2020 Solid Waste Management Plan Update

Prepared for Submittal to the Virginia Department of Environmental Quality

County of Fairfax, Virginia
Department of Public Works and Environmental Services
Solid Waste Management Program
12000 Government Center Parkway • Suite 458 • Fairfax, VA 22035

1. INTRODUCTION

This document is the product of an ongoing process of planning, review, and update on a five-year cycle, per the Virginia Solid Waste Management Regulations (9VAC20-130-173 - Maintenance of Solid Waste Management Plans). Milestones in the process to arrive at this 2020 update are as follows:

1. The Virginia Department of Environmental Quality (VDEQ) approved the County's current Solid Waste Management Plan (SWMP) on April 20, 2005 (the 2004 SWMP).

2. The County's first five-year review of the 2004 Plan was approved by VDEQ on June 24, 2010.

3. The County's second five-year review of the 2004 Plan (a.k.a., the 2015 SWMP Update) was approved by DEQ on December 16, 2015. Generally, the analyses and projections prepared for the 2004 SWMP remained current as reflected in the five-year reviews submitted in 2010 and 2015; however, there were several trends, described in the 2015 update, that warranted further comment. The 2015 Update therefore included an appended report, *2015 SWMP Update Research and Analysis*, which provided a detailed presentation of the study conducted in preparation of the 2015 SWMP update.

4. The County's third five-year review of the 2004 Plan (a.k.a., the 2020 SWMP Update) was submitted in April 1, 2020, and approved by DEQ on December 28, 2021.

This document incorporates all of the approvals provided above into a single, stand-alone document.

2. PLAN UPDATE ELEMENTS

This 2020 SWMP Update addresses the following topics:

- Populations/Demographics
- Waste Generation
- Waste Projections
- Recycling
- Construction and Demolition Debris (CDD)
- Solid Waste Management Facilities

  - MSW Facilities
  - Recycling Facilities
  - CDD Facilities
- Facility Permit Status Changes
- Highlights of Current Plan Elements
- Future Planning Considerations
- Public Participation Efforts in support of the 2015 SWMP Update

The following sections discuss those elements of the 2004 SWMP that based on this five-year review, warrant further comment. Each section is cross-referenced with the relevant section of the 2004 SWMP.

3. UPDATES TO THE 2015 (APPROVED) PLANNING SUBMITTAL

3.1 Population/Demographics (*Chap. 2 of 2004 SWMP; Population, p. 2-4; Population Forecasts, p. 2-5; Employment, p. 2-9*)

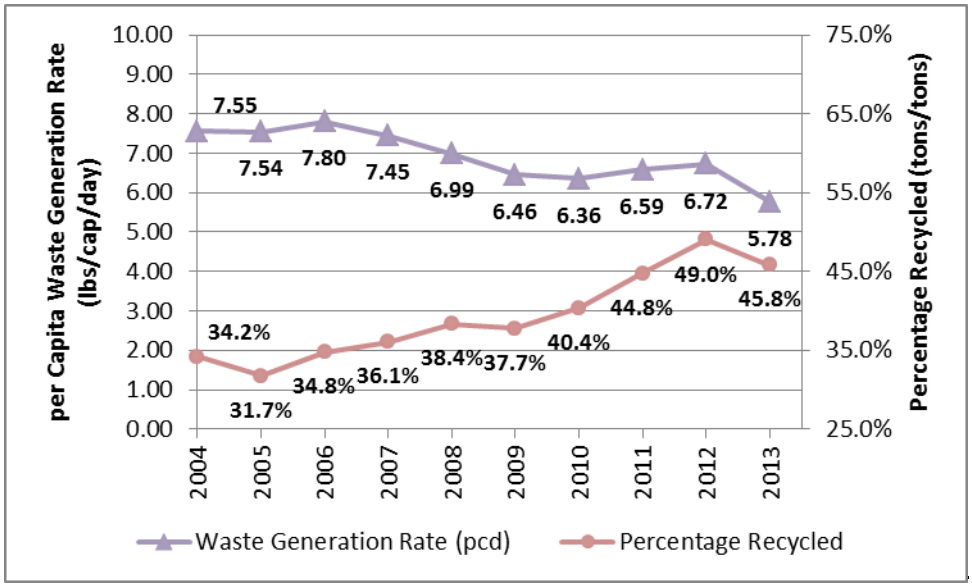
Based on anecdotal information, population and employment projections are not anticipated to have changed significantly enough since the 2015 update to merit further analysis and update at this time

