 | 434,150 | 86,830 |
| Flammables in cans | 21,000 | 68,775 | 62,475 | 58,275 | 50,400 | 260,925 | 52,185 |
| Pesticides | 65,325 | 75,150 | 64,800 | 86,400 | 85,500 | 377,175 | 75,435 |
| Corrosives, bulk | 3,200 | 5,200 | 3,600 | 5,200 | 6,000 | 23,200 | 4,640 |
| Corrosives, labpack | 4,300 | 3,700 | 2,040 | 4,400 | 5,620 | 20,060 | 4,012 |
| Ammonia, bulk | 400 | 800 | — | — | 400 | 1,600 | 533 |
| Mercury | 590 | 325 | 550 | 50 | 50 | 1,565 | 313 |
| Aerosols | 21,025 | 20,800 | 24,600 | 34,650 | 4,800 | 105,875 | 21,175 |
| Lithium batteries | 100 | — | — | — | 50 | 150 | 75 |
| NiCad batteries | 3,600 | 1,800 | 600 | 1,800 | 1,200 | 9,000 | 1,800 |
| Misc. chemicals | 600 | 1,595 | 60 | — | 20 | 2,275 | 569 |
| Reactives | 196 | 20 | — | — | 1,600 | 1816 | 605 |
| Oxidizer | 1,350 | 4,050 | 450 | 2,250 | 3,600 | 11,700 | 2,340 |
| Asbestos | — | 200 | 200 | 400 | 200 | 1,000 | 250 |
| Absorb with oil | 800 | — | — | — | — | 800 | 800 |
| **Total pounds** | **308,936** | **376,765** | **319,675** | **354,075** | **341,140** | **1,700,591** | **340,118** |
| **Total tons** | **154** | **188** | **160** | **177** | **171** | **850** | **170** |

*Table 2-8. Fairfax County Special Waste Generation (tons)*

| Waste | 1998 | 1999 | 2000 | 2001 | 2002 | Average | Generation rate (pcd) |
|---|---|---|---|---|---|---|---|
| HHW | 193 | 198 | 165 | 178 | 184 | 184 | 0.0010 |
| Tires | — | 7,415 | 11,243 | 11,639 | 9,562 | 9,965 | 0.0542 |
| Oil | — | 8,019 | 7,208 | 7,316 | — | 7,514 | 0.0412 |
| Antifreeze | — | — | — | 920 | — | 920 | 0.0050 |
| Batteries | — | 482 | 582 | 981 | — | 682 | 0.0037 |
| Population[b] | 962,910 | 978,038 | 1,001,624 | 1,016,406 | 1,032,205 | 998,237 | |

[a] Data represent quantities of sludge prior to incineration

[b] Includes populations of the Cities of Fairfax and Falls Church and the Towns of Herndon, Vienna, and Clifton

**Used tires generated in the City are collected at the I-95 Landfill Complex for transport to tire recyclers.**

### *Used Tires*

Virginia bans the land disposal of used tires. In addition, the General Assembly enacted a 50¢-per-tire tax (Section 58.1-641 of the Code of Virginia) and directed VDEQ to develop and implement a plan (Section 10.1-1422 of the Code of Virginia) for the transportation and management of all waste tires

generated within the state. Virginia temporarily raised the tax to $1 per tire between July 2003 and July 2006. The revenues are placed in the Waste Tire Trust Fund.

Used tires collected in the City of Falls Church are recycled for use for civil engineering projects, as a fuel source, and in recycled products, primarily outside of the City. Tire use in civil engineering projects includes landfill daily cover, landfill drainage media, landfill improvements, septic drainfields, golf course drainage, and roadway base. As a fuel source, chipped or shredded tires are used in some waste-to-energy facilities, electricity-generating facilities, pulp and paper mills, and cement kilns. The recycled product uses include mats, highway noise walls, pavement sealers, playground surfaces, brake pads, blasting mats, eco-blocks, and arena footings.

Used tires are collected by the City and by private haulers from auto shops and transported to Fairfax County's I-95 Landfill Complex. All tires are transferred to the back pad at the I-95 Landfill Complex and subsequently transported to tire recyclers. An unknown quantity of used tires is also transported directly to recycling facilities, bypassing the City collection facilities.

*Generation Rates*

Fairfax County does not maintain separate used tire data for City residents. Therefore, the City is using Fairfax County data to develop used tire per capita generation estimates. Used tire collection and recycling in Fairfax County, as reported by the Fairfax County Division of Solid Waste Collection and Recycling (DSWCR), ranged from 11,243 to 9,562 tons per year from 2000 through 2002. Table 2-8 includes the county collection data for tires.

***Used Oil and Antifreeze***

**Used oil and antifreeze are collected at Fairfax County facilities, auto shops, and motor pools.**

City-generated used oil and antifreeze are currently accepted at no charge at the citizen's drop-off centers at Fairfax County's I-95 and I-66 locations, as well as by private collection firms and recycling firms that service auto shops and motor pools.

*Generation Rates*

Fairfax County DSWCR compiles data from all of these collection sources annually (Table 2-8). Fairfax County does not maintain separate used oil and antifreeze data for City residents. Therefore, the City is using Fairfax County data to develop used oil and antifreeze per capita generation estimates.

**Alkaline or carbon zinc household batteries may be disposed of with MSW.**

***Batteries***

Used automotive batteries are accepted by battery retailers and at the Fairfax County-run citizen disposal locations at the I-66 Transfer Station. Fairfax County recycling centers accept button, rechargeable (NiCad), mercury, and lithium batteries. City residents may also take button batteries to the Falls Church Jewelry Exchange (108 West Broad Street) and NiCad batteries to the nearest Radio Shack (7935 Lee Highway) for recycling. Alkaline and carbon zinc household batteries may be disposed of with MSW.

NiCad batteries could present a significant challenge if they continue to be disposed as waste in the future. There is the potential for increased amounts of cadmium to be released as the material is either incinerated or landfilled. See Chapter 9 for recommendations concerning battery recycling.

*Generation Rates*

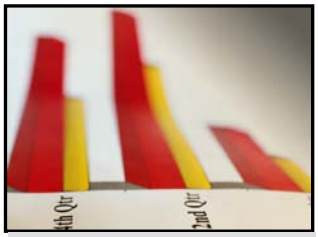
Fairfax County does not maintain separate battery collection data for City residents. Therefore, the City is using Fairfax County data to develop per capita generation estimates for used batteries. Table 2-8 includes data for the batteries managed by the county recycling program.

# Solid Waste Generation Projections

## Approach

### Method

For each major solid waste category, the City of Falls Church established a per capita generation rate on the basis of available historical records of waste generation and disposal. The City then used the generation rates in conjunction with City population projections to estimate waste volumes for the 20-year planning period. The City adjusted these generation rates over the planning period in response to projected impacts of urbanization, intensity of construction activity, economic growth, and recycling trends.



**Waste projections in this chapter assume the continuation of the City's current waste management practices.**

The City established generation factors by adding total annual City waste disposed and total City waste recycled in each waste category, and dividing by the City population for the year under consideration. The City also evaluated the historical generation rate trends to determine generation rates to be used over the 20-year planning period. ***All waste and recycling projections throughout this chapter assume the continuation of the City's current waste management practices and conditions, unless otherwise stated.***

### Sources of Information

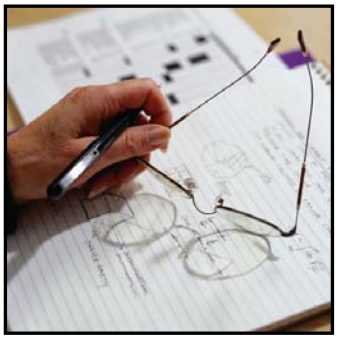
Quantities of City of Falls Church MSW accepted for disposal at the I-66 Transfer Station and Energy/Resource Recovery Facility (E/RRF) are maintained by the Fairfax County Division of Solid Waste Disposal and Resource Recovery (DSWDRR). The City used records maintained by the Fairfax County DSWCR to determine annual City recycling quantities, including yard waste.

For CDD, the City used Fairfax County per capita generation estimates. Fairfax County CDD generation data were obtained from reports published by the VDEQ on annual tonnages accepted by CDD landfills in conjunction with interviews with the CDD landfill and transfer facility operations personnel. Operations personnel estimated historical waste tonnage accepted and the percentage of waste receipts originating in Fairfax County.

For special wastes, the City used Fairfax County per capita generation estimates. Fairfax County used its DSWCR records to determine annual county recycling quantities for tires, used oil, antifreeze, and batteries. Annual quantities of HHW collected by the county were obtained from records kept at the I-66 Transfer Station and I-95 Landfill collection sites. No data were available for RMW generation and disposal in Fairfax County; the county projected RMW from statewide data collected by VDEQ and included in the report *Solid Waste Managed in Virginia During Calendar Year 2002*.

Since the City does not contain a wastewater treatment plant, no wastewater treatment sludge is generated in the City of Falls Church. The City also generates minimal reportable septage, agricultural wastes, mining wastes, and spill residues. Since the City does not expect the annual generation quantities of these wastes to increase, waste projections for these special wastes are not included in this SWMP.

## MSW Generation Forecasts



The City based waste generation projections on the predicted per capita MSW generation rate and population projections for the planning period. In addition, employment projections were used to predict commercial waste generation, as discussed later in this section.

For projections of recycling quantities, the City forecasted its overall, residential, and commercial recycling rates to remain at their three-year averages. Therefore, the City projects that the overall recycling rate will remain at 51.9 percent, the residential recycling rate will remain at 55.5 percent, and the commercial recycling rate will remain at 48.9 percent.

### City of Falls Church Waste Generation Rate

Based upon the average of the past three years, the waste generation rate for the City of Falls Church is 7.10 pcd. The City examined actual per capita waste generation data from 2000 through 2002 (Table 2-3) to determine trends. Recent scale records show a generation rate of 7.05 pcd in 2001, increasing to 7.16 pcd in 2002. This represents an annual increase in City MSW generation of approximately 2 percent.

### Regional and National Per Capita Generation Data

The MSW generation rate in the City of Falls Church is higher than national and regional generation rate estimates. Nationally, the MSW generation rate has remained constant at 4.51 pcd in both 2000 and 1990. Regionally, the Metropolitan Washington Council of Governments estimated an MSW generation rate of 5.8 pcd for the Washington metropolitan area.

**The City of Falls Church developed four alternative projections for MSW to address the probable range of variance in future waste generation rates.**

### MSW Projections

From the differing trends and estimates of MSW generation in the City, the City developed four alternative MSW projections to address the probable range of variance in the future generation rates. Table 2-9 presents the projections of MSW generation and disposal for these four alternatives over the next 20 years. Appendix A includes a more detailed discussion of the development of the City's MSW projections.

*Table 2-9. City of Falls Church MSW Generation and Disposal Projections 2004–2025 (tons)*

| Year | Alternative 1 | | Alternative 2 | | Alternative 3 | | Alternative 4 | |
|---|---|---|---|---|---|---|---|---|
| | MSW Generation | MSW Disposal | MSW Generation | MSW Disposal | MSW Generation | MSW Disposal | MSW Generation | MSW Disposal |
| 2004 | 13,685 | 6,581 | 13,822 | 6,647 | 13,645 | 6,561 | 13,782 | 6,626 |
| 2005 | 13,743 | 6,609 | 14,019 | 6,741 | 13,687 | 6,580 | 13,962 | 6,713 |
| 2010 | 14,650 | 7,045 | 15,707 | 7,553 | 14,492 | 6,964 | 15,537 | 7,467 |
| 2015 | 15,039 | 7,232 | 16,946 | 8,149 | 14,904 | 7,163 | 16,794 | 8,071 |
| 2020 | 15,428 | 7,419 | 18,271 | 8,787 | 15,237 | 7,322 | 18,046 | 8,671 |
| 2025 | 15,687 | 7,544 | 19,526 | 9,390 | 15,434 | 7,414 | 19,211 | 9,229 |

**MSW disposal quantities are projected to range from 6,561 to 9,390 tons from 2004 to 2025 depending on the year and projection assumptions.**

The City of Falls Church projects its annual MSW disposal quantities will range from 6,561 tons to 9,390 tons between 2004 and 2025, depending upon the year and assumptions that are used for the calculation. While waste will increase with increases in population and employment, the rate of increase is dependent upon recycling rates and costs for disposal. If recycling rates increase, the City's MSW disposal requirements will be lower. Also, if disposal costs increase enough, MSW disposal quantities

will decrease as residents and businesses find other, less costly ways to manage their waste.

The City of Falls Church projects that, over the SWMP period, the percentages of MSW generated by residential and non-residential (i.e., commercial, institutional and industrial) sources will remain at 56 percent and 44 percent of the waste stream, respectively.

### Yard Waste and Special Wastes

The City also developed waste projections for two components of MSW: yard waste and special wastes. Yard waste projections are discussed below; special waste projections are discussed later in this chapter.

The City projects that yard waste generation quantities will remain at current levels (3,111 tons per year) throughout the SWMP planning period. Since there are few open areas remaining in the City, future population increases will likely not impact yard waste generation quantities. The City calculated the current yard waste generation quantity using the average annual quantity of yard waste generated in the City from 2000 to 2002 (see Table 2-4). *Note that yard waste is a component of MSW and that these projections are also included in the MSW projections.*

### CDD Generation Forecasts

**The City of Falls Church developed two alternative projections for CDD to address the probable range of variance in future waste generation rates.**

The City of Falls Church developed two alternatives for CDD generation projections (Tables 2-10 and 2-11). The first alternative uses a constant generation rate, which is based on the five-year Fairfax County generation rate average of 4.14 pcd. The second alternative assumes the current trend of declining generation rates will continue over the planning period, with the current generation rate declining at 1 percent per year. Construction activity in the area has been at a high level in recent years, and it is likely to lessen over the planning period; therefore, a reduction in the per capita CDD generation rate for the City is probable.

The City of Falls Church projects that, over the SWMP period, the percentages of CDD representing construction, demolition, land clearing debris, and stumps will remain at 51 percent, 47 percent, 2.3 percent, and 0.3 percent of the waste stream, respectively.

*Table 2-10. City of Falls Church CDD Generation Projections 2004–2025 (tons), Alternative 1: Generation Rate Remains Constant*

| Year | Population | Waste generation rate (pcd) | Total CDD generation projection (tons) | Construction waste projection (tons) | Demolition waste projection (tons) | Land clearing debris projection (tons) | Stumps projection (tons) |
|---|---|---|---|---|---|---|---|
| 2004 | 10,555 | 4.14 | 7,975 | 4,052 | 3,740 | 183 | 24 |
| 2005 | 10,600 | 4.14 | 8,009 | 4,069 | 3,756 | 184 | 24 |
| 2010 | 11,300 | 4.14 | 8,538 | 4,338 | 4,004 | 196 | 26 |
| 2015 | 11,600 | 4.14 | 8,764 | 4,452 | 4,110 | 202 | 26 |
| 2020 | 11,900 | 4.14 | 8,991 | 4,568 | 4,216 | 207 | 27 |
| 2025 | 12,100 | 4.14 | 9,142 | 4,645 | 4,287 | 210 | 27 |

*Table 2-11. City of Falls Church CDD Generation Projections 2004–2025 (tons), Alternative 2: Generation Rate Decreases at 1 Percent per Year*

| Year | Population | Waste generation rate (pcd) | Total CDD generation projection (tons) | Construction waste projection (tons) | Demolition waste projection (tons) | Land clearing debris projection (tons) | Stumps projection (tons) |
|---|---|---|---|---|---|---|---|
| 2004 | 10,555 | 4.06 | 7,816 | 3,971 | 3,665 | 180 | 23 |
| 2005 | 10,600 | 4.02 | 7,771 | 3,948 | 3,644 | 179 | 23 |
| 2010 | 11,300 | 3.82 | 7,878 | 4,002 | 3,694 | 181 | 24 |
| 2015 | 11,600 | 3.63 | 7,691 | 3,907 | 3,607 | 177 | 23 |
| 2020 | 11,900 | 3.45 | 7,503 | 3,812 | 3,519 | 173 | 23 |
| 2025 | 12,100 | 3.29 | 7,255 | 3,686 | 3,402 | 167 | 22 |

These projections assume the continuation of the City's current management practices and conditions throughout the planning period.

## Special Waste Generation Forecasts

Table 2-12 shows projected generation quantities for each special waste category. The generation projections are based on the Fairfax County (and Virginia for RMW) per capita generation rates and the City of Falls Church population projections.

*Table 2-12. City of Falls Church Special Waste Generation Projections 2004–2025 (tons)*

| Waste | Gen. rate (pcd) | 2004 | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|---|---|
| HHW | 0.0010 | 1.9 | 2.0 | 2.1 | 2.1 | 2.2 | 2.2 |
| Tires | 0.0542 | 104 | 105 | 112 | 115 | 118 | 120 |
| RMW | 0.0174 | 34 | 34 | 36 | 37 | 38 | 39 |
| Oil | 0.0412 | 79 | 80 | 85 | 87 | 90 | 91 |
| Antifreeze | 0.0050 | 10 | 10 | 10 | 11 | 11 | 11 |
| Batteries | 0.0037 | 7.2 | 7.2 | 7.7 | 7.9 | 8.1 | 8.3 |
| Population | | 10,555 | 10,600 | 11,300 | 11,600 | 11,900 | 12,100 |

Chapter

3

# Solid Waste Management Hierarchy

## *Consideration of the Solid Waste Management Hierarchy in the SWMP*

This chapter describes the solid waste management (SWM) hierarchy, defined in the Virginia Solid Waste Management Regulations, and discusses the consideration of the hierarchy in developing the City's Solid Waste Management Plan (SWMP).

## Consideration of the Solid Waste Management Hierarchy

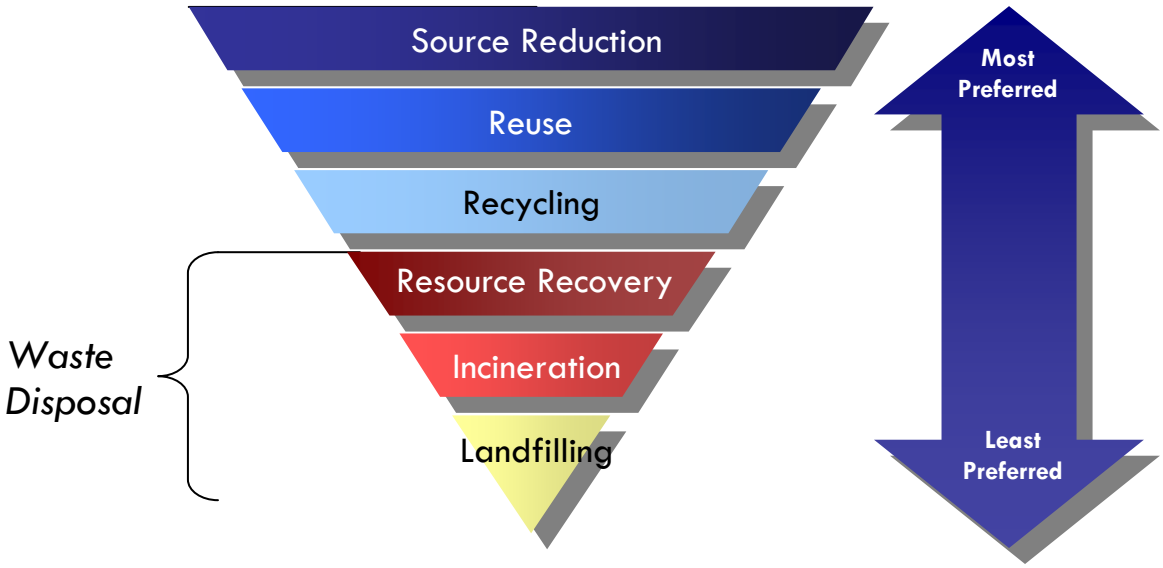
The Virginia Solid Waste Management Regulations, 9VAC20-130-140, require that jurisdictions consider the SWM hierarchy defined in 9VAC20-130-30 in developing its SWMP. The hierarchy establishes preference to SWM alternatives in the following order of priority: source reduction, reuse, recycling, resource recovery, incineration, and landfilling. Figure 3-1 presents an illustration of the desired hierarchy.

The City of Falls Church has developed its fully integrated waste management plan that considers and addresses all components of the hierarchy defined in 9VAC20-130-30, plus transfer and collection services.

**The City's goal is to establish SWM strategies as high on the hierarchy as possible.**

The City's goal is to establish SWM strategies as high on the hierarchy as possible. Because no one method can manage all solid waste generated in the City, the City of Falls Church uses an integrated waste management system, where all components of the waste management hierarchy are necessary to deal with the amount of waste generated in the City.

*Figure 3-1. The Solid Waste Management Hierarchy.*




**Source reduction and reuse both decrease the impact of waste on the environment.**

## Source Reduction and Reuse

Source reduction is the preferred method of waste management since it prevents the generation of waste in the first place. EPA defines source reduction as the design, manufacture, purchase, or use of materials to reduce their quantity or toxicity before they reach the waste stream.[1] It includes minimizing the production of wastes during any step in the creation or use of a product. For example, source reduction includes backyard composting of yard trimmings because this method of management keeps these wastes out of the waste stream.

Reuse follows source reduction as the next step in the SWM hierarchy. Items normally discarded as waste—such as appliances, furniture, and office supplies (binders, file folders, etc.)—can be reused as originally intended or as new products. Reusing items by repairing them, donating them to charity and community groups, or selling them also reduces waste. Reusing, when possible, is preferable to recycling because the item does not need to be reprocessed before it can be used again.

Both source reduction and reuse decrease resource use, protecting the environment. Source reduction and reuse also reduce the dependency on traditional methods of waste management, such as landfilling, which often face capacity and regulatory restrictions and incur high environmental and economic costs.

[1] Philip O'Leary and Patrick Walsh, *Decision-Makers' Guide to Solid Waste Management, Volume II*, EPA530-R-95-023, U.S. Environmental Protection Agency, August 1995.

## Recycling

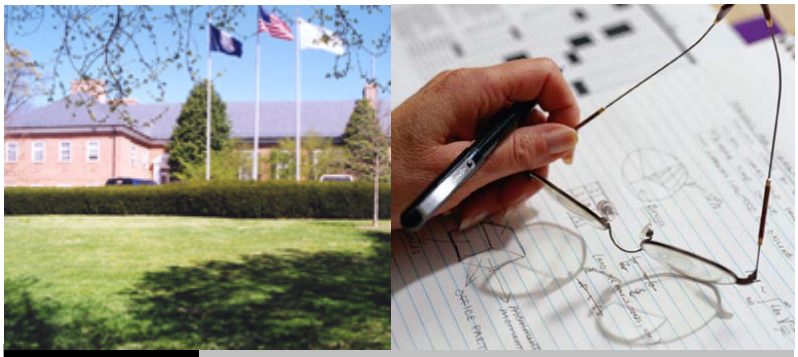
Recycling (including composting of collected yard waste), the process by which materials otherwise destined for disposal are collected, processed, and remanufactured, follows source reduction and reuse in the SWM hierarchy. Recycling and composting can reduce the depletion of landfill space, save energy and natural resources, provide useful products, and provide economic benefits.

## Disposal (Resource Recovery, Incineration, and Landfilling)

Disposal management methods, including resource recovery (or waste-to-energy), incineration, and landfilling are near the bottom of the hierarchy. Resource recovery is preferred to landfilling since the method reduces the bulk of municipal waste and can provide the added benefit of energy production.

## Collection and Transfer (Waste Flow)

Collection and transfer of solid waste serve to facilitate SWM strategies. Through the collection and transfer of solid waste, the City of Falls Church can help ensure that the goals of their SWM system are implemented.



Chapter 4

# City of Falls Church Solid Waste Management Goals

## *Incorporating the Goals for the City's Solid Waste Management Program in the SWMP*

This chapter presents the goals for the City of Falls Church in developing its future solid waste management (SWM) program and discusses the manner by which the SWMP actions accomplish these goals for the planning period.

## Goals for Solid Waste Management within the City of Falls Church

The primary strategic goals for the City's future SWM program are:

1. To become a community of citizens whose actions reflect an ethic of resource conservation and waste minimization.

2. To develop and maintain a secure, cost-effective, environmentally sound and resource-efficient SWM program.

## Manner in Which the Goals Are Accomplished

**Goal 1: Ethic of Resource Conservation and Waste Minimization**
The City of Falls Church is selecting SWMP actions that maximize source reduction and reuse in order to minimize waste generation, as well as increase recycling opportunities in order to minimize waste disposal requirements.

The City of Falls Church, following the SWM hierarchy, considers source reduction followed by reuse and recycling as the preferred methods of waste management. Both source reduction and reuse help reduce waste

disposal and handling requirements, reducing costs and decreasing resource use. Recycling appropriate materials helps reduce the environmental effects of waste disposal, produces revenue, reduces SWM system costs, and saves energy and natural resources.

Table 4-1 presents how the City's SWMP actions will help accomplish this SWM goal.

*Table 4-1. Manner in Which Goal 1 is Accomplished*

| Objective | Strategies |
|---|---|
| Educate members of the community about the value of natural resources and the benefits of reducing consumption and adopting sustainable practices | Expand public education programs that encourage residents, students, workers, and visitors to value natural resources and to practice resource conservation through source reduction, reuse and recycling |
| Reduce the total quantities of waste generated in the City, regardless of population or employment growth | Reduce per capita waste generation over the SWMP planning period |
| Increase source reduction, reuse, and recycling at City of Falls Church businesses and institutions | – Reduce waste generated by businesses and institutions over the SWMP planning period<br>– Increase recycling rate for the entire City to 65 percent over the SWMP planning period |
| Create a model of resource efficiency, providing leadership by example | Reduce waste generated by City of Falls Church government over the SWMP planning period |
| Eliminate litter and illegal dumping in the City of Falls Church | Reduce the volume of litter generated and materials illegally dumped in the City of Falls Church over the SWMP planning period |

## Goal 2: Secure, Cost-effective, Environmentally Sound and Resource-efficient SWM Program

The City of Falls Church is selecting SWMP actions that promote an efficient, economical, and environmentally sound SWM program. The City's primary objectives for the future of its SWM system are to minimize the quantities of waste requiring disposal through source reduction, reuse and recycling and to use the most economically viable and environmentally acceptable waste disposal methods available.

Table 4-2 presents how the City's SWMP actions will help accomplish this SWM goal.

*Table 4-2. Manner in Which Goal 2 is Accomplished*

| Objective | Strategies |
|---|---|
| Maintain a private-public infrastructure that supports reuse, repair and recycling | – Increase the range of materials collected for reuse and recycling<br>– Increase the convenience and accessibility of reuse and recycling programs in the City of Falls Church<br>– Implement legal and regulatory requirements that promote maximum source reduction and recycling of materials |
| Ensure the safe and efficient disposal of discarded materials that cannot be reused, repaired or recycled | Strengthen the City's disposal agreement with Fairfax County and explore agreements with alternative disposal facilities in the region |

Chapter 5

# City of Falls Church Solid Waste Management System Overview

## *Overview of the City's Current Solid Waste Management System*

This chapter presents an overview of the City's current solid waste management (SWM) system, including organizational structure and funding strategies.

## City of Falls Church SWM System Organization

**The City's Department of Environmental Services is responsible for recycling, collection, transfer and disposal of solid waste in the City.**

The City's Department of Environmental Services (DES) is responsible for the recycling, collection, transfer and disposal of solid waste in the City. Two DES divisions—Operations and Engineering— administer City solid waste programs. These divisions are responsible for program administration, operations, fiscal management, and enforcement of City Code related to solid waste management.

The Operations Division is responsible for directing facilities used to manage City-generated solid waste. Currently, these facilities include the City Property Yard (7100 Gordon Road) for equipment storage and maintenance, the Falls Church Recycling Center (217 Gordon Road) for drop-off of recyclable materials, and the City Transfer Yard (off Leesburg Pike, west of George Mason High School) for storage and processing of loose leaves. Other capital assets include solid waste collection equipment and vehicles.

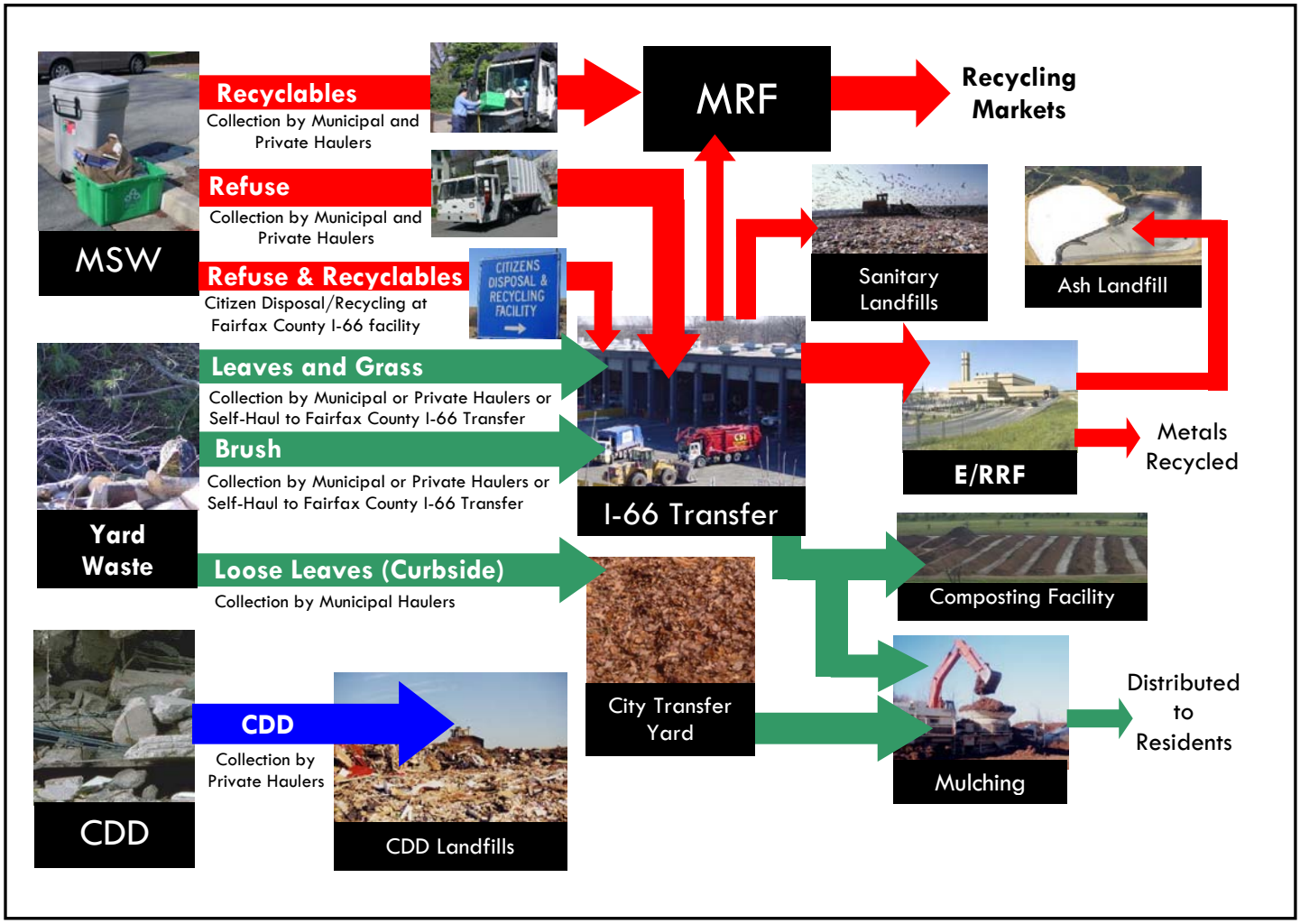
The Engineering Division (Office of Recycling) is responsible for SWM planning, program development, waste reduction and recycling outreach and education, recycling contracts management, solid waste code enforcement, and litter prevention. The Engineering Division also serves as the central archive authorized to receive or record information on (1) known active or closed disposal sites and (2) the amount of solid waste produced in the City. In accordance with VDEQ requirements, the

Engineering Division submits copies of known active and closed disposal sites and the amounts of solid waste generated, recycled, and disposed by the City to the Director of the VDEQ.

## City of Falls Church SWM System Flow

Figure 5-1 diagrams the flow of MSW, CDD and yard waste generated in the City of Falls Church. Management of these wastes, as well as special wastes, is described in detail in Chapters 6 through 9 of this SWMP.

*Figure 5-1. Flow of Solid Waste Generated in the City of Falls Church*




## Current SWM Program Funding

The primary source of funding for the SWM program is the City's General Fund, most of which is generated through real estate taxes. Following are additional sources of revenue:

- Sale of curbside recyclable material collected by the City,
- User fees from residents for collection of bagged yard waste and bulk waste ("special pickups"),
- Virginia Litter Prevention and Recycling Grant funds,
- Fines paid through the Solid Waste Code Enforcement Program (civil penalties), and
- Private sector donations associated with outreach and education.

These additional sources of revenue are placed in the General Fund, except for private donations, which are placed in the Recycling Donations Account.

Under the direction of the Department of Environmental Services, the Operations and Engineering divisions manage the annual budget and propose recommendations for expenditures and fee structures. The City's Department of Administrative Services (Finance Division) oversees this effort and assists the City Manager in preparing the budget. The annual budget is presented to the City Council for advertisement, public hearing, and adoption.

Each year, the City evaluates capital projects necessary to support the SWM Program. These capital projects are included in the City's Capital Improvement Program (CIP). The CIP presents the annual capital needs for the previous five years, and projects capital needs for the next five-year period.

Chapter

6

# Municipal Solid Waste

## *Municipal Solid Waste - Current City of Falls Church Management System, Anticipated Gaps in Waste Management, and SWMP Actions*

**This chapter presents the process used by the City to evaluate the current SWM system, project the future waste stream, identify anticipated gaps in waste management, and select SWMP actions for MSW.**

This chapter presents the evaluation of the City's current and projected solid waste management (SWM) activities for municipal solid waste (MSW), organized by the SWM hierarchy. It uses the hierarchy as the framework for determining how to bridge the gaps between the current SWM activities and the strategies needed to manage the City's MSW in the future. The chapter then presents the City's Solid Waste Management Plan (SWMP) actions for MSW over the next 20 years to address those gaps.

Using the SWM hierarchy, the City of Falls Church staff worked in cooperation with the City's Solid Waste Management Plan Advisory Committee (SWMPAC) to evaluate current SWM practices, including source reduction and reuse initiatives, recycling activities and programs, future markets for recyclables, collection operations, transfer facilities, and characteristics of solid waste disposal facilities. Next, the City reviewed the current and future projections of its solid waste stream quantities over the SWMP planning period. Using these projections, the City assessed the changes in the solid waste stream over the planning period and identified the critical areas requiring modification. Finally, the City selected SWMP actions that will close the gaps between its current SWM system and that required in the future.

## Overview of the 20-Year Plan for the City's MSW Management System

The City's current SWM programs and activities for MSW, the gaps in waste management, and SWMP actions over the SWMP planning period are summarized in Table 6-1. This table is organized by level of the waste

hierarchy, from source reduction and reuse, to recycling, collection, transfer, and disposal. (Note that private companies are responsible for many of the activities in the current and future system.)

*Table 6-1. MSW: Current Waste Management Activities, Anticipated Gaps in Waste Management, and SWMP Actions*

| | Current Programs in the City | Anticipated Gaps | SWMP Actions |
|---|---|---|---|
| Source reduction and reuse | – Public outreach and education, including recycling block captains<br>– Internal City source reduction and reuse initiatives<br>– Network of civic groups, charitable organizations and thrift shops<br>– City collection of used clothing and textiles<br>– Environmental Services Council<br>– Business Awards Program | – Additional 1,800 to 5,700 tons of MSW generated in the City of Falls Church<br>– Need for increased MSW source reduction and reuse to reduce MSW generation quantities | – Improve public outreach and education to promote source reduction and reuse<br>– Implement a Pay-As-You-Throw collection system<br>– Establish a materials exchange<br>– Participate in establishment of regional resource exchange programs<br>– Monitor and publicize waste generation<br>– Implement internal source reduction and reuse programs at City government facilities and schools<br>– Promote surplus food distribution programs |
| Recycling | – Public outreach and education, including recycling block captains<br>– Recycling collection, including the Falls Church Recycling Center<br>– Recycling programs and events<br>– City recycling program policy administration through City Code, Section 13<br>– Three private MRFs: Capitol Fiber, Recycle America Alliance, and Environmental Recycling, Inc.<br>– Electronics recycling program | – Additional 930 to 2,930 tons per year of MSW recyclables by 2025<br>– Need for additional recycling collection vehicles and labor<br>– Need for increased MSW recycling quantities and rates to reduce burden on waste disposal | – Promote public-private recycling programs<br>– Improve public outreach and education to promote recycling<br>– Increase business recycling by reducing recycling thresholds<br>– Implement a Pay-As-You-Throw collection system<br>– Encourage increased MSW recycling at City government facilities and schools<br>– Revise regulations to enhance recycling:<br>• Expand recyclables collected at multifamily residences<br>• Expand recycling requirements for electronic wastes<br>– Consider implementation of single-stream curbside collection system for recyclables<br>– Provide tools to promote increased recycling<br>– Establish a recycling rate goal<br>– Promote establishment of a regional food waste composting facility |
| Collection | – Residential curbside and multifamily complex collection<br>– MSW citizens disposal drop-off center at Fairfax County's I-66 Transfer Station<br>– Commercial collection<br>– City government facilities and City school collection | – Additional 1,760 to 5,680 tons per year of MSW collection by 2025<br>– Need for additional MSW collection vehicles and labor | – Maintain City refuse collection<br>– Implement a Pay-As-You-Throw collection system<br>– Expand collection of electronic wastes<br>– Promote use of special fuels, filters, and special vehicles for collection |
| Transfer | – Fairfax County I-66 Transfer Station<br>– Three materials recovery facilities (MRFs) for MSW recyclables | – Additional 850 to 2,700 tons per year of City-generated MSW handled at the Fairfax County I-66 Transfer Station by 2025<br>– Fairfax County may exceed transfer station capacity between 2020 and 2025 | – Continue using the current transfer system |

*Table 6-1 (Continued)*

| | Current Programs in the City | Anticipated Gaps | SWMP Actions |
|---|---|---|---|
| Disposal | – Fairfax County E/RRF as primary disposal method<br>– Fairfax County uses out-of-county sanitary landfills for E/RRF "overflow" waste | – Additional 850 to 2,700 tons per year of City-generated MSW managed by Fairfax County<br>– Fairfax County contract with E/RRF ends in 2011 | – Continue using the current disposal system as the preferred alternative<br>– Establish agreements with other jurisdictions for alternative disposal |

## Source Reduction and Reuse

### Current Programs

The City's current source reduction and reuse initiatives for MSW include:

- promoting internal government initiatives through the City Leadership Program;
- referring citizens to a network of local civic groups, charitable organizations and thrift stores;
- promoting source reduction and reuse through youth programs sponsored by the Environmental Services Council (ESC);
- collection of used clothing and textiles for reuse at the bi-annual Recycling Extravaganza and year-round at the Falls Church Recycling Center and Police Department; and
- rewarding source reduction and reuse efforts through the Business Awards Program.

**The City Leadership Program has promoted many internal initiatives to promote source reduction and reuse.**

### City Leadership Program

The City of Falls Church government includes the City Leadership Program, which was adopted by the City Council in 1993. The City Leadership Program promotes source reduction and reuse through various policies and internal government initiatives. Policies instituted by the program include:

- all City departments must request two-sided copying and use of recycled paper from prospective contractors in bid specifications, and
- the City must incorporate yard waste reduction practices such as grasscycling and leafcycling into its grounds maintenance contracts.

The City's Employee Task Force on Waste Reduction and Recycling is a seven-member, inter-departmental body that was established through the City Leadership Program. The task force meets monthly and is staffed by the City's Recycling Coordinator. This group has promoted source

reduction and reuse practices at City government facilities through the following initiatives:

- encouraging the use of electronic communications and transactions to reduce paper use,
- posting reminders on copy machines to encourage double-sided copying,
- sponsoring a "Tip of the Month" program through which task force members suggest various source reduction and reuse practices via e-mail messages and bulletin board displays,
- sponsoring an annual Office Products Swap Meet, through which departments donate their unwanted office products to other departments that can use them,
- sponsoring an annual Book and Video Sale, through which employees donate and purchase used books and videos, raising funds for their annual "Recycling Hero" contest,
- establishing a reuse program for the public library's discarded books, and
- recommending City policy to require all new copiers and printers purchased by the City to have double-sided printing capability.

**Civic Groups, Charitable Organizations and Thrift Stores**

**The City promotes a network of civic groups, charitable organizations and thrift stores for reuse and resale of clothing, books and household items.**

The City of Falls Church refers citizens to a network of civic groups, charitable organizations, and thrift stores for the reuse and resale of books, clothing, and household items. These outlets provide an opportunity for citizens to donate usable items for reuse rather than disposing of them. The City supports these organizations by providing contact information to citizens who call to inquire about disposal of reusable items.

The local organizations to which the City's Recycling Coordinator most often refers citizens are:

- American Association of University Women (books for annual book sale)
- Falls Church Community Services Council (furniture and household appliances for donation to people in need)
- Falls Church Lions Club (used eyeglasses)
- Service Source (computers)
- Village Preservation and Improvement Society (books and household items for annual rummage sale)

Local thrift stores, consignment shops, and businesses that provide reuse opportunities include:

- Clock Tower (clothing and household items)
- Joseph's Coat (clothing and household items)
- Mailbox Extra (foam packing pieces)
- New to You (fine women's clothing)
- Second Chance (clothing and household items)

**Environmental Services Council (ESC)**

The Environmental Services Council (ESC) consists of a nine-member, City Council-appointed executive committee and task groups, including the Education Task Group and Cleanup Task Group. The ESC Executive Committee serves as an advisory body to City Council. The Executive Committee and task groups meet monthly and are staffed by the City's Recycling Coordinator. ESC source reduction and reuse programs include:

- *Recycling Extravaganzas.* The ESC and other citizen volunteers staff the bi-annual "Recycling Extravaganzas," which promote source reduction and reuse in the City of Falls Church.

