
ANNUAL REPORT ON THE ENVIRONMENT

CHAPTER V

SOLID WASTE

V. SOLID WASTE

A. ISSUES AND OVERVIEW

The Fairfax County Solid Waste Management Program continues to effectively manage solid waste recycling, collection and disposal within the county through the operation of existing programs, implementation of the County Solid Waste Management Plan and code compliance activities. As it has for many years now, Fairfax County's recycling rate exceeds the Virginia minimum requirement of 25 percent. The program achieved a recycling rate of 51 percent last year. As always, the county has also met the 930,750 tons annual waste delivery obligation to the Energy/Resource Recovery Facility, which is located at the county's I-95 Landfill complex and owned and operated by Covanta Fairfax, Inc.

The program continued to provide waste collection and recycling services to over 44,000 homes in designated County Sanitary Districts. The program also moved a daily average of 120 tractor-trailer loads of municipal solid waste from the I-66 Transfer Station to the Energy/Resource Recovery Facility and other appropriate disposal locations.

1. Energy/Resource Recovery Facility and Landfill Capacity

The E/RRF continued to serve as the primary disposal location for the county's municipal solid waste, processing approximately 947,000 tons of waste in FY 2013. The county bypassed 36,062 tons of waste to a municipal solid waste landfill due to scheduled and unscheduled maintenance at the facility. Approximately 30 percent of waste processed by the E/RRF was from neighboring jurisdictions, including Prince William and Loudoun Counties and the District of Columbia.

2. Solid Waste Management Plan Implementation

The 20-year Solid Waste Management Plan was approved by the Board of Supervisors in 2004 and revalidated in 2010. Highlights of the plan include the following:

a. Environmental Stewardship

The Solid Waste Management Program achieved the following goals and objectives for 2013:

- The installation of landfill gas heating systems for new bus repair garage and other buildings at the I-66 Landfill was completed.
- The continued development of an energy plan concept for an inactive area of the I-95 Landfill, to be known as the Green Energy Triangle, in partnership with Envirosolutions, Inc., the owner of the adjacent construction and

demolition debris landfill. The GET envisions an array of alternative energy projects including solar panels and windmills.

- Monthly e-waste collection events for residents--over one million pounds were collected in 2012.
- Dedication of the wastewater reuse project to provide 1.3 million gallons per day of effluent from the Noman M. Cole, Jr. Pollution Control Plant for use as cooling water to the E/RRF.
- Improvements in non-ferrous metals recovery and installation of equipment to remove additional ferrous metals from ash generated from the combustion of refuse.
- Further recovery of ferrous metals from ash emanating from the Arlington/Alexandria Energy Resource Recovery Facility.
- Continued in-kind and financial support of various outreach events and programs to support environmental stewardship in Fairfax County including SpringFest, Fall for Fairfax and education programs at about 200 Fairfax County public schools and other community events.
- About 31,801 tons of construction and demolition debris delivered to the I-66 Transfer Station were transported to a construction and demolition debris recycling facility rather than to a landfill for disposal. Unrecyclable but combustible materials from the CDD recycling facility were backhauled to the E/RRF for processing.

b. Compliance Assistance for Non-Residential Properties

The Solid Waste Management Program has amplified its compliance assistance program to help business owners and operators understand their responsibilities with respect to solid waste management. The focus of these efforts has been to educate business owners about how to comply with the county's solid waste ordinance to prevent enforcement actions.

c. Remote Household Hazardous Waste Collection Events

In addition to its permanent collection sites at the I-66 and I-95 complexes that are open to residents every weekend, the Solid Waste Management Program held four remote household hazardous waste collection events in 2012. Household hazardous waste disposal is conducted at no cost for county residents.

3. Solid Waste Disposal Fee

The contract waste disposal fee, offered to companies that sign agreements with the county, was \$53.00 per ton in FY 2013 but will be increased to \$54.00 per ton in FY 2014, the first increase in two years. Disposal fees support all solid waste public benefit programs such as household hazardous waste disposal and electronics recycling, personal document shredding, enforcement of the county's solid waste ordinance and solid waste education. The base solid waste disposal fee remains at \$60.00 per ton for FY 2014. A complete list of fees for various materials is posted on the county's website and at the facilities.