Population. For the five-year review, population projections were developed using demographic information available from the Fairfax County Department of Neighborhood and Community Services and the U.S. Census Bureau. U.S. Census population data for Fairfax County were reviewed for consistency with County population projections. As the 2004 SWMP covered the geographic footprint of the County, including Cities and Towns, U.S. Census data were used to incorporate the populations of Cities of Fairfax and Falls Church. The population projection from our five-year review, including reported actual populations from 2004 to 2013, was compared to the population projection used in the 2004 SWMP as shown below. The updated population projection is within ±3% of the 2004 SWMP.

Employment. Employment data was reviewed as a secondary means to support the evaluation of actual waste generation to that projected in the 2004 SWMP. Employment projections were developed based on data available from the U.S. Census and the Metropolitan Washington Council of Governments (MWCOG).

As shown below, historic employment lagged the 2004 SWMP projection beginning in 2004 (down by 12.2 percent) and reached a maximum difference in 2010 (down by 16.4%), consistent with the economic downturn at that time. Reported employment in the County has shown recovery since 2010, although it remains below the 2004 SWMP projection. Employment levels in the County likely contributed in the observed decline in waste generation discussed in Section 3.2 below. Current employment projections anticipate a steady increase in employment in the County, reaching and exceeding the 2004 SWMP projection within the span of this update.

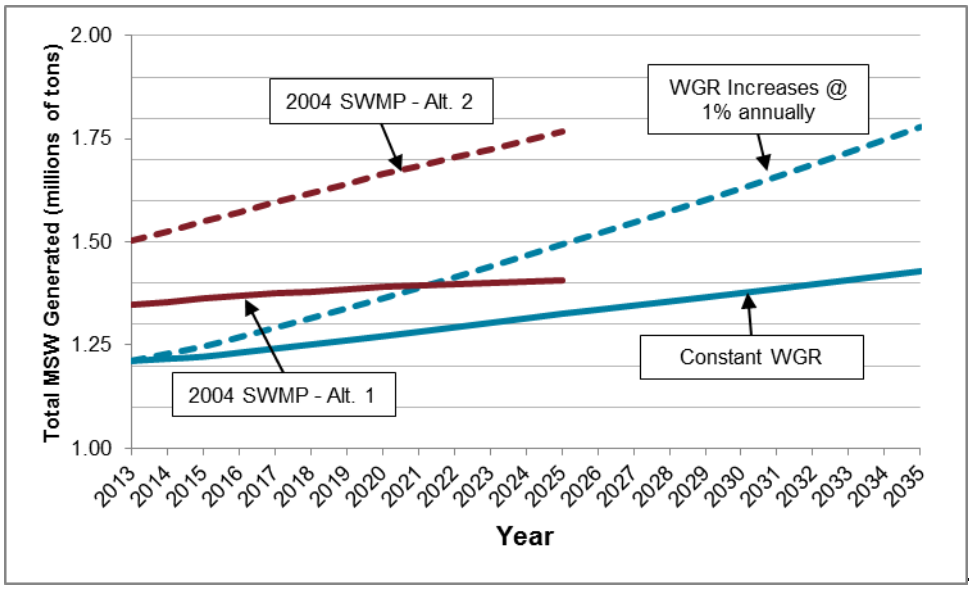
3.2 Waste Generation (*Chap. 2 of 2004 SWMP; Solid Waste Generation Projections, p. 2-24*)