- *Operation EarthWatch.* This program for elementary students, sponsored by the ESC Education Task Group and supported by local businesses and civic groups, encourages environmental awareness and action in the following five program areas:
  - recycling/reuse
  - waste reduction
  - water conservation
  - energy conservation
  - nature care

The program was established in 1993. Schools involved are Mt. Daniel Elementary, Thomas Jefferson Elementary, and St. James Catholic School. Participation runs from October through March. During these months, students perform activities at home and in the community that demonstrate Earth stewardship. Students who complete activity sheets for all six months receive special t-shirts to recognize their sustained efforts. In addition, six-month EarthWatchers are eligible to march with the EarthWatch group in the City's Memorial Day Parade.

Over 1,000 students and their families have participated in the EarthWatch program, most for several years. Students who participate in EarthWatch throughout their elementary school years receive the Lions Club EarthWatch Award and have their names inscribed on a plaque. Operation EarthWatch maintains a website at www.geocities.com/operationearthwatch/.

Sample EarthWatch activities in the areas of reuse and waste reduction include the following:

- taking extra clothes hangers to the local dry cleaners,
- purchasing thrift store items for birthday or holiday gifts,
- reusing gift wrap for various projects,
- making holiday costumes from "found" materials,
- making cloth napkins out of used fabric,
- making message pads from used paper,
- using non-toxic cleaning alternatives,
- packing "waste-free" lunches, and
- using coffee grounds as compost.

- *The Thomas Jefferson School Ecology Club*. The Ecology Club focuses on the value of organic material (leaves, woody waste, and garden trimmings) as a medium for absorbing rainwater and producing soil nutrients. Students are actively involved in source reduction and reuse activities that involve organic material, including mulching, composting, and vermicomposting. The club, which meets weekly throughout the school year, is sponsored by the ESC Education Task Group and directed by the City's Recycling Coordinator.

**Collection of Used Clothing and Textiles**

The City of Falls Church collects used clothing and textiles at the bi-annual Recycling Extravaganza and year-round at the Falls Church Recycling Center.

*Recycling Extravaganza*

The City of Falls Church collects used clothing and textiles during its spring and fall "Recycling Extravaganzas," which are co-sponsored by the City's Department of Environmental Services and the ESC. These one-day collection events are held at the Falls Church Recycling Center. Usable clothing and textiles are donated to the Clothing Recycling Company (CRCO) for distribution to local charities; unusable textiles are

either recycled by CRCO or donated to the City's animal warden for use in the local animal rescue program.

Used bicycles are also collected at the Recycling Extravaganzas and donated to Pedals for Progress, a non-profit organization that refurbishes and sends the bicycles to people in developing countries.

*Falls Church Recycling Center and Police Department*

The City provides space for a CRCO collection container at the Falls Church Recycling Center for year-round collection of clothing and textiles. In addition, a collection box is located at the entrance to the Falls Church Police Department for donations of unusable textiles for the local animal rescue program.

**Business Awards Program**

In partnership with the Falls Church Economic Development Authority and the Falls Church Chamber of Commerce, the ESC co-sponsors the City's annual Business Awards Program. One of the seven awards is presented in the category of Environmental Protection, presented to one business each year. Criteria for selection include business practices that demonstrate a commitment to waste reduction. Awardees are recognized by City Council and other community leaders during an annual Business Awards Ceremony, and through a special edition of "Marketplace," produced by and broadcast on the local cable station.

**The City promotes source reduction and reuse through a variety of media targeted to reach all City citizens.**

## Public Outreach and Education - Source Reduction and Reuse

The City of Falls Church promotes source reduction and reuse through its public outreach and education efforts, which include articles in local publications, banners and media, informative literature, press releases and public service announcements, the City website, and the Falls Church Environment Website. (Public outreach and education efforts are discussed in more detail later in this chapter.)

## Assessment of Current and Future Source Reduction and Reuse Needs

Calculating the quantities of solid waste that are reduced prior to entering the waste stream is problematic. Therefore, the City does not develop source reduction and reuse projections for solid waste.

The City of Falls Church attempts to follow the waste management hierarchy in designing its SWM system. The City prefers source reduction followed by reuse and recycling to disposal of solid waste. The SWM Program goal is to implement new programs that will maximize the

volume of solid waste handled by source reduction and reuse over the SWMP planning period.

### SWMP Actions

Table 6-2 shows the City's SWMP actions for the source reduction and reuse of MSW. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 6-2. City of Falls Church MSW Source Reduction and Reuse SWMP Actions*

| MSW Source Reduction and Reuse SWMP Actions |
|---|
| – Improve public outreach and education to promote source reduction and reuse |
| – Implement a Pay-As-You-Throw collection system |
| – Establish a materials exchange |
| – Participate in establishment of regional resource exchange programs |
| – Monitor and publicize waste generation |
| – Implement internal source reduction and reuse programs at City government facilities and schools |
| – Promote surplus food distribution programs |

## Recycling

**MSW recycling rates in the City of Falls Church have consistently exceeded the state mandated 25 percent.**

### Current Programs

The City of Falls Church has well established, publicized, and available recycling initiatives. Recycling levels in the City have consistently exceeded the state mandated recycling rate of 25 percent. The City's most recent (2003) recycling rate was 46 percent, the majority of which is paper and yard waste. Approximately 6,400 tons of recyclables were collected within the City in 2003. Table 6-3 shows recycling data for the City of Falls Church from 1999 to 2003. For 2000, disposal data were unavailable and, therefore, the City could not calculate a recycling rate. (Note that MSW recycling includes yard waste, which is discussed in Chapter 8).

*Table 6-3. City of Falls Church Recycling Rates (1999–2003), tons*

| Material | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|
| Paper | 2,634 | 4,271 | 2,663 | 2,413 | 2,650 |
| Metal | 814 | 1,545 | 1,159 | 1,153 | 1,326 |
| Plastic | 48 | 79 | 38 | 39 | 103 |
| Glass | 258 | 537 | 140 | 160 | 125 |
| Commingled bottles and cans | 0 | 66 | 157 | 209 | 223 |
| Yard waste | 2,577 | 3,993 | 2,718 | 2,621 | 1,637 |
| Wood | 533 | 20 | 6 | 15 | 24 |
| Textiles | 34 | 21 | 52 | 36 | 26 |
| Waste tires | 73 | 67 | 60 | 117 | 133 |
| Used oil | 112 | 117 | 118 | 94 | 101 |
| Used oil filters | 0 | 0 | 2 | 3 | 1 |
| Used antifreeze | 0 | 0 | 14 | 11 | 11 |
| Batteries | 0 | 9 | 15 | 15 | 12 |
| Electronics | 0 | 13 | 15 | 20 | 25 |
| Chemicals and solvents | 11 | 15 | 1 | 1 | 0 |
| **Total material recycled** | **7,100** | **10,754** | **7,152** | **6,905** | **6,396** |
| **Waste disposed** | **8,111** | **Not Available** | **6,254** | **6,769** | **7,465** |
| **Total waste stream** | **15,211** | **Not Available** | **13,406** | **13,674** | **13,861** |
| **City recycling rate** | **46.7%** | **Not Available** | **53.4%** | **50.5%** | **46.1%** |

The City's recycling program consists of the following primary components: (1) recycling collection, (2) recycling programs and events, (3) materials recovery facilities (MRFs), (4) City recycling policy administration, and (5) public outreach and education. These components are detailed below.

### Recycling Collection

The City of Falls Church recycling program includes the following programs for the collection of recyclables: curbside at residences, centralized collection at multifamily complexes, containers at businesses, containers at City government facilities and schools, containers at City parks, the Falls Church Recycling Center, and scrap metal recycling.

**The City of Falls Church provides collection of recyclables curbside for single-family homes, most townhouse developments and two condominiums.**

- *Curbside at residences*. The City provides curbside recycling to approximately 3,000 households, including all residents of single-family homes, most townhouse developments, and two condominiums. The City's current collection contractor is United Refuse, LLC. Materials collected include newspapers, mixed paper, cardboard, phone books,

aluminum and steel food and beverage cans, glass bottles and jars, and plastic bottles and jugs. Each household receives one or more 18-gallon green bins for storage of commingled recyclables; the City requires that paper (newspaper, mixed paper, cardboard, phone books) be placed in paper bags or bundled with twine. Participation in residential recycling is voluntary.

**The City requires owners of multi-family complexes to provide opportunities to residents for recycling of newspapers, cans, and glass at least every other week.**

- *Centralized containers at multifamily complexes.* Residents of high rise condominiums, apartments, and some townhouse developments receive private recycling collection services. City Code requires that owners of multi-family complexes provide opportunities to residents for recycling of newspapers, cans, and glass at least every other week. Some of these residences also include collection of plastic bottles and jugs.

**Businesses in the City with over 200 employees or that produce more than 100 tons of solid waste annually must recycle their "principal recyclable material."**

- *At businesses*. Businesses that have more than 200 employees or that generate more than 100 tons of waste annually are required to establish recycling programs for collection of their principal recyclable material (primarily office paper and cardboard). Most City businesses fall outside these thresholds, but are encouraged to make use of the Falls Church Recycling Center or contract with private recycling companies. The City's Recycling Coordinator provides technical recycling assistance to businesses upon request. Businesses are required to fill out an annual recycling report. Smaller businesses in the City may take mixed paper, cardboard, newspaper, cans, glass bottles and jars, plastic bottles and jugs, or any other acceptable recyclable material to the Falls Church Recycling Center or arrange for commercial collection.

- *Collection at City government facilities and City schools*. Recycling programs are in place at all City facilities and City schools. These facilities and schools include City Hall, the Community Center, Mary Riley Styles Public Library, Court Services Office, Property Yard, Aurora House Girls' Home, the Gage House, and the City's three public schools (Mount Daniel Elementary,

Thomas Jefferson Elementary, and George Mason Middle and High School). Materials collected include newspaper, mixed paper, cardboard, phone books, aluminum and steel food and beverage cans, glass bottles and jars, and plastic bottles and jugs. Environmental Recycling, Inc. (ERI) collects paper from City government facilities and City schools. A combination of contracted services and self-hauling is provided for recycling of commingled containers and cardboard at these facilities.

- *Park Recycling Program*. Recycling containers are located in all City parks. Contents are collected up to three times per week by the City's Recreation and Parks staff and are deposited at either City Hall or at the Falls Church Recycling Center.

- *Falls Church Recycling Center.* The Falls Church Recycling Center, an un-staffed drop-off center, is located on City property at 217 Gordon Road, across from the Property Yard. The current collection contractor is Capitol Fiber, Inc., which subcontracts with a local hauler to have the materials transported to the Capitol Fiber MRF in Springfield, Virginia. Materials collected include newspapers, mixed paper, cardboard, phone books, aluminum and steel food and beverage cans, glass bottles and jars, and plastic bottles and jugs. The center is open to both City residents and businesses.

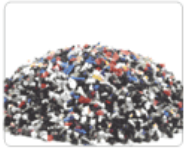
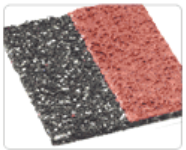
- *Scrap Metal Recycling Program*. The City collects scrap metal for recycling as part of its bulk waste ("special pickup") program. Charges are $25 per appliance or $65 per two cubic yards for bulk waste. City crews take the scrap metal to the recycling area at Fairfax County's I-66 Transfer Station.

**Recycling Programs and Events**

The City of Falls Church recycling program includes several community-wide recycling efforts, programs, and events. These include: the Recycling Extravaganza Program, the Nike Reuse-A-Shoe Program, the Falls Church Fire Station/Aluminum Cans for Burned Children (ACBC) Program, inkjet and laser toner cartridge recycling, recycling drop-off at area stores, America Recycles Day, school field trips, Operation EarthWatch, Thomas Jefferson School Ecology Club, the Business Awards Program, and the annual Volunteer Recognition Picnic.

- *Recycling Extravaganza Program.* Each spring and fall, the City sponsors a one-day event for collection of computers and other electronics (printers, fax machines, copiers, televisions, VCRs, telephones, cell phones, answering machines, pagers, stereos, radios, CD players, Walkmans, calculators, electric typewriters) at the bi-annual "Recycling Extravaganzas." All materials are collected and recycled by electronics recycling contractors (Subtractions, Inc. and E-Structors, Inc.). Citizens pay a nominal charge ($5-24) to recycle computer monitors and TVs. All other items are accepted free of charge.

- *Nike Reuse-A-Shoe Program.* The City of Falls Church is participating with Fairfax County in the Nike Reuse-A-Shoe Program, a partnership with the National Recycling Coalition (NRC) and Nike for the recycling of used athletic shoes. Shoes collected at the City's Recycling Extravaganzas are transferred to Fairfax County, which is the primary collection point for this program in Northern Virginia.

  When the county and City have collected enough shoes to fill a 27-foot trailer (approximately 5,000 pairs), Nike will pick up and ship the shoes to its Reuse-A-Shoe recycling facility in Wilsonville, Oregon. The shoes will be ground to make Nike Grind® material for constructing new sport surfaces such as soccer and football fields, tennis courts and playground surfaces.

- *Falls Church Fire Station/ACBC Program*. A bin is located outside the Falls Church Fire Station for the collection of aluminum cans to benefit the Aluminum Cans for Burned Children (ACBC) Program.

- *Inkjet and Laser Toner Cartridge Recycling.* Used inkjet and laser toner cartridges are collected at the bi-annual "Recycling Extravaganzas" and year-round at City Hall, the Community Center, and City schools. The cartridges are sold to Recycle Ink ($1/cartridge) through the "Recycle for the Students" program. Local PTAs use the revenues to fund special student projects.

- *Recycling drop-off at area stores.* Additional opportunities for recycling include drop-off of plastic bags at the Giant Food Store or other local supermarkets, and aluminum, copper, and brass at G&L Metals.

- *America Recycles Day.* The City sponsors local events in recognition of America Recycles Day (November 15th), including a "Recycle Right" contest in which randomly selected households with perfect recycling set-outs win recycled content prizes. At the second City Council meeting in November, the Mayor reads an America Recycles Day Proclamation, and the City's Recycling Coordinator makes a presentation that includes recognition of a specific group of volunteers (e.g., ESC, Recycling Block Captains, Adopt-a-Spot participants, EarthWatchers, etc.). Special programs, such as a Green Home Tour featuring recycled content building materials, are held in conjunction with America Recycles Day.

- *School Field Trips.* The City's Recycling Coordinator organizes and supervises annual school field trips to the Fairfax County I-66 Transfer Station for all first grade classes at Mt. Daniel Elementary School. These trips are scheduled in conjunction with the Standards of Learning (SOLs) that focus on solid waste management education.

- *Operation EarthWatch.* This program for elementary students, sponsored by the ESC Education Task Group and supported by local businesses and civic groups, encourages environmental awareness and action in the following five program areas: recycling/reuse, waste reduction, water conservation, energy conservation, and nature care. (A more detailed discussion is presented in the Source Reduction and Reuse section of this chapter.)

Sample EarthWatch activities in the area of recycling include: collecting discarded cardboard boxes and preparing them for recycling, picking up cans from a park and recycling them, preparing the family's recycling bin and setting it at the curb, taking materials to the "Recycling Extravaganza," filling out and mailing in an America Recycles Day pledge card, and purchasing recycled content products.

- *The Thomas Jefferson School Ecology Club*. This club, which meets weekly throughout the school year, is sponsored by the ESC Education Task Group and directed by the City's Recycling Coordinator. Club members are

actively involved in litter pickups that include recycling of cans and bottles.

- *Business Awards Program*. The ESC co-sponsors the City's annual Business Awards Program with the Economic Development Authority and the Falls Church Chamber of Commerce. As part of the program, an Environmental Protection Award is presented to a business that has demonstrated a commitment to recycling and use of recycled products. Awardees are recognized by City Council and other community leaders during an annual Business Awards Ceremony, and through a special edition of "Marketplace" produced by and broadcast on the local cable station.

- *Volunteer Recognition Picnic.* The City's Recycling Coordinator hosts a picnic annually to recognize recycling volunteers. Among those honored are the ESC and Recycling Block Captains.

- *City Leadership Program*. The City Leadership Program, adopted by City Council in 1993, specifies that the City purchase paper products made with recycled content. The program also includes a policy granting a preference to products with recycled content, as long as they are of comparable quality and price.

The City's Employee Task Force on Waste Reduction and Recycling is a seven-member, inter-departmental body that was established through the City Leadership Program to represent the City's 250 employees. The task force meets monthly and is staffed by the City's Recycling Coordinator. This group has promoted recycling at City government facilities through such initiatives as sponsoring a "Buy Recycled" workshop, promoting recycled products purchasing, promoting the "Recycling Extravaganzas," sponsoring a "Recycling Hero" contest that recognizes individual City employees, sponsoring "Clean Your Files Day," promoting recycling at all employee events (e.g., annual Employee Picnic, Winter Luncheon, retirement parties, etc.), submitting articles to the *Cherry Hill Chronicle* (monthly employee newsletter), sponsoring a "Tip of the Month" program that promotes recycling via e-mail messages and bulletin board displays, and establishing collection of aluminum cans at City facilities for the ACBC program.

**Electronics waste is projected to grow significantly in the City of Falls Church.**

## Electronics and Computers Recycling

The television and personal computer's rapid rate of obsolescence and environmentally unfriendly elements (including lead, mercury, and cadmium) make refurbishing, recycling, and disposal issues important. The City of Falls Church is developing electronics and computers recycling practices and policies to reduce the volume of these products requiring disposal.

Projected growth and obsolescence rates of various categories of consumer electronics indicate an average of 400 million units scrapped per year in the United States.[1] Included in these estimates are approximately 20 million televisions and 30 million computers per year. Using national per capita average rates, the City will likely generate roughly 750 obsolete televisions and 1,100 obsolete computers per year.

The low cost of new electronics and computers coupled with stringent purchasing requirements have reduced the demand for refurbished and resold equipment. Scrapping and recycling are emerging as viable methods for managing old electronics and computers. The Mid-Atlantic Consortium of Recycling and Economic Officials estimates that scrapping a computer generates revenue of $34.26 per machine and a cost of $1 to $10 for disposal of monitors in bulk.[2]

**The City currently promotes electronics recycling through the bi-annual "Recycling Extravaganza."**

The City of Falls Church currently supports electronics recycling through the bi-annual "Recycling Extravaganza." Since 2000, nearly 70 tons of computers and other electronic equipment have been recycled by Subtractions, Inc. through this event. In addition, the City's Recycling Coordinator refers citizens to the Keep It Green "E-Waste" Program during other times of the year. This program, located in Alexandria, VA, is a partnership between Service Source and Computer Donation Management.

Future City programs will support initiatives to recycle electronics and computers, helping to eliminate these items from the waste stream. In addition to removing these items from the waste stream, recycling electronics and computers will help the City of Falls Church comply with the proposed EPA rule requiring recycling of cathode ray tubes, which are found in computer monitors and televisions.

[1] International Association of Electronics Recyclers (IAER), *IAER Electronics Industry Report*, 2003.
[2] Northern Virginia Planning District Commission, *The Northern Virginia Recycling Market Development Project*, January 7, 2000.

**Materials Recovery Facilities (MRFs)**

Once collected, City of Falls Church recyclables are transported to either the Recycle America Alliance (RAA) materials recovery facility (MRF) in Merrifield, VA, the Capitol Fiber MRF in Springfield, VA, or the Environmental Recycling, Inc. (ERI) MRF in Alexandria, VA:

**The Capitol Fiber MRF currently accepts recyclables from the Falls Church Recycling Center.**

- *Capitol Fiber MRF* - The Capitol Fiber MRF, majority owned by the Washington Post, currently accepts materials collected at the Falls Church Recycling Center. In addition, the facility accepts recyclables from businesses in the City, as well as recyclables from surrounding areas, such as Fairfax County, Anne Arundel County, Prince William County, and the District of Columbia. The facility currently receives about half commercial and half residential/small commercial recyclables.

  The Capitol Fiber MRF in 2003 managed roughly 7,000 tons per month (84,000 tons per year) of recyclables. The capacity of the MRF is currently 10,000 tons per month.

  Materials accepted include mixed paper (i.e., newspaper, magazines, cardboard, and white paper), glass, aluminum and steel cans, and plastics (high density polyethylene (HDPE) and polyethylene terephthalate (PET)). In 2003, the facility only processed mixed paper, which is sorted through manual and mechanical processes into white (office paper), brown (cardboard), and gray paper (ground wood, i.e., newspaper).

  In December 2003, the facility added the ability to process residential commingled recyclables on-site rather than transporting them to a subcontractor.

  Capitol Fiber receives most recyclables (90 percent) through contracts with collection companies; the remaining 10 percent consists of “walk-ins” by collection companies. Once processed, recyclable materials are baled and sold by the truckload. Sales are split evenly between domestic and foreign markets. Capitol Fiber sells almost 75 percent of materials through contracts; the remainder is sold on the open market.

- *Recycle America Alliance (RAA)/Waste Management MRF* - The RAA/Waste Management MRF in Merrifield, VA, accepts materials collected curbside by United Refuse, LLC from residents of single family homes, most

townhouse developments, and two condominiums. The City receives a monthly revenue check from RAA for the sale of fiber. These funds are placed in the City's general fund.

The RAA/Waste Management MRF accepts commercial mixed paper (cardboard, office paper, and newspaper), residential mixed paper (newspaper, paperboard, and magazines), high-grade office paper, commingled recyclables, scrap metal, and carpeting (Dupont Nylon #6 only). Waste Management contracts for recyclables with commercial and residential haulers. The facility also accepts recyclables on a spot basis.

RAA/Waste Management in 2003 managed roughly 4,500 tons of recyclables per month (54,000 tons per year). The capacity of the MRF is 8,000 tons per month (96,000 tons per year).

The facility currently processes only paper. Commercial mixed paper is sorted mechanically with minimal manual sorting. Residential mixed paper and high-grade office paper loads are sorted manually on conveyor belts. Commingled recyclables, scrap metals, and carpeting are loaded into large tractor-trailers and transported to other facilities for sorting.

The facility bales sorted paper by type and grade. RAA/Waste Management sells the recyclable paper, primarily domestically (approximately 90 percent).

- *Environmental Recycling, Inc. (ERI) MRF* - The ERI MRF, located in the City of Alexandria, currently accepts paper collected from City of Falls Church government and schools. In addition, the facility accepts paper from businesses in the City, as well as from surrounding areas.

  The ERI MRF accepts almost all grades of pre- and post-consumer recyclable paper and cardboard. ERI processes approximately 4,000 to 5,000 tons of paper each month (48,000 to 60,000 tons per year) recovered from a large customer base throughout the Washington, D.C. metropolitan area.

**The total capacity of the MRFs the City currently uses is 276,000 tons per year (232,000 tons of paper and 44,000 tons of commingled recyclables).**

Table 6-4 shows the quantities of recyclables (paper and commingled) managed in 2003 and existing capacity for the three MRFs currently used by the City of Falls Church. The total capacity of these MRFs is 276,000 tons per year; the capacity for paper recyclables is 232,000 tons per year and for commingled recyclables is 44,000 tons per year.

*Table 6-4. City of Falls Church MRF Quantities and Capacities 2003 (tons)*

| | Capitol Fiber | RAA/Waste Management | ERI | Total |
|---|---|---|---|---|
| Paper | | | | |
| Current Quantity | 72,000 | 49,000 | 54,000 | **175,000** |
| Capacity | 90,000 | 82,000 | 60,000 | **232,000** |
| Commingled Bottles and Cans | | | | |
| Current Quantity | 12,000 | 4,800 | 0 | **16,800** |
| Capacity | 30,000 | 14,000 | 0 | **44,000** |

### City Recycling Program Policy Administration

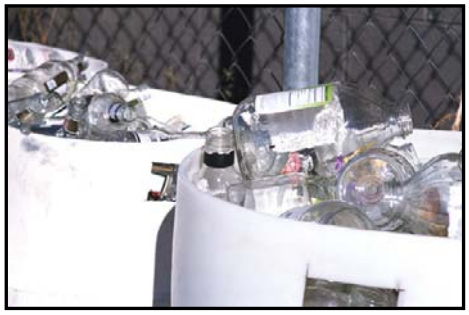
The City administers recycling policy through City Code, Chapter 13. Section 13-8 provides the City's Director of Public Works authorization to enforce and administer the provisions of the chapter. The section also establishes civil penalties for violations of recycling policy. The City's Recycling Coordinator is responsible for all solid waste code enforcement.

### Public Outreach and Education - Recycling

The City of Falls Church promotes recycling through its public outreach and education efforts, which include a network of recycling block captains, informative literature, recycling booths and presentations, banners and media, press releases and public service announcements (PSAs), the City website, and the Falls Church Environment Website. (Public outreach and education efforts are discussed in more detail later in this chapter.)

### Recycling Markets

**Economics is at the core of all recycling collection decisions.**



Economics is at the core of all recycling collection decisions. Recycling plans must focus on the costs and benefits of current, new, and future programs. Although recycling specific material may benefit the environment, the economic cost is sometimes an obstacle for a municipality, which has little chance of affecting the markets for these materials. Therefore, focusing on materials for which strong markets already exist is critical.

**Economic viability of recycling is based on:**

1. **Disposal cost savings**
2. **Materials revenue**
3. **Recyclable transport costs**
4. **Recyclable processing costs**

The economic viability of recycling is based on four factors: (1) the cost savings from eliminating disposal, (2) the revenue from selling recyclable materials, (3) the cost of transporting recyclable materials, and (4) the cost of processing recyclables. The economic viability of recycling may increase with higher alternative disposal costs, stronger local markets for recyclable materials, shorter transportation distances to markets, and more efficient processing of recyclables.

Appendix B contains September 2003 rates paid for recyclables in the local market and nationally. Revenue from sale of recyclable material offsets the costs to collect the materials. For example, in 2003 the City received nearly $30,000 from paper and cardboard collected curbside.

## Market Development

Four key factors drive the supply, demand, and pricing of the City's recyclable markets:[3]

1. *Virgin capacities and recycled capacities*. Prices and availability of recycled materials mirror changes in prices and availability of virgin commodities.

2. *Geography*. The viability of City recyclable markets varies on the basis of local manufacturer demand.

3. *Transportation costs*. The distance to market is a significant factor in the pricing of commodities.

4. *End product demand*. Recyclable material markets are driven by the demand for the end-products manufactured from the recyclable materials.

### Needs

Development needs of the wider economic recycling market include:

- greater diversification of recyclables end-uses to increase the demand for recyclables and make recycling more economically viable for municipalities like the City of Falls Church;

- research and development funding for investigating new and improved methods of recycling and recyclables materials reuse; and,

- improvement in the communication between recyclable collectors and end-users.

[3] Michael Fickes, "Calculating Recycling Markets," *Waste Age*, December 1, 1997.

### Potential Barriers

Potential barriers to recycling include:

- cheap landfill disposal costs in rural Virginia;
- public opposition (*NIMBY* - not in my backyard) to the siting of recycling facilities;
- the perception of some procurement officials that recycled products are lower in quality than virgin products;
- funding constraints for recycling programs;
- the marginal cost of recycling may increase with higher recycling rates;
- transportation costs, because few manufacturers are located in Northern Virginia and end-users of some recyclables materials are too distant for economical transport of recyclables to them; and,
- undeveloped (or underdeveloped) markets for some recyclables, which may emerge if end-products satisfy consumer demand.

### Assessment of Current and Future Recycling Needs

As discussed, the economic viability of recycling depends on a number of factors, including the prices for recyclable materials. The City of Falls Church does not have the market size necessary to affect the national market for recyclables. Although City "buy recycled" campaigns may help the development of local markets somewhat, market development occurs at the national level.

Chapter 2 of this SWMP presents the projected quantities of MSW generated, recycled, and disposed in the City of Falls Church over the SWMP planning period. The City developed four alternative MSW projections to address the probable range of variance in the future generation rates.

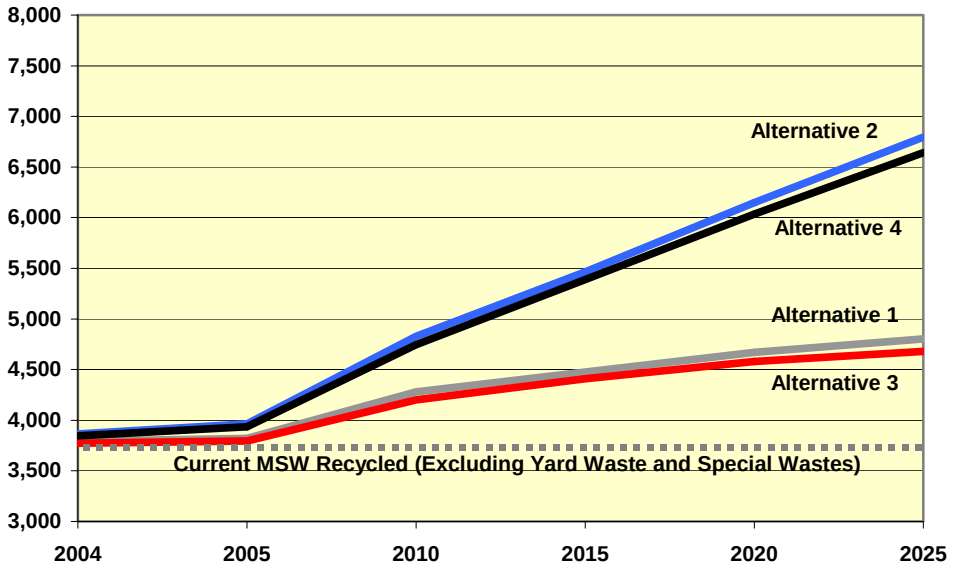
**The City projects annual MSW recycling volumes (excluding yard waste and special wastes) will increase between 24 and 76 percent from 2004 to 2025**, *assuming continuation of current waste management practices.*

As discussed in Chapter 2, the MSW projections assume that the overall recycling rate will remain at 51.9 percent, the residential recycling rate will remain at 55.5 percent, and the commercial recycling rate will remain at 48.9 percent over the SWMP planning period**.** Table 6-5 and Figure 6-1 show the projected quantities of MSW recycled in the City over the SWMP planning period for the four projection alternatives. ***(Note that these projections assume the continuation of the City's current management practices and conditions.)*** These MSW recycling projections do not include yard waste and special wastes; the City evaluated the management for yard waste and special wastes separately in this SWMP. The City of Falls Church projects annual MSW recycling volumes to increase between 24 and 76 percent from 2004 to 2025.

*Table 6-5. MSW Recycling Projections (Excluding Yard Waste and Special Wastes) in the City of Falls Church, 2004–2025 (tons)*

| Year | MSW Recycled (Excluding Yard Waste and Special Wastes) | | | |
|---|---|---|---|---|
| | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
| 2004 | 3,792 | 3,863 | 3,773 | 3,844 |
| 2005 | 3,821 | 3,965 | 3,794 | 3,937 |
| 2010 | 4,279 | 4,828 | 4,202 | 4,745 |
| 2015 | 4,475 | 5,466 | 4,409 | 5,391 |
| 2020 | 4,672 | 6,148 | 4,578 | 6,037 |
| 2025 | 4,802 | 6,795 | 4,679 | 6,641 |

*Figure 6-1. MSW Recycling Projections (Excluding Yard Waste and Special Wastes) in the City of Falls Church 2004–2025 (tons)*




**The City's SWM system must handle an additional 910 to 2,930 tons per year of MSW recyclables (excluding yard waste and special wastes) by 2025.**

The City projects that the current MSW recycling system (excluding yard waste and special wastes) must handle an additional 910 to 2,930 tons per year by 2025. Therefore, the existing MSW collection system (municipal and private) may have to expand, by adding collection vehicles and labor, to meet the increased recycling quantities.

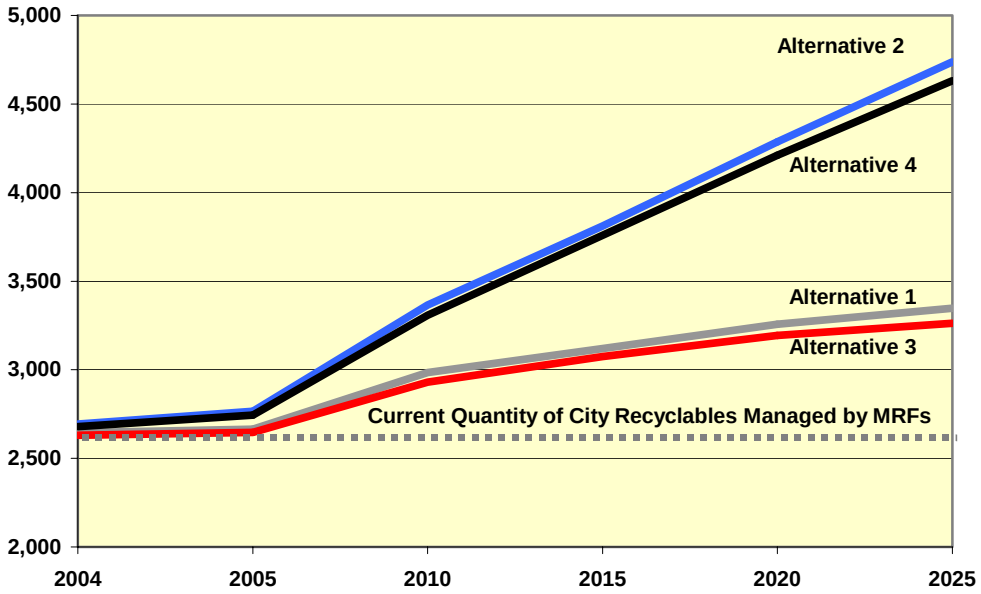
The projected increase in recycling quantities over the SWMP planning period will likely not impact the MRFs the City currently uses. Table 6-6 and Figure 6-2 show the projected quantities of City MSW recyclables (i.e., paper and commingled recyclables) managed by its current MRFs over the SWMP planning period. ***(Note that these projections assume the continuation of the City's current management practices and conditions.)***

*Table 6-6. Projections of MSW Recyclables Managed by MRFs in the City of Falls Church 2004–2025 (tons)*

| Year | MSW Recycled | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Alternative 1 | | Alternative 2 | | Alternative 3 | | Alternative 4 | |
| | Paper | Commingled[a] | Paper | Commingled[a] | Paper | Commingled[a] | Paper | Commingled[a] |
| 2004 | 2,262 | 382 | 2,304 | 390 | 2,250 | 380 | 2,292 | 388 |
| 2005 | 2,279 | 385 | 2,365 | 400 | 2,263 | 383 | 2,348 | 397 |
| 2010 | 2,552 | 432 | 2,879 | 487 | 2,506 | 424 | 2,830 | 478 |
| 2015 | 2,669 | 451 | 3,260 | 551 | 2,630 | 445 | 3,215 | 544 |
| 2020 | 2,786 | 471 | 3,666 | 620 | 2,731 | 462 | 3,601 | 609 |
| 2025 | 2,864 | 484 | 4,053 | 685 | 2,790 | 472 | 3,961 | 670 |

[a] Commingled recyclables include glass, plastic and commingled bottles and cans.

*Figure 6-2. Projections of City of Falls Church MSW Recyclables Managed by MRFs 2004–2025 (tons)*




**Sufficient MRF capacity exists in MRFs used by the City of Falls Church over the SWMP planning period,** *assuming the continuation of the City's current management practices and conditions.*

The current capacity of paper and commingled recycling processing at MRFs currently used by the City is approximately 276,000 tons per year; the capacity for paper recyclables is 232,000 tons per year and for commingled recyclables is 44,000 tons per year. Therefore, sufficient MRF capacity exists over the SWMP planning period for all four MSW alternatives, *assuming the continuation of the City's current management practices and conditions*. An increase in recycling in the region may require expansion of MRF capacity during the next 20 years.

### SWMP Actions

Table 6-7 shows the City's SWMP actions for MSW recycling. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's

current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 6-7. City of Falls Church MSW Recycling SWMP Actions*

| MSW Recycling SWMP Actions |
|---|
| – Promote public/private recycling programs |
| – Improve public outreach and education to promote recycling |
| – Implement a Pay-As-You-Throw collection system |
| – Increase business recycling by reducing recycling thresholds |
| – Encourage increased MSW recycling at City government facilities and schools |
| – Revise regulations to enhance recycling: |
| • Expand recyclables collected at multifamily residences |
| • Expand recycling requirements for electronic wastes |
| – Consider implementation of single-stream curbside collection system for recyclables |
| – Provide tools to promote increased recycling |
| – Establish a recycling rate goal |
| – Promote establishment of a regional food waste composting facility |

## Public Outreach and Education

The City of Falls Church promotes source reduction, reuse, and recycling through its public outreach and education efforts, which include a network of recycling block captains, articles in local publications, informative literature, banners and media, press releases and public service announcements (PSAs), recycling presentations and booths, the City website, and the Falls Church Environment Website.

**Recycling Block Captains promote recycling in the City and serve as liaisons between the citizenry and the City government on recycling issues.**

- *Recycling Block Captains.* A volunteer network of 120 Recycling Block Captains distribute recycling information in their neighborhoods four to six times a year. In addition, they serve as liaisons between the citizenry and the City government on source reduction, reuse, and recycling issues. Approximately 95 percent of the City's households, including multifamily residences, are served by Recycling Block Captains.

- *Articles in Local Publications.* Articles on solid waste issues appear regularly in the *FOCUS Weekly,* a one-page insert that appears weekly in the *Falls Church News-Press.* Articles also appear regularly in the *Chronicle* (the City's

monthly employee newsletter) and in the *Senior Times* (distributed by the City's Office of Community Education).

- *Informative Literature.* The City of Falls Church has authored and printed literature promoting source reduction, reuse, and recycling, including:

  - *The Falls Church "Recycling Guide"* includes information about the spring and fall special collections for clothing and textiles, electronics, and bicycles, information about reuse and recycling drop-off opportunities, and promotion of grasscycling, leafcycling, and backyard composting.

  - *The Falls Church Environment Newsletter*, published each fall and spring, notifies citizens of timely information and events, many of which involve source reduction, reuse, and recycling opportunities. For example, the "Neighbor to Neighbor" column features source reduction and reuse tips shared among City residents, and the City promotes backyard composting classes and composting bin sales through the newsletter.

  - Flyers and brochures on the "Recycling Extravaganza," curbside recycling, yard waste collection, backyard composting, and yard waste reduction are displayed at the City Hall, Community Center, and Library, and distributed through classes and direct mail. In addition, a "3 Rs Directory" - listing businesses in the City where citizens can take items for reuse or repair - will be updated and re-distributed in 2004.

    These publications are distributed by the Office of Recycling through a combination of Recycling Block Captains, direct mail, and brochure displays at the City Hall and Mary Riley Styles Public Library. The Recycling Block Captains also distribute time-sensitive flyers and brochures, such as meeting notices and holiday collection schedules.

- *Banners and Media.* Banners are hung over the City's two main thoroughfares (Routes 7 and 29) to announce special source reduction, reuse, and recycling events and promotions. In addition, announcements are broadcast on the local cable station and on the City's website.

- *Press Releases and Public Service Announcements (PSAs).* Press releases and PSAs are distributed through the City's Office of Communications to area newspapers and radio stations to announce special source reduction, reuse, and recycling events and programs.

- *Recycling Booths and Presentations.* The City and ESC sponsor a recycling booth at the annual Memorial Day Festivities and Fall Festival. The purpose of the booth is to promote recycling through display of recyclable materials and recycled products, as well as distribution of recycling information. The booth engages the public through a "Recycle Right Raffle" that features a recycling detective game and recycled-content prizes. In addition, the City's Recycling Coordinator makes presentations to all elementary classrooms at Mt. Daniel, Thomas Jefferson, and St. James schools at the beginning of each school year. Presentations are also made to civic organizations upon request.

- *The City of Falls Church Website* is currently in development. The "Recycling" section will be updated in 2004 and will include a list of source reduction, reuse, and recycling events and programs in the City.

- *The Falls Church Environment Website*, produced and managed by a local citizen volunteer, is a non-governmental website that focuses on environmental issues in the City of Falls Church. The purpose of the website is to provide area residents with accurate, timely information about critical issues and programs that affect the urban environment. The site also provides information on how to contact elected officials and City staff tasked with providing environmental services to residents. The website promotes City events and programs (Recycling Extravaganzas, backyard composting classes, Operation EarthWatch, etc.) that emphasize source reduction, reuse, and recycling. It also includes contact information, links to other websites, and details regarding these events and programs.

# Collection

Collection and transfer of solid waste serve to facilitate solid waste management strategies. Although not actually in the hierarchy, collection and transfer activities are necessary to ensure that the City of Falls Church can implement the objectives of the solid waste management system.

## Current Programs

**The City of Falls Church provides collection service to all residents of single-family homes, most townhouse developments, and two condominiums.**

### Residential Collection by the City

The City provides MSW trash collection service weekly to all residents of single-family homes, most townhouse developments, and two condominiums. Solid waste is sent to Fairfax County's I-66 Transfer Station, where it is ultimately destined for disposal in Fairfax County's Energy/Resource Recovery Facility (E/RRF) in Lorton, Virginia or in landfills outside of Fairfax County. MSW collection services are supported through the City's General Fund (real estate taxes).

The City provides curbside refuse collection to approximately 3,000 households, including all residents of single-family homes, most townhouse developments, and two condominiums. Residents who receive City collection of refuse also receive collection of recyclables. (A more detailed discussion of City recycling collection is presented in the Recycling section of this chapter.)