B. PROGRAMS, PROJECTS AND ANALYSIS

1. Waste Disposal Program

a. Overview

The Fairfax County Solid Waste Management Program is responsible for providing the municipal solid waste disposal capacity for both private- and public-sector waste collectors countywide. This is accomplished through a network of facilities and programs including:

- The I-95 Landfill Complex and Recycling & Disposal Center.
- The I-95 Energy/Resource Recovery Facility.
- The I-66 Transfer Station Complex and Recycling & Disposal Center.
- The Household Hazardous Waste Program.
- Other relevant services.

Each element of this network is described under a separate heading below.

b. I-95 Landfill Complex and Recycling & Disposal Center

The I-95 Sanitary Landfill was opened by the District of Columbia in 1972. The county assumed operational responsibility for the facility in 1982. The facility accepted municipal solid waste for disposal through 1995. Since that time, only incinerator ash has been disposed in the landfill. Various environmental protection efforts are currently being undertaken as discussed below.

i. Groundwater Monitoring and Remediation

Groundwater protection standards were originally established for the I-95 Sanitary Landfill on November 20, 2000, through an amendment to the facility permit. In accordance with Waste Management Regulation 9 VAC 20-81-260(C)(3), an Assessment of Corrective Measures report was submitted to the Virginia Department of Environmental Quality in August 2002 as the

groundwater protection standards were exceeded for some constituents. VDEQ commented on the ACM and the county addressed VDEQ's comments by submitting a revised ACM and Corrective Action Plan on April 30, 2004.

On February 4, 2011, VDEQ issued an amendment to the I-95 Sanitary Landfill Solid Waste Permit. That amendment included approval of the Corrective Action Plan prepared to address the noted exceedances of certain groundwater protection standards in landfill monitoring wells.

The Corrective Action Plan specifies the required groundwater remediation approaches:

- Monitored natural attenuation (no action but continued monitoring) is specified for two areas where the groundwater quality is already improving.
- Enhanced bioremediation is specified for three areas where groundwater quality has not improved. Enhanced bioremediation involves the injection of a food-grade Hydrogen Releasing Compound, similar to molasses, into the groundwater in these areas.
- A preliminary injection was completed in June 2011 to evaluate the transmission of the HRC, to evaluate the initial effectiveness of the remedy and to provide data that could be used to refine the proposed injection grid.
- A full round of injections was completed in August and September 2012 to fulfill the permit mandated Corrective Action Plan and to further enhance the overall response of the preliminary injection.

A Corrective Action Monitoring Plan approved as part of the 2011 permit amendment required installation of eight additional performance and sentinel monitoring wells. This work was completed in January 2011 in anticipation of permit issuance. The Corrective Action Monitoring Plan establishes the procedures and criteria by which the results of the Corrective Action Plan are to be observed. The Corrective Action Plan activity is required to show reasonable reduction in the concentration of the targeted compounds after one year.

Sufficient progress was shown at two out of three injection zones within one year of the preliminary injection to warrant continuing the prescribed active remedy at these locations. Slow groundwater flow at the third location appeared to limit the transmission of HRC to the performance wells, resulting in insufficient evidence to evaluate the remedy. Additional injections were continued as prescribed at this location since the effectiveness of the remedy

was uncertain and to allow more time for transmission of the HRC. This activity was completed in 2012.

Once every three years, a Corrective Action System Evaluation report will be submitted to the Director, VDEQ. The report summarizes the Corrective Action Plan activity and progress toward attainment of the groundwater protection standards for each remediation zone, and will be due to VDEQ in February of 2014.

ii. Landfill Closure

Capping of the municipal solid waste section of the landfill (an area of 260 acres) was completed during 2008. Phases I and II of the closure of this section were completed by placing a synthetic cap over an area of 125 acres. Phases III and IV of the closure consisted of capping 135 acres of landfill with a thick, low permeability soil layer to minimize surface water infiltration. The capping work on some of the side slopes of the Area Three Lined Landfill (the ashfill) was completed during 2008 by using a synthetic landfill cap. Small areas will be capped throughout the life of the landfill as they reach their final fill grade.