Review of Estimated Waste Generation--

Waste generation estimates, inclusive of the County and its cities and towns, were developed for the 2015 SWMP Update. The basic method used multiplied then-current population projections by historical per-capita generation rates (applied at a fixed rate and with an assumed increase of 1% per annum, to provide a range). The projections submitted in the 2015 SWMP Update were conservative compared to the initial projections presented in the 2004 SWMP. The latest available population totals for the County in 2020 (CY2018) falls within 0.25 percent of the 2015 projections. Actual tons of MSW generated over the same time period have tracked approximately 3-5% (as a moving average) above the 2015 projection, with 2015-2017 experiencing MSW

generation above the high-end of the projected range. In 2018, the County generated 1.29 million tons of MSW, within the 2015 projected range (1.25 – 1.32 million tons). Accordingly, the County believes that MSW generation estimates prepared for the 2015 SWMP Update remain valid for planning purposes.



3.3 Recycling (*Chap. 2 of 2004 SWMP; Waste Generation Projections, p. 2-14)*

Based on anecdotal information, and with neither population nor employment projections increasing significantly since the 2015 Update, further analysis and update was deemed unwarranted at this time (i.e., the 2015 projections remain relevant for planning purposes).

3.4 Construction and Demolition Debris (*Chap. 2 of 2004 SWMP; CDD, p. 2-15*)

The County does not track and record CDD generation and management data (CDD facilities are not required to report in-County generation to the County or to state regulating agencies). The projections approved by DEQ in the 2015 SWMP Update continue to be conservative, compared to the initial projections presented in the 2004 SWMP, and further update therefore not warranted at this time.

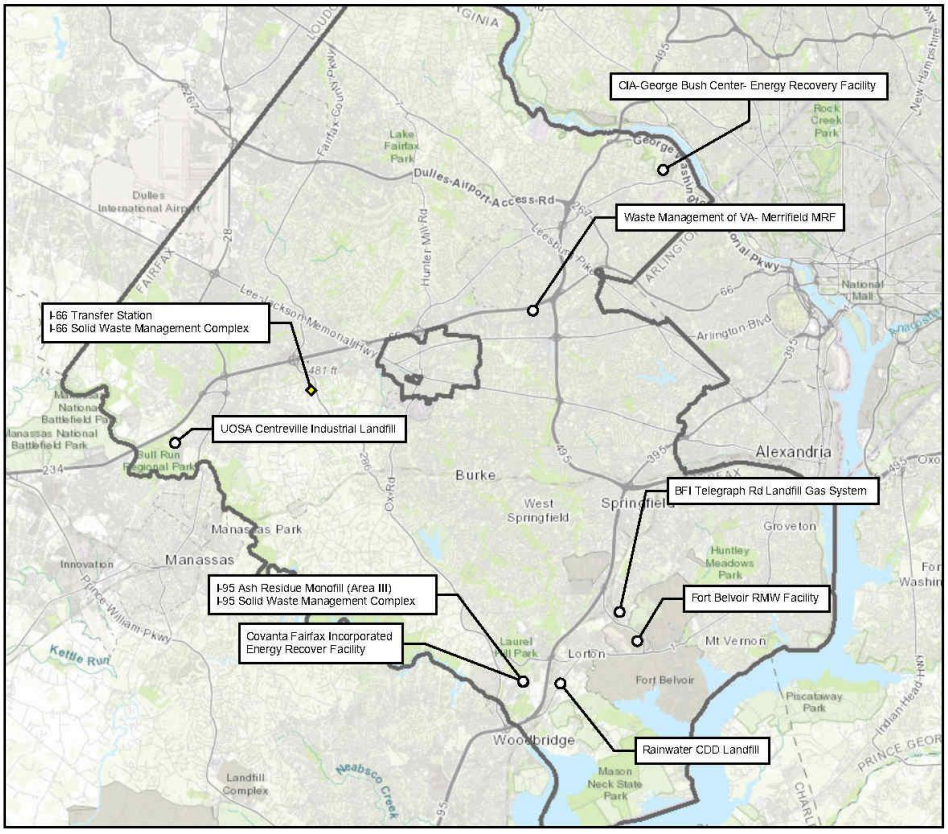
3.5 Solid Waste Facilities (*Chap. 5 of 2004 SWMP)*