**Residents of high rise condominiums, apartments, and some townhouse developments receive private refuse and recycling collection services.**

### Residential Curbside Collection by Private Companies

Residents of high rise condominiums, apartments, and some townhouse developments receive private refuse and recycling collection services. City Code requires that owners of multi-family complexes provide opportunities to residents for recycling of newspapers, cans, and glass at least every other week. Some of these residences also include collection of plastic bottles and jugs.

### Citizens' Disposal Facilities

City of Falls Church residents can take their own trash directly to the Fairfax County disposal centers at the I-66 Transfer Station and I-95 Landfill Complex. These facilities charge fees for disposal of trash and bulk loads on the basis of the number of bags (for smaller loads) or by weight (for larger loads).

The I-66 Transfer Station and I-95 Landfill Complex citizens' facilities also accept white goods—small and large appliances and other scrap metal (lawn chairs, grills, metal framing, etc.). A small fee is charged for appliances that require Freon removal and for waste tires. Special wastes, including used oil, antifreeze, batteries, and other household hazardous wastes are accepted free of charge. (Recycling of special wastes is detailed in Chapter 9.)

**Residents can take their recyclables directly to the Falls Church Recycling Center.**

### Falls Church Recycling Center

The Falls Church Recycling Center, an unstaffed drop-off center, is located on City property at 217 Gordon Road, across from the Property Yard. The recycling center provides citizens with a convenient addition to curbside collection.

Materials collected include newspapers, mixed paper, cardboard, phone books, aluminum and steel food and beverage cans, glass bottles and jars, and plastic bottles and jugs. The current collection contractor is Capitol Fiber, Inc., which subcontracts with a local hauler to have the materials transported to the Capitol Fiber MRF in Springfield, Virginia. The center is open to both City residents and businesses.

### Commercial Collection

Commercial solid waste collection in the City of Falls Church is managed by building owners/operators who contract with privately-owned refuse and recyclables collection firms that operate in the City. Building owners/operators are responsible for providing refuse and recyclables collection containers at their buildings; most commercial buildings use a series of dumpsters that are emptied using front-end trucks.

Businesses in the City of Falls Church that employ over 200 people or produce more than 100 tons of solid waste annually must recycle their "principal recyclable material." For most businesses, the principal recyclable material is office paper. Smaller businesses in the City can take office paper, cardboard, aluminum cans, newspaper, or any other acceptable recyclable material to the Falls Church Recycling Center or arrange for commercial collection.

Although most City businesses fall outside these thresholds, they are encouraged to make use of the Falls Church Recycling Center or contract with private recycling companies. The City's Recycling Coordinator provides technical assistance to businesses upon request. Businesses are required to fill out an annual recycling report.

### Collection at City Government Facilities and City Schools

The City provides MSW trash collection service weekly at the City Hall, Community Center, Mary Riley Styles Public Library, Property Yard, and Aurora House Girls' Home. Each of these buildings uses dumpsters that are emptied using front-end trucks. The City also provides recycling of the following items at each of these facilities: mixed paper, newspaper, cardboard, food and beverage cans, glass bottles and jars, plastic bottles and jugs, and printer cartridges. Collection containers are placed at various locations within the buildings and are collected by the following recycling contractors: ERI (office paper), United Refuse (mixed paper, newspaper, cardboard, food and beverage cans, glass bottles and jars, plastic bottles and jugs), and Recycle Ink (printer cartridges).

Waste Management, Inc., provides MSW trash collection from the Falls Church City Public Schools. Dumpsters located at Mt. Daniel and Thomas Jefferson Schools are emptied three times per week, while those at George Mason Middle/High School (GMHS) are emptied daily from Monday through Saturday. ERI collects mixed paper weekly from each of the schools, as well as newspaper from GMHS. Cardboard, cans, and bottles are transported by school personnel from Mt. Daniel and Thomas Jefferson Schools to recycling dumpsters at GMHS. Waste Management collects these materials on a weekly basis.

**The City projects annual MSW collection volumes (excluding yard waste and special wastes) will increase between 17 and 54 percent from 2004 to 2025**, *assuming continuation of current waste management practices.*

### Assessment of Current and Future Collection Needs

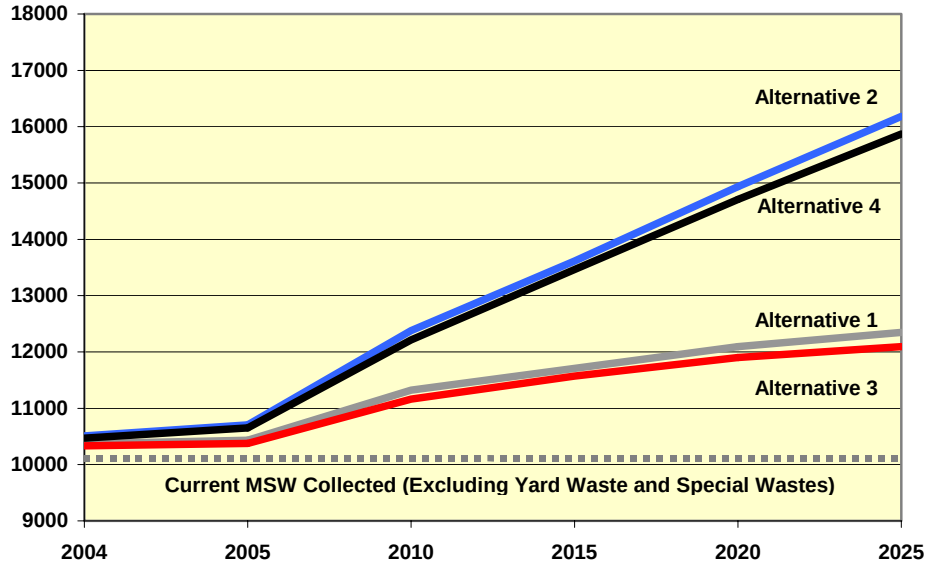
Chapter 2 of this SWMP presents the projected quantities of MSW generated, recycled, and disposed in the City of Falls Church over the SWMP planning period. The City developed four alternative waste projections to address the probable range in the future generation rates. A detailed discussion of the development of MSW waste projections is provided in Appendix A.

Collection of MSW includes both recyclable materials and waste destined for disposal. Table 6-8 and Figure 6-3 show the projected quantities of MSW collected in the City over the SWMP planning period for the four projection alternatives (described in detail in Appendix A). These MSW collection projections do not include yard waste and special wastes**.** ***(Note that these projections assume the continuation of the City's current management practices and conditions.)*** The City projects that the annual quantities of MSW collected in the City of Falls Church will increase between 17 and 54 percent from 2004 to 2025.

*Table 6-8. MSW Collection Projections (Excluding Yard Waste and Special Wastes) in the City of Falls Church, 2004–2025 (tons)*

| Calendar Year | Alternative 1 | | Alternative 2 | | Alternative 3 | | Alternative 4 | |
|---|---|---|---|---|---|---|---|---|
| | MSW Recycling | MSW Disposal | MSW Recycling | MSW Disposal | MSW Recycling | MSW Disposal | MSW Recycling | MSW Disposal |
| 2004 | 3,792 | 6,581 | 3,863 | 6,647 | 3,773 | 6,561 | 3,844 | 6,626 |
| 2005 | 3,821 | 6,609 | 3,965 | 6,741 | 3,794 | 6,580 | 3,937 | 6,713 |
| 2010 | 4,279 | 7,045 | 4,828 | 7,553 | 4,202 | 6,964 | 4,745 | 7,467 |
| 2015 | 4,475 | 7,232 | 5,466 | 8,149 | 4,409 | 7,163 | 5,391 | 8,071 |
| 2020 | 4,672 | 7,419 | 6,148 | 8,787 | 4,578 | 7,322 | 6,037 | 8,671 |
| 2025 | 4,802 | 7,544 | 6,795 | 9,390 | 4,679 | 7,414 | 6,641 | 9,229 |

*Figure 6-3. MSW Collection Projections (Excluding Yard Waste and Special Wastes) in the City of Falls Church 2004–2025 (tons)*




**The City's MSW collection system (excluding yard waste and special wastes) must handle an additional 1,760 to 5,680 tons per year by 2025.**

The City projects that the current MSW collection system (excluding yard waste and special wastes) must handle an additional 1,760 to 5,680 tons per year by 2025. Therefore, the existing collection system may have to expand, by adding collection vehicles and labor, to meet the increased quantities.

## SWMP Actions

Table 6-9 shows the City's SWMP actions for the collection of MSW. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 6-9. City of Falls Church MSW Collection SWMP Actions*

| MSW Collection SWMP Actions |
|---|
| – Maintain City refuse collection |
| – Implement a Pay-As-You-Throw collection system |
| – Expand collection of electronic wastes |
| – Promote use of special fuels, filters, and special vehicles for collection |

## Transfer

**The City of Falls Church uses transfer facilities outside of the City including Fairfax County's I-66 Transfer Station and three privately-owned MRFs.**

The City of Falls Church utilizes Fairfax County's I-66 Transfer Station for handling MSW. The City also uses three MRFs in the area (but outside of the City) for handling MSW recyclables, which are discussed earlier in this chapter.

### I-66 Transfer Station

Fairfax County operates a single transfer station, the I-66 Transfer Station, which is regulated under VDEQ Permit #387. The facility accepts, from public and private haulers operating throughout the county, MSW, yard debris, brush, CDD (from small businesses and homeowners), and white-goods for transfer or processing. In addition, the county also operates a disposal collection facility at the I-66 Transfer Station that accepts MSW directly from City of Falls Church citizens and businesses. (Above, see "Collection," "Disposal Centers.") The facility is located near the center of Fairfax County, at the site of the closed I-66 Landfill.

The I-66 Transfer Station has two main objectives: (1) managing MSW quantities disposed of at the county's waste-to-energy facility, the Energy/ Resource Recovery Facility (E/RRF), and (2) minimizing solid waste disposal transportation requirements.

The operation of the E/RRF requires a constant feed of MSW, so Fairfax County must provide it with a contracted amount (930,750 tons annually). By consolidating the majority of MSW collection and transfer at the I-66 Transfer Station, the county is able to control the MSW volume delivered to the E/RRF. If MSW quantities entering the system are greater than the E/RRF processing capacity, then the county can transport the "overflow" waste from the transfer station to sanitary landfills outside of the county.

The I-66 Transfer Station also enables the county to reduce MSW disposal transportation requirements, primarily for private and municipal haulers. First, haulers have the option of using the I-66 Transfer Station or hauling waste directly to the E/RRF, whichever provides the most convenient transportation solution. Typically, haulers in the northern and western portions of the county use the transfer station; others haul directly to the E/RRF.

Second, the county consolidates typically three to five smaller truckloads into a single trailer for transportation to the E/RRF and out-of-county landfills. Consolidation at the transfer station enables the county to reduce the truck traffic to the E/RRF.

The I-66 Transfer Station commenced operations in January 1983. In early 1991, the county began planning the expansion of the original transfer station, including a new area for residential recycling and disposal. The multi-year project cost approximately $13.1 million and included the expansion of the number of disposal bays, as well as repairs to the original transfer station building. This project included the completion of the recycling and disposal facility in 1993 and the tipping building expansion in 1997.

**The I-66 Transfer Station charges fees based upon the amount of MSW disposed.**

The I-66 Transfer Station charges fees based upon the amount of MSW disposed. The fees vary based upon the type of waste and the category of the disposer. Haulers that enter into a contract with the county and meet specific eligibility requirements (such as obtaining proper county permits) are currently charged a lower fee. All fees finance the transport and disposal of the refuse at the E/RRF or landfill as well as costs for administration and other community benefit programs, such as recycling and household hazardous waste.

The facility operates with 52 transfer vehicles, 74 drivers, other operations staff, and contract hauling support. Drivers typically work on rotating shifts 10 hours a day for 4 days a week.

**Vehicle Processing**

**Incoming vehicles to the transfer station may include private haulers, municipal haulers, commercial cash customers, and residents.**

Incoming vehicles to the transfer station may include private haulers, municipal haulers, commercial cash customers, and residents.

*Private and Municipal Haulers*

All trash hauling vehicles entering the transfer facility have permits from Fairfax County. The permit types vary according to the size of the hauling company, with large hauling companies invoiced monthly. The county requires hauling companies that are billed monthly to obtain a security

bond to cover outstanding debt and failures to perform waste collection requirements.

Each entering trash hauling vehicle must display its unique permit number. Upon entering, the facility retrieves information from the computer scale system, including tare weight and owner name and address. All trash hauling vehicles are weighed on an electronic scale, which records the date, time, weight, and charge. The system prints a waste receipt, including the vehicle owner's name and address, and the type of waste. The system tracks charges and bills owners monthly.

The I-66 Transfer Station is open for private and municipal haulers Monday through Friday from 5 A.M. to 6 P.M. and Saturdays from 5 A.M. to 2 P.M. The peak hours for incoming vehicles are 4 P.M. to 5 P.M. Other peak volumes are from 11 A.M. to 1 P.M. and 7:30 A.M. to 9 A.M.

*Commercial Cash and Citizens*

Small companies that do not desire a monthly invoice and generate waste as part of their regular work (landscaping, roofing or remodeling businesses, for example) may pay cash for disposal services (commercial cash program). They pay either a flat fee per visit or by weight for larger loads.

City residents who use the facility pay for disposal on the basis of the number of bags (for smaller loads), by weight (for larger loads), or by item (white goods, tires). The disposal center for citizens and commercial cash customers at the I-66 Transfer Station is also open Sundays, and has slightly different operation hours than the hours for collection and disposal vehicles.

**Refuse Handling**

After processing at either the main scales or commercial cash/citizens scales, the vehicles are directed to one of the 21 bays to discharge the waste (10 bays in one building and 11 bays in the adjacent building). Waste is emptied from the vehicles onto the floor of the bay; county operators in front-end loaders inspect the waste and move it toward the pits at the back of the bays. This type of facility is known as a direct-discharge non-compaction station.

Vehicles are randomly screened for prohibited wastes, including regulated medical waste (RMW) and hazardous wastes. Crane operators and other employees continuously screen refuse in the bays.

Waste is loaded into the waiting 18-wheel tractor-trailers beneath the floor through one of the six pits at the back of the bays. Cranes behind the pits assist in directing the waste into the trailers.

**Outgoing Vehicles**
After discharging their wastes, all vehicles leave the facility.

**Transfer Operations**
Once the transfer trailers are loaded, they pull out of the facility; the operator removes loose or hanging refuse from the trailer, closes the trailer top, and proceeds to the E/RRF or landfill. Vehicles are typically weighed when they arrive at the disposal facility rather than at the I-66 Transfer Station; drivers, however, may weigh their vehicles at the transfer station if they believe the load may be too heavy.

In 2002, the I-66 Transfer Station accepted 663,819 tons of material. The average daily refuse received was approximately 2,100 tons (based on operations 6 days per week). Table 6-10 shows the quantities of MSW received at the I-66 Transfer Station and destination for disposal from 2000 to 2002.

*Table 6-10. I-66 Transfer Station, Tons of MSW Transferred, 2000–02*

| Category | 2000 | 2001 | 2002 |
|---|---|---|---|
| Inbound MSW | | | |
| Haulers | 579,437 | 646,298 | 635,825 |
| Falls Church MSW | N/A | 6,254 | 6,769 |
| Non-Falls Church MSW | N/A | 640,044 | 629,156 |
| Disposal for citizens | 30,556 | 26,526 | 27,994 |
| Outbound MSW | | | |
| E/RRF | 560,965 | 595,853 | 628,348 |
| Out-of-county landfills | 49,028 | 76,971 | 35,471 |
| **Total** | **609,993** | **672,824** | **663,819** |

N/A - Data Not Available

**The City of Falls Church projects annual volumes of City-generated MSW handled at the Fairfax County's I-66 Transfer Station (excluding yard waste and special wastes) will increase between 13 and 41 percent from 2004 and 2025,** *assuming continuation of current waste management practices.*

## Assessment of Current and Future Transfer Needs

Chapter 2 of this report presents the projected quantities of MSW generated, recycled, and disposed in the City over the SWMP planning period. The City developed four alternative MSW projections to address the probable range of variance in the future generation rates.

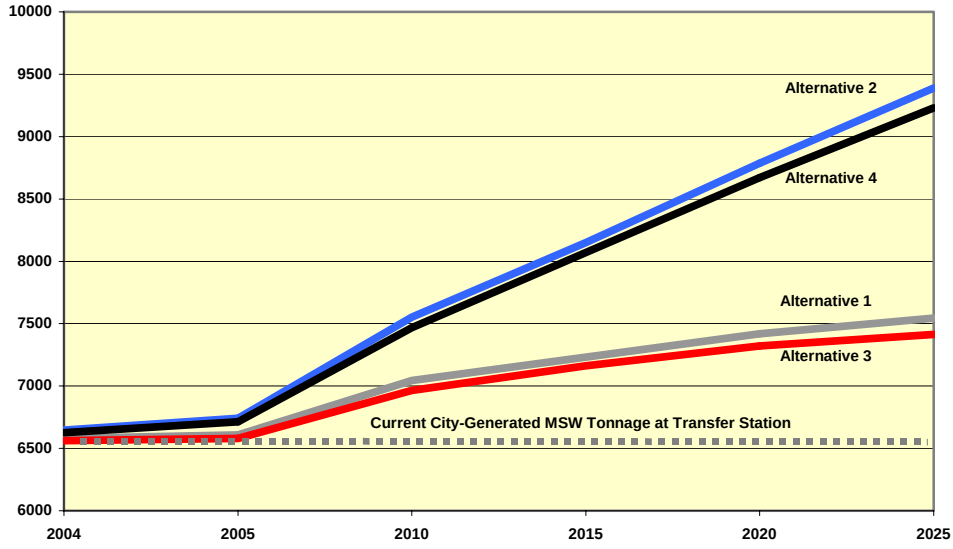
Future projections of City-generated MSW handled at the I-66 Transfer Station are dependent on two factors: (1) the percent of MSW recycled and (2) the projected amounts of MSW destined for disposal. Projected amounts of MSW destined for disposal over the SWMP planning period are presented in Chapter 2.

Table 6-11 and Figure 6-4 show the projected quantities of MSW managed at Fairfax County's I-66 Transfer Station over the SWMP planning period for the four projection alternatives. ***(Note that these projections assume the continuation of the City's current management practices and conditions.)*** The City projects that annual quantities of City-generated MSW managed at the I-66 Transfer Station will increase between 13 and 41 percent from 2004 to 2025.

*Table 6-11. Projections of City-Generated MSW Handled at Fairfax County's I-66 Transfer Station, 2004–2025 (tons)*

| Year | City of Falls Church MSW Sent to I-66 Transfer Station | | | |
|---|---|---|---|---|
| | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
| 2004 | 6,581 | 6,647 | 6,561 | 6,626 |
| 2005 | 6,609 | 6,741 | 6,580 | 6,713 |
| 2010 | 7,045 | 7,553 | 6,964 | 7,467 |
| 2015 | 7,232 | 8,149 | 7,163 | 8,071 |
| 2020 | 7,419 | 8,787 | 7,322 | 8,671 |
| 2025 | 7,544 | 9,390 | 7,414 | 9,229 |

*Figure 6-4. Projections of City-Generated MSW Handled at I-66 Transfer Station 2004–2025 (tons)*




**Fairfax County's I-66 Transfer Station must handle an additional 850 to 2,700 tons of City-generated MSW (excluding yard waste and special wastes) per year by 2025.**

The City projects that the I-66 Transfer Station must handle an additional 850 to 2,700 tons per year of City-generated MSW by 2025. Fairfax County expects the I-66 Transfer Station to have sufficient capacity to handle projected quantities of City- and county-generated MSW, with the exception of Alternative 4. For Alternative 4, MSW quantities will exceed the current I-66 Transfer Station capacity between 2020 and 2025.

Fairfax County will expand the existing transfer station to handle additional MSW requirements.

### SWMP Actions

Table 6-12 shows the City's SWMP actions for the transfer of MSW. The City selected SWMP actions based on their alignment with the SWMP objectives (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 6-12. City of Falls Church MSW Transfer SWMP Actions*

| MSW Transfer SWMP Actions |
|---|
| – Continue using the current transfer system |

## Disposal

**The City of Falls Church currently uses Fairfax County's E/RRF as its primary disposal method for MSW.**

### Current Programs

The City of Falls Church uses the Fairfax County disposal system as its primary disposal method for MSW. Fairfax County currently uses the I-95 Energy/Resource Recovery Facility (E/RRF) for disposal of MSW, with out-of-county sanitary landfills to handle the "overflow" waste from the E/RRF. When MSW quantities in the county exceed the capacity of the E/RRF, the county diverts some trucks from the transfer station to out-of-county landfills rather than to the E/RRF. The county disposes of the ash generated from the E/RRF in the Area 3 Ash Landfill at the I-95 Landfill Complex.

***"For every one million tons of refuse processed at our facilities, we offset the need to use about 1.67 million barrels of oil to generate the same amount of electricity. That also means offsetting the emissions that the oil would have created. In addition, because the process reduces the volume of refuse, we conserve valuable landfill space."***

The City of Falls Church is not aware of any MSW disposal sites, active or closed, within the limits of the City.

### Energy Resource Recovery Facility

The E/RRF is one of the largest "mass burn" waste-to-energy (WTE) facilities in the United States. It is located at the I-95 Landfill (which is presently used for ash disposal only). Covanta Fairfax, Inc. (CFI), a private firm, owns and operates the E/RRF under a long-term service agreement with the county.

Fairfax County endorsed the construction of a WTE facility in the mid-1980s to prolong the life of the I-95 Landfill and to provide a viable longer-term solid waste management alternative to landfilling for waste generated in the county. The construction of the E/RRF began in 1988 and operations commenced in June 1990.

Operating the E/RRF is an environmentally effective and economically efficient means to dispose of MSW. The current business model allows the county to charge a competitive MSW disposal fee for contract haulers. The tip fees paid to CFI are used to pay the bonds that financed the construction of the E/RRF. The capital cost of the facility, not including financing charges, underwriting fees, and construction of utilities was $195 million. The bonds were refinanced in 1998 and will be completely paid in 2011.

The E/RRF reduces the volume of solid waste by 90 percent. The byproducts of the combustion process, bottom and fly ash, are typically less than 28 percent by weight of the incoming refuse processed. In 2003, ash residue was 24.9 percent by weight of waste combusted.

The E/RRF uses the waste to generate up to 91 megawatts of electricity; 11 megawatts are required to operate the facility and roughly 80 MW are sold to Virginia Power. This electricity powers about 70,000 homes in the area.

The facility also recovers and recycles ferrous and nonferrous metals; in 2003, 22,204 tons of ferrous metals and 318 tons of nonferrous metals were recovered, representing 2.5 percent of the total municipal waste combusted.

The E/RRF reduces disposal volume, recycles metal, generates electricity, and reduces landfill waste management concerns (leachate, capping, etc.) at a cost that is comparable with landfilling.

To limit the escape of odors from the process, the E/RRF building structure containing the receiving area, refuse storage pit, cranes, and hoppers is maintained at less than atmospheric pressure and a misting system near the doors is employed to reduce odors.

Steam from waste combustion is routed to two steam turbine-generators for power generation. A two-turbine design allows for improved reliability: the facility can continue to produce electricity in case one turbine is off-line for maintenance.

The E/RRF operates using mass burn technology, which involves the combustion of minimally processed or non-processed refuse. The facility is constructed with four 750-ton-per-day waterwall furnaces, each designed to operate independently. The facility design allows for the construction of a fifth furnace, if needed and permitted for future operations.

*Pollution Control Equipment*

**The E/RRF is equipped with state-of-the-art pollution prevention technology.**

The E/RRF manages many factors to maximize the combustion of the solid waste and to control the generation of byproducts, including boiler temperature, residence time in the boiler, and underfire and overfire air supply. For example, overfire air (air delivered to the boilers above the feed table) assists in maintaining boiler temperatures between 1,800°F and 2000°F to ensure complete combustion of organic gases and carbon monoxide.

Air pollution equipment for each boiler unit consists of a semi-dry acid gas scrubber, carbon injection system, aqueous ammonia injection system, and fabric filter baghouse. In the scrubbers, atomized lime is sprayed into the flue gas stream to react with and neutralize acid gases (primarily sulfur dioxide and hydrogen chloride). The carbon injection system assists in the removal of mercury, and the aqueous ammonia injection system assists in controlling emissions of nitrous oxides. A new system of inserting dolomitic lime into the ash further conditions the ash and binds heavy metals, such as lead and cadmium, to the ash residue, preventing the metals from leaching out once the ash is landfilled. The dolomitic lime system ensures that the pH of the ash remains between 8.0 and 11.0.

Particulate matter is removed from the flue gas stream by the baghouses. Each baghouse contains 2,520 bags: 12 compartments of 210 bags each. The baghouses are designed for full operation using 10 of the 12 compartments. The baghouses are over 99.9 percent effective in removing particulate matter. Fly ash from the air pollution control equipment is directed to the ash discharger (explained above) for quenching.

**Recent air monitoring data confirmed the following percent removals:**

**Sulfur Dioxide—94.5%**
**Hydrogen Chloride—98.2%**
**Mercury—93.4%**
**Nitrous Oxides—45%.**

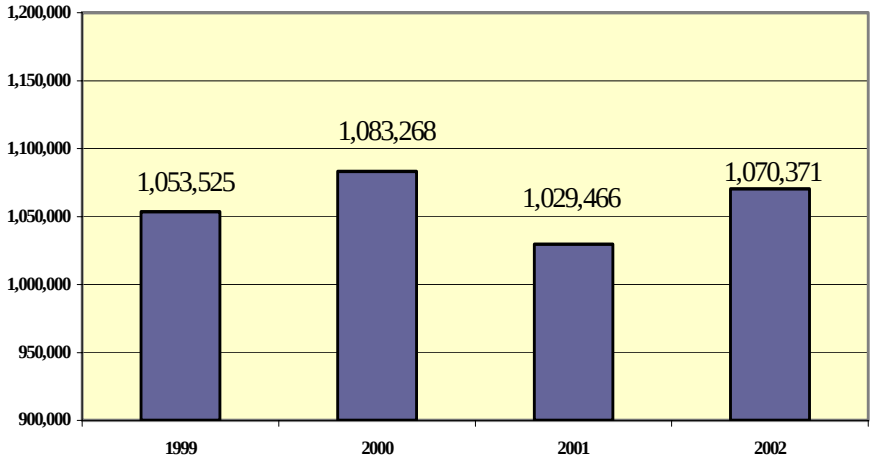
Continuous emissions monitors located in the stack flues record emissions of carbon monoxide, sulfur dioxide, nitrogen oxides, opacity (a measure of particulate matter), and oxygen.

Because of the continuous monitoring of all the gases and ash leaving the facility and the application of state-of-the-art pollution prevention technology, the facility remains in compliance with EPA and VDEQ permits and guidelines.

*Past and Present Rate of Use*

The E/RRF operates 24 hours per day and 365 days per year. The facility burns waste mostly from Fairfax County, but also takes limited amounts of waste from other jurisdictions (including the City of Falls Church) as part of waste exchange or longstanding agreements. Figure 6-5 shows the tons of waste processed by the E/RRF between 1999 and 2002.

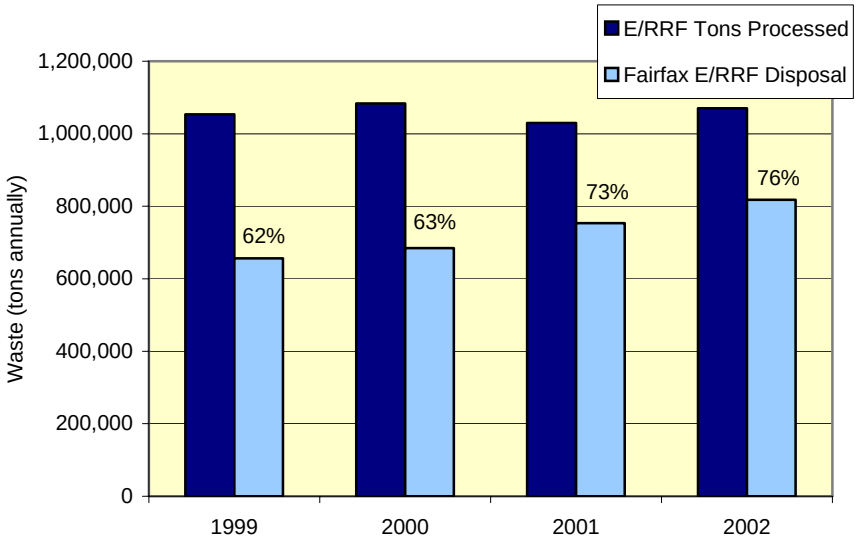
*Figure 6-5. E/RRF, Tons of Waste Processed, 1999-2002*




**Fairfax County must provide a contracted amount of solid waste (930,750 tons per year) to the E/RRF, referred to as the Guaranteed Annual Tonnage (GAT).**

Fairfax County must provide a contracted amount of solid waste (930,750 tons per year) to the E/RRF. As a result, Fairfax County has developed agreements and waste exchanges with other jurisdictions (including the City of Falls Church) to accept MSW for disposal at the E/RRF. As presented in Figure 6-6, county-generated waste constituted between 62 and 76 percent of the waste processed by the facility from 1999 to 2002.

*Figure 6-6. Fairfax County Portion of Waste Combusted at E/RRF, 1999-2002*




*Capacity and Availability*

**The E/RRF processing capacity is roughly 3,000 tons per day, with 15,000 tons of storage capacity.**

The E/RRF storage capacity is approximately 15,000 tons in the refuse storage pit, which is equivalent to 5 days of continuous processing. E/RRF processing capacity is 3,000 tons per day of solid waste. If waste that requires processing by the facility exceeds this amount, other waste disposal options may be required.

Operation of the E/RRF requires sufficient waste quantities to continuously feed the boilers. Fairfax County must manage MSW collection and disposal in order to keep the boilers operational. Fluctuations in waste volumes or temporary interruptions in waste collection (such as snow events or power outages) can shut down one or more boilers in the E/RRF and reduce the facility's operating capacity.

*E/RRF Inventory Management*

Fairfax County manages the disposal of all MSW generated in the City of Falls Church. Fairfax County's primary emergency backups for the E/RRF are out-of-county landfills. The Area 3 Ash Landfill at the I-95 Landfill Complex is permitted to accept MSW in case of an emergency shutdown of the E/RRF. The landfill was closed to MSW in 1995; the ash landfill is not a viable long-term disposal option for Fairfax County when waste generation exceeds the processing capacity of the E/RRF.

**Fairfax County uses out-of-county landfills to handle E/RRF overflow waste.**

The primary option to handle "overflow" waste from the E/RRF is to transport MSW to one of the contracted landfills outside of the county. Most of these have sufficient capacity to handle the current out-of-county landfill requirements over the next 20 years. Some, however, have quarterly permit limits that cap the MSW quantity accepted. Although these landfills may have sufficient capacity, they may not be available to accept MSW from the county in the quantities that are needed daily.

(See the "Sanitary (MSW) Landfills" section of this chapter for the annual tonnage, estimated years remaining, distance from the I-66 Transfer Station, and daily tonnage capacity of the largest private landfills in Virginia.)

*Existing Contracts with Haulers and Municipalities*

- CFI and the county currently have a 20-year operating agreement, with the county guaranteeing at least 930,750 tons of waste each year to the facility until 2011. Fairfax County uses the I-66 Transfer Station and contracts with collection and disposal companies and local jurisdictions to manage the quantities of waste delivered to the E/RRF.

*Remaining Useful Life and Closure Requirements*

Typically, WTE facilities similar to the E/RRF have a useful life of approximately 40 years. Therefore, the E/RRF should not exceed its remaining useful life during the SWMP planning period. CFI owns the facility and operates it, with oversight of the Fairfax County Solid Waste

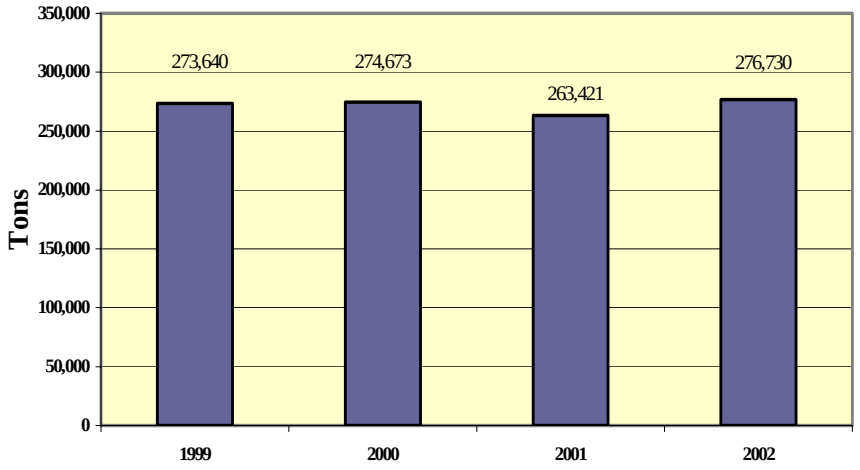
Authority until the bonds are repaid in 2011. After that date, CFI is projected to remain in the current location until their lease on the E/RRF property expires in 2032.

*Ash Disposal Plans*

**Ash from the E/RRF is disposed of at the nearby Area 3 Ash Landfill.**

Ash generated at the E/RRF is hauled to the nearby landfill (referred to as the Area 3 Ash Landfill) for disposal. Fairfax County disposes of approximately 760 tons of ash from the E/RRF in the landfill daily. Figure 6-7 shows the tons of ash generated by the E/RRF in 1999 through 2002 and disposed of at the Area 3 Ash Landfill. (The "Area 3 Ash Landfill" section of this chapter contains more information about the operations of the ash landfill.)

*Figure 6-7. E/RRF, Tons of Ash Generated, FY 1997–2003*




The ash produced in the E/RRF comprises a number of residues. Collected ash is cooled and then passed through a "scalper screen," which removes pieces larger than 10 inches. After this initial screening, ferrous and nonferrous metals are removed for sale (see the next subsection). The remaining ash is loaded into trucks for ultimate disposal at the Area 3 Ash Landfill.

*Recovery and Sale of Metals*

Ash and material that pass through the initial screen (described above) are fed by a conveyor to a rotating magnetic trommel, where ferrous metal is removed. Next, a rotating magnet recovers smaller ferrous metals that were not collected in the initial trommel. The ash then passes through a screen and eddy current separator, where brass, aluminum, copper, and other nonferrous metals are recovered. The recovered metals are stored in the ash building and sold to scrap recyclers. In

2003, 22,204 tons of ferrous metals and 318 tons of non-ferrous metals were recycled.

*Hazardous Materials*

**The E/RRF screens delivered materials to prevent burning unacceptable waste, including hazardous waste.**

To prevent processing unacceptable waste, including hazardous waste, the facility has a screening program for delivered materials. Notices are posted at the point of entry to the facility, and trucks entering the facility are visually inspected.

The tipping floor manager visually inspects all loads for unusual physical properties; tipping floor screening procedures also include random checks of vehicles before unloading the waste. The tipping floor and crane personnel also visually observe the refuse after it is deposited in the pit.

The county is also in the process of designing and installing radiation detection equipment to identify and remove any radioactive material that may be brought for disposal.

*Air Emissions*

The E/RRF air permit includes emission limits for sulfur dioxide, carbon monoxide, nitrous oxides, hydrochloric acid, particulate matter, dioxin/furans, and mercury. The facility consistently meets its emission limits. Table 6-13 shows 2003 emission testing results.

*Table 6-13. Results of June 2003 Emissions Testing at the E/RRF*

| Parameter | Permit limit | Average E/RRF result |
|---|---|---|
| Sulfur dioxide | 29 ppm, or | 8.8 ppm |
| | 75% reduction | |
| Carbon monoxide | 100 ppm | 9 ppm |
| Nitrous oxides | 206.3 pph | 193 pph |
| Hydrochloric acid | 29 ppm, or | 3.9275 ppm |
| | 95% reduction | |
| Particulate matter | 27 mg/dscm | 5.1575 mg/dscm |
| Dioxin/furans | 30 ng/dscm | .688 ng/dscm |
| Mercury | 80 ng/dscm, or | 1.39125 ng/dscm |
| | 85% reduction | |

Note: ppm = parts per million; pph = pounds per hour; mg = milligram; ng = nanogram; dscm = dry standard cubic meter.

*CFI Contract*

**CFI and Fairfax County have a 20-year operating agreement for the E/RRF that will expire in 2011.**

As previously mentioned, CFI and the county have a 20-year operating agreement that will expire in 2011. The relationship with the facility past this date has yet to be determined. Negotiations must begin within 5 years of the expiration of the current agreement (i.e., by early 2006).

**Ash Disposal**

In 1994, a section (100 acres) of Fairfax County's I-95 Sanitary Landfill was re-permitted for waste placement for the construction of a Subtitle D–type liner system. The county designated the site (referred to as the Area 3 Lined Ash Landfill) primarily for ash placement, but it can accept MSW in the event of an emergency shutdown at the E/RRF.

The Area 3 Ash Landfill was designed in four phases, totaling approximately 100 acres. Phase I of the Ash Landfill opened in 1995; its capacity of 26 acres was exhausted in 2001. While the Area 3 Ash Landfill is divided in four main phases, each phase is typically constructed in sub-phases for ease of construction. At the time of this SWMP, ash is currently being disposed of in Phase IIA. This section of the landfill is anticipated to be full in 2004, and Phase IIB is planned for construction in 2004. County staff coordinates construction of new phases to provide an uninterrupted service for disposal.

*Ash Disposal Operations*

**Fairfax County's Area 3 Ash Landfill accepts ash generated at the E/RRF.**

The Area 3 Ash Landfill accepts ash generated at the E/RRF, which is hauled to the ash landfill daily. The ash landfill is located very close to the E/RRF, and vehicles from that facility travel on internal roads to access the site. The landfill only handles ash, and it is exempt from daily cover requirements as long as all slopes drain back into the landfill. External slopes are covered with a layer of soil for intermediate purposes, and will receive a synthetic membrane liner cover when ultimate capacity is reached.

Since ash is an inert material, no landfill gas is generated and no gas collection system is present or required.

A clay/HDPE composite liner underlays the landfill, and another HDPE liner and leak detection system above the bottom liner serve as an extra

means of environmental protection. Leachate collected is conveyed to Fairfax County's Noman M. Cole, Jr. Pollution Control Plant through the sanitary sewer system.

Costs for ash disposal at the landfill are incorporated into the fees per ton for the E/RRF charged by CFI. These costs are recovered in the MSW fees charged for disposal by Fairfax County.

*Present and Projected Rate of Use*

**The Area 3 Ash Landfill accepts an average of 760 tons of ash per day from the E/RRF.**

The Area 3 Ash Landfill accepts an average of 760 tons per day of ash generated from the E/RRF. Over the previous 3 years, the ash generation as a percentage of waste feed to the E/RRF has ranged from 25.4 to 26.0 percent (an average of 25.7 percent). The county expects the percentage of ash generation to the E/RRF to remain around this level over the lifetime of the facility. Therefore, the projected annual rate of ash generated by the E/RRF will likely range from 239,000 tons (on the basis of the E/RRF contract minimum) to 281,000 tons (E/RRF full capacity).

*Capacity and Availability*

**Fairfax County expects the Area 3 Ash Landfill to have sufficient capacity to handle ash disposal needs through 2025.**

Ash is currently being disposed of in Phase IIA, which has a capacity of approximately 900,000 cubic yards and comprises 12 acres of the site. It is anticipated the Phase IIB of the Area 3 Ash Landfill will be constructed beginning in the spring/summer of 2004 and available to receive ash in late 2004, when the capacity of Phase IIA is exhausted. Phase IIB is estimated to have approximately 3 years of capacity. Together, all phases bring the total ash disposal unit size to approximately 100 acres of the 500 acre I-95 Sanitary Landfill. The county expects the facility to have sufficient capacity to handle estimated ash disposal needs through 2025.

*Backup Ash Disposal Options*

As discussed previously, Fairfax County expects the landfill to have sufficient capacity to handle estimated ash disposal needs through the SWMP planning period. The county can send ash to sanitary landfills outside of the county if an emergency arises; however, significant additional expense would be borne by transportation of this heavy material and tip fees at other facilities.

### Incineration

The City of Falls Church and Fairfax County currently do not use incineration as a method for disposal of MSW. The City and Fairfax County do not plan to use incineration for the disposal of City-generated MSW over the SWMP planning period.

**Fairfax County currently uses out-of-county sanitary landfills to handle the "overflow" waste from the E/RRF.**

### Sanitary (MSW) Landfills

Fairfax County currently uses out-of-county sanitary landfills to handle the "overflow" waste from the E/RRF. When MSW quantities in the county exceed the capacity of the E/RRF, the county diverts trucks from the I-66 Transfer Station to out-of-county landfills rather than to the E/RRF.

Currently (2004), the county primarily uses the landfills in Prince William County, King George County (operated by Waste Management), the National Waste Landfill in Luray, VA, and Shoosmith Brothers in Chester, VA. In some cases, the county disposes of waste at the Atlantic Waste Landfill in Waverly, VA, or the King and Queen County Landfill operated by Allied Waste.

Table 6-14 shows the tonnage of MSW Fairfax County shipped to out-of-county landfills from 2000 to 2002. The primary disposal method used by Fairfax County is the E/RRF; MSW sent to out-of-county landfills has represented only a small percentage (<10 percent) of the total waste managed by Fairfax County.