The closed areas of the landfill will require attention and maintenance for many years to come, but also provide the opportunity for interim use. A review by a consulting engineer identified a number of uses that could occur on the property at this time, including additional green energy development through solar power. This solar project is a collaborative public/private effort called the Green Energy Triangle. This initiative will maximize sustainability opportunities in the Lorton area.

iii. Landfill Gas System and Environmental Compliance Activity

The I-95 Landfill operates a large landfill gas collection system, with over 350 installed wells extracting landfill gas for energy recovery. Approximately 2,300 cubic feet per minute of this gas is distributed to a variety of energy recovery systems, including the six-megawatt Michigan Cogeneration System electric generating facility and the three-mile landfill gas pipeline that provides fuel as a substitute for natural gas at the Noman M. Cole, Jr. Pollution Control Plant. The initial term of the agreement expired in December 2012. The county and Landfill Energy Systems signed an amendment and 10-year extension of the original contract signed in 1992. The amendment sets new terms that prioritize gas delivery to the Noman Cole plant and returns revenue to the county based on electricity sales and renewable energy certificates.

County staff has also converted space heating at the landfill maintenance shop to use landfill gas as the fuel source (the original heating system used bottled propane gas). This conversion is currently saving approximately \$5,000 per

year in heating costs and received a national award from the U.S. Environmental Protection Agency.

During this reporting period, the county continued its solid compliance history with Virginia's air pollution, landfill gas control, solid waste management and storm water management regulations, as well as the Environmental Protection Agency's Greenhouse Gas Reporting Rule. The county annually submits reports to VDEQ or the EPA, compiling the following:

- Ground water quality monitoring data.
- Surface water quality data.
- Landfill gas system gas monitoring and operational data.
- Greenhouse gas monitoring data.

The county also compiles landfill methane gas surface emissions and facility perimeter monitoring data in accordance with Virginia Solid Waste Management regulations. VDEQ and EPA have found all submittals to be in compliance.

iv. Ash Landfill

The E/RRF combustion process reduces the processed waste to 10 percent of its original volume and approximately 25 percent of its original weight. Therefore, ash disposal requires significantly less landfill space than the disposal of unprocessed municipal solid waste. Incinerator ash from the E/RRF, a similar Covanta facility serving the City of Alexandria and Arlington County and from the Noman Cole Plant, are all disposed of at the I-95 Ash Landfill (Area Three Lined Landfill). Ash is placed in a double-composite lined landfill, controlled by state-of-the-art leachate collection and detection systems. The collected leachate is transported to the Noman Cole plant for treatment. Approximately 900 tons of ash is currently placed in the ash landfill each day.

The ash landfill has been constructed in four phases. Phases I and II have reached capacity and an intermediate cover has been placed on these areas. Construction of Phase IIIA of the ash landfill was completed during March 2008 and is the currently active landfill cell. Phase IIIB construction was completed in February 2013. The estimated remaining life for disposal of ash in the combined Phase I, II and III footprint is approximately 18 years. If necessary, the county could utilize additional permitted capacity, Phase IV, which could extend the life an additional 10 - 15 years.

The E/RRF's suite of pollution control equipment includes a dolomitic lime system that chemically treats the ash to reduce the potential of mobilizing metals that may leach from the ash after landfilling. The ash is tested twice per year using the Toxicity Characteristic Leaching Procedure, as specified in federal regulations. During FY 2013, analysis of the ash by a certified

laboratory found the ash to be non-hazardous, demonstrating that all parameters analyzed are within the limits for all regulated constituents and that the ash is non-hazardous waste.