MSW Facilities--The County's solid waste management system utilizes a number of facilities for the management, processing, and disposal of recyclables and MSW. Primary facilities include the I-66 Transfer Station and the Covanta Energy/Resource Recovery Facility (E/RRF) located at the I-95 Landfill Complex. Approximately 75 percent of MSW generated and collected in the County is delivered to the I-66 Transfer Station Complex, where post-recycling MSW is directed to various facilities for processing and disposal. The balance of the MSW generated and collected in the County is delivered directly to the Covanta E/RRF. Secondary facilities include the Prince William County Landfill and the King George Landfill, where the County transfers MSW at various times including periods of peak MSW generation and periods when processing capacity at the Covanta E/RRF is constrained due to maintenance. Ash residue generated from MSW processing at the Covanta E/RRF is disposed in the County's I-95 Landfill (Area III).

With no significant change in waste generation and available disposal facilities since the 2015 Update, sufficient capacity continues to be available to meet the projected needs of the County, and the County's current use of contracted disposal facilities will continue. MSW facilities used by or potentially available to the County over the next five years include all of the facilities listed in the 2015 Update, i.e., the nine listed disposal sites are still active, with all but one reporting adequate capacity to serve during the planning review period (2020-2025).

Recycling Facilities--The County recycling program is comprehensive, providing several avenues for residents and businesses to recycle. Curbside, single-stream recycling has been implemented Countywide. In addition, the County offers drop-off services for principal (i.e., paper, plastic, metal, glass, and yard waste) and supplemental recyclable materials (i.e., specialty wastes such as E-waste, and Household Hazardous Waste (HHW)) at both County disposal sites.

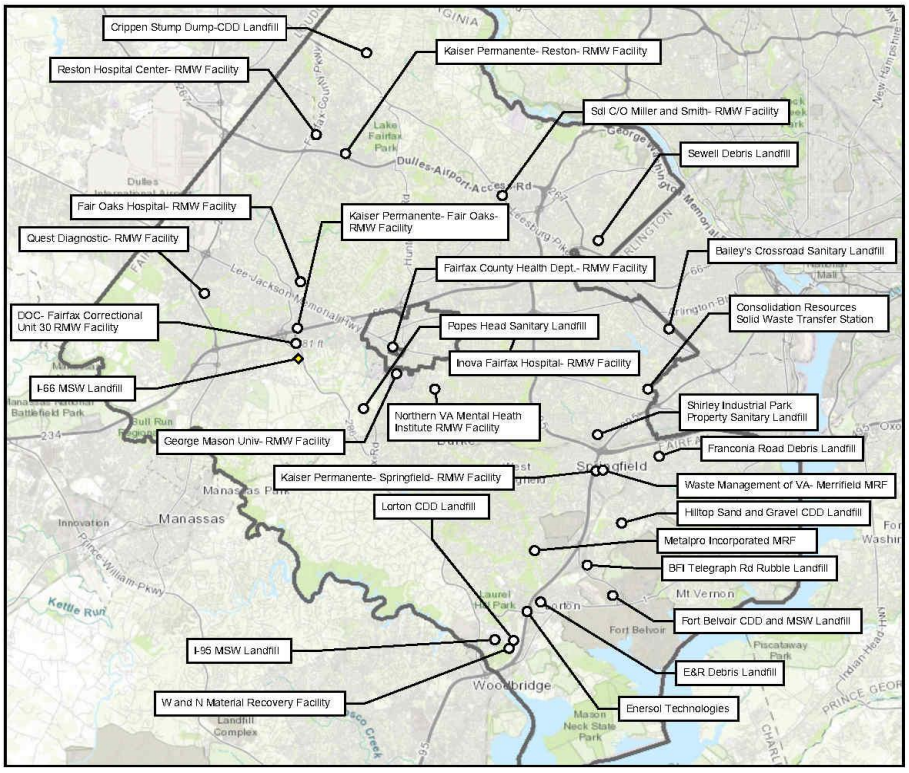
The program is serviced by a hybrid of public- and private-sector service providers, with numerous outlets used for the range of recyclables recovered both curbside and at the drop-off centers. The capacity of the private sector recycling infrastructure servicing the County remains substantially unchanged since the 2015 Update, and therefore is anticipated to continue to be adequate for the County's needs for the duration of the planning period.