*Table 6-14. Fairfax County MSW Tonnage Sent to Out-of-County Landfills, 2000–2002*

| Year | Quantity (tons) |
|---|---|
| 2000 | 49,028 |
| 2001 | 76,791 |
| 2002 | 35,471 |

*Capacity and Availability*

**Most sanitary landfills that Fairfax County uses have the capacity to handle current out-of-county landfill requirements for the next 20 years.**

Most sanitary landfills that Fairfax County uses have the capacity to handle current out-of-county landfill requirements for the next 20 years. Some have quarterly permits that cap the MSW quantity accepted. Therefore, although these landfills may have sufficient capacity, they may not be available to accept MSW from Fairfax County.

Table 6-15 shows the annual tonnage, estimated years remaining, and distance from the I-66 Transfer Station for the largest landfills in Virginia. The shaded portions represent those landfills used by Fairfax County for MSW disposal.

Table 6-16 summarizes the daily tonnage capacity of the largest private landfills in Virginia. The darker shaded portions represent landfills used by Fairfax County for MSW disposal.

*Table 6-15. Potential Overflow Capacity Landfills in Virginia*

| Landfill | City | Owner/operator | Annual tonnage | Remaining capacity | Years remaining | Distance (miles) |
|---|---|---|---|---|---|---|
| King George County Landfill | King George | King George County/Waste Management | 1,643,731 | 18,500,000 | 11 | 60 |
| Atlantic Waste Disposal Landfill | Waverly | Waste Management | 1,580,034 | 7,140,200 | 4.5 | 150 |
| Brunswick Waste Mgmt. Facility | Lawrenceville | Allied Waste | 1,032,056 | 16,500,000 | 20 | 190 |
| King and Queen County Landfill | Little Plymouth | Allied Waste | 823,126 | 25,350,000 | 31 | 145 |
| Old Dominion Landfill | Richmond | BFI | 814,749 | 2,866,000 | 3.5 | 100 |
| Shoosmith Sanitary Landfill | Chester | Shoosmith Brothers | 676,622 | 7,671,065 | 11 | 120 |
| SPSA Reg. Landfill | Suffolk | SPSA | 651,375 | 3,050,000 | 4.7 | 190 |
| Charles City Landfill | Charles City | Waste Management | 535,339 | 16,629,323 | 31 | 130 |
| Middle Peninsula Landfill | Glenns | Gloucester County/Waste Management | 544,086 | 20,628,881 | 38 | 140 |
| Prince William County Landfill | Manassas | Prince William County | 506,178 | 5,800,000 | 12 | 20 |
| Maplewood Rec. & Disposal Facility | Amelia Court House | Waste Management | 327,693 | 19,763,689 | 60 | 140 |
| Big Bethel Sanitary Landfill | Hampton | City of Hampton/Waste Management | 482,861 | 55,960,000 | 116 | 170 |
| National Waste Landfill | Luray | National Waste | 242,919 | 1,885,000 | 7.8 | 80 |

Source: VDEQ, Solid Waste Managed in Virginia During Calendar Year 2002.

Note: SPSA = Southeastern Public Service Authority.

*Table 6-16. Daily Capacities of Potential Overflow Capacity Landfills in Virginia (tons per day)*

| Landfill | Accepted | Capacity | Capacity limits |
|---|---|---|---|
| King George County Landfill | 4,000 | 4,000 | Host agreement |
| Atlantic Waste Disposal Landfill | 4,600 | 10,000 | No Limit |
| Shoosmith Sanitary Landfill | 2,500 | 4,000 | No Limit |
| Brunswick Waste Mgmt. Facility | 3,000 | 3,000 | No Limit |
| Maplewood Rec. & Disposal Facility | 1,200 | 5,000 | Host agreement |
| King and Queen County Landfill | 2,000 | 4,000 | Host agreement |
| Charles City Landfill | 3,400 | 6,000 | Host agreement |
| Middle Peninsula Landfill | 2,000 | 2,000 | Host agreement |
| Old Dominion Landfill | 2,000 | 4,000 | No Limit |

**The City of Falls Church projects annual MSW disposal quantities will increase between 13 and 41 percent from 2004 and 2025,** *assuming continuation of current waste management practices.*

## Assessment of Current and Future Disposal Needs

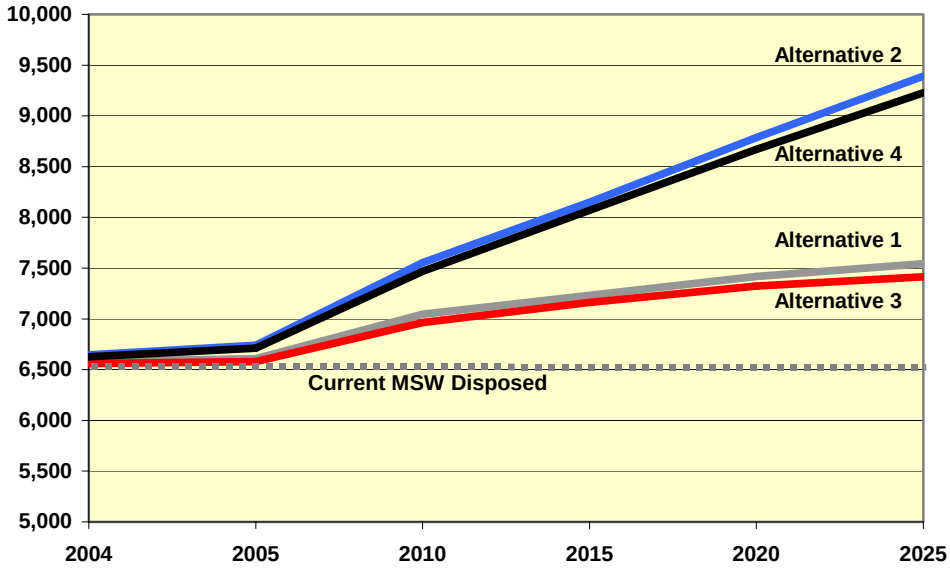
Chapter 2 of this SWMP presents the projected quantities of MSW generated, recycled, and disposed in the City of Falls Church over the SWMP planning period. The City developed four alternative MSW projections to address the probable range of variance in the future generation rates.

Table 6-17 and Figure 6-8 show the MSW disposal projections for the City of Falls Church over the SWMP planning period for the four projection alternatives. ***(Note that these projections assume the continuation of the City's current management practices and conditions.)*** The City projects annual MSW disposal quantities to increase between 13 and 41 percent from 2004 to 2025.

*Table 6-17. MSW Disposal Projections in the City of Falls Church, 2004–2025 (tons)*

| Year | MSW Disposed | | | |
|---|---|---|---|---|
| | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
| 2004 | 6,581 | 6,647 | 6,561 | 6,626 |
| 2005 | 6,609 | 6,741 | 6,580 | 6,713 |
| 2010 | 7,045 | 7,553 | 6,964 | 7,467 |
| 2015 | 7,232 | 8,149 | 7,163 | 8,071 |
| 2020 | 7,419 | 8,787 | 7,322 | 8,671 |
| 2025 | 7,544 | 9,390 | 7,414 | 9,229 |

*Figure 6-8. MSW Disposal Projections in the City of Falls Church, 2004–2025 (tons)*




Currently, the primary facility for the disposal of the City's MSW is Fairfax County's E/RRF. The maximum daily capacity of the E/RRF is 3,000 tons;

a 15,000-ton refuse storage pit spreads the E/RRF maximum capacity to five days. Currently, spikes in daily feed volumes to the E/RRF require that roughly five percent of the annual MSW disposal volume must be instead disposed in out-of-county landfills.

The theoretical maximum annual capacity of the E/RRF is 1,168,000 tons (based on FY 2001 annual tonnage of 1,067,224 tons and boiler availability of 91.36%)[4]. However, in practice, boiler availability of 90 percent is considered indicative of good operations and maintenance practices. Based on an availability of 90 percent, the county estimates the practical capacity of the E/RRF to be 1,095,000 tons per year.

Until 2011, the county is under contract with CFI to supply at least 930,750 tons of MSW per year to the E/RRF. The county has consistently exceeded this requirement, historically operating the E/RRF facility at its maximum practical capacity of roughly 1,095,000 tons of MSW per year. When the volume of MSW generated in Fairfax County is not sufficient to meet the 930,750 tons operating requirement, the county accepts other MSW for disposal at the E/RRF.

After implementation of its SWMP, Fairfax County projects MSW disposal rates managed by the county (including the City of Falls Church) to remain below the capacity of the E/RRF over the SWMP planning period.

### SWMP Actions

Table 6-18 shows the City's SWMP actions for the disposal of MSW. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 6-18. City of Falls Church MSW Disposal SWMP Actions*

| MSW Disposal SWMP Actions |
|---|
| – Continue using the current disposal system as the preferred alternative |
| – Establish agreements with other jurisdictions for alternative disposal |

[4] Dvirka and Bartilucci Consulting Engineers and Solid Waste Services, LLC. *I-95 Energy/Resource Recovery Facility, Annual Operations Monitoring Report, Fiscal Year 2001*. October 2001.

Chapter

# 7

# Construction/ Demolition/Debris

## *Construction/Demolition/Debris - Current City of Falls Church Management System, Anticipated Gaps in Waste Management, and SWMP Actions*

**This chapter presents the process used by the City to evaluate the current SWM system, project the future waste stream, identify anticipated gaps in waste management, and select SWMP actions for CDD.**

This chapter presents the evaluation of the City's current and projected solid waste management (SWM) activities for construction/ demolition/debris (CDD), organized by the SWM hierarchy. It uses the hierarchy as the framework for determining how to bridge the gaps between the current SWM activities and the strategies needed to manage the City's CDD in the future. The chapter then presents the City's SWMP actions for CDD over the next 20 years to address those gaps.

Using the SWM hierarchy, the City of Falls Church staff worked in cooperation with the Solid Waste Management Plan Advisory Committee (SWMPAC) to evaluate current SWM practices, including source reduction and reuse initiatives, recycling activities and programs, future markets for recyclables, collection operations, transfer facilities, and characteristics of solid waste disposal facilities. Next, the City reviewed the current and future projections of its solid waste stream quantities over the SWMP planning period. Using these projections, the City assessed the changes in the solid waste stream over the planning period and identified the critical areas requiring modification. Finally, the City selected SWMP actions that will close the gaps between its current SWM system and that required in the future.

# Overview of the 20-Year Plan for the City's CDD Management System

The City's current SWM programs and activities for CDD, the gaps in waste management, and SWMP actions over the SWMP planning period are summarized in Table 7-1. This table is organized by level of the waste hierarchy, from source reduction and reuse, to recycling, collection, transfer, and disposal. (Note that private companies are responsible for many of the activities in the current and future system.)

*Table 7-1. CDD: Current Waste Management Activities, Anticipated Gaps in Waste Management, and SWMP Actions*

| | Current Programs in the City | Anticipated Gaps | SWMP Actions |
|---|---|---|---|
| Source reduction and reuse | – No existing source reduction and reuse initiatives targeted specifically for CDD | – Up to additional 1,200 tons of CDD generated in the City of Falls Church | – Improve public outreach and education to promote source reduction and reuse<br>– Implement source reduction and reuse programs at City government facilities and schools<br>– Monitor and publicize waste generation |
| Recycling | – No existing recycling initiatives targeted specifically for CDD | – CDD recycling practices are currently not well established | – Promote public-private recycling programs<br>– Improve public outreach and education to promote recycling<br>– Encourage increased CDD recycling<br>– Participate in regional promotion of CDD recycling |
| Collection | – CDD collection services provided by privately-owned firms | – Up to additional 1,200 tons per year of CDD collection by 2025<br>– May require additional CDD collection vehicles and labor | – Promote use of special fuels, filters, and special vehicles for collection<br>– Implement a collection and disposal strategy for emergencies |
| Transfer | – Most CDD is transported directly to private disposal facilities<br>– A small portion of City CDD may be handled at the Fairfax County I-66 Transfer Station | – None | – Continue using the current transfer system |
| Disposal | – Three private CDD landfills in Fairfax County: Hilltop Sand & Gravel Co. Debris Landfill, Lorton CDD Landfill, and Rainwater Concrete Co. Landfill<br>– Other regional CDD landfills | – Annual disposal tonnage increases from current 730,000 tons to up to 924,000 tons by 2025<br>– Need between 18 and 21 million tons cumulative CDD landfill capacity until 2025<br>– May exceed CDD landfill capacity around 2011 | – Continue using current disposal system as the preferred alternative<br>– Establish agreements with other jurisdictions for alternative disposal |

# Source Reduction and Reuse

**The City of Falls Church has no existing source reduction or reuse initiatives targeted specifically for CDD.**

## Current Programs

The City of Falls Church has no existing source reduction or reuse initiatives targeted specifically for CDD.

## Assessment of Current and Future Source Reduction and Reuse Needs

Calculating the quantities of solid waste that are reduced prior to entering the waste stream is problematic. Therefore, the City does not develop source reduction and reuse projections for solid waste.

The City of Falls Church follows the solid waste hierarchy in designing its SWM system. The City prefers source reduction followed by reuse and recycling to disposal of solid waste. The SWM Program goal is to implement new programs that will maximize the volume of solid waste handled by source reduction and reuse over the SWMP planning period.

## SWMP Actions

Table 7-2 shows the City's SWMP actions for the source reduction and reuse of CDD. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 7-2. City of Falls Church CDD Source Reduction and Reuse SWMP Actions*

| CDD Source Reduction and Reuse SWMP Actions |
|---|
| – Improve public outreach and education to promote source reduction and reuse |
| – Implement City source reduction and reuse programs at City government facilities and schools |
| – Monitor and publicize waste generation |

# Recycling

**The City of Falls Church currently has no recycling initiatives targeted specifically for CDD.**

## Current Programs

The City of Falls Church has no existing recycling programs or activities specifically targeted for CDD. Some City-generated CDD may be recycled at the Potomac CDD Landfill in Dumfries.

No data are available on the quantities of CDD recycled in the City of Falls Church, but statewide data are available. CDD recycling data reported to the VDEQ suggest that CDD recycling in Virginia is low,

ranging from less than 1 percent to 3.25 percent of CDD materials between 1998 and 2002. CDD recycling rates in Virginia have been decreasing: between 1998 and 2002, the recycling of CDD materials decreased by more than 64 percent.[1]

## Recycling Markets

Economics is at the core of all recycling collection decisions. Recycling plans must focus on the costs and benefits of current, new, and future programs. Although recycling specific material may benefit the environment, the economic cost is sometimes an obstacle for a municipality, which has little chance of affecting the markets for these materials. Therefore, focusing on materials for which strong markets already exist is critical.

The economic viability of recycling is based on four factors: (1) the cost savings from eliminating disposal, (2) the revenue from selling recyclable materials, (3) the cost of transporting recyclable materials, and (4) the cost of processing recyclables. The economic viability of recycling may increase with higher alternative disposal costs, stronger local markets for recyclable materials, shorter transportation distances to markets, and more efficient processing of recyclables.

**Low CDD recycling rates are likely the result of inexpensive disposal and relatively high processing costs.**

Table 7-3 presents the values of recyclables from the National Association of Home Builders in 2000. The cost to recycle the most common CDD material (wood) is often more expensive than the cost of its disposal. The economics for recycling of other CDD materials make it more viable to recycle those materials.

*Table 7-3. Value of CDD Recyclables, 2000 ($/ton)*

| Recyclable | Cost | Revenue |
|---|---|---|
| Wood | 20 | — |
| Drywall | 13 | — |
| Ferrous metals | — | 40 |
| Vinyl | — | 100 |
| Aluminum | — | 600 |

## Assessment of Current and Future Recycling Needs

Chapter 2 of this SWMP presents the projected quantities of CDD generated in the City of Falls Church over the SWMP planning period. The City developed two alternative CDD projections to address the probable range of variance in the future generation rates.

[1] Northern Virginia Solid Waste Management Board, *Summary of Construction and Demolition Debris Landfills in Northern Virginia*, September 12, 2003.

**The City of Falls Church projects annual CDD recycling quantities will remain low,** *assuming the continuation of the City's current management practices and conditions.*

The City projects annual CDD recycling quantities will mirror the projected changes in CDD generation (i.e., from a decrease of 7 percent to an increase of 15 percent). CDD recycling practices are not yet well established in the City; therefore, ***assuming the continuation of the City's current management practices and conditions***, future CDD recycling quantities are projected to be a small percentage of the total generation volume.

### SWMP Actions

Table 7-4 shows the City's SWMP actions for CDD recycling. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 7-4. City of Falls Church CDD Recycling SWMP Actions*

| CDD Recycling SWMP Actions |
|---|
| – Promote public-private recycling programs |
| – Improve public outreach and education to promote recycling |
| – Encourage increased CDD recycling |
| – Participate in regional promotion of CDD recycling |

## Collection

### Current Programs

Privately owned collection firms provide CDD collection services in the City of Falls Church. Construction firms are responsible for procuring CDD collection containers (e.g., dumpsters) and services at their building sites. Most companies collect CDD from the construction sites for transport directly to a CDD disposal facility.

### Assessment of Current and Future Collection Needs

Chapter 2 of this SWMP presents the projected quantities of CDD generated in the City of Falls Church over the SWMP planning period. The City developed two alternative CDD projections to address the probable range of variance in the future generation rates.

Collection of CDD includes both recyclable materials and waste destined for disposal. Table 7-5 shows the projected quantities of CDD collected in the City over the SWMP planning period for the two projection alternatives. ***(Note that these projections assume the continuation of***

**The City projects annual CDD collection quantities to range from a decrease of 7 percent to an increase of 15 percent from 2004 to 2025**, *assuming continuation of current waste management practices.*

***the City's current management practices and conditions.)*** The City projects annual CDD collection to range from a decrease of 7 percent to an increase of 15 percent from 2004 to 2025.

*Table 7-5. CDD Collection Projections for the City of Falls Church 2004-2025 (tons)*

| Year | Alternative 1 | Alternative 2 |
|---|---|---|
| 2004 | 7,975 | 7,816 |
| 2005 | 8,009 | 7,771 |
| 2010 | 8,538 | 7,878 |
| 2015 | 8,764 | 7,691 |
| 2020 | 8,991 | 7,503 |
| 2025 | 9,142 | 7,255 |

**The City's SWM collection system may handle up to an additional 1,200 tons per year of CDD by 2025.**

The City projects that the current CDD collection system may handle up to an additional 1,200 tons per year by 2025. Therefore, the existing collection system may have to expand to meet the increased quantities.

### SWMP Actions

Table 7-6 shows the City's SWMP actions for the collection of CDD. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 7-6. City of Falls Church CDD Collection SWMP Actions*

| CDD Collection SWMP Actions |
|---|
| – Promote use of special fuels, filters, and special vehicles for collection |
| – Implement a collection and disposal strategy for emergencies |

## Transfer

**Most City-generated CDD is directly hauled to privately-owned landfills outside the City of Falls Church.**

### Current Programs

Most CDD generated in the City is directly hauled to privately owned landfills outside the City.

A small percentage of City-generated CDD may be managed at Fairfax County's I-66 Transfer Station; Chapter 6 provides a more detailed discussion of the I-66 Transfer Station operations. Operators at the Transfer Station attempt to direct incoming loads that

may contain CDD to specific bays for disposal. CDD waste processing is typically completed in designated bays at the facility; the waste is hauled in county trailers to one of the CDD landfills.

### Assessment of Current and Future Transfer Needs

Chapter 2 of this SWMP presents the projected quantities of CDD generated in the City of Falls Church over the SWMP planning period. The City developed two alternative CDD projections to address the probable range of variance in the future generation rates.

**The City projects annual CDD quantities managed at transfer facilites (outside the City) to range from a decrease of 7 percent to an increase of 15 percent from 2004 to 2025**, *assuming continuation of current waste management practices.*

Currently, most CDD generated in the City of Falls Church is sent directly to CDD landfills outside the City; a small percentage of City-generated CDD may be managed at transfer facilities outside the City, including Fairfax County's I-66 Transfer Station.

The City projects annual CDD transfer quantities will mirror the projected changes in CDD generation (i.e., from a decrease of 7 percent to an increase of 15 percent). CDD transfer quantities represent a small percentage of City-generated CDD; therefore, ***assuming the continuation of the City's current management practices and conditions***, future CDD transfer quantities are projected to be a small percentage of the total generation volume.

### SWMP Actions

Table 7-7 shows the City's SWMP actions for the transfer of CDD. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 7-7. City of Falls Church CDD Transfer SWMP Actions*

| CDD Transfer SWMP Actions |
|---|
| – Continue using the current transfer system |

## Disposal

### Current Programs

#### CDD Landfills

City-generated CDD is primarily disposed of at five CDD landfill facilities located outside the City: Hilltop Sand and Gravel Company Debris Landfill (Newington), Lorton CDD Landfill (Lorton), Rainwater Concrete Company

Landfill (Lorton), Potomac Landfill (Dumfries), and the Fauquier County Corral Farm MSW Landfill (Warrenton). These CDD landfills are owned and operated by private vendors, with the exception of the Corral Farm Landfill (owned and operated by Fauquier County). The private CDD landfills accept material from a wide area, including out-of-state sources. The City of Falls Church is not aware of any CDD disposal sites, active or closed, within the limits of the City.

Most CDD is transported directly from the generation site to the landfill.

**VDEQ estimates that the average remaining capacity of the five CDD landfills that receive City of Falls Church waste is roughly 6 years and of all CDD landfills in Virginia is roughly 7.7 years.**

### Capacity and Availability

At current disposal rates, VDEQ data suggest that for the five CDD landfills that receive City of Falls Church waste, the average remaining capacity is roughly 6 years. VDEQ also estimates that in 2002, the remaining permitted CDD landfill capacity for all of Virginia was 7.7 years.[2] It should be noted that sanitary landfills can accept CDD material; however, the additional regulatory requirements of sanitary landfills typically require a much higher disposal fee.

Because of CDD disposal capacity concerns, CDD disposal fees have been increasing. In 2004, Fairfax County contract disposal fees at in-county CDD landfills doubled compared to the previous year.

Table 7-8 shows the available capacity (tons) and remaining life (years) for each of the five CDD landfills that receive City of Falls Church waste.

*Table 7-8. CDD Facility Estimated Capacity and Availability, 2002*

| Facility | County/City | Available capacity (tons) | Annual disposal rate (tons) | Remaining capacity (years) |
|---|---|---|---|---|
| Hilltop Debris Landfill | Fairfax | 1,242,200 | 138,000 | 9 |
| Lorton CDD Landfill | Fairfax | 5,100,000 | 927,209 | 5.5 |
| Rainwater Concrete Co. Landfill | Fairfax | 1,121,739 | 66,260 | 17 |
| Potomac Landfill | Prince William | 662,016 | 472,257 | 1.4 |
| Fauquier Co. Corral Farm Landfill | Fauquier | 2,044,183 | 76,030 | 27 |
| **Total** | | **10,170,000** | **1,680,000** | **6.1** |

Source: VDEQ, June 2002.

## Assessment of Current and Future Disposal Needs

Chapter 2 of this SWMP presents the projected quantities of CDD generated (and disposed) by the City of Falls Church over the SWMP planning period. The City developed two alternative CDD projections to address the probable range of variance in the future generation rates.

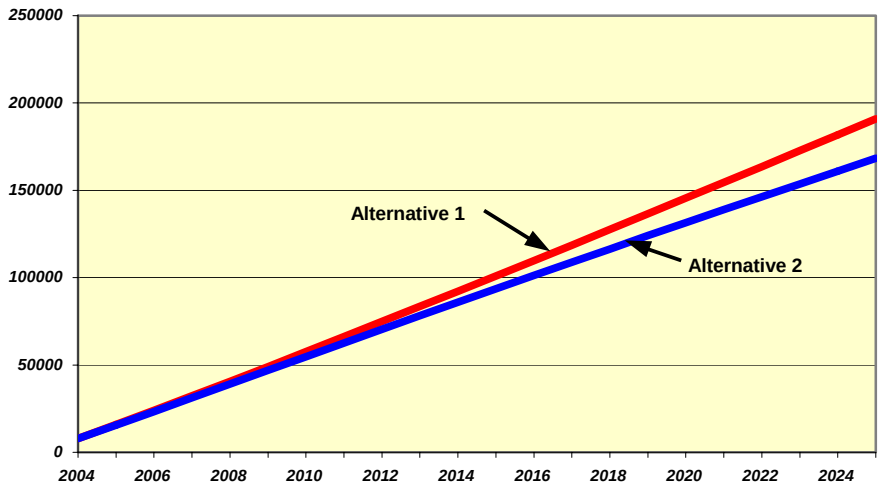
[2] VDEQ, *Solid Waste Managed in Virginia During Calendar Year 2002*, June 2003.

Tables 2-10 and 2-11 of Chapter 2 show the CDD disposal projections for the City of Falls Church over the SWMP planning period for the two projection alternatives. The City projects annual CDD disposal to range from a decrease of 7 percent to an increase of 15 percent from 2004 to 2025.

**The City projects a need of between 168,000 and 191,000 tons of CDD disposal capacity until 2025,** *assuming continuation of current waste management practices.*

Figure 7-1 shows the cumulative CDD disposal requirements over the SWMP planning period. The City projects a need of between 168 and 191 thousand tons of disposal capacity to handle City-generated CDD until 2025. ***(Note that these projections assume the continuation of the City's current management practices and conditions.)***

*Figure 7-1. Cumulative CDD Disposal Requirements for City of Falls Church, 2004–2025 (tons)*




## SWMP Actions

Table 7-9 shows the City's SWMP actions for the disposal of CDD. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 7-9 City of Falls Church CDD Disposal SWMP Actions*

| CDD Disposal SWMP Actions |
|---|
| – Continue using current disposal system as the preferred alternative |
| – Establish agreements with other jurisdictions for alternative disposal |

Chapter

8

# Yard Waste

## *Yard Waste - Current City of Falls Church Management System, Anticipated Gaps in Waste Management, and SWMP Actions*

**This chapter presents the process used by the City to evaluate the current SWM system, project the future waste stream, identify anticipated gaps in waste management, and select SWMP actions for yard waste.**

This chapter presents the evaluation of the City's current and projected solid waste management (SWM) activities for yard waste, organized by the SWM hierarchy. It uses the hierarchy as the framework for determining how to bridge the gaps between the current SWM activities and the strategies needed to manage the City's yard waste in the future. The chapter then presents the City's SWMP actions for yard waste over the next 20 years to address those gaps.

Using the SWM hierarchy, the City of Falls Church staff worked in cooperation with the Solid Waste Management Plan Advisory Committee (SWMPAC) to evaluate current SWM practices, including source reduction and reuse initiatives, recycling activities and programs, future markets for recyclables, collection operations, and transfer facilities. (Since all yard waste generated in the City is required to be recycled, the City did not evaluate disposal). Next, the City reviewed the current and future projections of its solid waste stream quantities over the SWMP planning period. Using these projections, the City assessed the changes in the solid waste stream over the planning period and identified the critical areas requiring modification. Finally, the City selected SWMP actions that will close the gaps between its current SWM system and that required in the future.

## Overview of the 20-Year Plan for the City's Yard Waste Management System

The City's current SWM programs and activities for yard waste, the gaps in waste management, and SWMP actions over the SWMP planning period are summarized in Table 8-1. This table is organized by level of

the waste hierarchy, from source reduction and reuse, to recycling, collection, transfer, and disposal. (Note that private companies are responsible for many of the activities in the current and future system.)

*Table 8-1. Yard Waste: Current Waste Management Activities, Anticipated Gaps in Waste Management, and SWMP Actions*

| | Current Programs in the City | Anticipated Gaps | SWMP Actions |
|---|---|---|---|
| Source reduction and reuse | – Backyard composting and vermicomposting classes | – Increased reliance on City collection and recycling of yard waste rather than source reduction and reuse | – Improve public outreach and education to promote source reduction and reuse<br>– Implement internal source reduction and reuse programs at City government facilities and schools<br>– Provide tools to promote increased source reduction and reuse<br>– Monitor and publicize waste generation |
| Recycling | – Composting of bagged yard waste outside the City<br>– Grind vacuumed leaves into mulch available for residents<br>– Fairfax County grinds City-generated brush into mulch available for residents | – Regional increases in yard waste quantities may impact capacity of composting facilities for City-generated yard waste | – Improve public outreach and education to promote recycling<br>– Continue current yard waste recycling system; contract with composting facilities for dedicated capacity |
| Collection | – Residential curbside collection of bagged yard waste and bundled brush<br>– Commercial collection<br>– Citizen disposal facilities at Fairfax County's I-66 Transfer Station<br>– Vacuum leaf collection | – None | – Continue current collection system, including vacuumed leaf collection<br>– Promote use of special fuels, filters, and special vehicles for collection<br>– Implement a collection and disposal strategy for emergencies |
| Transfer | – City Transfer Yard for vacuumed leaves<br>– Fairfax County's I-66 Transfer Station for all other yard waste (i.e., bagged yard waste and brush) | – Possible loss of City Transfer Yard for leaf storage and processing | – Continue using the current transfer system<br>– Maintain leaf mulch program at the City Transfer Yard or alternative location |
| Disposal | – All yard waste generated in the City is recycled | Not Applicable | Not Applicable |

# Source Reduction and Reuse

## Current Programs

The City's current source reduction and reuse initiatives for yard waste consist of classes in backyard composting and vermicomposting.

**The City sponsors classes to promote backyard composting and vermicomposting of yard waste.**

In 1991, the City established a Backyard Composting Demonstration Site, currently located in a section of Cavalier Trail Park, near the intersection of S. Maple Avenue and S. Washington Street. The site includes several styles of composting bins and a "classroom" area composed of tree stumps in a circular formation. The area is accessible to the public throughout the year.

City-sponsored classes in backyard composting are held at the site each spring and fall and are directed by the City's Recycling Coordinator and volunteers from the Master Gardener program. The classes are free and open to the public and include basic information on the "whys" and "hows" of successful composting. The classes are publicized through the *Falls Church News-Press, The Falls Church Environment* newsletter, and the Falls Church Environment website. Approximately 25 residents take the class each year. In addition, the City has sponsored two vermicomposting workshops to teach citizens the basics of food waste composting using red worms in an enclosed container. Thirty households have participated in these workshops.

## Assessment of Current and Future Source Reduction and Reuse Needs

Calculating the quantities of yard waste that are reduced prior to entering the waste stream is problematic. Therefore, the City does not develop source reduction and reuse projections for yard waste.

The City of Falls Church follows the solid waste hierarchy in designing its SWM system. The City prefers source reduction followed by reuse and recycling to disposal of yard waste. The SWM Program goal is to implement new programs that will maximize the volume of yard waste handled by source reduction and reuse over the SWMP planning period.

### SWMP Actions

Table 8-2 shows the City's SWMP actions for the source reduction and reuse of yard waste. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 8-2. City of Falls Church Yard Waste Source Reduction and Reuse SWMP Actions*

| Yard Waste Source Reduction and Reuse SWMP Actions |
|---|
| – Improve public outreach and education to promote source reduction and reuse |
| – Implement source reduction and reuse programs |
| – Provide tools to promote increased source reduction and reuse |
| – Monitor and publicize waste generation |

## Recycling

**The City provides three recycling collection options for yard waste: in one's own back yard, at the curb, or at Fairfax County's I-66 Transfer Station.**

### Current Programs

Table 6-3 (in Chapter 6) shows yard waste recycling data for the City of Falls Church from 1999 to 2002. The City requires the recycling of yard debris, including leaves, yard and grass clippings, and brush. The City has provided three recycling options for yard debris: in one's own back yard, at the curb, or at Fairfax County's I-66 Transfer Station.

The City collects vegetative wastes (grass, leaves, brush, yard trimmings) from residents who receive City recycling services. The City requires residents to bag grass clippings and small plant materials in paper bags and affix a collection sticker (50 cents per bag). Bagged yard waste service is provided weekly from January through October.

The City also collects bundled brush and vacuums loose leaves curbside from residents who receive City recycling services. Brush collection is provided every weekly throughout the year, except October 15 through December 15, when vacuum leaf collection occurs.

Brush includes tree branches, large twigs, shrubs, plant trimmings, bamboo, and vines. The City requires branches to be cut in lengths not exceeding five feet, with trunk diameter no greater than six inches. The City provides collection of bundled brush free of charge. Unbundled brush or brush exceeding six inches in diameter requires a special pickup request, with a collection fee of $65 for every two cubic yards of brush.

The City grinds vacuumed leaves collected in the fall at the City's leaf storage area (Transfer Yard). The City offers the resulting leaf mulch to residents on a self-haul or free delivery basis.

All other yard waste collected in the City of Falls Church is sent to Fairfax County's I-66 Transfer Station. The county sends bagged yard waste to one of two yard composting facilities, Prince William County Compost Facility at Balls Ford Road and Loudoun Composting in Loudoun County. Fairfax County grinds brush into mulch, which is made available at no cost to City and Fairfax County residents.

Table 8-3, below, shows the City's estimates of yard waste recycling from 2000 to 2002. In 2002, the City of Falls Church ground 990 tons of vacuumed leaves and Fairfax County sent 961 tons of City-generated yard debris to out-of-county composting facilities and ground 892 tons of City-generated brush.

*Table 8-3. City of Falls Church Yard Waste Recycling Quantities (2000–2002), tons*

| Recycling Method | 2000 | 2001 | 2002 |
|---|---|---|---|
| **Vacuumed Leaves Ground into Mulch** | **1,785** | **996** | **990** |
| **Yard Waste Sent to I-66 Transfer Station** | **2,208** | **1,722** | **1,631** |
| Yard Debris Sent to Composting Facilities | 1,137 | 880 | 862 |
| Prince William County Compost Facility | 540 | 524 | 513 |
| Loudoun Composting | 597 | 356 | 350 |
| Brush Ground into Mulch | 1,071 | 842 | 769 |

## Assessment of Current and Future Recycling Needs

Since there are few open areas remaining in the City, future population increases will likely not affect yard waste generation quantities. Therefore, the City projects that yard waste generation quantities will remain at current levels (3,111 tons per year) throughout the SWMP planning period.

Almost all yard waste generated in the City of Falls Church is recycled. As a result, the yard waste generation projections also represent the City's yard waste recycling projections.

Table 8-4 presents the projected quantities of yard waste by recycling method (i.e., yard waste sent to yard waste composting facilities outside the City and vacuumed leaves and brush ground available at City and Fairfax County facilities). These estimates were developed based on the average percentages of City-generated yard waste handled by these methods from 2000 to 2002.

*Table 8-4. Yard Waste Projections By Recycling Method in the City of Falls Church, 2004-2025 (tons)*

| Years | Mulched Vacuumed Leaves at City Transfer Yard | Yard Waste Composting | Mulched Brush at I-66 Transfer Station |
|---|---|---|---|
| 2004-2025 | 1,257 | 961 | 892 |

City of Falls Church and Fairfax County facilities have sufficient capacity to mulch the projected quantities of brush and vacuumed leaves. Similarly, the City and Fairfax County expect demand for mulch to be sufficient over the SWMP planning period.

**The City's primary capacity concern for yard waste is the ability of the composting facilities outside the City to handle the increased yard waste quantities.**

The primary capacity concern for yard waste in the City of Falls Church is the ability of composting facilities outside the City to continue to handle City yard waste over the SWMP planning period, especially during catastrophic events such as hurricanes. Increasing yard waste in the region over the next 20 years may exceed the capacity of these facilities.

### SWMP Actions

Table 8-5 shows the City's SWMP actions for yard waste recycling. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 8-5. City of Falls Church Yard Waste Recycling SWMP Actions*

| Yard Waste Recycling SWMP Actions |
|---|
| – Improve public outreach and education to promote recycling |
| – Continue current yard waste recycling system; contract with composting facilities for dedicated capacity |

## Collection

### Current Programs

#### Residential Collection

There are several options that residents have for the collection of yard waste:

- recycling yard debris in their own yards (grasscycling and/or composting),

- setting out grass clippings and small plant materials in paper bags and affixing a collection sticker (50 cents per bag) for City to collect and dispose,
- setting out brush (lengths of 5 feet or less and diameter of 6 inches or less) bundled with twine for City to collect and dispose,
- engaging a landscaping service, who is required to remove and recycle any waste from tree trimming or removal, and
- taking yard debris to the I-66 Transfer Station citizens' disposal areas.

Residents who receive City recycling services also receive City collection of vegetative wastes. Bagged yard waste is collected weekly from January through October. Loose leaves are vacuum-collected from mid-October through mid-December. Bundled brush is collected weekly year-round, except during loose leaf collection season. Unbundled brush requires a collection charge of $65 for every two cubic yards.

**Commercial Collection**

Commercial yard waste collection in the City of Falls Church is managed by building owners/operators who contract with privately-owned firms in the City.

## Assessment of Current and Future Collection Needs

Since there are few open areas remaining in the City, future population increases will likely not affect yard waste generation quantities. Therefore, the City projects that yard waste generation quantities will remain at current levels (3,111 tons per year) throughout the SWMP planning period. Since all yard waste generated in the City of Falls Church is collected, the yard waste generation projections also represent the City's yard waste collection projections.

## SWMP Actions

Table 8-6 shows the City's SWMP actions for the collection of yard waste. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 8-6. City of Falls Church Yard Waste Collection SWMP Actions*

| Yard Waste Collection SWMP Actions |
|---|
| – Continue current collection system, including vacuumed leaf collection |
| – Promote use of special fuels, filters, and special vehicles for collection |
| – Implement a collection and disposal strategy for emergencies |

## Transfer

**The City of Falls Church uses the City Transfer Yard and Fairfax County's I-66 Transfer Station for the transfer of yard waste.**

### Current Programs

The City of Falls Church uses two facilities for the transfer of yard waste: the City of Falls Church Transfer Yard and Fairfax County's I-66 Transfer Station.

**City Transfer Yard**

Following collection of loose leaves in the fall, the City hires a tub-grinding service to process leaves at the City's leaf storage area (City Transfer Yard). The City offers the resulting leaf mulch to residents on a self-haul or free delivery basis.

**I-66 Transfer Station**

The City delivers bagged yard debris and brush to Fairfax County's I-66 Transfer Station (10 miles from Falls Church) for processing. The county tub-grinds brush on-site and allows free pickup of mulch by residents. The county transfers bagged yard trimmings to two out-of-county composting facilities: Prince William County Compost Facility at Balls Ford Road and Loudoun Composting in Loudoun County.

Table 8-7 shows the quantities of City-generated bagged yard waste and brush received at the I-66 Transfer Station.

*Table 8-7. City-Generated Yard Waste Transfer Quantities at Fairfax County's I-66 Transfer Station (2000–2002), tons*

| | 2000 | 2001 | 2002 |
|---|---|---|---|
| **I-66 Inbound Bagged Yard Waste Brush** | 2,208 | 1,722 | 1,631 |
| **I -66 Outbound Yard Waste** | | | |
| Sent to Out-of-County Composting Facilities | 1,137 | 880 | 862 |
| Prince William County Compost Facility | 540 | 524 | 513 |
| Loudoun Composting | 597 | 356 | 350 |
| Brush Mulch Distributed | 1,071 | 842 | 769 |

In 2002, the City estimates that Fairfax County sent 862 tons of City-generated yard debris to composting facilities, the majority (513 tons) to the Prince William County Compost Facility at Balls Ford Road and a smaller amount (350 tons) to Loudoun Composting, a private composting facility in Loudoun County.

Fairfax County grinds City-generated brush delivered to the I-66 Transfer Station; the resulting mulch is made available at no cost to City and Fairfax County residents. In 2002, Fairfax County ground and distributed 769 tons of City-generated brush.

## Assessment of Current and Future Transfer Needs

Since there are few open areas remaining in the City, future population increases will likely not affect yard waste generation quantities. Therefore, the City projects that yard waste generation quantities will remain at current levels (3,111 tons per year) throughout the SWMP planning period.

Almost all yard waste generated in the City of Falls Church is managed at one of two transfer stations, the City of Falls Church Transfer Yard and Fairfax County's I-66 Transfer Station. As a result, the yard waste generation projections also represent our yard waste transfer projections.

Table 8-8 presents the projected quantities of yard waste handled at the City Transfer Yard and I-66 Transfer Station over the SWMP planning period. These estimates were developed based on the average quantities of City-generated yard waste handled by these facilities from 2000 to 2002.

*Table 8-8. Projections of Yard Waste Handled at City of Falls Church Transfer Yard and Fairfax County I-66 Transfer Station, 2004–2025 (tons)*

| Years | City Transfer Yard | I-66 Transfer Station |
|---|---|---|
| 2004 - 2025 | 1,257 | 1,854 |

The City Transfer Yard and Fairfax County's I-66 Transfer Station transfer facilities have sufficient capacities to handle the projected quantities of yard waste generated over the SWMP planning period.

One concern for the transfer of City-generated yard waste is the availability of the City Transfer Yard over the SWMP planning period. The construction of a new middle school adjacent to the facility may put continued leaf storage and processing operations at the City Transfer Yard at risk.

## SWMP Actions

Table 8-9 shows the City's SWMP actions for the transfer of yard waste. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 8-9. City of Falls Church Yard Waste Transfer SWMP Actions*

| Yard Waste Transfer SWMP Actions |
|---|
| – Continue using the current transfer system |
| – Maintain leaf mulch program at the City Transfer Yard or alternative location |

Chapter

# 9 Special Wastes

## *Special Wastes - Anticipated Gaps in Waste Management, and SWMP Actions*

**This chapter presents the process used by the City to evaluate the current SWM system, project the future waste stream, identify anticipated gaps in waste management, and select SWMP actions for special wastes.**

Special wastes are components of the City's solid waste stream that have unique collection, disposal, or recycling requirements. Special wastes generated in the City of Falls Church include hazardous waste, household hazardous waste (HHW), regulated medical waste (RMW), used tires, used oil, used antifreeze, and batteries. The origin, quantities collected, disposal locations, materials, and current systems to handle these wastes are described in detail in Chapter 2.