Cadmium is a constituent of concern in the ash generated by the combustion of municipal solid waste. To reduce the potential for cadmium to be introduced into the E/RRF, the Solid Waste Management Program supports and actively publicizes efforts to collect rechargeable nickel-cadmium batteries separately for recycling. Through a partnership with the Rechargeable Battery Recycling Corporation, large retailers such as Wal-Mart, Radio Shack and Best Buy are collecting old batteries as new ones are sold. The batteries are recycled at a permitted waste management facility specifically designed to recover these metals. This effort is anticipated to significantly reduce the amount of cadmium present in E/RRF ash. Electronics recycling also assists in reducing metals concentrations in the ash.

v. Recycling and Disposal Center

The Recycling and Disposal Center allows county residents and small businesses to bring their municipal solid waste and recyclables directly to the I-95 Complex for disposal. The center offers a full range of recycling opportunities as well as household hazardous waste disposal service. Recycling of paper, cardboard, cans and bottles is free to residents and businesses.

c. **Energy/Resource Recovery Facility**

i. Overview

Operations at the Energy/Resource Recovery Facility continue to meet or exceed accepted industry standards, as evidenced by the annual independent engineering report prepared by Dvirka and Bartilucci Consulting Engineers in November 2012. This report states that: “CFI (Covanta Fairfax, Inc.) has complied with the requirements of the Service Agreement, as amended, and has complied with the Facility’s various environmental permit and regulatory obligations.”



Since 2008, when CFI was released from the E/RRF’s federal output limit of 80 megawatts, the plant now generates an additional 1-4 MW of electricity during peak periods, which is sold at premium prices on the PJM regional energy

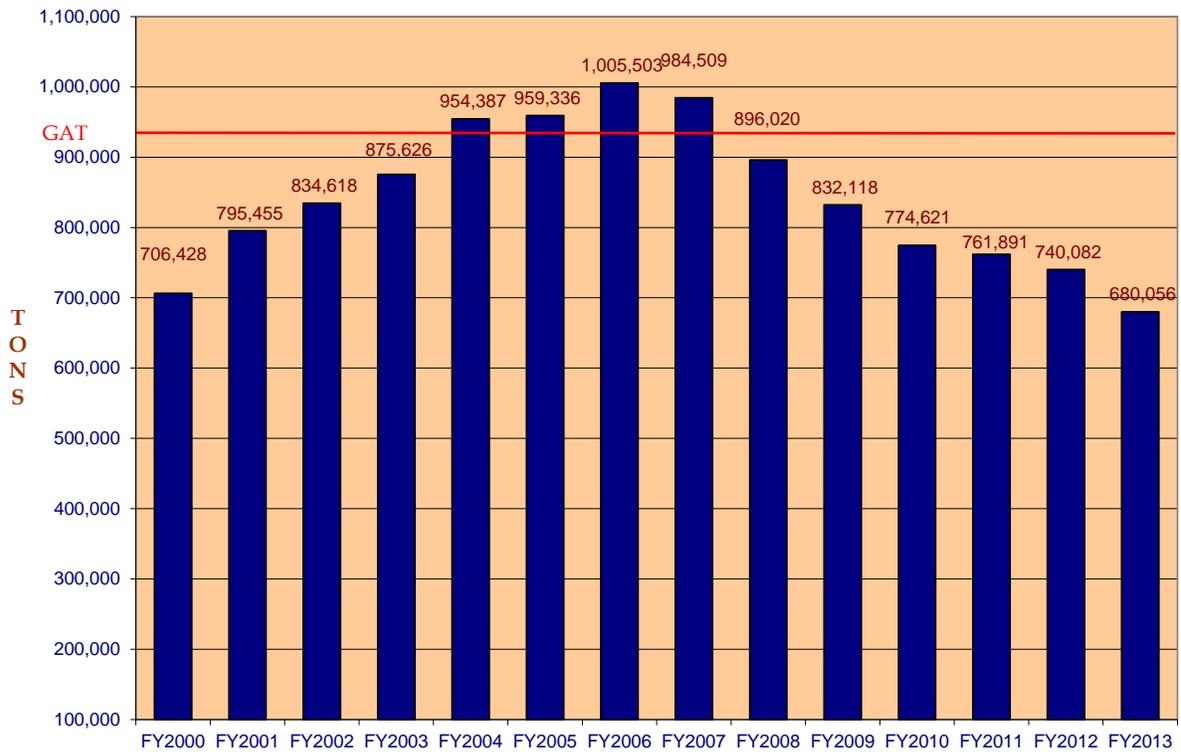
market (extra revenues being shared with Dominion Virginia Power, which facilitates the sale). Revenue from the sale of the “extra” electricity is used to keep the disposal fees low.