ACTIVE WASTE MANAGEMENT
FACILITIES IN FAIRFAX COUNTY

FIGURE 1
FEBRUARY 2022

FAIRFAX COUNTY
SOLID WASTE MANAGEMENT PROGRAM



CLOSED WASTE MANAGEMENT
FACILITIES IN FAIRFAX COUNTY

FIGURE 2
FEBRUARY 2022

FAIRFAX COUNTY
SOLID WASTE MANAGEMENT PROGRAM

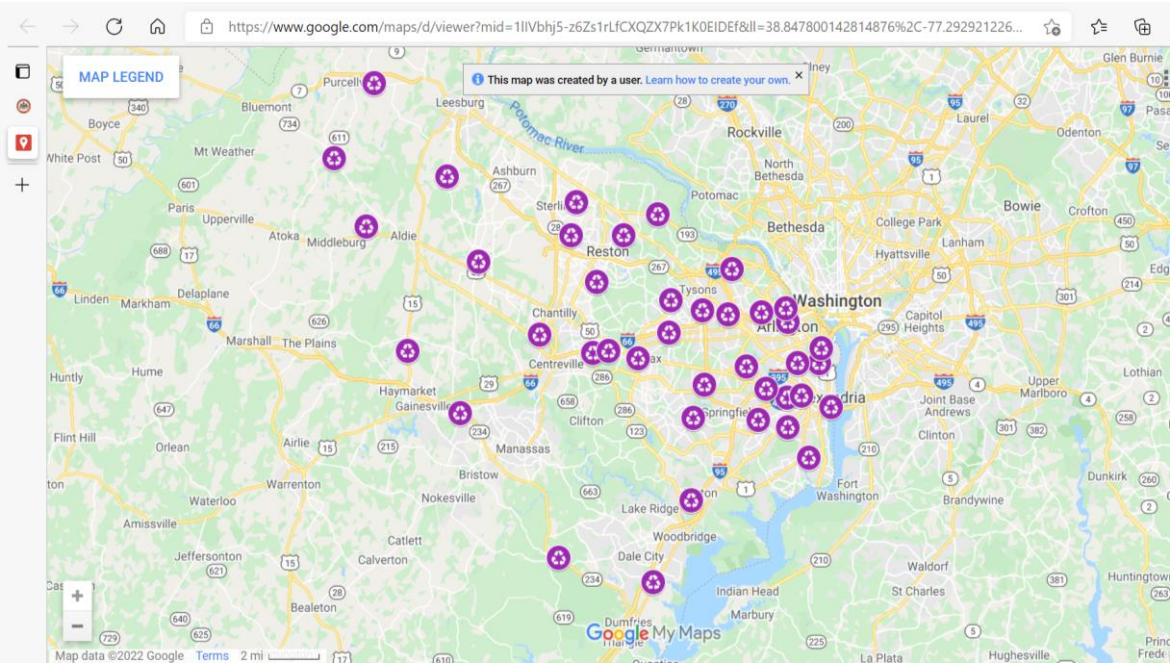
Modifications to Glass Recycling System--

Glass creates challenges for single-stream recycling systems. It is heavy, which adds cost to transporting recyclables to and from recycling centers. Moreover, glass containers placed in curbside recycling bins break during collection and transport to the material recovery facilities (MRFs) where recyclables are sorted. The abrasive broken glass damages the machinery at the MRFs. Glass also contaminates bales of other recyclable materials, particularly cardboard and metals.