This chapter discusses the gaps between the current special wastes programs and activities, and the future waste management needs for each special waste type. The chapter then presents the City's SWMP actions for special wastes over the next 20 years to address those gaps.

The City reviewed the current and future projections of special waste quantities over the SWMP planning period. Using these projections, the City assessed the changes in the special waste stream over the planning period and identified the critical areas requiring modification. Finally, the City selected SWMP actions that will close the gaps between its current SWM system and that required in the future.

## Overview of the 20-Year Plan for the City's Special Wastes Management System

The City's current SWM programs and activities for special wastes, the gaps in waste management, and SWMP actions over the SWMP planning period are summarized in Table 9-1.

*Table 9-1. Special Wastes: Current Waste Management Activities, Anticipated Gaps in Waste Management, and SWMP Actions*

| Current Programs in the City | Anticipated Gaps | SWMP Actions |
|---|---|---|
| – Hazardous waste collection and disposal services provided by private firms<br>– Household hazardous waste (HHW) collection program at Fairfax County's I-66 Transfer Station<br>– Regulated Medical Waste (RMW) transported out of City for treatment and disposal<br>– Used tires collected in the City and managed at Fairfax County's I-95 Landfill Complex; all tires ultimately recycled at facilities outside the City<br>– Used oil and antifreeze collection facilities at Fairfax County's I-66 Transfer Station recycling drop-off center and local service stations<br>– Battery collection facilities at Fairfax County's I-66 Transfer Station recycling drop-off center and area stores | – Additional 0.3 tons per year of HHW by 2025<br>– Additional 5 tons per year of RMW by 2025<br>– Additional 16 tons per year of used tires by 2025<br>– Additional 12 tons per year of used oil and 1 ton of used antifreeze by 2025<br>– Additional 1.1 tons per year of batteries by 2025 | – Continue using the current special wastes management system<br>– Establish a HHW collection program in the City of Falls Church<br>– Promote public/private recycling programs to increase special wastes recycling, including NiCad battery recycling<br>– Improve public outreach and education |

# Hazardous Wastes

### Current Programs

Private firms operating in the City collect, transport, and dispose of hazardous wastes generated by businesses and institutions in the City of Falls Church.

### Assessment of Current and Future Needs

The City projects that the existing hazardous waste system will be sufficient to handle City-generated hazardous wastes over the SWMP planning period.

# Household Hazardous Wastes

**Much HHW is commingled with MSW and disposed.**

### Current Programs

Currently, City residents may dispose of their HHW at Fairfax County's HHW collection center at the I-66 Transfer Station. This service is provided free-of-charge to City residents. It is likely, however, that much of the HHW generated in the City is commingled with MSW and disposed of in residential trash containers.

The county's HHW collection center accepts HHW from residents only; hazardous waste from businesses is not accepted. The program was established to help prevent any potential hazardous wastes from entering the E/RRF or landfills. This facility is open year-round on Thursday afternoons, Friday mornings, and all day Saturday. A list of items accepted at the facility is shown in Chapter 2.

At the facility, hazardous wastes are identified, separated, and packed into appropriate containers. Fairfax County contracts with hazardous waste disposal companies for periodic collection and disposal of hazardous waste. Some non-hazardous latex paints inadvertently delivered by residents are diverted to the waste-to-energy facility — the Energy/Resource Recovery Facility (E/RRF) — for combustion.

The City of Falls Church promotes the use of the Fairfax County HHW program by City residents through its "Recycling Guide," City website, Recycling Hotline, and articles published bi-annually in the *FOCUS Weekly* section of the *Falls Church News-Press.* In addition, City residents often contact the City Recycling Coordinator directly to inquire about proper disposal of HHW.

### Assessment of Current and Future Needs

Table 9-2 shows a conservative estimate of the quantity of HHW generated in the City of Falls Church over the SWMP period. The City based these estimates on historical per capita HHW collection rates in Fairfax County and future City population estimates.

**Fairfax County's I-66 Transfer Station has the capacity to handle the projected quantities of HHW generated in the City of Falls Church over the next 20 years.**

*Table 9-2. City of Falls Church HHW Projections, 2004–2025 (tons)*

| 2004 | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|
| 1.9 | 2.0 | 2.1 | 2.1 | 2.2 | 2.2 |

Fairfax County's I-66 Transfer Station has the availability and capacity to handle the projected amount of HHW generated in the City of Falls Church over the SWMP planning period.

## Regulated Medical Waste

### Current Programs

Currently, all commercially generated RMW in the City is transported outside the City for treatment and disposal by properly licensed commercial waste disposal facilities. The identity and capacity of these facilities is not known. Home-generated medical waste is not regulated and may be disposed of with other MSW.

### Assessment of Current and Future Needs

Table 9-3 shows the City's estimate of RMW generation volumes over the SWMP planning. These estimates are based on historical per capita generation rates and future City population estimates.

*Table 9-3. City of Falls Church RMW Projections, 2004–2025 (tons)*

| 2004 | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|
| 34 | 34 | 36 | 37 | 38 | 39 |

RMW generated in the City will likely continue to be transported outside the City for treatment and disposal.

## Used Tires

### Current Programs

Used tires are collected by the City and by private haulers from auto shops and transported to Fairfax County's I-95 Landfill Complex. All tires are transferred to the back pad at the I-95 Landfill Complex and subsequently transported to tire recyclers. An unknown quantity of used tires is also transported directly to recycling facilities, bypassing the City collection facilities.

### Assessment of Current and Future Needs

Table 9-4 shows the City's estimate of used tire generation volumes over the SWMP planning period. These estimates are based on historical per capita generation rates and future City population estimates.

*Table 9-4. City of Falls Church Used Tire Projections, 2004–2025 (tons)*

| 2004 | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|
| 104 | 105 | 112 | 115 | 118 | 120 |

**Fairfax County's I-95 Landfill Complex has the capacity to handle the projected quantities of used tires generated in the City of Falls Church over the next 20 years.**

Fairfax County's I-95 Landfill Complex has the availability and capacity to store and transfer the projected quantities of used tires generated in the City of Falls Church over the SWMP planning period.

# Used Oil and Antifreeze

**Used oil and antifreeze are collected at Fairfax County's I-66 Transfer Station, City auto shops, and City motor pools.**

## Current Programs

City-generated used oil and antifreeze are currently accepted at no charge at the citizen's drop-off centers at Fairfax County's I-66 Transfer Station, as well as by private collection firms and recycling firms that service auto shops and motor pools.

## Assessment of Current and Future Needs

Table 9-5 shows the City's estimate of used oil and antifreeze generation volumes over the SWMP planning period. These estimates are based on historical per capita generation rates and future City population estimates.

**Fairfax County's I-66 Transfer Station has the capacity to handle the projected quantities of used oil and antifreeze generated in the City of Falls Church over the next 20 years.**

*Table 9-5. City of Falls Church Used Oil and Antifreeze Projections, 2004–2025 (tons)*

| Item | 2004 | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|---|
| Used oil | 79 | 80 | 85 | 87 | 90 | 91 |
| Antifreeze | 10 | 10 | 10 | 11 | 11 | 11 |

Fairfax County's I-66 Transfer Station recycling drop-off center has the availability and capacity to handle the projected quantities of used oil and antifreeze generated in the City of Falls Church over the SWMP planning period.

# Batteries

## Current Programs

City-generated used batteries are currently accepted at local battery retailers and at Fairfax County's I-66 Transfer Station. Used batteries include batteries used in cars, trucks, lawnmowers, and motorcycles as well as some household batteries, such as button, rechargeable (NiCad), mercury, and lithium. All other household batteries are disposed of with the MSW stream.

## Assessment of Current and Future Needs

Table 9-6 shows the City's estimate of battery generation volumes over the SWMP planning period. These estimates are based on historical per capita generation rates and future City population estimates.

**Fairfax County's I-66 Transfer Station has the capacity to handle the projected quantities of used batteries generated in the City of Falls Church over the next 20 years.**

*Table 9-6. City of Falls Church Battery Projections, 2004–2025 (tons)*

| 2004 | 2005 | 2010 | 2015 | 2020 | 2025 |
|---|---|---|---|---|---|
| 7.2 | 7.2 | 7.7 | 7.9 | 8.1 | 8.3 |

Increased efforts are needed to remove additional amounts of NiCad rechargeable batteries from the waste stream and dispose of them properly. Fairfax County's I-66 Transfer Station recycling drop-off center has the availability and capacity to process the projected quantities of batteries generated in the City of Falls Church over the SWMP planning period.

## SWMP Actions

Table 9-7 shows the City's SWMP actions for special wastes. The City selected SWMP actions based on their alignment with the SWMP goals (in Chapter 4) and their ability to close the gaps between the City's current SWM system and that required in the future. These SWMP actions are discussed in more detail in Chapter 11.

*Table 9-7. City of Falls Church Special Wastes SWMP Actions*

| Special Wastes SWMP Actions |
|---|
| – Continue using the current special wastes management system |
| – Establish a HHW collection program in the City of Falls Church |
| – Promote public/private recycling programs to increase special wastes recycling, including NiCad battery recycling |
| – Improve public outreach and education |

# Chapter 10 Litter Control

## *Litter Control in the City of Falls Church*

Litter control helps ensure that items such as paper, plastics, glass, metal objects, building materials, discarded food items, cigarette butts, rubber scraps, and other items are properly disposed. The primary goals of most litter control programs are to improve the image and appearance of the community and to safeguard public health and safety through environmental protection.

## Current Litter Control Programs

### City of Falls Church

The Recycling Coordinator manages all litter control programs in the City of Falls Church, with assistance from the Environmental Services Council (ESC) Cleanup Task Group. Litter control programs in the City of Falls Church include bi-annual Citywide Cleanups, "Adopt-a-Spot" litter pickup program, "City Walk" program, Stream Stewards program, removal of abandoned vehicles, and street sweeping.

### Bi-Annual Citywide Cleanups

The City of Falls Church Department of Environmental Services and the ESC sponsor Spring and Fall Citywide Cleanups that typically involve 100 to 150 volunteers. Volunteers are organized into teams that are assigned to work areas, primarily commercial streets, parks, and streams. Approximately one ton of litter is collected at each Citywide Cleanup—one-third of which is recyclable cans and bottles that are separated for recycling. A "thank you" picnic for volunteers is held immediately following a morning of litter pickup. The ESC Cleanup Task Group, which is staffed by the City's Recycling Coordinator, assists

with the organization, implementation, and evaluation of each Spring and Fall Cleanup.

### Adopt-a-Spot Program

The Adopt-a-Spot program provides an opportunity for residents, businesses, and civic groups to pick up litter in designated areas, including parks, streets, and school grounds. Thirty groups currently participate in the Adopt-a-Spot litter pickup program. The "adopting" groups agree to pick up litter four times a year for two years. In return, the City of Falls Church provides trash bags, vests, safety information, and signs that recognize the group's contribution. All City parks, most commercial streets, and most school grounds are covered through the Adopt-a-Spot program. The ESC Cleanup Task Group assists the City's Recycling Coordinator with the organization, implementation, and evaluation of the Adopt-a-Spot program.

### City Walk Program

City Walk is a one-hour historic tour and litter pickup held the third Saturday morning of every month, except October and April when Citywide Cleanups are held. Each walk covers a different area of Falls Church and often includes commentary from long-time City residents. Each year, the City Walk program features a special theme. Past themes have included historic homes, hills and valleys, specimen trees, sustainability, pathways, and the hidden streams of Falls Church. Participants are provided with litter bags and E-Z Reacher litter pickup tools. Average attendance on each City Walk is 12 to 15 participants. The Recycling Coordinator manages and leads the City Walk program.

### Stream Stewards Program

The City of Falls Church Stream Stewards are volunteer citizen advocates helping to educate other citizens on how to improve water quality in our streams. The goal of the group is to make our urban streams fishable and swimmable, as they were less than 100 years ago. In addition to making presentations to schools and civic organizations, the Stream Stewards assist with the application of plastic decals next to every storm drain in the City of Falls Church. These plastic decals declare, "Don't Dump – Drains to Four Mile Run (or Tripps Run)," educating citizens to the fact that anything thrown down the storm drain (e.g., litter, dog poop, oil, etc.) ends up, untreated, in our streams. The Recycling Coordinator manages and leads the Stream Stewards program.

### Abandoned Vehicle Removal

The City Police Department arranges for towing companies to remove inoperable vehicles from public property, and the Zoning Division arranges for the removal of inoperable vehicles from private property.

These vehicles are then either reclaimed by their owners or sold at auction.

### Street Sweeping

The City of Falls Church contracts for street sweeping services throughout the City. The purpose of street sweeping is to prevent litter and particulate matter from entering storm drains, local streams, the Potomac River, and Chesapeake Bay and to create safer, more attractive roadways.

### Civil Penalties Program

The City's Recycling Coordinator has the authority to issue tickets for Solid Waste Code violations, such as accumulation of litter and debris. Under the Civil Penalties Program, a "warning" ticket identifies a violation and establishes a specific number of days in which the violation must be corrected. If the violation is not corrected by the established deadline, then a monetary ticket is issued. The first monetary ticket is $100. Each additional ticket is $150, up to a maximum of $3,000 per violation.

## Future Litter Control Programs

The City of Falls Church plans to continue the current litter control programs over the SWMP planning period to ensure that items are properly disposed. In addition, the City plans to increase the effectiveness of street sweeping and increase efforts to prevent illegal dumping.

Table 10-1 shows the City's SWMP actions for litter control. These SWMP actions are discussed in more detail in Chapter 11.

*Table 10-1. City of Falls Church Litter Control SWMP Actions*

| Litter Control SWMP Actions |
|---|
| – Maintain the current litter control program |
| – Increase effectiveness of street sweeping |
| – Increase efforts to prevent illegal dumping |

Chapter

# 11

# Solid Waste Management Plan Actions and Implementation Plan

## *The City's Solid Waste Management Plan Actions and Plan for Implementation*

**This chapter presents the City's SWMP actions and implementation plan.**

This chapter presents the City's comprehensive and integrated plan for its solid waste management (SWM) system over the next 20 years, from the top to bottom levels of the waste hierarchy.

This chapter also presents the City's implementation of the SWMP actions. This implementation plan discusses each SWMP action, highlighting the required implementation steps and the funding mechanism. The plan is a general guide: implementation parameters will likely change over the SWMP planning period.

## Overview of the City's SWMP Actions

Table 11-1 outlines the City's plan for its SWM system over the next 20 years for each stage of the hierarchy, as well as for collection and transfer. The SWMP actions and implementation plan are described in more detail later in this chapter.

*Table 11-1. Summary of City of Falls Church SWMP Actions*

| | Future Solid Waste Management System |
|---|---|
| **Source Reduction and Reuse** | Improve public outreach and education to promote source reduction and reuse<br>Implement a Pay-As-You-Throw (PAYT) collection system<br>Establish a materials exchange<br>Participate in establishment of regional resource exchange programs<br>Monitor and publicize waste generation<br>Implement source reduction and reuse programs at City government facilities and schools<br>Provide tools to promote increased source reduction and reuse<br>Promote surplus food distribution programs |
| **Recycling** | Promote public-private recycling programs<br>Improve public outreach and education to promote recycling<br>Increase business recycling by reducing recycling thresholds<br>Implement a Pay-As-You-Throw collection system<br>Encourage increased construction/demolition/debris (CDD) recycling<br>Continue the current yard waste recycling system; contract with composting facilities for dedicated capacity<br>Encourage increased municipal solid waste (MSW) recycling at City government facilities and schools<br>Revise regulations to enhance recycling:<br>– Expand recyclables collected at multifamily residences<br>– Expand recycling requirements for electronic wastes<br>Consider implementation of single-stream curbside collection system for recyclables<br>Participate in regional promotion of CDD recycling<br>Provide tools to promote increased recycling<br>Establish a recycling rate goal<br>Promote establishment of a regional food waste composting facility |
| **Collection** | Maintain City refuse collection<br>Continue current yard waste collection system, including vacuumed leaf collection<br>Implement a Pay-As-You-Throw collection system<br>Expand collection of electronic wastes<br>Continue using the current special wastes management system<br>Establish a household hazardous waste (HHW) collection program in the City of Falls Church<br>Maintain the current litter control program<br>Increase effectiveness of street sweeping<br>Increase efforts to prevent illegal dumping<br>Promote use of special fuels, filters, and special vehicles for collection<br>Implement a collection and disposal strategy for emergencies |
| **Transfer** | Continue using the current transfer system<br>Maintain a leaf mulch program at the City Transfer Yard or alternative location |
| **Disposal** | Continue using the current disposal system as the preferred alternative<br>Establish agreements with other jurisdictions for alternative disposal |

# Source Reduction and Reuse

Source reduction, also known as “waste prevention,” is the practice of designing, manufacturing, purchasing, or using materials (such as products and packaging) in ways that reduce the amount or toxicity of trash created.

Both source reduction and reuse can help reduce waste disposal and handling costs by avoiding the costs of recycling, municipal composting,

landfilling, and combustion. Source reduction and reuse also decrease resource use, protecting the environment.

Table 11-2 presents SWMP actions selected by the City of Falls Church for the source reduction and reuse of solid waste in the City over the next 20 years.

*Table 11-2. City of Falls Church Source Reduction and Reuse SWMP Actions*

| Source Reduction and Reuse SWMP Actions |
|---|
| – Improve public outreach and education to promote source reduction and reuse |
| – Implement a Pay-As-You-Throw collection system |
| – Establish a materials exchange |
| – Participate in establishment of regional resource exchange programs |
| – Monitor and publicize waste generation |
| – Implement internal source reduction and reuse programs at City government facilities and schools |
| – Provide tools to promote increased source reduction, reuse, and recycling |
| – Promote surplus food distribution programs |

## Improve Public Outreach and Education

**Public education and outreach are effective and efficient techniques for increasing source reduction and reuse in the City.**

Public education and outreach are effective and efficient techniques for increasing source reduction and reuse in the City. Organizing education, technical assistance, and promotions aimed at increasing participation in source reduction and reuse activities, like reusing material and minimizing packaging, are crucial to successful source reduction and reuse programs.

**This action supports the City's SWM program goal (Chapter 4) of educating all members of the Falls Church community on the value of natural resources and the benefits of reducing consumption and adopting sustainable practices.**

An important part of source reduction and reuse involves "making voluntary or imposed behavioral changes in the use of materials."[1] Improved public outreach and education will provide more effective

[1] Philip O'Leary and Patrick Walsh, *Decision-Makers' Guide to Solid Waste Management, Volume II*, EPA530-R-95-023, U.S. Environmental Protection Agency, August 1995.

messages through methods and formats that are more widely accessible to all sectors of the Falls Church community.

The challenge in implementing source reduction and reuse initiatives is to influence the way people purchase and use products and packaging. A City goal could be to encourage residents to reuse products and packaging and buy products with an eye for waste reduction (for example, purchasing products with minimal packaging). Other valuable source reduction practices include purchasing durable, long-lasting goods and extending the useful life of products through preventive maintenance and repairs.

Appendix C of this document includes specific best practices for consumers, businesses, and manufacturers.

### Implementation Steps

Implementation involves the following steps:

1. Evaluate recycling messages on a continuing basis.
2. Develop promotional strategies, including determination of marketing goals, costs, and audiences to be targeted. Work with the Office of Communications and the Environmental Services Council to develop promotional campaigns and materials.
3. Implement public outreach strategies, making use of volunteer resources, City media outlets, and electronic communication opportunities.
4. Review program performance and revise promotional strategies, as needed.

### Funding

Costs of public outreach and education will be managed through the City's General Fund. The Environmental Services Council (ESC) and Recycling Block Captains will assist with the development and distribution of educational materials.

## Implement a Pay-As-You-Throw Collection System

Under a Pay-As-You-Throw (PAYT) collection system, residents are charged for MSW collection services on the basis of the amount of trash they discard, creating an incentive to generate less trash. This program encourages residents to produce less waste by practicing source reduction, reuse, and recycling. This action is described in more detail in the collection section of this chapter.

## Establish a Materials Exchange

Materials exchanges help reduce waste generation by matching residents, businesses, and organizations in the City that need materials with others that have reusable, surplus, or byproduct materials available. By decreasing the disposal of valuable materials or wastes, materials exchanges reduce the burden on the SWM system.

**This action supports the City's SWM program goals (Chapter 4) of achieving a net reduction in the volume of waste generated and implementing source reduction programs by facilitating the diversion and reuse of unwanted materials.**

The City of Falls Church may consider developing a page linked to its website that lists materials available and those sought by residents, businesses, and organizations in the City. Once adequately advertised, this electronic materials exchange can divert materials from the waste stream while saving money for users. The City will need to set guidelines for participation, such as standard language for "as-is" condition, honest representation of goods and materials, and methods of exchange.

Small-scale materials exchanges currently occur throughout the City. For example, neighbors share flower bulbs and shrubs they have thinned from their gardens, and children's toys and furnishings are handed down to others. People also place items at the curb with "free" signs attached, which disappear in a few hours. The City does not formally allow curbside giveaways, and a materials exchange website could reduce this potential eyesore.

### Implementation Steps

Implementation involves the following steps:

1. Define the rules and limitations of the proposed materials exchange. Identify and address all liability and quality issues; ensure the rules cover these issues. Post the rules and limitations on the City's website, and require that anyone participating agree to these rules.

2. Build a web page to facilitate the exchange of goods among City residents, businesses, and organizations.

3. Provide ongoing promotion of the materials exchange.

### Funding

Administrative and educational costs for the materials exchange will be covered through the City's General Fund.

## Participate in Establishment of Regional Resource Exchange Programs

The City of Falls Church will use its membership in the Metropolitan Washington Council of Governments (MWCOG) and the Northern Virginia Regional Commission (NRVC) to promote the establishment of a regional resource exchange program to provide valuable reuse opportunities for City residents and businesses. A regional resource exchange program will provide a site or sites within the metropolitan Washington, DC, region where citizens can donate usable items for re-sale or distribution to low-income residents.

**This action supports the City's SWM program goal (Chapter 4) of achieving a net reduction in the volume of waste generated by providing an outlet for reuse of unwanted materials.**

Much of the material that enters the waste stream includes items in good, usable condition. At the same time, many residents and businesses are seeking outlets to donate their usable, but unwanted, items. Public and private models for resource exchanges exist in neighboring jurisdictions. Prince William County offers a "Too Good to Waste Place" at their public landfill facility. The Loading Dock, a non-profit organization located in Baltimore, provides an outlet for contractors, home remodelers, and others to donate their used or surplus building materials, which are then available to low-income citizens for a nominal charge.

### Implementation Steps

Implementation involves the following steps:

1. Represent the City on the NVRC Waste Management Board and the MWCOG Recycling Committee. (The City's Recycling Coordinator currently serves.)

2. Assist with review of past and current efforts by private and non-profit organizations to establish resource exchange programs.

3. Assist with development of a regional approach to establishing a resource exchange program for area residents.

### Funding

Costs of membership in NVRC and MWCOG are covered through the City's General Fund.

## Monitor and Publicize Waste Generation

The City of Falls Church will measure the success of source reduction initiatives by monitoring and publicizing the waste generation rate in the City. Applicable to residents only, this effort will serve as a component of other ongoing public education and source reduction efforts. Recycling is the preferred method of disposing of waste, but never producing the waste in the first place is the preferred method of managing it. By monitoring and publicizing the City's waste generation rate, the City can measure the effectiveness of source reduction and reuse, while promoting personal responsibility among its citizenry and raising awareness of the impact of individual choices and actions.

**This action supports the City's SWM program goal (Chapter 4) of achieving a net reduction in the volume of waste generated by providing ongoing feedback to the community regarding the success of source reduction initiatives.**

Currently, the City of Falls Church generates 7.10 pounds per capita per day (pcd) of solid waste. This accounts for activities at home, work, and school. This rate far exceeds the national average of 4.4 pcd and even exceeds regional average generation rates, such as Fairfax County's rate of 6.3 pcd. The City is confident that its waste generation rate can be lowered, aided by the monitoring and publicizing of the per capita waste generation rate to measure the effectiveness of source reduction initiatives.

### Implementation Steps

Implementation involves the following steps:

1. Confirm the "per capita per day" waste generation rate for the City to establish a baseline.

2. Associate the SWMP actions with the City's expected future waste generation rate. Reflect the potential impact of individual actions by publicizing the waste generation rate. For example, if the City projects increased composting will reduce yard waste generated at 100 homes in the City by 50 percent, project the overall impact of adoption of composting practices on the City's waste generation rate.

### Funding

Administrative and educational costs will be covered through the City's General Fund. The ESC will assist with data collection, information gathering, and development of educational materials.

## Implement Internal Source Reduction and Reuse Programs at City Government Facilities and Schools

The City of Falls Church government and schools account for a substantial portion of the waste generated in the City. By practicing source reduction and reuse strategies, government and schools can significantly reduce the waste produced.

**This action supports the City's SWM program goal (Chapter 4) of creating a model of resource efficiency, providing leadership by example.**

The City has an opportunity to lead by example through reemphasizing its source reduction and reuse efforts and measuring and publicizing the results. The City can continue to foster source reduction and reuse initiatives by prioritizing source reduction and reuse in its purchase and procurement of products and packaging and day-to-day operations. Also required is extensive publicity within the organization and employee education on how to reduce waste.

The City staff will also emphasize environmentally friendly practices for the maintenance of parks, yards, and common areas around public buildings and encourage private companies and landscapers to follow similar practices.

### Implementation Steps

Implementation involves the following steps:

1. Identify a strategy for source reduction and reuse in government facilities and schools, and create a draft plan to implement the strategy. Refine the plan through internal government meetings.

2. Finalize the source reduction and reuse program for government facilities and schools. Revise existing internal source reduction and reuse guidelines and direct the staff to include specific source reduction and reuse requirements in future contracts, construction projects, bid arrangements, etc.

3. Review the performance of the source reduction and reuse policy. On the basis of these reviews, the City may choose to revise the policy. The City may consider recognizing and publicizing successful efforts through awards.

### Funding

Costs will be managed through the City's General Fund.

## Provide Tools to Promote Increased Source Reduction, Reuse, and Recycling

The City will identify opportunities to provide small investments in equipment as a catalyst for expanding source reduction, reuse, and recycling activities. For example, the City may consider supplying composting bins to City residents who complete a backyard composting class. Businesses that express an interest in implementing a waste reduction or recycling program could be given a set of training materials and container signage for use in training employees. Organizations, such as churches or scouting groups, could be provided with tips and project descriptions for implementing source reduction, reuse, and recycling efforts.

**This action supports the City's SWM program goal (Chapter 4) of achieving a net reduction in the volume of waste generated by providing the means to encourage, facilitate, and increase the convenience of source reduction.**

Many individuals, businesses, and organizations recognize the value of taking steps to "help the environment," but either do not have time, do not know how, or perceive change as difficult or costly. By providing tools, the City will promote source reduction and reuse, showing interested parties how they can participate and providing the needed impetus to spur action.

### Implementation Steps

Implementation involves the following steps:

1. Identify tools for residential, business, and organizational use.
2. Identify or develop funding sources; purchase tools.
3. Advertise the availability of tools in exchange for commitment to participate for some time and agreement to provide feedback on the success of the "tool."
4. Conduct activities, providing tools to interested members of the community.
5. Solicit feedback from participants.

### Funding

Equipment, administrative, and educational costs will be covered through the City's General Fund. Grant opportunities may also be available to the City.

## Promote Surplus Food Distribution Programs

Under this action, the City of Falls Church will promote surplus food distribution programs through development of a focused outreach and education program. Surplus food distribution programs divert edible food from the waste stream and into programs that serve the needy.

**This action supports the City's SWM program goal (Chapter 4) of implementing source reduction programs by facilitating the diversion of food waste, primarily from businesses and institutions.**

Washington, DC, and the surrounding metropolitan area have the second highest poverty level in the entire United States; hunger is an issue for many of the region's residents. At the same time, much edible food waste is generated at restaurants, grocery stores, catering operations, and institutions, such as schools, universities, and hospitals. In response, various food banks and food distribution operations, such as Food for Others in Fairfax County, have been established to bridge this gap. Food for Others' mission is to obtain and distribute free food to the hungry of Northern Virginia and to support food programs of other community-based organizations. Local merchants, the U.S. Department of Agriculture (USDA), food drives, and crop harvests provide the food; volunteers and staff provide the labor; and charitable contributions and fundraising events provide the budget.

Although some of the food generated by businesses in the City of Falls Church makes its way to Food for Others, most edible food enters the City's MSW stream. Food waste prevention and food donation are least-cost approaches for managing the organic fraction of the MSW stream. Other jurisdictions, such as Portland, OR, have established excellent models for local government outreach and education, resulting in partnerships between food-related businesses and food rescue agencies.

### Implementation Steps

Implementation involves the following steps:

1. Survey existing food distribution programs to determine the City businesses that donate food. Work with the Office of Economic Development to identify additional food service businesses.

2. Review the findings of the research conducted by the Portland Metro Regional Organics Team to identify the obstacles to, and opportunities for, edible food donation.

3. Develop a program of outreach and education to enlist the participation of City businesses and individual citizens in providing edible food to local food distribution programs.

### Funding

Administrative and educational costs will be covered through the City's General Fund. The ESC will assist with information gathering and development of educational materials.

## Recycling

Recycling (including yard waste composting), the process by which materials otherwise destined for disposal are collected, processed, and remanufactured, follows source reduction and reuse in the solid waste management hierarchy.

Table 11-3 presents actions the City of Falls Church selected for the recycling of solid waste over the next 20 years.

*Table 11-3. City of Falls Church Recycling SWMP Actions*

| Recycling SWMP Actions |
|---|
| – Promote public-private recycling programs |
| – Improve public outreach and education to promote recycling |
| – Increase business recycling by reducing recycling thresholds |
| – Implement a Pay-As-You-Throw collection system |
| – Encourage increased CDD recycling |
| – Continue current yard waste recycling system; contract with composting facilities for dedicated capacity |
| – Encourage increased MSW recycling at City government facilities and schools |
| – Revise regulations to enhance recycling:<br>o Expand recyclables collected at multifamily residences<br>o Expand recycling requirements for electronic wastes |
| – Consider implementation of single-stream curbside collection system for recyclables |
| – Participate in regional promotion of CDD recycling |
| – Provide tools to promote increased recycling |
| – Establish a recycling rate goal |
| – Promote establishment of a regional food waste composting facility |

### Promote Public-Private Recycling Programs

Promoting public or private recycling programs is a cost-effective method for increasing recycling quantities. By supporting, encouraging, and

publicizing these public-private partnerships, the City can increase recycling while minimizing the use of and impact on City resources.

**This action supports the City's SWM program goal (Chapter 4) of maintaining a private-public infrastructure that supports reuse, repair, and recycling by providing increased opportunities for recycling of electronics.**

Some potential public-private programs are discussed below.

*Promote a Rechargeable (NiCad) Battery Recycling Program*
As discussed in Chapters 2 and 6, heavy metals present in rechargeable (NiCad) batteries can harm the environment when improperly disposed of. Efforts are needed to remove these materials from the waste stream to prevent their disposal at the Energy/Resource Recovery Facility (E/RRF) or landfill.

A national program is already in place, the Rechargeable Battery Recycling Corporation (RBRC at www.rbrc.com), which accepts rechargeable batteries from customers and ships them for appropriate disposal. The RBRC helps recycle portable rechargeable batteries, commonly found in cordless power tools, cellular and cordless phones, laptop computers, camcorders, digital cameras, and remote control toys. Local participating companies include Home Depot, Target, Verizon Wireless, Radio Shack, Cingular, Staples, and Office Depot. Other locations that take batteries for disposal can be found on the website by zip code. The City staff will promote this partnership through its public outreach and education program and on the City's website.

*Promote a "Buy Recycled" Program*

The City may consider reestablishing a "buy recycled" campaign to help the development of local markets for recyclable materials. Under a "buy recycled" program, the City publicizes policies and practices for local businesses, government, and residents to purchase recycled-content products, as well as support activities that promote waste reduction and management. These practices help close the recycling loop by increasing the demand for products made from recycled materials.

**Implementation Steps**
Implementation involves the following steps:

1. Continually evaluate potential recycling programs for promotion. Seek to partner with private firms, including national groups, in recycling programs (such as the RBRC) to divert rechargeable and especially NiCad batteries from the waste stream.

2. Create a marketing strategy for each recycling program, including developing a message, evaluating target audiences, and developing promotion campaigns (for example, media and City events).

3. Review the performance of the promoted recycling programs. On the basis of these reviews, the City may choose to increase promotion, revise the marketing strategy, or reallocate resources to more effective programs.

### Funding
Administrative costs will be covered through the City's General Fund.

## Improve Public Outreach and Education to Promote Recycling

Education and outreach are the primary vehicles the City can use to promote wider participation in source reduction, reuse, and recycling programs. Successful education of the public helps ensure that recyclable materials are recycled, rather than disposed of as waste.

**This action supports the City's SWM program goal (Chapter 4) of educating all members of the Falls Church community on the value of natural resources and the benefits of reducing consumption and adopting sustainable practices.**

City recycling education and outreach efforts have helped achieve a nationally recognized recycling rate. However, the City's residential recycling rate has decreased in recent years, due partly to the transient nature of our population (40 percent turnover every five years). In addition, City residents, businesses, and institutions that receive service from private haulers have been underserved in terms of public outreach and education. Increased and improved communication, coupled with an effective and consistent recycling message, will result in further increases in the City's recycling rate and reduce the burden on disposal in the SWM system.

Potential improvements to public education and outreach efforts include enhancing advertising and promotions, developing courses for residents, simplifying recycling requirements, and offering technical assistance. The

City will leverage its network of Recycling Block Captains to assist in public education and outreach efforts.

### Implementation

Implementation involves the following steps:

1. Evaluate recycling messages on a continuing basis.
2. Develop promotional strategies that include determination of marketing goals, costs, and audiences to be targeted. Work with the Office of Communications and the ESC to develop promotional campaigns and materials.
3. Implement public outreach strategies, making use of volunteer resources, City media outlets, and electronic communication opportunities.
4. Review program performance and revise promotional strategies, as needed.

### Funding

Costs of public outreach and education will be covered through the City's General Fund. The ESC and Recycling Block Captains will assist with the development and distribution of educational materials.

## Increase Business Recycling by Reducing Recycling Thresholds

In the City of Falls Church, businesses having more than 200 employees or generating more than 100 tons of trash annually are required to recycle. This requirement also applies to business complexes (such as office buildings in which several businesses share the same dumpsters). Those that meet or exceed these thresholds are required to recycle their principle recyclable material (office paper, cardboard, etc.). Many businesses in the City with fewer than 200 employees generate large volumes of recyclables but do not recycle. By lowering the recycling thresholds for businesses (for example, from 200 to 50 employees, and from 100 to 25 tons of trash annually), the City can dramatically increase the business recycling rate and the overall City recycling rate.

**This action supports the City's SWM program goal (Chapter 4) of implementing source reduction and recycling programs at all City businesses by increasing the number of businesses required to recycle.**

### Implementation

Implementation involves the following steps:

1. Collect data regarding number of employees and annual waste tonnages collected from a sampling of City businesses.
2. Gather information from Arlington County and other jurisdictions in the region that require smaller businesses to recycle to determine potential challenges and possible solutions.
3. Work with the Office of Economic Development and Chamber of Commerce to determine new thresholds.
4. Draft proposed changes to City Code.
5. Conduct public meetings.
6. Finalize code changes.
7. Revise City Code.
8. Develop educational materials and provide technical assistance for businesses and haulers.
9. Enforce the new thresholds and review performance.

### Funding

Administrative and educational costs will be covered through the City's General Fund. The ESC will assist with data collection, information gathering, and development of educational materials.

## Implement a Pay-As-You-Throw Collection System

Under a Pay-As-You-Throw (PAYT) collection system, residents are charged for MSW collection services on the basis of the amount of trash they discard, creating an incentive to recycle. This action is described in more detail in the collection section of this chapter.

## Encourage Increased CDD Recycling

Promotion of CDD recycling involves development and distribution of promotional materials to encourage contractors and builders to recycle construction and demolition debris at building and renovation sites in the City.

**This action supports the City's SWM program goal (Chapter 4) of educating all members of the City of Falls Church community on the**

**value of natural resources and the benefits of reducing consumption and adopting sustainable practices by encouraging increased source reduction and recycling at construction sites.**

Most of the debris generated at both residential and commercial building and renovation sites is placed in large roll-off containers, which are ultimately hauled to area CDD landfills. With these landfills nearing capacity, the City will encourage generators of construction waste to keep as much recyclable material as possible out of the waste stream.

Effective public outreach and education initiatives that target builders and contractors can encourage them to employ best practices in reducing the volume of CDD generated at construction sites. The City can increase CDD recycling and help reduce CDD disposal by promoting separation of materials at the job site. Separation at the job site involves builders and contractors collecting different recyclable materials in separate containers or piles on-site and then either self-hauling the materials to various recycling facilities or contracting with a recycling service to collect the materials.

### Implementation

Implementation involves the following steps:

1. Gather information on CDD source reduction best practices (such as leaving trees when possible during site clearing, altering floor plans to eliminate excess cutoffs, reusing off-cuts and plywood, and using crushed masonry material as fill for slabs or garages).

2. Gather information on CDD materials separation and recycling best practices. The U.S. Environmental Protection Agency, construction industry trade groups, and other related resources have information readily available on the best methods for separating CDD recyclables from CDD solid waste.

3. Compile lists of collection companies and area recycling facilities that accept the types of materials generated at construction sites.

4. Work with the Engineering Division and Planning Division staffs to determine the best methods and stages in the development process for disseminating educational materials to contractors and builders.

5. Develop and distribute educational materials to the targeted audiences.

### Funding

Administrative and educational costs will be covered through the City's General Fund. The ESC will assist with information gathering and development of educational materials.

## Continue Current Yard Waste Recycling System; Contract with Composting Facilities for Dedicated Capacity

The City prefers to continue the use of composting facilities, brush grinding facilities, and vacuumed leaf grinding facilities for the recycling of yard waste.

The City of Falls Church can guarantee yard waste composting capacity over the SWMP planning period by contracting for capacity at yard waste composting facilities. The City currently sends yard waste for composting to two facilities outside the City, the Prince William County Compost Facility at Balls Ford Road and Loudoun Composting in Loudoun County. These facilities and others may be willing to guarantee yard waste composting capacity for the City.

**This action supports the City's SWM program goal (Chapter 4) of maintaining a private-public infrastructure that supports reuse, repair, and recycling**

### Implementation

Implementation involves the following steps:

1. Complete a study of yard waste composting capacity required for City-generated yard waste and the remaining capacity in the region. Communicate and partner with private hauling companies to determine capacity requirements. On the basis of this study, the City and private haulers will determine the amount of capacity it will need to contract for, if any.

2. The City and private haulers will negotiate and establish contracts with as many yard waste composting facilities as needed to provide the required capacity.

3. Review yard waste composting capacity requirements (Step 1) periodically and make adjustments in the contracts as required.

### Funding

Costs of yard waste collection and recycling are covered through the City's General Fund.

## Encourage Increased MSW Recycling at Government Facilities and Schools

Government facilities and schools (primary and secondary) in the City of Falls Church generate large quantities of paper and other recyclables that are often not recycled. By expanding recycling in government facilities and schools through additional collection containers and education, the City can increase recycling rates while using minimal resources.

**This action supports the City's SWM program goal (Chapter 4) of creating a model of resource efficiency, providing leadership by example.**

Table 11-4 presents some potential ways to implement the three Rs (Reduce, Reuse, Recycle) in City schools.

*Table 11-4. Potential Methods for Implementation of the Three Rs in City Schools*

| Potential Implementation Methods |
|---|
| Integrate recycling and waste prevention education into after-school and related programs |
| Link classroom recycling with classroom curriculum |
| Support student understanding of the importance of conserving natural resources by practicing classroom recycling |
| Provide every student (K–12) with "hands-on" environmental education through recycling and waste reduction |
| Continue to educate teachers to integrate the three Rs message into their standards-based curriculum |
| Develop a tool kit of resources and a plan for distributing it to schools to help teachers communicate recycling and waste prevention concepts |
| Add the three Rs to education programs offered during the summer and after school |
| Develop best practices models for school recycling and waste reduction programs |
| Continue and expand upon educational materials to support recycling programs in school |
| Work with the school board to adopt green building measures for school renovations and new school construction |

### Implementation

Implementation involves the following steps:

1. Identify a strategy for recycling in government facilities and schools and create a draft plan to implement the strategy. The plan will be refined through internal government meetings.

2. Finalize the recycling program for government facilities and schools. Revise existing internal recycling guidelines and direct the staff to include specific recycling requirements in future contracts, construction projects, bid arrangements, etc.

3. Review the performance of the recycling policy. On the basis of these reviews, the City may choose to revise the policy. The City may consider recognizing and publicizing successful efforts through awards.

### Funding

Administrative and educational costs will be covered through the City's General Fund.

## Revise Regulations and Policies to Enhance Recycling

The City of Falls Church can increase MSW recycling rates by revising City Code, policies, and procedures. Using City Code and policy can effectively advance programs and policies that encourage increased recycling. Some potential regulatory and policy revisions are discussed below.

### *Expand Recyclables Collected at Multifamily Residences*

Under this action, the City will require owners and property managers of multi-tenant residences (apartments, condominiums, and townhouses) to offer collection of the same range of recyclable materials provided to residents who receive City collection services.

**This action supports the City's SWM program goal (Chapter 4) of maintaining a private-public infrastructure that supports reuse, repair, and recycling by increasing the range and therefore the quantity of material collected.**

Currently, City Code requires all apartment and condominium complexes to provide on-site recycling collection at least every other week. At a minimum, the materials to be collected are newspaper, food and beverage cans, and glass bottles and jars. These code requirements apply to all multi-tenant residences that receive private waste hauling services, including all apartments, all high-rise condominiums, and two townhouse complexes.