ii. Quantity of Waste Processed

The county guaranteed to provide, and the E/RRF agreed to process, at least 930,750 tons of municipal solid waste per year. In FY 2013, the E/RRF processed approximately 947,000 tons of waste delivered on the county’s behalf (over 86,000 tons per month). Approximately 727,000 tons of this waste (70 percent) originated in Fairfax County, with the remainder coming primarily from Prince William County and the District of Columbia. Figure V-1 provides the total waste generated, including that processed at the E/RRF and the amount bypassed to alternate disposal. The quantity of Fairfax County waste generated is decreasing, mostly due to reduced waste generation and increased recycling.

Figure V-1. Total Fairfax County Municipal Solid Waste FY 2000-2013

TOTAL FAIRFAX COUNTY MSW



FISCAL YEAR (FY) = July - June

iii. Air Quality

The E/RRF's continuous emissions monitoring systems sample flue gas from the combustion process and alerts CFI operating personnel when monitored emissions are approaching the concentration limits specified in the facility's air pollution control permits. Permit exceedances must be reported to VDEQ, with an explanation as to the circumstances of the event and proposed solutions, as warranted. The E/RRF continues to meet its air permit limits, with most parameters well below their regulatory limits. Table V-1 presents stack emissions as documented by an independent lab test in June 2013 and reported to VDEQ.

Table V-1 Energy/Resource Recovery Facility Emissions Results June 2013		
Constituent	Permit Limit	Average E/RRF Result
Sulfur Dioxide (SO ₂)	29 ppm	4.75
Carbon Monoxide (CO)	100 ppm	3.75
Nitrogen Oxides (NO _x)	205 ppm	183.0
Hydrochloric Acid (HCL)	29 ppm	4.40
Particulate Matter (PM)	27 mg/dscm	1.42
Mercury (Hg)	0.080 mg/dscm	.0018
Lead (Pb)	0.44 mg/dscm	.0030

ppm = parts per million
Dscm = dry standard cubic meter

mg = milligram

Covanta Fairfax Inc., Annual Determination of Compliance with Permitted Emission Limits and 40 CFR, Subpart Cb Report, (COV Report No. 3640 Volume 1), pages 12-15 for testing conducted May 28-June 8, 2013

iv. Materials Recovery

In addition to recovering energy from municipal solid waste, metals are recovered from the ash residue and recycled. In FY 2013, 24,668 tons of ferrous metal and 2,110 tons of non-ferrous metal were recycled from the ash.

d. I-66 Transfer Station & Recycling and Disposal Center

The I-66 Transfer Station handles approximately 70 percent of the county's municipal solid waste destined for disposal. The transfer station consolidates waste delivered by individual residents and businesses, and also private sector and county collection vehicles, into large transfer trailers. These trailers are hauled over the road to a final disposal site, primarily to the E/RRF. Primary benefits from this

type of transfer system are a reduction in the number of vehicles traversing the county to reach the final disposal point and reduced operating costs for the county's solid waste management system as a whole. Further, the transfer station plays a pivotal role when waste needs to bypass the E/RRF.

VDEQ regularly inspects the transfer station; the facility was found to be in full compliance during all inspections in FY 2012.

i. Transfer Operations

The main role of the transfer station is to move waste collected in the northern and western parts of the county to the E/RRF in the south. The facility also uses private trucking companies to augment its transportation fleet.

The county vehicle fleet, including the transfer trucks at the transfer station, now uses ultra-low-sulfur diesel fuel and exhaust after-treatment systems. These changes reduce air pollution emissions as much as possible, while performing the mission of transporting waste.