Meanwhile, there is almost no demand in the region for glass recovered from single-stream recycling. Due to the high level of contamination and mixture of glasses by color, industries that can used recovered glass tend to avoid purchasing glass from municipal single-stream programs, preferring to target glass recovered from bottle-bill states which is substantially cleaner and easier to color-separate. Consequently, for years most glass collected by Northern Virginia curbside programs has passed through local MRFs as residue, to be disposed as a waste.

In response to these poor market conditions, Fairfax County entered a strategic partnership with neighboring jurisdictions called the "Purple Can Club" (due to its brightly colored drop-off containers), to recover and recycle glass using 30-yard roll-off containers located throughout the region. The source separated glass collection program allowed Fairfax County to remove glass from the list of required single stream materials in October 2019. The glass collected through the Purple Can Club is brought to the I-95 Landfill Complex where it is either consolidated for transport to an interim glass processor or processed onsite for use in local public works projects. Due to the high quality of the glass recovered by the program, most of the collected glass is being made into new glass containers. This creates a system of a circular economy for glass in the region and supports Virginia manufacturing businesses. Based on a January 2020 composition study, container glass is now less than five percent by weight of recyclables collected in the County's curbside collection program.

Currently, there are over 40 Purple Can Club containers located throughout the participating municipalities (see below).



The program has recovered more than 18,000 tons of glass since program inception.

Other Opportunities--

The County has also expanded opportunities for food waste and construction and demolition debris (CDD) recovery. Food waste generated at several County office buildings is currently being recovered for composting through a pilot program started in 2019. In November 2020, the County opened two permanent food scrap drop off sites for residents at the I-66 Transfer Station and at the I-95 landfill complex. In the summer of 2021, food scrap drop off was offered as a pilot program at select farmer's markets throughout the County. This farmer's market pilot was very popular and is being continued into 2022.

SWMP is also evaluating the feasibility of processing CDD material for reuse, recycling, and/or as a fuel for use at the Covanta waste-to-energy plant. It is anticipated that some form of interim processing for CDD discharged at County facilities will be installed at the I-66 Transfer Station Complex, to mechanically sort and process mixed CDD to recover marketable and combustible materials from the incoming waste stream.

3.6 Highlights of Current Plan Elements

The table below summarizes progress towards the approved SWMP's objectives and initiatives for source reduction and reuse, recycling, disposal, collection, and waste transfer.

Objectives		Future Solid Waste Management System
Source Reduction and Reuse	• Expand source reduction and reuse programs in Fairfax County to minimize waste generation • Increase public awareness to increase participation in source reduction and reuse initiatives • Promote public/private partnerships to increase program efficiency and minimize County costs	• Increase public outreach and education to promote source reduction and reuse • Promote yard waste composting and/or grasscycling programs • Develop a regional approach to source reduction and reuse with MWCOG and others • Implement County internal source reduction and reuse programs
Recycling	• Increase overall recycling quantities in Fairfax County to minimize waste disposal • Provide sanitary, efficient, and economical management of recyclables • Increase residential and business sector awareness of recycling initiatives	• Free recycling toolkits for hotels, restaurants, apartment complexes, office buildings, retail establishments, and construction sites. • Meetings with businesses in target hospitality industry segments, to provide outreach and education on recycling • Free content and technical support to property management companies • Field studies to evaluate the use of post-consumer glass and incinerator ash in road construction • Established a regional drop-off program to address the collapse of the regional glass markets (see **Modifications to Glass Recycling System** above)