Most of the affected properties have exceeded the current requirements by offering weekly collection and by including collection of plastic bottles and jugs. Few, if any, however, provide for collection of cardboard and mixed paper. Therefore, residents who wish to recycle these materials must self-haul them to the Falls Church Recycling Center. In addition, because different residential complexes collect different materials, the City staff has found it difficult to provide sufficient education and outreach to these City residents.

Amending City Code to require weekly collection of all recyclable materials included in the City's curbside recycling program would

- provide greater equity to City residents who receive private collection services,
- make it easier for those residents to recycle,
- improve recycling education efforts by enabling the City to simplify and standardize its City-wide recycling message in promotional products and campaigns, and
- increase the City's overall recycling rate.

### Implementation

Implementation involves the following steps:

1. Draft proposed changes to City Code.
2. Hold public meetings, targeting property owners, property managers, and citizen representatives from the affected residences to notify them of the proposed changes.
3. Finalize Code changes.
4. Revise City Code.
5. Provide technical assistance, as needed, to property owners and managers.
6. Standardize public outreach materials to educate citizens on how and what to recycle.
7. Enforce the new requirements.
8. Provide ongoing education.

### Funding

Administrative and educational costs will be covered through the City's General Fund. The ESC and Recycling Block Captains who represent the affected sites will assist with development and distribution of educational materials.

## *Expand Recycling Requirements for Electronics Waste*

Currently, the City of Falls Church has no requirements to recycle electronics waste. Using City Code, the City can establish electronics waste recycling standards and guidelines to ensure environmentally sound management of these wastes.

The City of Falls Church expects e-cycling (recycling of electronic equipment and items) to become a more important solid waste management practice over the SWMP planning period. Electronics are one of the fastest

growing components of MSW. Coupled with the potential environmental hazards of disposal and high value of recyclable materials, recycling of electronics promises to have a real impact on future recycling programs and the environment.

**This action supports the City's SWM program goal (Chapter 4) of maintaining a private-public infrastructure that supports reuse, repair, and recycling.**

### Implementation

Implementation involves the following steps:

1. Investigate and draft proposed changes to City Code, policies, and procedures in conjunction with internal and external stakeholders to require recycling of electronics waste.

2. Hold a series of meetings with citizens, businesses, and haulers to help develop changes to City Code, policies, and procedures.

3. Using the public input, finalize the changes to City Code, policies, and procedures for electronics waste recycling. Hold public informational meetings to introduce the new recycling policies.

4. Develop a public awareness campaign for citizens, businesses, haulers, and other stakeholders on new recycling policy.

5. Provide advisory enforcement of the new polices to allow citizens and businesses time to become familiar with the new code requirements.

6. Have the City staff review the performance of the new policy, evaluate how the new policy affects electronics waste recycling quantities, and revise it if needed.

### Funding

Administrative and educational costs will be covered through the City's General Fund. The ESC and Recycling Block Captains will assist with development and distribution of educational materials.

## Consider Implementation of Single-Stream Curbside Collection System for Recyclables

Under this action, the City of Falls Church will evaluate the implementation of a single-stream curbside collection program for

recyclable materials. Single-stream collection allows all recyclable materials to be mixed together, rather than separated into two streams (commingled cans and bottles in one stream, and paper, cardboard, and mixed paper in the other).

The City will comprehensively study the impact—locally, regionally, and nationally—of converting from dual-stream collection to single-stream collection. It will complete the study as soon as possible because the opportunity to participate in single-stream collection will be available within the next year.

**This action supports the City's SWM program goal (Chapter 4) of maintaining a private-public infrastructure that supports reuse, repair, and recycling through consideration of a method that increases recycling by increasing convenience.**

The City has offered curbside collection of cardboard and mixed paper (such as magazines, catalogs, computer and copier paper, junk mail, and phone books) since 1995. Although many residents conscientiously recycle these items, many still choose not to recycle cardboard and mixed paper. Consequently, a large volume of material that could be recycled ends up in the trash.

Cardboard and mixed paper that is not recycled by the City's residential customers costs the City in three ways:

- *Increased disposal costs*. The City pays Fairfax County $39.95 per ton for disposal of refuse dumped at the I-66 transfer station, including cardboard and paper that could have been recycled.

- *Lost revenue*. The City currently receives approximately $2,500 per month from the sale of fiber (newspaper, cardboard, and mixed paper) collected through the curbside recycling program. Unrecycled cardboard and paper represents lost revenue.

- *Increased labor*. The City pays the curbside collection contractor a fixed cost ($3.50 per household per month) for the collection of curbside recyclables, regardless of how much is collected from each household. City crews must handle cardboard and mixed paper thrown in the trash as part of the refuse stream.

In 2002, the ESC Curbside Recycling Task Group studied this issue and determined that inconvenience is the primary reason that some residents choose not to recycle cardboard and mixed paper. The requirements to flatten and cut or fold cardboard and to place all fiber in paper bags have deterred many residents. Single-stream recycling would allow residents to place all recyclable materials into green bins or a single large container without separating them. Unflattened and oversized boxes could be included as is since the vehicles used for collection in single-stream programs are typically trash compactor trucks.

Single-stream recycling has been a trend in various parts of the country for the past four years. The result has been higher participation in curbside recycling programs and increased tonnages diverted from the waste stream. This opportunity will soon be available to the City of Falls Church because the City's current marketing contractor for curbside recyclables is retrofitting its processing facilities to handle a single stream of recyclables within the next year.

On the negative side, representatives of the paper industry report that fiber coming from single-stream programs is diminished in quality, due primarily to broken glass mixed with the fiber. This degraded material has posed problems for paper processors and paper mills, but proponents of single-stream recycling assert that state-of-the-art equipment in single-stream facilities produces a relatively clean material.

The City will weigh the benefits and drawbacks of single-stream recycling.

### Implementation

Implementation involves the following steps:

1. Comprehensively study single-stream recycling.
2. If it appears viable, negotiate with the City's curbside recycling contractor to accommodate single-stream collection.
3. Provide promotional materials and additional collection containers to residents.
4. Review program performance and revise promotional strategies, as needed.

### Funding

The ESC will assist the staff with the recommended study. If single-stream recycling is implemented, the administrative, educational, and equipment costs will be covered through the City's General Fund.

## Participate in Regional Promotion of CDD Recycling

CDD management issues, especially the shrinking disposal capacity in the area, are regional concerns. The City will use its membership in regional governmental bodies, such as MWCOG and NRVC, to help promote increased CDD recycling in the region.

**This action supports the City's SWM program goal (Chapter 4) of maintaining a private-public infrastructure that supports reuse, repair, and recycling by promoting recycling of material that would otherwise be discarded.**

CDD recycling data reported to the VDEQ suggests that CDD recycling in Virginia is low, ranging from less than 1 percent to 3.25 percent in recent years. In addition, the VDEQ estimates that for the five private CDD landfills that receive CDD waste from the City, the average remaining capacity is roughly six years.

Building construction and renovation in the City continues to grow, and wastes generated at these sites need to be disposed of in an environmentally sound, cost-effective manner. By participating as a member of the NVRC and MWCOG, the City can help reach a regional solution to this problem. Through these bodies, the City is in a position to promote CDD recycling as a preferred waste management method.

### Implementation

Implementation involves the following steps:

1. Represent the City on the NVRC Waste Management Board and the MWCOG Recycling Committee. (The City's Recycling Coordinator currently serves.)

2. Assist with the evaluation of regional CDD capacity requirements. The regional partnership will study the CDD disposal capacity required and the remaining capacity in the region.

3. Help develop a regional approach. From this analysis, the regional partnership will develop an approach to address the regional CDD disposal capacity concerns. The regional partnership will also review recycling and other CDD management strategies to minimize CDD disposal requirements.

4. Periodically review capacity requirements; adjust the approach, as necessary.

### Funding

The costs of membership in NVRC and MWCOG are covered through the City's General Fund.

## Provide Tools to Promote Increased Source Reduction, Reuse, and Recycling

The City will identify opportunities to provide small investments in equipment as a catalyst for expanding source reduction, reuse, and recycling activities. This action is described in more detail in the source reduction and reuse section of this chapter.

## Establish a Recycling Rate Goal

The City will adopt a short-term goal of a 65 percent recycling rate for the residential sector and a long-term goal of a 65 percent recycling rate for the entire City. Establishing a goal to increase MSW recycling throughout the City will create a unified message to the community. Specifying a target for the MSW recycling rate in the City will create a tangible goal for recycling initiatives.

**This action supports the City's SWM program goal (Chapter 4) of educating all members of the Falls Church community on the value of natural resources and the benefits of reducing consumption and adopting sustainable practices by providing ongoing feedback to those who generate waste.**

In the late 1990s, the City of Falls Church realized a *residential* recycling rate of 65 percent. However, since that time, the recycling rate has decreased due to a number of factors. In 2002, the City's residential recycling rate was 54.6 percent. The City expects the actions in this SWMP to increase recycling rates at least to the historical level in the short term. Therefore, the City is establishing a short-term recycling goal of 65 percent for the City's residential sector.

Because less recycling occurs in the business and institutional sectors than in the residential sector, the City's *overall* recycling rate is lower—the 2002 citywide recycling rate was 50.5 percent. The City expects implementation of the actions in this SWMP will lead to increased recycling in the business and institutional sectors. Therefore, the City is establishing a long-range goal of 65 percent for the City's overall recycling rate.

Establishing both residential and citywide recycling rate goals will motivate residents and hold businesses and institutions accountable for establishing more responsible solid waste disposal practices.

### Implementation

Implementation involves the following steps:

1. Confirm current recycling rates in the residential, institutional, and business sectors.
2. Advertise the current recycling rates as part of an education campaign to increase those rates.
3. Identify and target recycling programs that can be implemented in the most efficient and cost-effective manner.
4. Utilize a comparison of existing rates and goal rates to motivate progress among the various sectors.

5. Use a public display (similar to the United Way campaign thermometer) to track progress in reaching the goal.

6. Assess the waste stream every five years to identify the materials remaining and to aid in future recycling program planning and development.

7. Develop improved tracking systems to manage and document recycling program progress.

8. Assess, review, and revise the residential and overall goals at the five-year mark.

**Funding**
Administrative and educational costs will be covered through the City's General Fund. The ESC will assist with data collection, information gathering, and development of educational materials.

## Promote Establishment of a Regional Food Waste Composting Facility

Under this action, the City will use its membership in regional governmental bodies, such as MWCOG and NRVC, to help promote the establishment of food waste composting in the region.

**This action supports the City's SWM program goal (Chapter 4) of maintaining a private-public infrastructure that supports reuse, repair, and recycling by developing an outlet for curbside collection and recycling of food waste.**

Food waste represents one of the largest components of the MSW stream. Currently, most food waste generated in the City is burned at the Fairfax County waste-to-energy facility, and the residue is buried at the County's ash landfill.

Recognizing the value of food waste as a compostable material that can be processed into an effective soil amendment, several large U.S. municipalities have recently removed food scraps from the waste stream by implementing residential curbside collection programs. The first step toward implementation of such programs was the development of a private-public partnership between the government and the private sector to construct a large-scale food waste composting facility.

Establishing a food waste composting facility in the area will likely increase regional recycling rates significantly. A food waste composting facility will also facilitate implementation of residential curbside collection of food waste in the City.

### Implementation

Implementation involves the following steps:

1. Represent the City on the NVRC Waste Management Board and the MWCOG Recycling Committee. (The City's Recycling Coordinator currently serves.)

2. Assist with the evaluation of regional food waste capacity requirements. The regional partnership will study the food waste disposal capacity required.

3. Assist with development of a regional approach. From this analysis, the regional partnership will develop an approach to work with the private sector in planning for the establishment of a regional food waste composting facility.

### Funding

Costs of membership in NVRC and MWCOG are covered through the City's General Fund.

## Collection

Although not a level in the solid waste hierarchy, collection of solid waste is key to implementation of the City's solid waste management strategies over the next 20 years. Table 11-5 presents actions selected by the City of Falls Church for the future collection of solid waste in the City.

*Table 11-5. City of Falls Church Collection SWMP Actions*

| Collection SWMP Actions |
|---|
| – Maintain City refuse collection |
| – Continue current yard waste collection system, including vacuumed leaf collection |
| – Implement Pay-As-You-Throw collection system |
| – Expand collection of electronic wastes |
| – Continue using the current special wastes management system |
| – Establish an HHW collection program in the City of Falls Church |
| – Maintain the current litter control program |
| – Increase effectiveness of street sweeping |
| – Increase efforts to prevent illegal dumping |
| – Promote use of special fuels, filters, and special vehicles for collection |
| – Implement a collection and disposal strategy for emergencies |

## Maintain City Refuse Collection

Under this action, the City will maintain refuse collection as an in-house service. That is, the City will continue to provide MSW collection service to residents by City employees operating City-owned trucks.

The City will continue to evaluate the costs and benefits of privatization of refuse collection services over the SWMP planning period. The City may consider contracting the services of a consultant to study the costs and benefits of privatization. This study will be performed as soon as possible before the City makes a major investment in new equipment.

**This action supports the City's SWM program goal (Chapter 4) of ensuring the safe and efficient disposal of discarded materials that cannot be reused, repaired, or recycled by providing reliable, ongoing refuse collection to City residents.**

The efficiency and security afforded by an in-house collection system has served the City well for many decades. Because this system has enabled the City to exercise full control over the collection of refuse, yard waste, and bulk waste, the City has an excellent track record of reliable solid waste collection service, particularly following events such as snowstorms and hurricanes. In addition, citizens have placed a high value on employing a solid waste collection crew that is familiar with the City and with whom residents are familiar and accustomed to seeing in their neighborhoods.

Contracted waste hauling services have potential fiscal benefits but substantial qualitative costs. As the waste hauling industry continues to consolidate, the users of that service become increasingly beholden to the sole remaining service providers. Once the City liquidates its resources (refuse trucks, for example), it is unlikely it could ever reestablish a fleet due to the substantial cost of purchasing numerous vehicles at one time. Instead, the City's options would be limited to paying the rate the sole provider is charging for waste hauling services. Furthermore, if the haulers lose familiarity with the community, they may also lose the sense of ownership and commitment to a job well done that citizens generally see in our City crews.

In its evaluation of the current refuse collection system, the Solid Waste Management Plan Advisory Committee (SWMPAC) took into consideration concerns raised by the City's Superintendent of Operations. In addition to the high costs of purchasing and maintaining collection vehicles, he pointed out that curbside collection of refuse (as well as yard waste and "specials") is physically demanding and that the tight local labor market will impact the availability of certified collection crews over the next 20 years.

### Implementation

Implementation involves the following steps:

1. Continue to operate the current City refuse collection system.
2. Procure the services of a consulting firm to evaluate other options, such as phasing out public collection and replacing it with contracted service.
3. If contracted service is the preferred option, consider the addition of collection from multi-tenant residences not currently served by the City.

### Funding

Costs of providing refuse collection service include labor, equipment, maintenance, fuel, and disposal fees. These costs will be covered through tax revenues or through an alternative revenue source (such as PAYT).

## Continue Current Yard Waste Collection System, Including Vacuumed Leaf Collection

Under this action, the City will continue to provide bagged yard waste and brush collection service to residents by City employees operating City-owned trucks. The City will also continue to provide vacuumed leaf collection service to residents during the fall. The City will continually evaluate the cost, benefit, and suitability of providing vacuumed leaf collection service throughout the SWMP planning period.

### Implementation

The City does not need to change its current operations.

### Funding

Costs of providing yard waste collection service include labor, equipment, maintenance, fuel, and disposal fees. These costs will be covered through tax revenues or an alternative revenue source (such as PAYT).

## Implement a Pay-As-You-Throw Collection System

Under a Pay-As-You-Throw (PAYT) collection system, residents are charged for MSW collection services on the basis of the amount of trash they discard, creating an incentive to generate less trash. This program encourages residents to produce less waste by practicing source reduction, including backyard composting, as well as reuse and recycling. In many programs, collectors charge less (or nothing) for the collection of recyclables, giving residents an incentive to divert waste to the recycling

bin. Because residents absorb a portion of the solid waste management cost, they have an economic incentive to reduce the waste they produce.

**This action supports the City's SWM program goals (Chapter 4) of achieving a net reduction in the volume of waste generated and of maintaining a private-public infrastructure that supports reuse, repair, and recycling by providing residents with a financial incentive to reduce waste and recycle as much as possible.**

Currently, the costs of solid waste collection and disposal are a component of the real estate taxes; residents who receive City collection services perceive that this collection is "free." Because all residents pay the same costs for service through real estate taxes, residents who generate a small amount of waste are subsidizing the management of those residents that generate a greater amount of waste. Consequently, residents have no financial incentive to generate less waste. The current system of payment for refuse collection service contrasts with other measurable services, in which the more citizens use, the more they pay (for water, electricity, natural gas, etc.).

Adoption of a PAYT pricing system would do the following:

- *Allow for greater equity*. Under PAYT, those who generate more waste pay more, while residents who recycle and prevent waste are charged less.

- *Encourage residents to recycle*, thus reducing waste generation and increasing recycling. PAYT systems have already been implemented in thousands of municipalities, covering an estimated 20 percent of the U.S. population. Adoption of such systems has been found to reduce solid waste volumes significantly.

- *Reduce waste management costs* by diverting materials to the recycling stream (a fixed collection cost, regardless of how much material residents recycle) and by avoiding increasingly costly disposal fees paid by the City to Fairfax County.

- *Increase waste reduction* (source reduction and reuse). To take advantage of the potential savings that unit pricing offers, residents typically modify their purchasing and consumption patterns to reduce the amount of waste they place at the curb. These behavioral changes have beneficial environmental effects beyond reduced waste generation, often including reduced energy usage and materials conservation.

- *Provide a more equitable system* for City management of costs associated with waste collection and disposal, so that taxpayers who do not receive City refuse collection

(residents of apartments, most condominiums, and two townhouse complexes) would not be required to subsidize those residents who receive these services.

### Implementation

Implementation involves the following steps:

1. Determine the current "per-household" cost of City refuse collection and disposal.

2. Extract the "per-household" cost of refuse collection and disposal from real estate taxes.

3. Design and implement a unit pricing program that considers types of containers, pricing structures, and payment procedures. Prior investigation of PAYT by the City staff points in the direction of a system that would minimize City costs, while allowing residents to retain their current waste container choices. Such a system would offer residents two options: durable tags to attach to the handles of existing trash receptacles or stickers to attach to plastic trash bags.

4. Evaluate the best method to bill for trash collection. Potential billing methods include placing trash costs on individual water bills or including them as a line item on real estate tax bills. Refer to Arlington County and other jurisdictions that already include these costs separately.

5. Build support for PAYT by developing and implementing an effective public outreach campaign that clearly demonstrates the environmental and economic costs of current waste generation patterns and the potential benefits offered by unit pricing. The EPA recommends that the education process begin 9 to 12 months before program implementation.

### Funding

The City will explore the implementation of either a two-tiered (fixed fee + "per-container" fee) or multi-tiered rate system (fixed fee + variable fees for different container sizes), as these systems ensure that fixed costs are covered. The separate, per-container charge is used to cover the variable costs. Some communities use these structures as transition systems until they can gauge customers' response to unit pricing.

## Expand Collection of Electronics Waste

The City of Falls Church will increase collection of computers and other electronic equipment waste, either alone or through partnership with

retailers or recyclers. The City may consider collaborating with recyclers for collecting, transporting, and sorting electronics waste for recycling. In addition, through partnerships with retailers, the City can establish a network of convenient, ongoing, drop-off facilities where the public can take used electronic equipment for recycling.

**This action supports the City's SWM program goal (Chapter 4) of maintaining a private-public infrastructure that supports reuse, repair, and recycling by increasing opportunities for recycling of electronics.**

The primary goal of this program is to provide residents and businesses with more options for proper disposal of electronics waste through reuse and recycling. Implementing a disposal ban on computer monitors, TVs, and other electronic equipment that contain toxic material may also help eliminate disposal of these items in the normal waste stream.

Currently, the City's electronics waste recycling program includes twice-a-year drop-off collection events (Recycling Extravaganzas) for electronics waste. Although the response to the twice-yearly collection events has been very favorable, much electronics waste still is thrown into dumpsters and discarded at the curb through routine refuse collection and special pickup. Expanded collection and recycling of electronics waste are necessary to remove more of this material from the waste stream.

### Implementation

Implementation involves the following steps:

1. Survey other municipalities around the region, state, and nation to see what they provide in terms of electronics waste recycling. This survey should also gather information on regulation of electronics waste disposal.

2. Work with the Office of Economic Development to identify large electronics waste generators in the City's business sector.

3. Contact these businesses to explore opportunities for private-public partnerships.

4. Develop and implement a program that will increase opportunities to dispose of electronics waste properly.

5. Work with the Office of Economic Development and Chamber of Commerce to draft proposed changes to City Code regarding regulation of electronics waste (such as cathode ray tubes) disposal.

6. Hold public meetings.

7. Finalize changes and revise City Code.

8. Develop educational materials and provide technical assistance for businesses and haulers.

9. Enforce the new disposal ban and review performance.

**Funding**
Administrative and educational costs will be covered through the City's General Fund. The ESC will assist with data collection, information gathering, and development of educational materials. There may also be an opportunity to expand and further develop private-public partnerships.

## Continue Using the Current Special Wastes Management System

Under this action, the City will continue to use Fairfax County's special wastes collection program at the I-66 Transfer Station. This service is provided free of charge to City residents. The City will also continue to promote the collection of batteries, tires, used oil, and used antifreeze by local businesses.

The City may establish a household hazardous waste (HHW) collection program in the City, which is discussed below.

### Implementation
The City does not need to change its current operations.

**Funding**
Fairfax County provides special collection service free of charge. Educational costs will be covered through the City's General Fund.

## Establish an HHW Collection Program in the City of Falls Church

Under this action, the City will establish an HHW collection program in the City. For some City residents, the Fairfax County I-66 Transfer Facility may not be convenient, and they are discouraged from separating HHW from the normal waste stream. Much of the HHW generated in the City is commingled with MSW and disposed of in residential trash containers. By providing HHW collection in the City, the City may attract additional residents to separate and dispose of HHW properly.

**This action supports the City's SWM program goals (Chapter 4) of maintaining a private-public infrastructure that supports reuse, repair, and recycling and of ensuring the safe and efficient disposal of discarded materials that cannot be reused, repaired, or recycled.**

Although the City currently pays nothing for residents to utilize the Fairfax County HHW site, and the cost of establishing an HHW program in the

City would be substantial, citizen demand appears sufficient to support program implementation. The establishment of a more convenient collection program would allow the City to more effectively divert hazardous waste from entering the normal waste stream.

Since waste-to-energy incineration is the primary means of disposal in our area, separation of HHW from the MSW stream is critical to preventing the release of hazardous elements into our air, water, and soil. The City's SWM system should include a program that minimizes the amount of HHW that enters the waste stream.

### Implementation

Implementation involves the following steps:

1. Contact neighboring jurisdictions to collect program information and determine the possibility of riding on HHW collection contracts.

2. Review options and develop a program plan.

### Funding

Administrative, educational, and contract costs will be covered through the City's General Fund. The ESC will assist with development of the program and promotional materials. Recycling Block Captains will assist with distribution of promotional materials.

## Maintain the Current Litter Control Program

Under this action, the City will continue its current litter control program (described in Chapter 10).

**This action supports the City's SWMP program goal (Chapter 4) of eliminating litter and illegal dumping in the City by providing for an ongoing litter control program.**

During the past 15 years, the City has developed a comprehensive litter control program, which has educated the public on the environmental and economic costs of litter and has engaged citizens in helping to prevent and control it. The City strengthened litter control efforts in 2000 with the adoption of a civil penalties (ticketing) program to address solid waste code violations. The City will continue to support these programs to prevent and control litter.

### Implementation

The City does not need to change its current operations. The City will continue to investigate opportunities to supplement program funding.

### Funding

Costs of maintaining the City's litter control program will be covered through the City's General Fund and through the annual state litter control grant. The ESC's Cleanup Task Group will assist with program implementation.

## Increase Effectiveness of Street Sweeping

Under this action, the City will increase the effectiveness of street sweeping by increasing frequency, using state-of-the-art equipment, and better communicating with the public regarding schedules.

**This action supports the City's SWM program (Chapter 4) goals of eliminating litter and ensuring the safe and efficient disposal of materials that cannot be reused, repaired, or recycled by more effectively removing material that accumulates on City streets.**

The City has provided routine street sweeping in both the residential and commercial sectors for many years. Initially, the City owned and operated a street sweeper but, in recent years, has contracted for these services. While street sweeping creates safer, more attractive roadways, it also has a significant environmental purpose: to keep as much litter and particulate matter as possible from entering storm drains, local streams, the Potomac River, and the Chesapeake Bay.

The City is in the process of procuring the services of a contractor to provide more effective street-sweeping services. Although the cost of this new contract may be significantly higher than previous contracts, the new sweeping protocol should result in a far more effective program. Heightened staff oversight of the contract, coupled with targeted communication that informs the public of the street-sweeping schedule, will ensure a more effective operation.

In addition to implementing the new contract, the City will use information gathered over the course of the contract to perform a cost-benefit analysis to determine whether street sweeping should continue to be provided by the private sector or whether reestablishing a City-operated program would be more effective.

### Implementation

Implementation involves the following steps:

1. Designate staff members from the Department of Environmental Services (DES) Operations Division to oversee implementation of the City's new street-sweeping contract.

2. Educate the public on street-sweeping schedules and goals.

3. Continuously review and evaluate the operation to determine whether it achieves the City's goals.

4. Conduct a cost-benefit analysis of privatization and public provision of service.

### Funding

Current funding levels are inadequate to provide effective street-sweeping service. Future contractual, administrative, and educational costs of street sweeping will continue to be covered through the City's General Fund. The ESC will assist with development of communications materials.

## Increase Efforts to Prevent Illegal Dumping

The City of Falls Church will enhance inspections and enforcement procedures to prevent illegal dumping. The City will take actions to more effectively deter citizens from leaving unwanted items on both public and private property.

**This action supports the City's SWM program goal (Chapter 4) of eliminating illegal dumping in the City by establishing a plan of action to prevent dumping.**

Although illegal dumping is not a significant community-wide problem, it does occur periodically at particularly vulnerable sites. Discarded furniture, electronics, mattresses, carpets, auto batteries, and yard waste are among the items that are left at the Falls Church Recycling Center, the City schools, and secluded commercial sites. If these and other sites are not cleaned regularly, the debris that accumulates serves as a "magnet" for additional discarded material.

Section 13-7 of the City Code addresses illegal dumping. Violations of this section of code are addressed through the civil penalties (ticketing) program, which charges $100 for the first ticket, $150 for each additional ticket, and up to a maximum of $3,000 per violation. However, identifying the guilty parties is often difficult.

Aggressive illegal dumping campaigns in other communities have included posted signage, police surveillance, and promotional materials to increase public awareness of the problem and the reporting protocol.

### Implementation

Implementation involves the following steps:

1. Establish a task force that includes employees from DES, Police, and Zoning.

2. Identify areas that are targets for illegal dumping.

3. Post signage that notifies the public of fines associated with illegal dumping.

4. Develop a surveillance plan for targeted areas.

5. Develop a public outreach campaign to educate residents and businesses.

**Funding**
Administrative and educational costs will be covered through the City's General Fund. The ESC will assist with information gathering and development of communications materials.

## Promote Use of Special Fuels, Filters, and Special Vehicles for Collection

The City of Falls Church will promote the use of special fuels, filters, and special vehicles for collection. Using environmentally preferred fuels, such as biodiesel, can significantly reduce emissions of carbon monoxide, hydrocarbons, and particulate matter. Biodiesel is also a cost-effective alternative to diesel, having a similar price per gallon, and requires no modifications to collection vehicles or fueling equipment.

The City of Falls Church may also require (for City vehicles) and promote (for private vehicles) the use of vehicle exhaust system filters to reduce air emissions from collection vehicles. Many of these filter systems are effective at removing nitrous oxides and particulates from diesel exhaust.

**This action supports the City's SWM program goal (Chapter 4) of creating a model of resource efficiency, providing leadership by example.**

### Implementation
Implementation involves the following steps:

1. Implement the use of special fuels and filters for City collection and other fleet vehicles to reduce air pollution due to emissions. Evaluate the use of special collection vehicles.

2. Meet with private haulers to discuss their use of special fuels, filters, and special vehicles for collection.

3. Develop strategies to encourage private haulers to use special fuels, filters, and collection vehicles.

4. Develop a public awareness campaign on the use of special fuels, filters, and collection vehicles.

### Funding

Equipment, administrative and educational costs will be covered through the City's General Fund.

## Implement a Collection and Disposal Strategy for Emergencies

The City of Falls Church will develop a strategy for the citywide collection of solid waste generated from emergency events, including natural and homeland security disasters. Emergency events are disasters of sufficient magnitude that the President of the United States declares an emergency, enabling assistance from the Federal Emergency Management Agency. Normal severe weather events, such as thunderstorms, are not considered emergencies. The City will proactively plan to secure emergency collection services before disasters, possibly through contracts or regional agreements.

**This action supports the City's SWM program goal (Chapter 4) of ensuring the safe and efficient disposal of discarded materials by outlining a course of action to be taken in the event that a natural or manmade emergency results in increased quantities of material.**

The aftermath of Hurricane Isabel provided a case study for the region in the potential impact a disaster can have on waste streams and in the ability of municipalities to be flexible and coordinate with each other. The City needs to develop a plan of action for responding during an event that yields large quantities of materials that need to be moved quickly out of the City or to a staging area within the City. If plans are in place for these kinds of situations, costs, confusion, anxiety among City residents, and response time will all be reduced.

### Implementation

Implementation involves the following steps:

1. Review the "lessons-learned" document prepared by the City following Hurricane Isabel.

2. Gather information from MWCOG to learn how other jurisdictions in the region dealt with waste in the aftermath of Hurricane Isabel.

3. Develop a series of response plans that vary on the basis of different potential emergencies.

4. Enter into agreements with other jurisdictions and consider agreements with private contractors for support and services in the event of an emergency.

5. Develop educational materials and provide technical assistance to appropriate City staff members to inform them of the plan and conditions for implementation.

**Funding**
Administrative costs for plan development will be covered through the City's General Fund.

# Transfer

Although not a level in the solid waste hierarchy, transfer of solid waste is key to implementation of the City's solid waste management strategies over the next 20 years. Table 11-6 presents actions selected by the City of Falls Church for the future transfer of solid waste in the City.

*Table 11-6. City of Falls Church Transfer SWMP Actions*

| Transfer SWMP Actions |
|---|
| – Continue using the current transfer system |
| – Maintain leaf mulch program at the City Transfer Yard or alternative location |

Construction of solid waste transfer facilities in Virginia are permitted by rule—facility operators are only required to notify VDEQ of the intent to operate and provide documentation and certification that the facility meets VDEQ requirements. Nonetheless, all facilities governed by permit-by-rule in the City of Falls Church must be in accordance with this SWMP.

## Continue Using the Current Transfer System

The City will continue to transfer solid waste as it does currently, using Fairfax County's I-66 Transfer Station for MSW, brush, and bagged yard waste; the City Transfer Yard for vacuumed leaves; and regional materials recycling facilities (MRFs) for MSW recyclables.

**Implementation**
The City does not need to change its current operations.

**Funding**
Costs of using transfer facilities include disposal and recycling fees. These costs are covered through trash collection revenue (tax revenues, private hauler fees, or an alternative revenue source, such as PAYT).

## Maintain Leaf Mulch Program at the City Transfer Yard or Alternative Location

The City will continue to maintain its leaf mulch program, including offering free delivery of high-quality leaf mulch to area residents.

One concern for the transfer of City-generated yard waste is the availability of the City Transfer Yard over the SWMP planning period. The construction of a new middle school adjacent to the facility may put continued leaf storage and processing operations at the City Transfer Yard at risk. The City will evaluate alternative locations for leaf storage and processing if the City Transfer Yard is unavailable.

**This action supports the City's SWM program goal (Chapter 4) of educating the community on the value of natural resources and the benefits of reducing consumption and adopting sustainable practices by providing citizens with a convenient, cost-effective way to add nutrients to the soil through use of recycled organic material.**

Prior to implementation of the leaf mulch program in 1994, the City spent up to $75,000 annually to have hundreds of tons of leaves hauled by a contractor to private facilities that charged the City to dispose of the leaves. During the past decade, the City has saved hundreds of thousands of dollars by producing a high-quality product, promoting its availability, and offering free delivery. In addition, the soils of Falls Church have been enriched through application of the leaf mulch. The leaf mulch distribution program is so popular with residents that the demand invariably exceeds the supply.

### Implementation

Implementation involves the following steps:

1. Continue to operate the program, using the current processing, promotional, and delivery protocol.
2. Investigate alternative sites for processing and storage of leaf mulch if the current processing and storage area at the City's Transfer Yard becomes unavailable.

### Funding

Costs of leaf processing, program promotion and administration, and mulch delivery are covered through the City's General Fund.

## Disposal

Disposal management methods, including resource recovery (or waste-to-energy), incineration, and landfilling are at the bottom of the waste hierarchy. Resource recovery is preferred to landfilling since the method reduces the bulk of municipal waste and can provide the added benefit of energy production.

Table 11-7 presents actions selected by the City of Falls Church for the disposal of solid waste generated in the City over the next 20 years.

*Table 11-7 City of Falls Church Disposal SWMP Actions*

| Disposal SWMP Actions |
|---|
| – Continue using the current disposal system as the preferred alternative |
| – Establish agreements with other jurisdictions for alternative disposal |

## Continue Using the Current Disposal System

The City of Falls Church prefers to continue the use of Fairfax County's disposal system for the disposal of City-generated MSW. Fairfax County currently uses the I-95 Energy/Resource Recovery Facility (E/RRF) as the primary disposal method for MSW, with out-of-county sanitary landfills to handle the "overflow" waste from the E/RRF. When MSW quantities in the county exceed the capacity of the E/RRF, the county diverts some trucks from the transfer station to out-of-county landfills rather than to the E/RRF. The county disposes of the ash generated from the E/RRF in the Area 3 Ash Landfill at the I-95 Landfill Complex.

The City will also continue the use of landfills outside the City for the disposal of its CDD. Although VDEQ data suggest Virginia CDD disposal quantities will exhaust disposal capacity within seven years, the City assumes that the private sector will secure additional CDD disposal capacity during the SWMP planning period.

**This action supports the City's SWM program goal (Chapter 4) of ensuring the safe and efficient disposal of discarded materials that cannot be reused, repaired, or recycled.**

### Implementation

The City does not need to change its current operations.

### Funding

Costs of MSW disposal are included in Fairfax County's I-66 Transfer Station fees. These costs are covered through trash collection revenue (tax revenues, private hauler fees, or an alternative revenue source, such as PAYT). Costs for CDD disposal are covered through private hauler collection fees.

## Establish Agreements with Other Jurisdictions for Alternative Disposal

The City will work with other jurisdictions in the Washington metropolitan area to secure agreements for alternate disposal of the City's waste. Fairfax County's solid waste disposal system may exceed its capacity to handle City of Falls Church MSW at some point in the future. In addition,

Fairfax County may discontinue using the E/RRF when its contract with the facility expires in 2011. By conducting negotiations now, before capacity becomes a problem, the City will be in a better position to enter into such agreements.

**This action supports the City's SWM program goal (Chapter 4) of ensuring the safe and efficient disposal of discarded materials that cannot be reused, repaired or recycled.**

To avoid being crowded out of access to nearby solid waste facilities, the City's will identify first, second, and third choice disposal options. The City will then establish agreements to protect or support these options.

One of the factors that other jurisdictions will consider is the effectiveness of the City's HHW collection program. Since waste-to-energy incineration is the primary means of disposal in our area, separation of HHW from the MSW stream is critical to preventing the release of hazardous elements into our air, water, and soil. Therefore, the City will implement a local HHW program prior to or concurrent with the establishment of alternative disposal agreements.

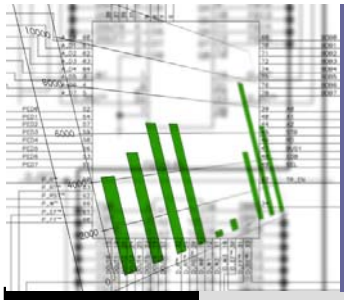
### Implementation

Implementation involves the following steps:

1. Collect information on current disposal practices.
2. Collect information on other options for waste disposal, and prioritize these options for the City.
3. Develop written agreements with local jurisdictions to ensure access for the City in the future.
4. Update agreements, as necessary.

### Funding

Administrative costs will be covered through the City's General Fund. The ESC will assist with data collection, information gathering, and drafting agreement language.



2004

2024

Chapter

12

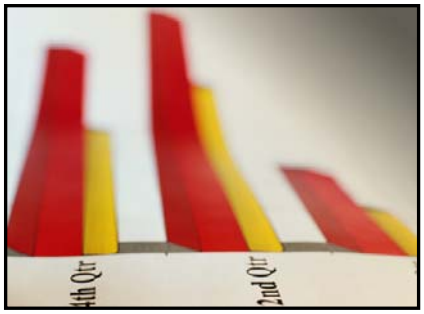
# Future SWM System Waste Quantities

## *Waste Projections After Implementation of SWMP Actions*

This chapter presents the projections of waste quantities for the City's solid waste management (SWM) system over the next 20 years. These projections reflect the implementation of the SWMP actions and, therefore, are different from the SWM system projections in Chapter 2.

## Generation Projections

**Since projecting source reduction and reuse quantities is problematic, waste projections in Chapter 2 are the City's most accurate estimates of solid waste generation.**




The impacts of source reduction and reuse actions in the SWMP are reflected in solid waste generation projections. However, the City does not project source reduction and reuse quantities; calculating quantities of solid waste that are reduced prior to entering the waste stream is problematic. Therefore, the projections in Chapter 2 are the City's most accurate estimates of solid waste generation in the City of Falls Church over the next 20 years.

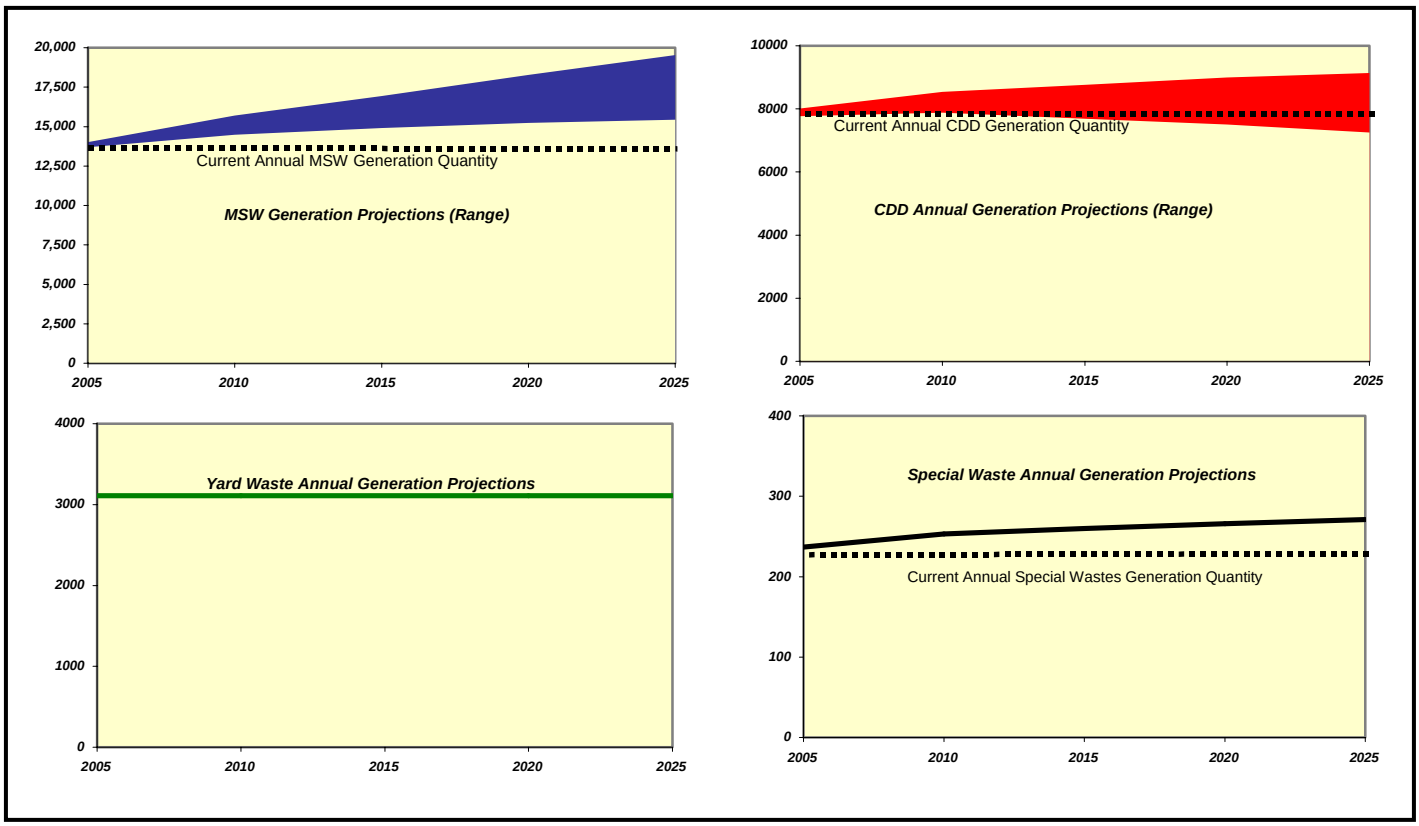
Table 2-9 of Chapter 2 shows the four alternative projections of MSW generated in the City of Falls Church over the next 20 years. Tables 2-10 and 2-11 present the City's two alternative projections of City-generated CDD. The City projects that yard waste generation quantities will remain at current levels (3,111 tons per year) throughout the SWMP planning period. Special wastes projections are presented in Table 2-12. Table 12-1 and Figure 12-1 show the generation projections for MSW, CDD, yard waste and special wastes. Note that yard waste and some special

wastes (i.e., used oil, used antifreeze, tires, and batteries) are also components of MSW.