An automated truck wash system was installed in the truck wash building. The state-of-the-art system better recovers and recycles water, discharging minimal amounts to the sewer while reducing manpower requirements to wash large vehicles. Other county vehicles, including waste collection vehicles, are washed here as well.

In FY 2009, a project was completed to convert space heaters to landfill gas fuel from natural gas supplied from the local supplier at the Department of Vehicle Services facility near the closed I-66 Landfill. In FY 2012, a project was completed where landfill gas lines were extended to a nearby bus garage owned by the Washington Metropolitan Area Transit Authority and a repair shop related to the transfer station. The landfill gas is also used to heat the new operations center at the transfer station, which was completed in November 2011.

ii. Recycling and Disposal Center

The transfer station complex also has one of the county's two Recycling and Disposal Centers where residents and small businesses self-haul their waste and recyclables. The facility has undergone significant modernization to accommodate growing local demands for recycling and disposal services. New scales and scale houses with improved weighing technology and redesigned entrances and exits were installed to improve customer service and increase capacity.

e. Household Hazardous Waste Program

The Household Hazardous Waste and the Conditionally Exempt Small Quantity Generator collection programs are operated by the Solid Waste Management Program. The statistics about the program results are provided in the Hazardous Materials chapter of this report.

f. Other Relevant Activities

All solid waste collection companies operating in Fairfax County must obtain a Certificate to Operate and permits for individual vehicles, both issued by the Solid Waste Management Program. An integral requirement of these permitting programs is that collectors must demonstrate they comply with all applicable provisions of Chapter 109.1, the county's solid waste management ordinance.

The Solid Waste Management Program has responsibility for enforcing Chapter 109.1 and for resolving any potential violations observed by program staff. In addition to this responsibility, the program also coordinates with other county agencies as necessary to lead enforcement of relevant provisions of other chapters of the county code related to the solid waste management aspects of public health menaces, nuisance noise and landfill debris.

2. Waste Reduction and Recycling Programs

a. Overview

The Fairfax County Solid Waste Management Program is responsible for implementing the countywide recycling program. The Virginia Department of Environmental Quality established regulations that require all municipalities in the commonwealth to recycle a certain minimum percentage of the total volume (by weight) of Municipal Solid Waste generated in the jurisdiction. These regulations are codified as 9 VAC 20-130-10 and Fairfax County is responsible for meeting a 25 percent requirement. Smaller communities, with low population or low employment statistics, are required to meet a lower threshold, set at 15 percent. Reports documenting the recycling rate for the preceding calendar year are required to be sent to VDEQ each year in the spring. Fairfax County's recycling rate for

calendar year 2012 was 51 percent, which represents a full 26 percentage points above the required rate of 25 percent.

Chapter 109.1 requires annual reports on the tonnages of recyclables collected by a broad spectrum of businesses and commercial establishments, material recovery facilities and other entities that operate in the county. These reports are compiled to calculate the countywide recycling rate. Figure V-2 depicts the historical quantities of recyclables collected in the county since 2000. Since the recycling program's inception in 1988, the county has recycled over 8.5 million tons and continues to exceed the state-mandated requirement.