Objectives		Future Solid Waste Management System
Disposal	• Provide for the operation of sanitary waste disposal facilities, using the most economically viable and environmentally acceptable methods available	• Evaluated available alternatives to the current use of Covanta Fairfax as the primary disposal site • Expanded capacity for CDD disposal, and worked within NVRC and MWCOG to support regional initiatives regarding CDD management and disposal
Collection	• Improve service • Reduce collection truck traffic impacts, including impacts on air quality • Promote a more homogenous service level to support unified recycling and collection messages	• Partnered with private waste collection companies and community stakeholders to improve residential collection services and address chronic service issues • Streamlining collection operations, resulting in more efficient collections with fewer truck shifts and fewer missed stops • Researching the use of special fuels, filters, and special vehicles for collection
Transfer	• Provide disposal capacity for County-generated waste at reasonable costs • Continue to accept waste generated in the County at the I-66 Transfer Station or other location.	• Continuing to explore the addition of specialty transfer capabilities to the I-95 Landfill Complex, to accommodate unforeseen increases in transfer quantities or as otherwise required to effectively manage solid waste generated in the County • Improved public outreach and education to promote SWMP transfer actions, through actions such as hauler appreciation events and waste-to-energy advertising on vehicles.

3.7 Future Planning Considerations

The County remains committed to providing efficient and cost-effective solid waste management services to residents and business. The County administers its diverse program respective of future industry trends to maintain an awareness of opportunities to advance the program. Collecting information and data from these and other routine County activities, the County's future planning considerations focus on three areas:

- Using public education and outreach to:
  - increase public awareness of the benefits of waste reduction, reuse and recycling;
  - promote recycling;
  - promote proper management of special wastes; and
  - improve participation in the County's various waste management programs.

- Using technology to:
  - improve system efficiency, performance and cost-effectiveness;
  - improve recovery of materials that can be recycled or reused; and
  - access new markets for materials in the waste stream.

- Using cooperative approaches to:
  - where appropriate, develop programs to address challenging issues on a more regional basis to achieve necessary levels of efficiency and cost-effectiveness; and
  - attract private sector interest to invest locally in the County's solid waste management program.

4. Public Participation

The 2004 SWMP and successive updates provides strategies and processes for managing solid waste for the 20-year planning period (through 2040, effectively). Objectives for the facilities and programs within Fairfax County to help protect public health and safety, guard the environment, and maintain the quality of life for residents of Fairfax County are established. This is accomplished through environmentally responsible collection, transfer and disposal of solid waste, while recycling materials that help to reduce the waste stream generated by County residents and businesses.

Although much of the management of solid waste is the responsibility of County government, over 80 percent of the solid waste services necessary are provided by private companies and organizations. Examples include hazardous waste disposal, handling of regulated medical waste, hauling and disposal of CDD, waste disposal, recyclables processing, waste transportation and collection of waste from about 90 percent of County households.

Public opinion about how waste continues to be monitored on an ongoing basis through the public outreach and education programs described in the approved 2015 SWMP Update. Public presentations concerning the program, particularly how the solid waste management system works and nuances of the recycling program are provided on a near-continuous basis. Other public outreach and education activities that will continue throughout the planning period include (but are not limited to) the following:

- Advertising and Social Media – The County uses various methods to raise awareness of the SWMP:
    - County's Facebook Environment page
    - Facebook live events on recycling topics
    - Bus stop advertisements
    - Regional advertisement campaigns through the Metropolitan Washington Council of Governments (MWCOG) and Northern Virginia Regional Commission (NVRC).

- Newsletters such as the Fairfax Recycler newsletter (residents subscribe to it) and Homeowners Association outreach via quarterly newsletters, and

- Presentations to community groups on recycling and trash topics – including homeowners associations and civic groups.

- Online Satisfaction Survey and Social Media Comments - The online survey is accessible through the County's web page https.www.fairfaxcounty.gov/publicworks/recycling-trash/solid-waste-feedback-form

- Responding to EQAC - The Environmental Quality Advisory Committee is a Board of Supervisors appointed volunteer action committee whose mission is to advise the Board of Supervisors on environmental matters through ongoing review of the quality of the County's physical environment and to advocate and promote environmental preservation, protection, and enhancement. County staff meets

with EQAC at least annually to gather feedback and respond to EQAC recommendations re: SWMP operations.

- Meetings with Solid Waste Collectors – SWMP meets with solid waste collectors as needed, largely to address tactical and broad regulatory and policy issues as they come up.