*Table 12-1. City 20-Year Generation Projections for MSW, CDD, Yard Waste and Special Wastes (tons)*

| Year | MSW Generation (Range) | CDD Generation (Range) | Yard Waste Generation | Special Wastes Generation | MSW, Excluding Yard Waste and MSW Special Wastes (Range) |
|---|---|---|---|---|---|
| 2004 | 13,645 - 13,822 | 7,816 - 7,975 | 3,111 | 236 | 10.298 - 10,475 |
| 2005 | 13,687 - 14,019 | 7,771 - 8,009 | 3,111 | 237 | 10,339 - 10,671 |
| 2010 | 14,492 - 15,707 | 7,878 - 8,538 | 3,111 | 253 | 11,128 - 12,343 |
| 2015 | 14,904 - 16,946 | 7,691 - 8,764 | 3,111 | 260 | 11,533 - 13,575 |
| 2020 | 15,237 - 18,271 | 7,503 - 8,991 | 3,111 | 266 | 11,860 - 14,874 |
| 2025 | 15,434 - 19,526 | 7,255 - 9,142 | 3,111 | 271 | 12,052 - 16,144 |

*Figure 12-1. City 20-Year Generation Projections for MSW, CDD, Yard Waste and Special Wastes (tons)*



## Recycling Projections

**The City projects that implementing the SWMP actions will increase the annual quantities of MSW and CDD recycled.**

Implementing the recycling SWMP actions (discussed in Chapter 11) will increase the annual quantities of MSW and CDD recycled in the City of Falls Church. These increases are in addition to the recycling projections in Chapter 2, which assume the continuation of current recycling activities. The City does not project SWMP recycling actions to significantly impact yard waste and special waste recycling quantities.

Table 12-2 and Figure 12-2 show the recycling projections for MSW, CDD, yard wastes and special wastes. The calculation of the SWMP recycling projections is described below for each waste type.

*Table 12-2. City 20-Year Recycling Projections for MSW, CDD, Yard Waste and Special Wastes (tons)*

| Year | MSW Recycling, Excluding Yard Waste and MSW Special Wastes (Range) | MSW Recyclables Managed by MRFs[1] (Range) | CDD Recycling (Range) | Yard Waste Recycling | Special Waste Recyclables[2] |
|---|---|---|---|---|---|
| 2004 | 3,772 - 3,863 | 2,630 - 2,694 | 0 | 3,111 | 201 |
| 2005 | 3,877 - 4,051 | 2,703 - 2,825 | 78 - 80 | 3,111 | 201 |
| 2010 | 4,790 - 5,470 | 3,340 - 3,814 | 473 - 512 | 3,111 | 215 |
| 2015 | 5,760 - 7,006 | 4,016 - 4,885 | 846 - 964 | 3,111 | 220 |
| 2020 | 6,567 - 8,539 | 4,579 - 5,954 | 1,201 - 1,439 | 3,111 | 226 |
| 2025 | 6,691 - 9,351 | 4,665 - 6,520 | 1,451 - 1,828 | 3,111 | 230 |

1 - MSW recyclables managed at MRFs include paper, plastic, glass, and commingled bottles and cans

2 - Special waste recyclables include used oil, used antifreeze, tires, and batteries

*Figure 12-2. City 20-Year Recycling Projections for MSW, Yard Waste, CDD and Special Wastes (tons)*

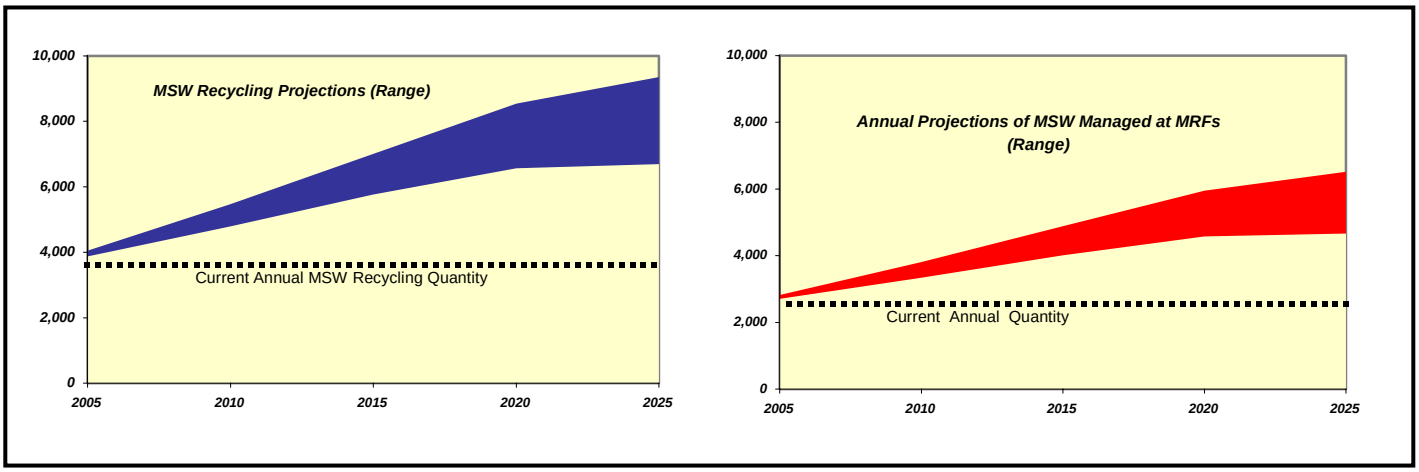
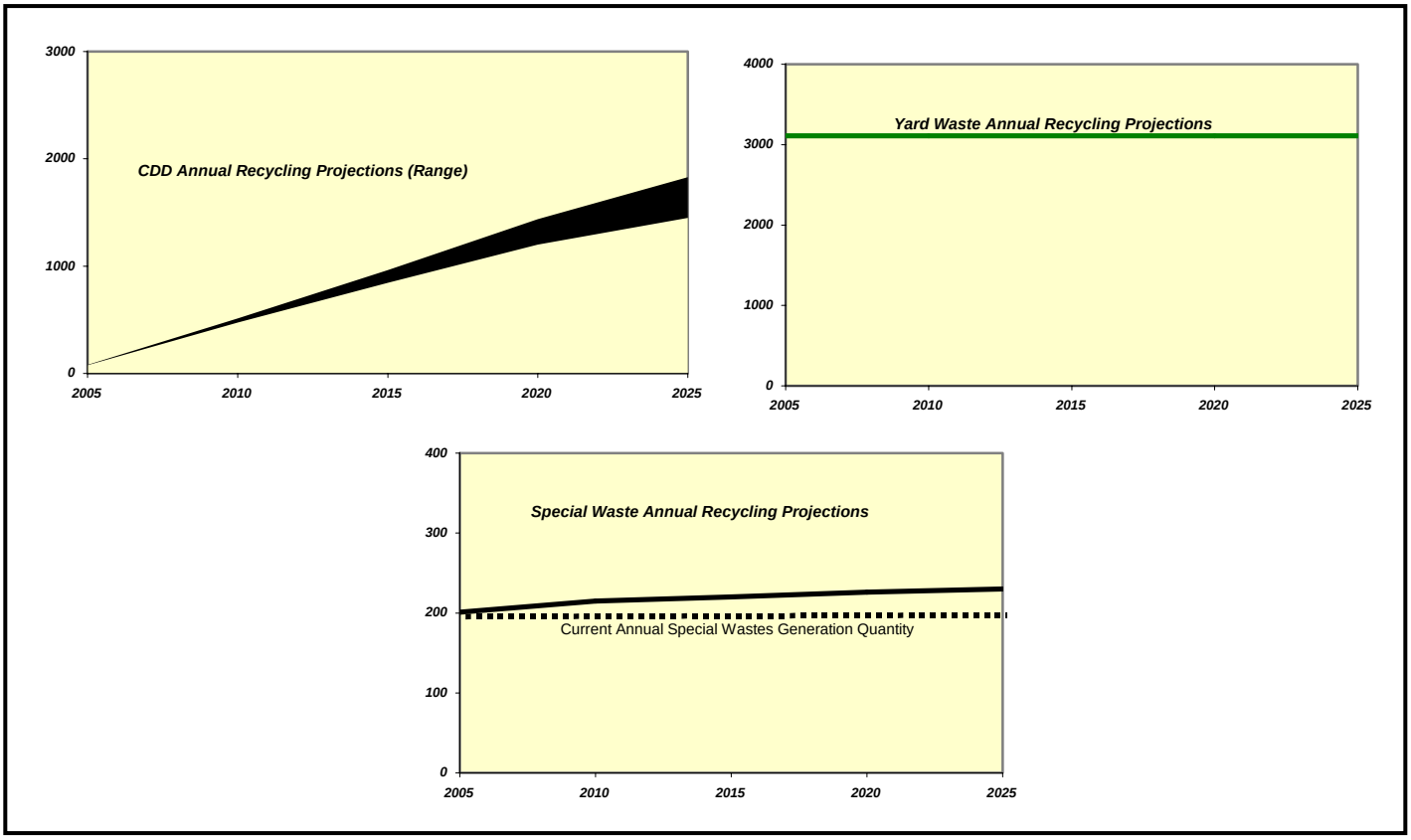


*Figure 12-2 (Continued)*




**Implementation of the SWMP recycling actions is projected to increase the overall City MSW recycling rate to 65 percent.**

## MSW

The City projects that the full implementation of the SWMP recycling actions will increase the overall City MSW recycling rate to 65 percent over the SWMP planning period.

The City projects the MSW recycling rate will increase gradually over the next 15 years; the increase in recycling will be in concert with the implementation of the SWMP recycling actions. Table 12-3 shows the City's projections for impacts of the SWMP actions on the residential and overall recycling rate in the City.

*Table 12-3. City Recycling Rate Projections*

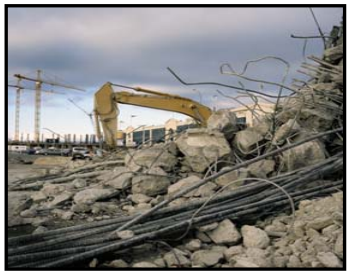
| | Current Rate | 5 Years (2009) | 10 years (2014) | 15 years (2019) | 20 years (2024) |
|---|---|---|---|---|---|
| Residential | 55.5% | 65% | 65% | 65% | 65% |
| Overall | 51.9% | 55% | 60% | 65% | 65% |

The City projects that improvements to curbside and business recycling will drive the future MSW recycling increases. Much of the recycling increases are expected to be achieved through: (1) expanding

recyclables collected curbside at residences and multifamily buildings, (2) implementing a Pay-As-You-Throw collection system, and (3) increasing business recycling by reducing recycling thresholds.

**Implementation of the SWMP recycling actions is projected to increase the overall City CDD recycling rate to 20 percent within 20 years.**

### CDD



If CDD disposal capacity concerns increase and CDD recycling is economically viable, the City of Falls Church will encourage increased CDD recycling locally and regionally.

The City projects that the full implementation of the SWMP recycling actions will increase the overall City CDD recycling rate to 10 percent within 10 years and 20 percent within 20 years. The City projects the CDD recycling rate will increase gradually over the next 20 years; the increase in recycling will be in concert with the implementation of the SWMP recycling actions.

### Yard Waste

The City does not project SWMP recycling actions to impact yard waste recycling quantities. Yard waste recycling projections are the same as the yard waste generation projections presented in Table 12-1.

### Special Wastes

Special waste recyclables include used oil, used antifreeze, tires, and batteries. The City does not project SWMP recycling actions to impact special waste recycling quantities. Special waste recycling projections are the same as the special waste generation projections presented in Table 12-1.

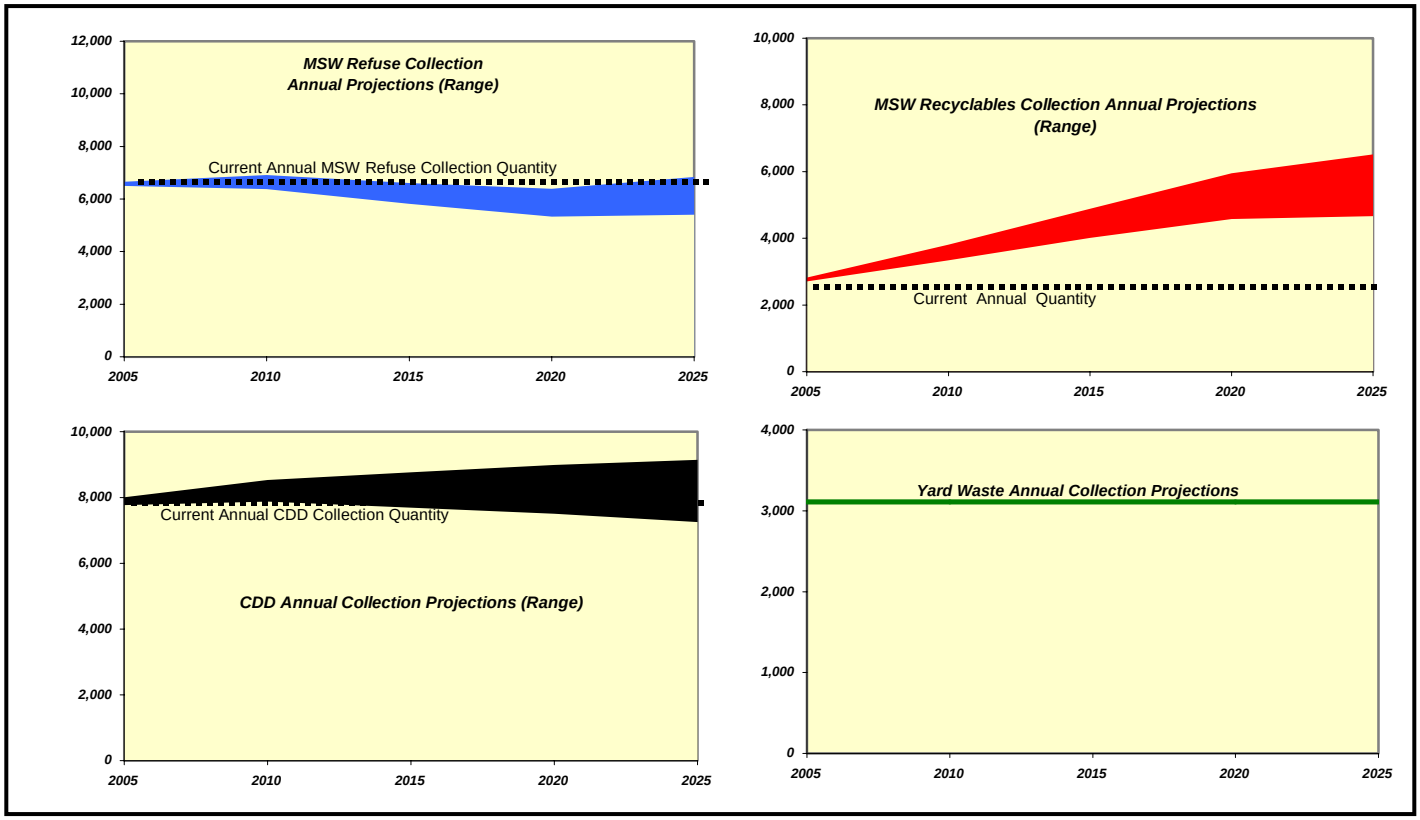
## Collection Projections

All waste generated, recycled and disposed in the City of Falls Church will require collection. Table 12-4 and Figure 12-3 show the projected quantities of solid waste collection over the next 20 years.

*Table 12-4. City 20-Year Collection Projections for MSW, CDD, and Yard Waste (tons)*

| Year | MSW Refuse[1] (Range) | MSW Recyclables Managed by MRFs[1] (Range) | CDD (Range) | Yard Waste |
|---|---|---|---|---|
| 2004 | 6,562 - 6,647 | 2,630 - 2,694 | 7,816 - 7,975 | 3,111 |
| 2005 | 6,498 - 6,655 | 2,703 - 2,825 | 7,771 - 8,009 | 3,111 |
| 2010 | 6,376 - 6,911 | 3,340 - 3,814 | 7,878 - 8,538 | 3,111 |
| 2015 | 5,812 - 6,609 | 4,016 - 4,885 | 7,691 - 8,764 | 3,111 |
| 2020 | 5,333 - 6,395 | 4,579 - 5,954 | 7,503 - 8,991 | 3,111 |
| 2025 | 5,402 - 6,834 | 4,665 - 6,520 | 7,255 - 9,142 | 3,111 |

*Figure 12-3. City 20-Year Collection Projections for MSW, CDD, and Yard Waste (tons)*




## Transfer Projections

The City of Falls Church SWMP actions include the continued use of Fairfax County's I-66 Transfer Station for MSW, brush, and bagged yard waste, and the City Transfer Yard for vacuumed leaves. These transfer facilities will have sufficient capacity to manage the projected quantities of solid waste

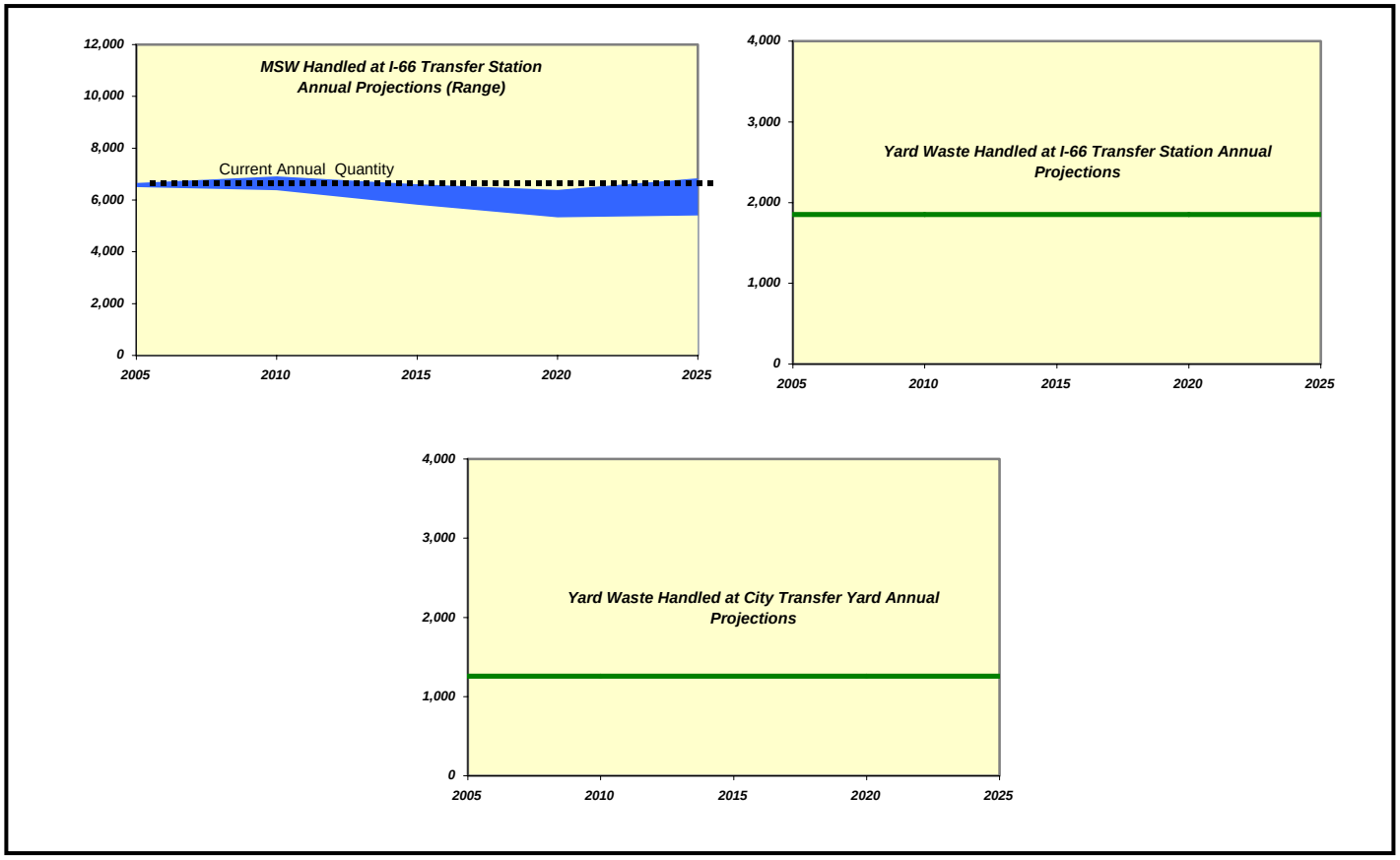
requiring transfer over the SWMP planning period. Table 12-5 and Figure 12-4 show the projected quantities of solid waste transfer over the next 20 years.

*Table 12-5. City 20-Year Transfer Projections for MSW, CDD, and Yard Waste (tons)*

| Year | MSW[1] Handled at I-66 Transfer Station (Range) | Yard Waste Handled at I-66 Transfer Station | Yard Waste Handled at City Transfer Yard |
|---|---|---|---|
| 2004 | 6,562 - 6,647 | 1,854 | 1,257 |
| 2005 | 6,498 - 6,655 | 1,854 | 1,257 |
| 2010 | 6,376 - 6,911 | 1,854 | 1,257 |
| 2015 | 5,812 - 6,609 | 1,854 | 1,257 |
| 2020 | 5,333 - 6,395 | 1,854 | 1,257 |
| 2025 | 5,402 - 6,834 | 1,854 | 1,257 |

1 - MSW excluding yard waste and MSW special wastes

*Figure 12-4. City 20-Year Transfer Projections for MSW, CDD, and Yard Waste (tons)*



# Disposal Projections

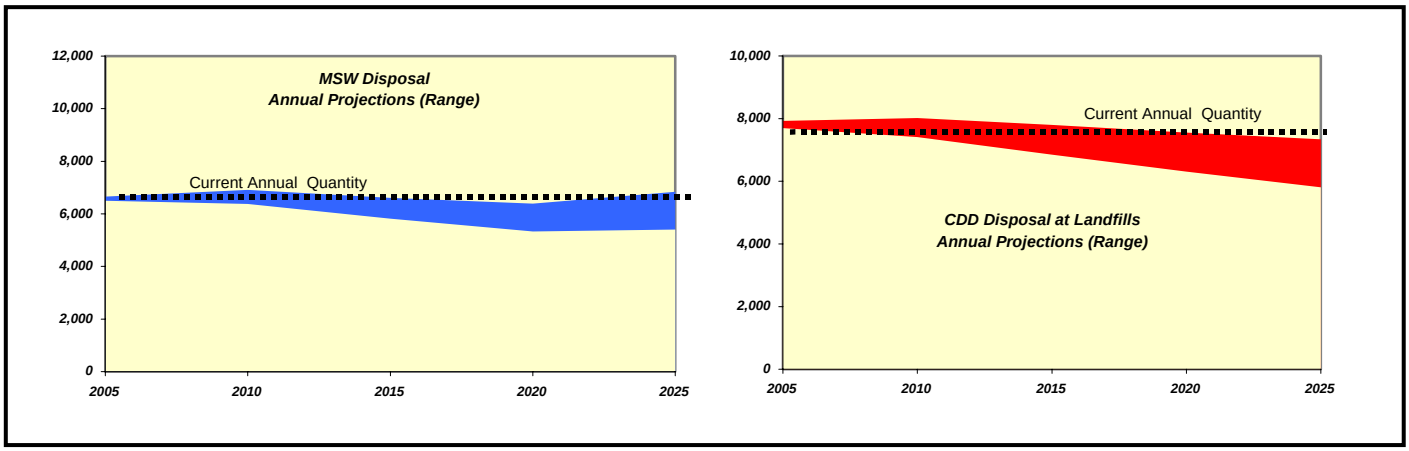
The City of Falls Church SWMP actions include the continued use of the current disposal system. The City will dispose of all City-generated MSW using Fairfax County's disposal system —the I-95 E/RRF, with out-of-county landfills for overflow. City-generated CDD will be disposed of using landfills located outside the City. All City-generated yard waste will be recycled. Table 12-6 and Figure 12-5 show the projected quantities of solid waste disposal over the next 20 years.

Fairfax County's current disposal system will have sufficient capacity to handle the projected quantities of City-generated MSW requiring disposal over the SWMP planning period.

*Table 12-6. City 20-Year Disposal Projections for MSW and CDD (tons)*

| Year | MSW Disposed at the E/RRF (Range) | MSW Sent to Out-of-County Landfills (Range) | CDD Sent to Landfills (Range) |
|---|---|---|---|
| 2004 | 6,151 - 6,225 | 407 - 426 | 7,816 - 7,975 |
| 2005 | 6,096 - 6,243 | 398 - 416 | 7,693 - 7,929 |
| 2010 | 5,962 - 6,478 | 407 - 442 | 7,405 - 8,025 |
| 2015 | 5,426 - 6,208 | 376 - 412 | 6,845 - 7,800 |
| 2020 | 4,992 - 6,037 | 330 - 371 | 6,303 - 7,552 |
| 2025 | 5,066 - 6,476 | 323 - 372 | 5,804 - 7,341 |

*Figure 12-5. City 20-Year Disposal Projections for MSW and CDD (tons)*



Chapter

# 13 Funding

## *The City's Solid Waste Management Plan Funding Strategies*

**This chapter discusses modifications to the current funding structure to support the SWMP actions.**

This chapter describes the City's plan for funding its solid waste management (SWM) system over the next 20 years. The current SWM system funding structure is discussed in Chapter 5. This chapter discusses modifications to the current funding structure to support the SWMP actions.

## Future Funding Considerations

The four elements of the City's current funding structure that will be modified to support the SWMP actions plans are: (1) the residential collection fee structure, (2) City SWM program administration, (3) public outreach and education, and (4) establishment of a household hazardous waste (HHW) program. These elements are discussed in more detail below.

### Residential Collection Fee Structure

Currently, the costs of solid waste collection and disposal are a component of the real estate taxes. The City will separate these costs as a discrete line item to show each household their solid waste collection and disposal costs.

As part of this SWMP, the City will implement a Pay-As-You-Throw (PAYT) collection system, which requires the City to bill each individual household. Under the Pay-As-You-Throw (PAYT) collection system, City residents who receive City collection services will be charged based on the amount of trash they discard, creating an incentive to generate less trash. PAYT provides a more equitable billing system for trash collection

and disposal, where those who generate more waste pay more, while residents who recycle and prevent waste are charged less.

The City will evaluate the best method to bill for trash collection under PAYT. An interim step will be placing costs associated with trash collection and disposal on individual water bills or as a line item on real estate tax bills.

The City will also explore the implementation of either a two-tiered (fixed fee + "per container" fee) or multi-tiered rate system (fixed fee + variable fees for different container sizes), as these systems ensure that fixed costs are covered. The separate "per container" charge is used to cover the variable costs.

The City will continue to receive user fees from residents for collection of bagged yard waste (50 cents per bag) and bulk waste ("special pickups").

Residents, schools, and businesses receiving collection by private haulers will continue to be billed at the market-driven rate.

## City SWM Program Administration

In order to implement the SWMP actions, the City's Department of Environmental Services (DES), Engineering Division (Office of Recycling) will require additional funding and/or staffing. Currently one staff member, the City's Recycling Coordinator, is responsible for most SWM planning, program development, waste reduction and recycling outreach and education, recycling contracts management, and solid waste code enforcement in the City. The City requires additional staff members to implement and maintain the SWMP actions.

DES should manage revenues generated by the sale of recyclable items, funds directly attributable to PAYT, and fees collected from special pickups.

## Public Outreach and Education

Public outreach and education is one of the primary SWMP actions to support increased source reduction, reuse, and recycling in the City over the next 20 years. The City of Falls Church will fund these promotional and educational efforts through the City's General Fund. The ESC and Recycling Block Captains will assist with the development and distribution of educational materials.

## Household Hazardous Waste Program

The City of Falls Church plans to fund the establishment of a HHW collection program in the City. Funding for the staffing, location,

administration, education, and disposal contract costs will be covered by the City's General Fund.

Chapter

# 14 Public Participation

## *Public Participation in Development of the SWMP and Future Public Outreach and Education Strategies*

**This chapter discusses public participation in development of this SWMP and future public outreach and education strategies.**

This chapter discusses public participation in the development and review of this Solid Waste Management Plan (SWMP), including both citizen and private sector involvement, public meetings, the consideration of public/private partnerships, and the public outreach and education strategies to execute the future vision of the solid waste management (SWM) system.

## Developing the Draft Plan (November 2003 to April 2004)

**Input from Falls Church City residents was fundamental to producing this SWMP.**

Input from Falls Church City residents was fundamental to producing this SWMP. This section describes the community involvement and City-designed public outreach and education campaign to support the development of the SWMP.

Following the initial planning by City staff, the City hired a consultant to assist with the strategic planning portions of the plan. In addition, the City Council established an *Ad Hoc* Solid Waste Management Plan Advisory Committee (SWMPAC) to guide the development of the plan and to ensure extensive public participation in the plan's development. The committee was composed of nine members who represented City Council, the City Schools, the Environmental Services Council (ESC), residents, businesses, and the solid waste industry.

The City's Recycling Coordinator, working in cooperation with the consultant, SWMPAC, and the City's Office of Communications, formulated strategies for communication with the public. These included targeted mailings, articles and advertisements in the local newspaper,

and distribution of flyers and newsletters by the City's 120 volunteer Recycling Block Captains.

**The City's public outreach strategy was to involve citizens early and often in the development of the plan.**

The City's public outreach strategy was to involve citizens early and often in the development of the plan. Public outreach targeted all citizens of the City of Falls Church, through a variety of media. Outreach messages, which were consistent across all media, helped citizens understand the need for the plan and how to get involved in its development. The City also provided a single telephone number, email address and contact for easy channeling of questions and comments from citizens.

## Public Hearing

In November 2003, prior to the appointment of the SWMPAC, the Falls Church ESC sponsored a public hearing. (The ESC serves as the citizens' advisory body to City Council on environmental issues.) The purpose of the hearing was to receive initial input from City residents regarding the direction of the SWMP. The City encouraged citizen participation in this public hearing by placing an advertisement in the *Falls Church News-Press*, publishing articles in the *FOCUS Weekly* section of the paper, and sending notices to Recycling Block Captains.

## Flyers to Residents

Following the appointment of the SWMPAC, the City developed an initial flyer explaining the SWMP requirements and requesting citizens' input through a variety of means, including attendance at SMWPAC meetings, letters, e-mails, and phone calls. Over 3,000 copies of the flyer were distributed by the City's Recycling Block Captains to City residents. A copy of the flyer is included in Appendix D.

## Letters to Stakeholders

City staff distributed letters from the SWMPAC chair to the following groups: members of City boards and commissions, property managers of multi-family residences and large business complexes, homeowners association presidents, the Falls Church Chamber of Commerce, civic organizations, churches, Recycling Block Captains, and ESC members. The purpose of the letter was to notify various constituencies of the planning process and to encourage their input. In addition, elementary students and their families were encouraged to participate in the planning process through Operation EarthWatch, a local environmental education and action program sponsored by the ESC Education Task Group.

### SWMPAC Meetings to Develop the Draft SWMP

The Solid Waste Management Plan Advisory Committee met eleven times between December 2003 and March 2004. Guided and assisted by City staff and the City's consultant, SWMPAC members reviewed the City's current solid waste program, analyzed the gaps, and recommended actions for the future that are designed to close those gaps.

### Stakeholder Meetings

The City's Recycling Coordinator conducted a series of meetings with groups that have a particular interest in solid waste management, including the ESC, Recycling Block Captains, and the City's Employee Task Force on Waste Reduction and Recycling. Their input was incorporated into development of the SWMP.

## Presenting the Draft Plan (April 2004 to June 2004)

### SWMP Recommendations Presentation

Once the draft SWMP was prepared, the City and its contractor developed a PowerPoint® presentation. The presentation explained the requirements for the SWMP, summarized the process of developing the plan to date, discussed future waste generation projections, described the SWMP recommendations to bridge the gap between the current and future SWM system, and requested community review of the plan.

### Public Meeting

**The City conducted a public meeting to allow citizens to review and comment on the draft SWMP.**

The City held a public meeting at City Hall Council Chambers on May 19, 2004, to provide an opportunity for citizens to review and comment on the draft SWMP. The City's Recycling Coordinator delivered the PowerPoint® presentation and responded to questions, with assistance from the consultant and the SWMPAC chair. Issues discussed at the meeting included:

- increasing waste generation rates
- increasing the range of materials collected at multi-family residences
- increasing business recycling requirements
- enhancing public information and outreach
- implementation of a Pay-As-You-Throw trash collection system
- establishment of a household hazardous waste collection program in the City

The City summarized the comments and questions from attendees and the responses in a separate document.

## Web Page

The City included the Draft SWMP on the City website, which included basic information about the plan requirements, the plan development process, and a timeline for public review and input.

The Draft Plan included 14 chapters and several appendices describing the process used to project the future waste management needs, determine how to meet those requirements through strategic program recommendations, and capture community involvement in the entire process. Presented in PDF format, providing the Draft Plan on the website allowed residents to download and print copies for review.

## Other Outreach Efforts

Other public outreach efforts included:

- The City placed numerous articles in the *FOCUS Weekly* section of the *Falls Church News-Press* to promote the community public meeting and to solicit input via letter, e-mail, and phone.

- Articles about the Draft Plan appeared on the front page of the Spring 2004 "Falls Church Environment" newsletter, which was distributed to over 3,000 homes by Recycling Block Captains. Appendix E contains a copy of the front page of the Spring 2003 newsletter including these articles.

- Paper copies and CDs of the Draft Plan were placed at the City's Department of Environmental Services, the Mary Riley Styles Public Library, and the City Clerk's Office.

- Several emails, phone calls, and written comments were received by City staff during the SWMP review period. These were addressed with the originator to clarify issues and answer questions. All comments were considered in the final version of the Draft SWMP.

- Emails were sent to all Recycling Block Captains, City board and commission members, and the Falls Church Chamber of Commerce to announce the release of the Draft Plan and to invite citizens to the May 19 public meeting.

## Brochure

A tri-fold 11" by 14" color brochure was prepared highlighting the SWMP recommendations and was distributed at all meetings and with mailings. This handy, simple brochure was very useful in summarizing the complex issues and recommendations so that residents did not have to read the entire Draft Plan to participate in discussion of its ideas. The brochure also encouraged residents to provide comments by either email or telephone to City staff. A copy of the brochure is included in Appendix F.

## Press Coverage

The City placed numerous articles in the *FOCUS Weekly* section of the *Falls Church News-Press* to promote the May 19 public meeting and to solicit public review and comment.

The City placed two legal notices in the *Falls Church News-Press* to announce the May 19 public meeting.

The *Falls Church News-Press* owner/editor attended the City Council work session and public hearing and published stories that highlighted the Pay-As-You-Throw portion of the plan.

## Contact with City Council

Meetings with City Council members addressing the SWMP included:

- The Vice Mayor and one City Councilwoman served as members of the SWMPAC, attended SWMPAC meetings, and were actively involved in the development of the plan.
- The City Clerk sent copies of the Draft SWMP to City Council members on April 30, 2004.
- The Recycling Coordinator delivered the SWMP PowerPoint® presentation at a City Council work session on June 1, 2004, and responded to Council members' questions and concerns.
- The final contact with the City Council concerning the SWMP was the public hearing and approval of the plan on June 14, 2004.

# City Council Adoption of the SWMP (June 2004)

## Public Hearing

On June 14, 2004, the City Council held a public hearing to hear citizen input regarding the Draft Plan. The public hearing was advertised in accordance with State law.

City staff sent e-mails to all City board and commission members, Recycling Block Captains, and others who had attended previous public meetings or expressed interest in the SWMP. Information about the public hearing was placed on the City's website.

The City Council formally adopted the plan at the June 14, 2004, City Council meeting. The City Council resolution adopting the plan is included in Appendix G. The City Clerk's minutes summarizing the public hearing, including public comments, is included in Appendix H.

# Future Public Participation

## Future Public Outreach, Community Involvement, and Education

The City of Falls Church plans to increase its use of public outreach and education to promote its SWMP actions throughout the planning period. Staff will increase promotion of source reduction and reuse programs to help reduce the amount of waste that needs to be disposed. Staff will also enhance its efforts to inform the public about new programs or changes to collection, recycling or disposal programs.

Public outreach and education will be executed through a variety of media. The City will use its website to post timely information. The City will also use advertisements and cable TV notices to inform residents of changes in policy or provide "how-to" for recycling and disposal of their waste.

Education efforts will continue through the Falls Church City Public Schools in partnership with the ESC Education Task Group. At the elementary level, the Operation EarthWatch and Ecology Club programs will continue to provide opportunities for children to learn how best to manage solid waste to protect the environment. At the middle and high school level, additional materials will be developed to help students learn about the need for source reduction and reuse, recycling and safe disposal of materials.

The SWMP is a strategic plan providing the direction for solid waste management into the future. Implementation plans will need to be

prepared with the attendant studies and analyses to ensure that recommended changes improve effectiveness, efficiency or environmental responsibility. To that end, residents and community groups will be consulted and involved during the preparation of these implementation plans. Only through engaging the community appropriately can City staff ensure that the services offered to residents meet community needs and desires for the future.

## Public/Private Partnerships

The City of Falls Church plans to encourage high quality and efficient private sector operations over the SWMP planning period. City staff will encourage and support private sector initiatives such as the development of CDD recycling as well as source reduction, reuse, and recycling initiatives, as resources allow.

City staff will continue to look for partnerships with other jurisdictions that will allow for the efficient and effective transfer or disposal of waste. Taking a regional approach to CDD, for example, may result in inter-jurisdictional agreements.

*The City of Falls Church*
*Solid Waste Management Plan*

# EXECUTIVE SUMMARY

The Virginia Department of Environmental Quality (VDEQ) requires that all jurisdictions, including the City of Falls Church, prepare a 20-year integrated solid waste management plan (SWMP) and submit it by July 1, 2004. The City has designed its future solid waste management (SWM) system around the following strategic goals:

- Become a community of citizens whose actions reflect an ethic of resource conservation and waste minimization.

- Develop and maintain a secure, cost-effective, environmentally sound and resource-efficient SWM program.

The City staff, working with the City's Solid Waste Management Plan Advisory Committee (SWMPAC) and stakeholders throughout the SWM system, reviewed current waste activities and programs. After projecting the potential waste generation for the next 20 years, the City analyzed the current system and future needs to discover gaps in waste management.

The City identified the following significant gaps:

- Need for increased source reduction and reuse to reduce the increasing amount of waste generated in the City

- Need for increased recycling to reduce the burden on waste disposal

- Municipal solid waste (MSW) disposal must be provided; the contract for the primary disposal facility, Fairfax County's waste-to-energy facility, the I-95 Energy/Resource Recovery Facility (E/RRF), will expire after 2011

- Construction/demolition/debris (CDD) disposal capacity may be exhausted within seven years

- Regional increases in yard waste quantities may impact the availability of composting facilities for City-generated yard waste

- The City Transfer Yard may not be available for leaf storage and processing.

The City of Falls Church selected SWMP actions that will close the gaps between its current SWM system and that required in the future. These actions include the following:

- *Increase public outreach and education.* The City will unify its SWM program through a strong communications program. Public outreach and education efforts will be aimed at increasing participation in source reduction, reuse, and recycling activities.

- *Increase business recycling by reducing commercial recycling thresholds.* By reducing the recycling threshold for businesses, the City of Falls Church can dramatically increase the business recycling rate and overall City recycling rate.

- *Implement a Pay-As-You-Throw (PAYT) system.* Under a PAYT system, City residents will be charged for MSW services on the basis of the amount of trash they discard, creating an incentive to generate less trash. PAYT programs encourage residents to produce less waste by practicing source reduction, as well as reuse and recycling.

- *Expand recyclables collected at multifamily residences.* By requiring managers of multi-tenant residences to offer collection of the same range of recyclable materials provided to residents who receive City collection services, the City will increase the residential recycling rate and simplify and standardize its citywide recycling message.

- *Continue using the current disposal system.* The City prefers to continue the use of Fairfax County's disposal system for the disposal of City-generated MSW. The City can help guarantee MSW and CDD disposal capacity over the SWMP planning period by contracting for capacity at disposal facilities outside the City.

- *Establish a household hazardous waste (HHW) collection program in the City.* The City will establish a HHW collection program in the City to more effectively divert hazardous waste from entering the normal waste stream.

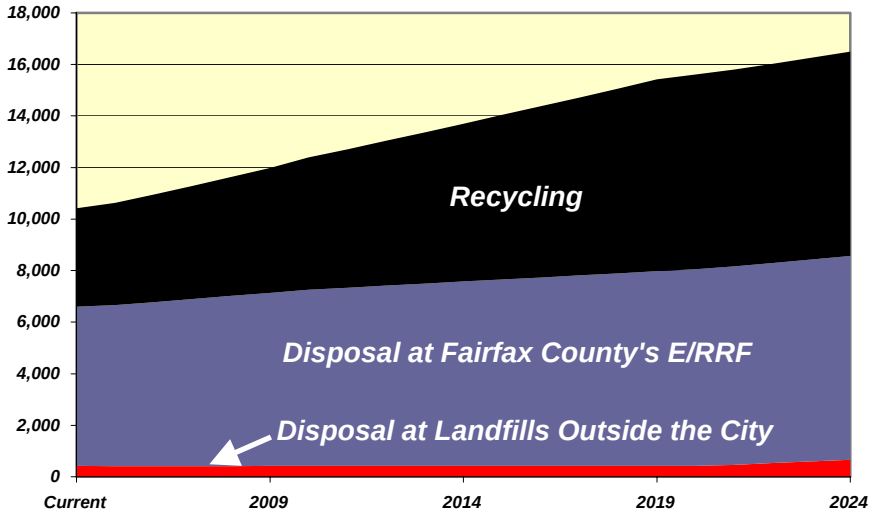
Table ES-1 outlines the City's objectives and strategic vision for its integrated SWM system over the next 20 years. These strategies address the gaps identified in the system. All SWM facilities constructed or operated in the City must be in accordance with the contents of this SWMP.

*Table ES-1. City of Falls Church SWM Objectives and Future System*

| | Objectives | Future System |
|---|---|---|
| **Source Reduction and Reuse** | – Expand source reduction and reuse programs in the City to minimize waste generation<br>– Increase public awareness to increase participation in source reduction and reuse initiatives<br>– Promote public-private partnerships to increase program efficiency and minimize City costs<br>– Create a model of resource efficiency, providing leadership by example | Improve public outreach and education to promote source reduction and reuse<br>Implement a Pay-As-You-Throw collection system<br>Establish a materials exchange<br>Participate in establishment of regional resource exchange programs<br>Monitor and publicize waste generation<br>Implement source reduction and reuse programs at City government facilities and schools<br>Provide tools to promote increased source reduction and reuse<br>Promote surplus food distribution programs |
| **Recycling** | – Increase overall recycling quantities in the City to minimize waste disposal<br>– Expand types of materials collected and recycled to increase recycling quantities and support the promotion of unified recycling messages<br>– Revise City ordinances to support increased recycling<br>– Increase recycling at City of Falls Church businesses and institutions<br>– Increase public awareness to increase participation in recycling initiatives<br>– Promote public-private partnerships to increase program efficiency and minimize City costs<br>– Create a model of resource efficiency, providing leadership by example | Promote public-private recycling programs<br>Improve public outreach and education to promote recycling<br>Increase business recycling by reducing recycling thresholds<br>Implement a Pay-As-You-Throw collection system<br>Encourage increased CDD recycling<br>Continue current yard waste recycling system; contract with composting facilities for dedicated capacity<br>Encourage increased MSW recycling at City government facilities and schools<br>Revise regulations to enhance recycling:<br>– Expand recyclables collected at multifamily residences<br>– Expand recycling requirements for electronic wastes<br>Consider implementation of single-stream curbside collection system for recyclables<br>Participate in regional promotion of CDD recycling<br>Provide tools to promote increased recycling<br>Establish a recycling rate goal<br>Promote establishment of a regional food waste composting facility |
| **Collection** | – Provide collection services that support a secure, cost-effective, environmentally sound and resource-efficient SWM system<br>– Increase collection efficiency<br>– Reduce collection truck impacts on City air quality<br>– Eliminate litter and illegal dumping in the City of Falls Church | Maintain City refuse collection<br>Continue current yard waste collection system, including vacuumed leaf collection<br>Implement a Pay-As-You-Throw collection system<br>Expand collection of electronic wastes<br>Continue using the current special wastes management system<br>Establish a HHW collection program in the City of Falls Church<br>Maintain the current litter control program<br>Increase effectiveness of street sweeping<br>Increase efforts to prevent illegal dumping<br>Promote use of special fuels, filters, and special vehicles for collection<br>Implement a collection and disposal strategy for emergencies |
| **Transfer** | – Continue to use Fairfax County's I-66 Transfer Station for MSW, brush, and bagged yard waste<br>– Provide temporary leaf storage and processing in the City for vacuumed leaves | Continue using the current transfer system<br>Maintain leaf mulch program at the City Transfer Yard or alternative location |
| **Disposal** | – Ensure the safe and efficient disposal of discarded materials that cannot be reused, repaired or recycled | Continue using the current disposal system as the preferred alternative<br>Establish agreements with other jurisdictions for alternative disposal |

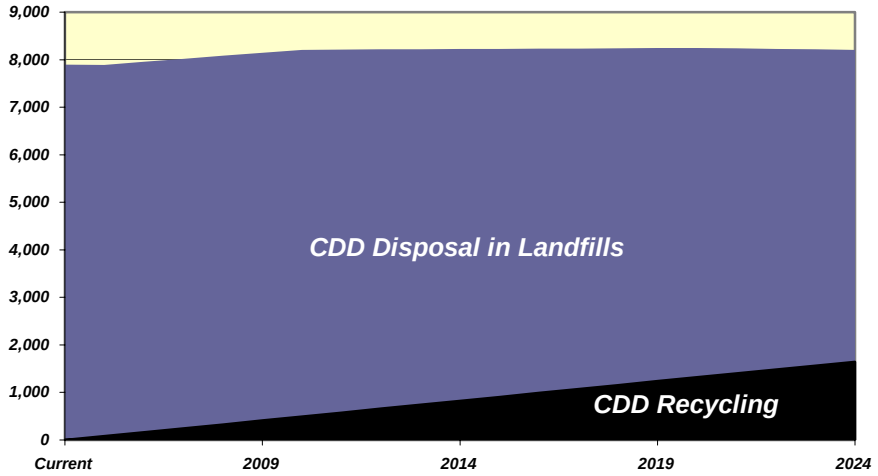
Figures ES-1, ES-2, and ES-3 illustrate the projected range of MSW (not including yard waste), CDD, and yard waste, respectively, in the City's SWM system over the next 20 years and the projected ranges of waste generation, recycling, and disposal needed after implementing the City's future SWM system.

*Figure ES-1. Projected Quantities of MSW (Excluding Yard Waste) for the City's SWM System (Tons)*




- The overall City recycling rate is projected to increase to 65 percent over the next 15 years from implementation of SWMP actions.
- The MSW collection system (excluding yard waste and special wastes) must handle an additional 1,760 to 5,680 tons per year by 2025.
- Fairfax County's I-66 Transfer Station must handle up to an additional 850 to 2,700 tons per year of City-generated MSW; existing capacity is sufficient.
- Fairfax County expects the E/RRF will have sufficient capacity to handle the projected quantities of City-generated MSW requiring disposal over the SWMP planning period.

*Figure ES-2. Projected Quantities of CDD for the City's SWM System (Tons)*




- The CDD collection system must handle up to an additional 1,200 tons per year by 2025.
- Regional CDD disposal capacity is projected to be exhausted in 6 to 10 years.
- Disposal capacity concerns may trigger increased CDD recycling in the City.

*Figure ES-3. Projected Quantities of Yard Waste for the City's SWM System (Tons)*

- Yard waste recycling will remain constant over the SWMP planning period
- Regional increases in yard waste quantities may impact capacity of composting facilities for City-generated yard waste
- The City will possibly lose availability of the City Transfer Yard for temporary leaf storage and processing

This SWMP was approved by the City Council on June 14, 2004 for submission to the VDEQ.

Changes to this SWMP will occur through the process VDEQ outlined in the Solid Waste Management Planning Regulations, Amendment 1 (9VAC20-130-175). Major amendments include any addition, deletion, or cessation of operation of any solid waste facility; any increase in landfill capacity; any change that moves toward implementation of a waste management strategy that is lower in the waste management hierarchy; and any change to membership in the approved area. Minor amendments include any change that moves toward implementation of a waste management strategy that is higher in the waste management hierarchy and any nonsubstantive administrative change such as a change in name. All amendments will be submitted directly to the VDEQ for approval; major amendments require public participation, including a public hearing.

**Solid waste planning is a continuous process and City staff will continually evaluate the need to update and modify the SWMP throughout the 20-year planning period.**

# Appendix A Development of MSW Projections

## MSW Generation Forecasts

The City based its MSW generation projections on the predicted per capita MSW generation rate and population projections for the planning period. In addition, employment projections were used to predict commercial waste generation, as discussed later in this appendix.

For projections of recycling quantities, the City forecasted its overall, residential, and commercial recycling rates to remain at their three-year averages. Therefore, the City projects that the overall recycling rate will remain at 51.9 percent, the residential recycling rate will remain at 55.5 percent, and the commercial recycling rate will remain at 48.9 percent.

### Actual City per Capita Generation Data

The City examined actual per capita waste generation data from 2000 through 2002 (Table A-1) to determine trends. Recent scale records show a generation rate of 7.05 pounds per capita per day (pcd) in 2001, increasing to 7.16 pcd in 2002. This represents an annual increase in City MSW generation of approximately 2 percent.

*Table A-1. Historical City of Falls Church MSW Generation Rates*

| Year | MSW (tons) | Population | MSW Generation Rate (pcd) |
|---|---|---|---|
| 2000 | N/A | 10,377 | N/A |
| 2001 | 13,406 | 10,422 | 7.05 |
| 2002 | 13,674 | 10,466 | 7.16 |

N/A - Data not available

### Regional and National Per Capita Generation Data

The MSW generation rate in the City of Falls Church is higher than national and regional generation rate estimates. Nationally, the MSW generation rate has remained constant at 4.51 pcd in both 2000 and 1990. Regionally, the Metropolitan Washington Council of Governments estimated an MSW generation rate of 5.8 pcd for the Washington metropolitan area.

## Alternative MSW Projections

From the differing trends and estimates of MSW generation in the City, regionally, and nationally, the City developed alternative MSW projections to address the probable range of variance in the future generation rates.

### Alternative 1: MSW Generation in the City Remains Constant

Alternative 1 is a conservative alternative that assumes the current City waste generation rate of 7.10 pcd will not increase throughout the planning period. This alternative reflects the assumption that City waste generation will follow the zero-growth trend of national MSW generation rates over the past 10 years. The City calculated MSW projections for this alternative by multiplying the average MSW generation rate of 7.10 pcd by the City population estimates from 2004 to 2025. Table A-2 shows the MSW projections for this alternative.

*Table A-2. City MSW Generation Projections 2004-2025: Alternative 1—No Increase in Generation Rate*

| Year | Population | MSW generation rate (pcd) | MSW generation projection (tons) | Recycling rate (%) | MSW recycled (tons) | MSW disposal (tons) |
|---|---|---|---|---|---|---|
| 2004 | 10,555 | 7.10 | 13,685 | 51.9 | 7,104 | 6,581 |
| 2005 | 10,600 | 7.10 | 13,743 | 51.9 | 7,134 | 6,609 |
| 2010 | 11,300 | 7.10 | 14,650 | 51.9 | 7,605 | 7,045 |
| 2015 | 11,600 | 7.10 | 15,039 | 51.9 | 7,807 | 7,232 |
| 2020 | 11,900 | 7.10 | 15,428 | 51.9 | 8,009 | 7,419 |
| 2025 | 12,100 | 7.10 | 15,687 | 51.9 | 8,143 | 7,544 |

### Alternative 2: MSW Generation in the City Increases at 1 Percent

Alternative 2 assumes that the current City MSW generation rate of 7.10 pcd will likely increase throughout the planning period, but at a lower rate of 1 percent. The City per capita waste generation rate has increased approximately 2 percent per year from 2000 through 2002. This increase was observed in a period of high economic growth; with a projected lower economic growth rate over the SWMP planning period, the City does not expect the generation rate to increase at 2 percent. Therefore, the City chose a 1 percent per year increase as the high-end generation rate increase scenario for MSW projections.

For Alternative 2, the City calculated MSW projections by first increasing the average MSW generation rate by 1 percent each year and then multiplying the MSW generation rate by the City population estimates for the corresponding year. Table A-3 shows the MSW projections from 2004 to 2025 for this alternative. This alternative returns an approximate 25 percent higher MSW generation rate by the year 2025 than Alternative 1.

*Table A-3. City MSW Generation Projections 2004-2025: Alternative 2—1 Percent Annual Increase in Generation Rate*

| Year | Population | MSW generation rate (pcd) | MSW generation projection (tons) | Recycling rate (%) | MSW recycled (tons) | MSW disposal (tons) |
|---|---|---|---|---|---|---|
| 2004 | 10,555 | 7.17 | 13,822 | 51.9 | 7,175 | 6,647 |
| 2005 | 10,600 | 7.25 | 14,019 | 51.9 | 7,277 | 6,741 |
| 2010 | 11,300 | 7.62 | 15,707 | 51.9 | 8,154 | 7,553 |
| 2015 | 11,600 | 8.00 | 16,946 | 51.9 | 8,797 | 8,149 |
| 2020 | 11,900 | 8.41 | 18,271 | 51.9 | 9,485 | 8,787 |
| 2025 | 12,100 | 8.84 | 19,526 | 51.9 | 10,136 | 9,390 |

**Alternative 3: MSW Generation in the City Remains Constant; Estimates Calculated Separately for Residential and Commercial Sectors**

Alternative 3 includes separate estimates for the residential and commercial sectors. For the residential sector, MSW projections are calculated similarly to Alternative 1, with a constant generation rate and using population estimates. However, commercial waste generation is more closely related to City employment than the total population, so the City used employment data rather than population to calculate MSW projections for the commercial sector. City employment is projected to increase at a lesser rate than the population, so this alternative generates lower estimates than Alternative 1. Table A-4 shows the MSW projections from 2004 to 2025 for Alternative 3.

*Table A-4. City MSW Generation Projections 2004-2025: Alternative 3— Using Employment, No Increase in Generation Rate*

| Year | Population | Employ. | Commercial generation rate (pcd) | Residential generation rate (pcd) | MSW generation projection (tons) | Comm. Recycling rate (%) | Res. Recycling rate (%) | MSW recycled (tons) | MSW disposal (tons) |
|---|---|---|---|---|---|---|---|---|---|
| 2004 | 10,555 | 9,480 | 4.27 | 3.25 | 13,645 | 48.9 | 55.5 | 7,085 | 6,561 |
| 2005 | 10,600 | 9,500 | 4.27 | 3.25 | 13,687 | 48.9 | 55.5 | 7,107 | 6,580 |
| 2010 | 11,300 | 10,000 | 4.27 | 3.25 | 14,492 | 48.9 | 55.5 | 7,528 | 6,964 |
| 2015 | 11,600 | 10,300 | 4.27 | 3.25 | 14,904 | 48.9 | 55.5 | 7,741 | 7,163 |
| 2020 | 11,900 | 10,500 | 4.27 | 3.25 | 15,237 | 48.9 | 55.5 | 7,916 | 7,322 |
| 2025 | 12,100 | 10,600 | 4.27 | 3.25 | 15,434 | 48.9 | 55.5 | 8,020 | 7,414 |

**Alternative 4: MSW Generation Increases at 1 Percent; Estimates Calculated Separately for Residential and Commercial Sectors**

Like Alternative 3, Alternative 4 includes separate estimates for the residential and commercial sectors. For the residential sector, the City calculated MSW projections similarly to Alternative 2, with a 1 percent per year increase in the generation rate and using population estimates. The

City used employment data rather than population to calculate MSW projections for the commercial sector. City employment is projected to increase at a lesser rate than the population, so this alternative generates lower estimates than Alternative 2. Table A-5 shows the MSW projections from 2004 to 2025 for Alternative 4.

*Table A-5. City MSW Generation Projections 2004-2025: Alternative 4—Using Employment, 1 Percent Annual Increase in Generation Rates*

| Year | Population | Employ. | Commercial generation rate (pcd) | Residential generation rate (pcd) | MSW generation projection (tons) | Comm. Recycling rate (%) | Res. Recycling rate (%) | MSW recycled (tons) | MSW disposal (tons) |
|---|---|---|---|---|---|---|---|---|---|
| 2004 | 10,555 | 9,480 | 4.31 | 3.28 | 13,782 | 48.9 | 55.5 | 7,155 | 6,626 |
| 2005 | 10,600 | 9,500 | 4.35 | 3.31 | 13,962 | 48.9 | 55.5 | 7,250 | 6,713 |
| 2010 | 11,300 | 10,000 | 4.58 | 3.48 | 15,537 | 48.9 | 55.5 | 8,071 | 7,467 |
| 2015 | 11,600 | 10,300 | 4.81 | 3.66 | 16,794 | 48.9 | 55.5 | 8,722 | 8,071 |
| 2020 | 11,900 | 10,500 | 5.06 | 3.85 | 18,046 | 48.9 | 55.5 | 9,375 | 8,671 |
| 2025 | 12,100 | 10,600 | 5.31 | 4.04 | 19,211 | 48.9 | 55.5 | 9,982 | 9,229 |

***Note that these projections assume the continuation of the City's current management practices and conditions***. Programs implemented by the City of Falls Church over the SWMP planning period may result in lower actual MSW generation amounts than these projections.

# Appendix B Recycling Markets

The economic viability of recycling depends on a number of factors, including the prices for recyclable materials. Table B-1 shows Washington, DC, and national market prices.

*Table B-1. Local and National Recyclable Material Prices, September 2003 ($/ton)*

| Material | Washington, DC | National |
|---|---|---|
| **Metals** | | |
| **Ferrous** | | |
| Used steel cans | 75 | 90 |
| No. 2 bundles | 80 | 76 |
| Municipal shredded | 80 | 88 |
| Shredded auto scrap | 120 | 121 |
| **Nonferrous** | | |
| Aluminum used beverage cans | 920 | 980 |
| Auto batteries | 60–80 | 100 |
| **Plastics, baled** | | |
| Clear PET | 240 | 300 |
| Green PET | 200 | 280 |
| Natural HDPE | 180 | 260 |
| Mixed HDPE | 100 | 180 |
| Mixed PET | 120–140 | 220 |
| Mixed HDPE and PET | 20–40 | 60 |
| **Paper, post-consumer** | | |
| Corrugated | 40 | 64 |
| Newspaper 6 | 35–40 | 44 |
| Newspaper 8 | 60–65 | 70 |
| High-grade office | 180–185 | 122 |
| Colored ledger | 75–80 | 94 |
| White ledger | 120–130 | 153 |
| Computer laser | 126–136 | 166 |
| Computer laser- free | 130–138 | 178 |
| **Glass** | | |
| Clear | 29 | 29 |
| Green | 11 | 9 |
| Brown | 14 | 17 |

Source: *Recycling Manager*, a service of American Metal Market, 2003.

The current recycling market (2003) places the highest value on office paper, white ledger paper, laser paper, aluminum used beverage cans (UBCs), and plastics, including PET and natural HDPE. Prices for glass, mixed HDPE and PET, corrugated cardboard, and newspaper #6 are relatively low. The market for recyclables is still developing. As more end-products use recyclables as inputs, the viability of markets for recyclables will grow. In addition, viable markets for other recyclables may emerge during the SWMP planning period.

# Appendix C Source Reduction and Reuse Best Practices

Tables C-1 through C-3 present potential source reduction and reuse best practices for consumers, businesses, and manufacturers.

*Table C-1. Resident and Consumer Source Reduction and Reuse Actions*

| Action | Effect |
|---|---|
| *Reduce use*. Attempt to use materials less and more efficiently. | Reduces materials entering waste stream. |
| *Practice eco-shopping or smart shopping*. Choose products that have less packaging and look for packaging that can be reused. Look for concentrates and powders, like juice mixes. Also, buy detergent refills or concentrates. | Reduces packaging entering waste stream. |
| *Bring cloth bags when grocery shopping*. | Reduces the use of plastic and paper bags. |
| *Use cloth diapers*. | Lowers amount of waste disposable diapers contribute. |
| *Eliminate or minimize unnecessary mail*. Ask United States Postal Service (USPS) and bulk mailers to remove your address from their lists; add link and endorsement on the City website to a do-not-mail organization to reduce junk mail. | Reduces paper entering waste stream. |
| *Minimize the use of disposable cups, plates, etc*. Use washable plates, cups, and silverware at home. Bring regular silverware and plastic plates and cups on picnics; bring them home to wash. | Reduces paper and plastic entering waste stream. |
| *Use longer-lasting products like compact fluorescent light bulbs*. | Increases efficiency and reduces costs in the long term. |

*Table C-2. Business Source Reduction Actions*

| Action | Effect |
|---|---|
| **Purchasing and procurement** | |
| *Buy in bulk and consider cooperative purchases with other businesses*. | Reduces price and packaging wastes. |
| *Think "minimum impact" when ordering equipment or designing processes*. Buy rechargeable batteries, fluorescent or sodium lights, plain paper faxes, reusable bank deposit bags, solar power, bulk containers, permanent plantings for landscaping, and mulching lawn mowers. | Reduces equipment contribution to waste stream. |
| *Carefully calculate how much of a particular product is needed*. | Reduces storage requirements and excess waste. |
| *Buy durable and repairable products*. Long warranties often imply durability. | Delays product entry into the waste stream. |
| *Buy used equipment*. Send usable discards to a reuse center. | Reduces equipment entering waste stream. |
| *Select equipment with resource reduction features*. Buy copiers and printers that produce double-sided copies and hand-crank (not electric) pencil sharpeners. | Double-sided copies reduce paper use, and hand-crank sharpeners reduce materials needed for energy production. |
| *Rent, lease, contract, or share equipment that is used infrequently or needs costly maintenance*. Includes floor buffers, lawn mowers, and snow blowers. | Delays equipment contribution to waste stream. |
| *Keep up with equipment maintenance and repair*. | Extends equipment's useful life and reduces wear on environment. |
| *Calculate ownership cost before buying*. | Durable goods may be more expensive initially, but pay off in long run. |
| *Review bid specifications*. Change bids and contracts to be sure that source reduction products are allowed and encouraged. | Encourages firms to reduce waste. |
| **Office Environment** | |
| *Upgrade computers with new cards and chips for as long as possible*. | Lowers cost; reduces final number of computers thrown away. |
| *Develop a written source reduction policy and encourage business-wide reductions*. Organize and integrate a protocol into organization culture—top management support is crucial to success in changing the habits and attitude of employees. | Institutionalizes source reduction. |
| *Develop employee education programs on reducing waste*. Ask employees for ideas on preventing waste; reward good ideas. | Disseminates source reduction thinking. |
| *Install hand driers in bathrooms*. | Reduces paper waste. |
| *Use computers to reduce paper use*. Send e-mails instead of letters, circulate one copy of memos and publications, and print double-sided copies. | Reduces paper waste. |
| *Incorporate reductions into many aspects of the office environment*. Use cloth towels, reusable air filters, refillable pens, erasable wall calendars, and refillable ink-jet print cartridges. | Reduces general office contribution to waste stream. |
| *Consider the toxicity of office products when ordering*. Use vegetable-based inks and unbleached paper, tack carpets instead of using volatile organic compound (VOC) adhesives, use lead-free paints, and do not use chemical degreasers for maintenance. | Reduces harm to the environment. |
| *Cut off junk mail*. Add link and endorsement on the City website to a do-not-mail organization to reduce junk mail; ask USPS to stop junk mail. | Reduces paper entering waste stream. |

*Table C-3. Manufacturer Source Reduction Actions*

| Action | Effect |
|---|---|
| *Increase the useful life of product through durability and reparability*. | If products last longer, fewer need to be produced and thrown away. |
| *Provide outreach information*. Help publicize the issue of source reduction and what consumers, residents, businesses, and manufacturers can do. | Increases awareness of source reduction. |
| *Form public-private partnerships*. Support source reduction in the community or provide needed services such as packaging reuse or waste exchange. | Organizes and expands source reduction. |
| *Minimize packaging*. Avoid over-packaging. | Reduces packaging entering waste stream. |
| *Use packaging to reduce damage or spoilage to the product*. | Gives the product a longer life and reduces waste. |
| *Provide items in bulk*. | Encourages shoppers to buy in bulk. |
| *Make manufacturer/producer responsible for ultimate disposal of their products and packaging*. Take responsibility for products and packaging by providing collection and disposal services. | Encourages producers to design products and packaging differently. |
| *Reduce material use in product manufacture*. | Lowers costs. |
| *Use cleaner technology in production*. | Reduces pollution. |
| *Reduce toxicity of products and packaging*. | Lessens the detrimental environmental impacts of waste. |

# Appendix D

# SWMP Flyer

300 Park Avenue
Falls Church, VA 22046-3332

## *The City Is Developing a 20-Year Plan for Solid Waste Management.*

# *YOUR INPUT IS NEEDED!*

All municipalities in the Commonwealth of Virginia are required to submit a 20-year comprehensive Solid Waste Management Plan by July 1, 2004. The City considers this planning process to be much more than a state requirement: it is an opportunity to look at solid waste generated in every sector of the Falls Church community (residential, commercial, institutional) - to see how that waste was generated and where it is going, to assess both achievements and unmet needs, and to chart a course for the next twenty years.

The Falls Church City Council has appointed an *ad hoc* advisory committee to guide the development of the Plan and to ensure that there is extensive public participation in the Plan's development. Members of the committee include representatives from City Council, the Environmental Services Council, the City Schools, residents, businesses, and the solid waste industry.

***Please use one of the methods listed on the back of this flyer to communicate your concerns and suggestions regarding solid waste management in the City of Falls Church. If you have thoughts about solid waste generation, reduction, collection, or education, the Solid Waste Management Plan Advisory Committee would like to hear from you!***

*Printed on recycled paper*

Environmental Services Division
Office of Recycling

300 Park Avenue,
Falls Church, VA 22046 -3332

The City of Falls Church does not discriminate on the basis of disability in its employment practices or in the admission to, access to, or operation of its services, programs, or activities. Letha Flippin, 300 Park Avenue, Falls Church, Virginia, has been designated to coordinate compliance with the ADA non-discrimination requirements. The City of Falls Church complies with the Americans with Disabilities Act. This document will be made available in an alternate format upon request. Call 703.248-5001, Virginia Relay Center, 1-800-828-1120.

*City of Falls Church*

# Solid Waste Management Plan: Public Input Opportunities

All citizens in the City of Falls Church are invited and encouraged to offer their comments regarding solid waste management in our community. Areas to consider are waste reduction, recycling, and waste disposal in all sectors of the community (homes, businesses, schools, government agencies, churches, non-profit organizations, etc.). Please help us identify problem areas and unmet needs by contacting us in one or more of the following ways:

SWM Plan Advisory Committee Meetings (*Time will be dedicated at each meeting to hear comments from the public.)*

Wednesday, February 18, 2004 (7:00 p.m., City Hall Admins. Conference Room)
Tuesday, February 24, 2004 (7:00 p.m., City Hall Training Room)
Tuesday, March 9, 2004 (7:00 p.m., City Hall Training Room)
Tuesday, March 23, 2004 (7:00 p.m., City Hall Training Room)

E-mail Messages (*to be forwarded to Advisory Committee members):*
amills@ci.falls-church.va.us

Letters *(to be forwarded to Advisory Committee members):*

Annette Mills, Recycling Coordinator
Department of Environmental Services
City of Falls Church
300 Park Avenue
Falls Church, VA 22046

Public Meetings: A public meeting may be scheduled in February.

Public Hearings: Public hearings will be scheduled for the public to comment on both the draft plan and the proposed plan, prior to City Council approval. **The public will be notified of these hearings, once dates have been determined. However, the Advisory Committee would prefer to receive comments earlier in the plan development process.**

*For more information, please call Recycling Coordinator Annette Mills at 703-248-5176.*

*THANK YOU FOR YOUR INPUT!*

# Appendix E

# SWMP Articles in Spring 2004 "Falls Church Environment" Newsletter

A PUBLICATION OF THE CITY OF FALLS CHURCH

THE FALLS CHURCH ENVIRONMENT

SPRING 2004

DEPARTMENT OF ENVIRONMENTAL SERVICES

## *Are You a User – or a Loser?*

*Residents who choose to recycle help save precious tax dollars! Cardboard, mixed paper, and newspaper that are recycled not only save disposal fees -- they actually generate revenue. During March, for example, the 81 tons of cardboard and paper that were recycled by City residents saved taxpayers over $3,200 in disposal costs and earned the City over $4,000 from the sale of these materials.*

## Public Meeting May 19 on Future of Solid Waste

The City's draft Solid Waste Management Plan is now available on the City's website (www.ci.falls-church.va.us), at the Mary Riley Styles Public Library, and from the Recycling Coordinator (703-248-5176) and the City Clerk (703-248-5014). Citizens are encouraged to review the draft plan, ask questions, and provide input:

**Wednesday, May 19, 2004 – 7:30 p.m.**
**City Hall – Council Chambers**
**300 Park Avenue, Falls Church, VA**

This meeting will include a brief overview, followed by audience questions and comments. Call 703-248-5176 for details.

# New Plan Attacks Rising Waste Problem

Falls Church citizens produce a lot of waste – more than other citizens in our region and significantly more than other Americans. This fact has led to the creation of a strategic planning document (the draft Solid Waste Management Plan) that not only meets state requirements, but lays the groundwork for bold new waste reduction and recycling initiatives in the City of Falls Church from 2004 through 2024.

Based upon the average of the past three years, the waste generation rate for the City of Falls Church is 7.10 pounds per capita per day (pcd). This compares with 5.8 for the Washington metropolitan area and 4.51 for the nation. Municipal solid waste (MSW) includes both trash and recyclables produced at residences, businesses, industries, and institutions such as schools and government offices. Also included in MSW are yard waste and household hazardous waste.

During the 1990s, the City of Falls Church gained national recognition for its unusually high residential recycling rate of 65%. But that rate has been steadily declining in recent years. In 2003, the City's residential recycling rate dropped to 55%, creating an unnecessary fiscal and environmental burden.

To reverse this trend, the draft plan calls for a number of new initiatives, including:

- Increased public outreach and education,
- A greater range of materials collected at multi-family residences,
- Increased business recycling requirements,
- Implementation of a "pay-as-you-throw" trash collection system, and
- Establishment of a household hazardous waste collection program in the City.

Appendix

# F

# SWMP Brochure

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## What is the Solid Waste Management Plan?

The Solid Waste Management Plan provides the City's integrated strategy and long-range plan for managing trash and other solid wastes generated in the City over the next 20 years. The Virginia Department of Environmental Quality requires jurisdictions to complete the Plan by July 1, 2004.

When implemented, the Plan will provide a solid waste management system that meets the needs of City residents as our waste collection, recycling, and disposal needs grow in future years. The Plan aims to promote waste reduction and recycling in the City as alternatives to waste disposal.

### Key Issues Facing Our Solid Waste System

- Need for increased source reduction and reuse to reduce the increasing amount of waste generated in the City.
- Need for increased recycling to reduce the burden on waste disposal.
- Municipal solid waste (MSW) disposal must be provided; the contract for the primary disposal facility, Fairfax County's I-95 Energy/Resource Recovery Facility, will expire after 2011
- Construction/demolition/debris (CDD) disposal capacity may be exhausted within seven years
- Regional increases in yard waste quantities may impact the availability of composting facilities for City-generated yard waste.
- The City Transfer Yard may not be available for leaf storage and processing.

City of Falls Church

Solid Waste Management Program

300 Park Avenue
Falls Church, VA 22046

Annette Mills, Recycling Coordinator
Phone: 703.248.5176
E-mail: amills@ci.falls-church.va.us

Visit the Solid Waste Management Plan web page at:
www.ci.falls-church.va.us/services/swmp/index.html

# City of Falls Church Solid Waste Management Plan

**2004 ➡ 2024**

**Planning the Future of Solid Waste in the City of Falls Church**

# A Strategic Plan for Managing Solid Waste In Falls Church

*Primary Proposed Changes*

## Residential/Government Recycling

**Proposed new programs and policies will increase residential and government recycling opportunities.**

- Expand the types of recyclables collected at multifamily buildings to include those provided to residents who receive City collection services.
- Promote toxicity reduction from the waste stream with innovative programs concentrating on batteries and electronic wastes.
- Encourage increased recycling at City government facilities and City schools.

## Business Recycling

**The City plans to implement programs and policies to increase the business recycling rate!**

- Reduce the business recycling thresholds so fewer business will be exempted from recycling requirements.
- Expand the types of recyclables required to be recycled by businesses.

## Trash Collection

**The City will implement a Pay-As-You-Throw trash collection system.**

- Under a Pay-As-You-Throw (PAYT) system, residents are charged based on the amount of trash they throw away.
- PAYT provides a more equitable trash collection program.
- PAYT creates an economic incentive to recycle more and to generate less.

## Construction/ Demolition/Debris (CDD)

**The City plans to implement programs and policies to increase recycling of CDD.**

- Promote CDD recycling.
- Continue to dispose CDD in suitable landfills.
- Work with other jurisdictions to foster a regional approach for CDD disposal.

## Disposal

**The City will continue to rely on Fairfax County's disposal system for disposal of City-generated trash.**

- Use the I-95 Energy/Resource Recovery Facility with out-of-county landfills for backup support.
- Establish agreements with other jurisdictions for alternative disposal.

## Funding

**The City will modify the current funding structure.**

- Revise the residential collection fee structure to support Pay-As-You-Throw.
- Expand resources and funding to support solid waste management program administration, increased public outreach and education, and establishing a HHW program in the City.

## Finalizing the Plan

- A public hearing will be held to finalize the plan on June 14, 2004.

Appendix

# G

# City Council Resolution Adopting the SWMP

RESOLUTION 2004-19

RESOLUTION TO APPROVE THE SOLID WASTE MANAGEMENT PLAN FOR THE CITY OF FALLS CHURCH

WHEREAS, the Virginia Waste Management Board (hereinafter the State) has been authorized by 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 State 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 hierarchy:

- Source Reduction
- Reuse
- Recycling
- Resource Recovery (Waste-to-Energy)
- Incineration
- Landfilling, and
- Plan Implementation; and

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 next 20 years; and

WHEREAS, all updated plans must be submitted to the Virginia Department of Environmental Quality by July, 1 2004; and

WHEREAS, the City Council of the City of Falls Church, Virginia, established a solid Waste Management Plan Advisory Committee (SWMPAC) to advise the Council in the development of the City's 20-year Solid Waste Management Plan; and

WHEREAS, the SWMPAC met extensively to review the City's current solid waste management program and evaluate the needs and opportunities for solid waste management in the City for the next twenty years; and

WHEREAS, the SWMPAC held a public meeting on May 19, 2004, to present the proposed plan to the citizens of Falls Church and made it available to the public for review and comment; and

Res. 2004-19
Page 2

WHEREAS, the Solid Waste Management Plan includes 18 objectives and 32 actions to consider and evaluate for possible further action, subject to City Council approval and appropriation of funds; and

WHEREAS, the Plan provides a framework on which to build policy and direction for solid waste management in the City of Falls Church over the course of the next twenty years;

NOW, THEREFORE BE IT RESOLVED, by the City Council of the City of Falls Church, Virginia, that the City of Falls Church Solid Waste Management Plan dated April 28, 2004, is hereby adopted; and

BE IT FURTHER RESOLVED, that the City Council directs and authorizes the City Manager to submit the adopted Solid Waste Management Plan to the Virginia Department of Environmental Quality on behalf of the City.

Reading: 6-14-04
Adoption: 6-14-04
(TR04-20)

IN WITNESS WHEREOF, the foregoing was adopted by the City Council of the City of Falls Church, Virginia on June 14, 2004 as Resolution 2004-19.

Kathleen Clarken Buschow
City Clerk

Appendix

# H

# City Clerk's Minutes of the Public Hearing

**MINUTES OF THE REGULAR MEETING OF THE CITY COUNCIL**
**FOR THE CITY OF FALLS CHURCH, VIRGINIA**
**HELD IN THE COUNCIL CHAMBERS,**
**300 PARK AVENUE AT 7:30 P.M.**

**Monday, June 14, 2004**

Mayor Gardner called the meeting to order at 7:38 p.m. and led the assemblage in the Pledge of Allegiance to the Flag.

Upon roll call, the following City Council Members were present.

Ms. Gardner
Ms. Hockenberry
Mr. Mabry
Ms. Meserve
Mr. Parson
Mr. Gardner

Mr. Snyder was absent due to business travel.

Also present were City Manager Dan McKeever, City Attorney Roy Thorpe, and City Clerk Kathleen Buschow.

**Proclamations**

None.

*The Mayor asked the Clerk to read Item 10 (d) (2) as follows:*

**(TR04-20)** *Resolution To Approve The Solid Waste Management Plan For The City Of Falls Church.*

Recycling Coordinator Annette Mills made opening remarks and stated that all jurisdictions were required by state law to submit solid waste management plans to the state. She explained the composition of the Solid Waste Management Plan Committee and thanked all of the members for their hard work. She said the Committee had met eleven times between December and March and had worked closely with staff to review the current program and gaps. Ms. Mills then reported on the process and efforts taken to reach out to the public about the plan. She said this provided a plan for all of the city's solid waste needs for the next 20 years. She emphasized that this was a strategic plan providing a general direction, rather than a firm commitment, that did not obligate the city to any new funding. Ms. Mills also acknowledged that the Plan would undoubtedly change over the years.

Laurie Huber (704 Berry Street), Chair of the Solid Waste Management Plan Committee, asked the Council to adopt the plan, as presented, and forward it on to Richmond. She said it provided a long list of opportunities to responsibly manage solid waste in the city. Ms. Huber highlighted the two goals of the plan: 1) to become a community of citizens whose actions reflect an ethic of resource conservation and waste minimization; and 2) to develop and maintain a secure, cost effective, environmentally sound, and resource efficient solid waste management program.

The Mayor asked for a motion.

MOTION: Ms. Hockenberry MOVED, seconded by Ms. Meserve, passage of TR04-20.

The Mayor opened the matter to the public for discussion.

Gail Wadsworth (200 N. Maple Avenue) said her building consisted of 97 condominium homes. She commented that the condo owners not only paid real estate taxes, but they also paid for their solid waste management collection. She asked the Council to consider fair treatment for condominiums with multifamily homes so that either solid waste collection would be provided to those homes or a credit would be provided. Ms. Wadsworth said their condo had been successful in recycling, but at their own expense, in addition to paying for their own trash collection. She thanked the Committee for addressing this issue in the SWMP and she asked the Council to go beyond that with measures to provide for parity with single-family homes.

Seth Heminway (600 Fulton Avenue) supported the SWMP and believed that it moved the city towards becoming more sustainable. He asked for a policy to require full participation by all local businesses. Mr. Heminway supported the city using vendors for electronic products that would take their equipment back at its life end to reduce the impact of disposing of those items. He was impressed with the Pay As You Throw program that revealed the cost that had always been associated with solid waste removal. He said the program created an incentive to reward citizens for reducing their amount of waste. Mr. Heminway said the Pay As You Throw program had reduced disposal costs in other communities and could do that in Falls Church.

Rich Kochinzky (600 Roosevelt Boulevard, Madison Condominiums) commented on the imbalance between condo owners paying for trash pickup and the city providing that service to single-family homeowners. He said the Pay As You Throw program was an attempt to make a reasonable and realistic accommodation for single-family homeowners and multi-family homeowners. He commented that with more condos in the city, the Pay As You Throw program was important for parity.

The Mayor asked the Clerk to summarize written comments as follows:

The following citizens have expressed support for the Proposed Solid Waste Management Plan, particularly the "Pay As You Throw" program.

- Rachael and Rosser Clark (618 Laura Drive)
- Catherine Wiant (112 W. Greenway Blvd.)
- Kathy Allan (436 Sherrow Avenue)

- Jeremy Schneider (119 S. Oak Street)

There being no additional public comment and nothing further in writing, the item was closed to public hearing and opened to the Council for discussion.

Ms. Gardner thanked everyone who worked on the documents. She said there might be some confusion as to what was being approved that evening; that the Council was approving the plan, but that would not mean that a Pay As You Throw program would be immediately implemented.

Mr. Parson also noted the confusion about the Pay As You Throw program. He clarified that there would be no new fees with the passage of the plan that evening. Ms. Mills said the city would move very slowly with respect to the Pay As You Throw program and would be looking for a lot of public input. Mr. Parson requested that the Pay As You Throw program not be "fussy."

Mr. Mabry asked Ms. Mills if she knew how much a family could expect to pay under a Pay As You Throw program. Ms. Mills stated that they were still in the very early stages of the study. She said the EPA recommended spending months investigating what was being done in other communities. She also stressed the need to educate the public about the cost of collection and that the program would make that more equitable. Ms. Mills pointed out that other communities with such a program had experienced cost savings with more recycling and less waste production. Mr. Mabry observed that the big challenge would be for families with children because of the number of people and the things that kids consume, which he believed was an equity issue.

Ms. Hockenberry said she had learned a lot while working on the committee. She noted that it was unfortunate that recent headlines had stirred up negative emotions on an issue still in the early planning stages and which was one of many, many recommendations. She then commented on school recycling and business recycling and she said they were aware of the inequities with condos, which should be studied.

Ms. Meserve thanked the members of the committee and said they had had a lot of meetings, a lot of homework, and an excellent consultant. She thanked Annette Mills and Lori Huber for keeping the group on task. Ms. Meserve emphasized that nothing in the plan would take place before a cost analysis was made of all of the suggestions. She recommended the plan to the public and said it was very interesting reading. Ms. Meserve said it had been necessary to go through the process to identify the gaps in the current program to reduce the increased amount of waste and she noted that disposal facilities were reaching capacity.

Mayor Gardner said it was more costly to dispose of waste than to recycle. He commented on Pay As You Throw programs in other localities in the state. He thanked everyone on the committee and the 50 citizens that provided input.

There being no further discussion, the Mayor asked the Clerk to call the roll on the motion.

Ms. Gardner: AYE
Ms. Hockenberry: AYE
Mr. Mabry: AYE
Ms. Meserve: AYE
Mr. Parson: AYE
Mr. Gardner: AYE

The Mayor announced that TR04-20 passed unanimously, 6-0, and it was so ORDERED. (Res. 2004-19) (Mr. Snyder was absent.) [Attached hereto and made a part hereof]

_____ _____

City Clerk Mayor Gardner

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