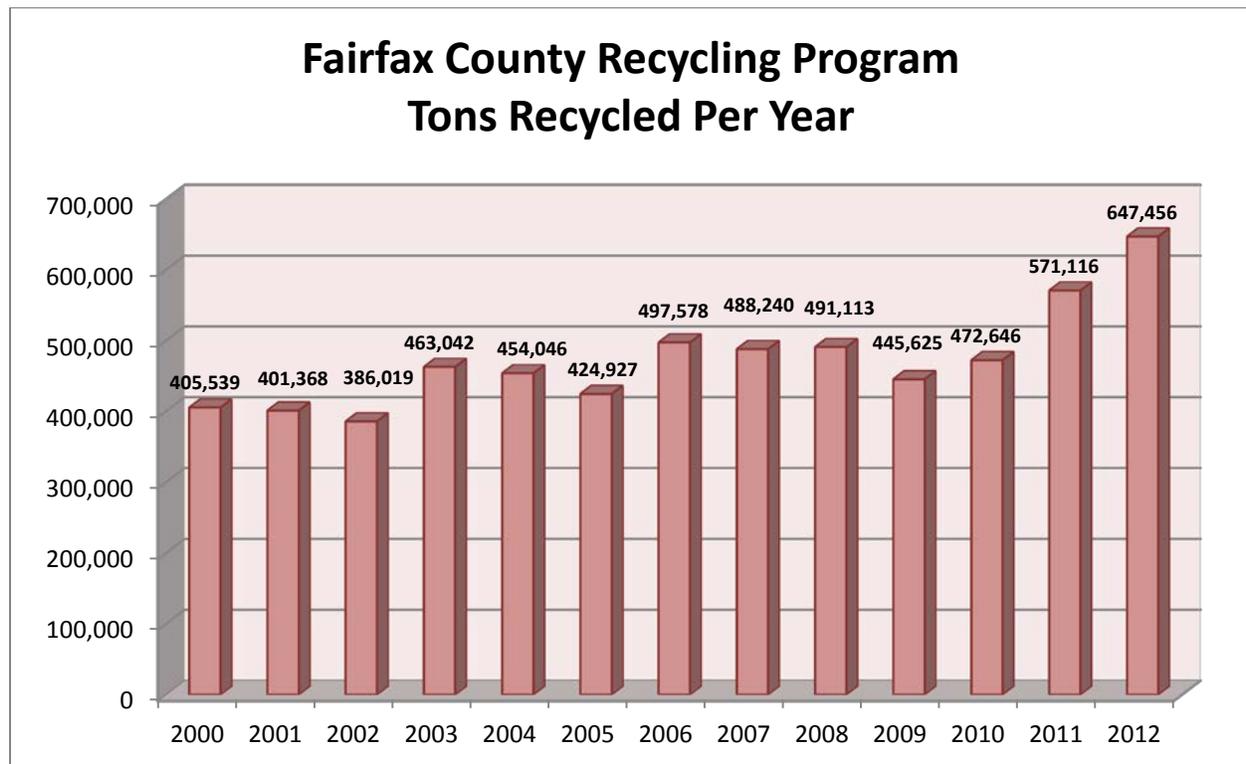


Figure V-2 - Historical Quantities of Materials Recycled in Fairfax County

Chapter 109.1 of the Fairfax County Code requires residents to separate recyclables from trash and place them separately at the curb for collection. Recyclables that must be collected at the curb include: metal food and beverage containers; glass bottles and jars; plastic bottles and jugs; mixed paper; cardboard; and yard waste.

Recycling of mixed paper and cardboard is required for all nonresidential properties in the county. All nonresidential entities that generate a principal recyclable material other than mixed paper and cardboard are required to recycle that material in addition to the mixed paper and cardboard.

Recycling of mixed paper and cardboard is required for all multifamily buildings in existence prior to July 2007.

Recycling of mixed paper, cardboard, metal food and beverage containers, glass bottles and jars and plastic bottles and jugs is required for all multifamily buildings constructed *after* July 2007. Appliances from these properties are also required to be recycled.

Recycling of mixed paper and cardboard is required for all schools and institutions.

All construction and demolition contractors are required to recycle cardboard.

b. Major Program Elements in FY 2012

i. Compact Fluorescent Lamps

The management of compact and other fluorescent lamps from residences in the county is addressed in several ways. CFLs and other fluorescent lamps can be taken to either of the county’s Household Hazardous Waste facilities at the I-66 Transfer Station complex in Fairfax or the I-95 Landfill complex in Lorton. Both of the facilities recycle these lamps at no charge to county residents. Advertising placed in print media for the e-waste recycling events, known as *Electric Sunday*, has emphasized the fact that fluorescent lamps can be recycled during these events. Participation in the e-waste collection events has resulted in increased participation in the county’s household hazardous waste program, resulting in the collection of increased amounts of fluorescent lamps for recycling. Information detailing these recycling opportunities is on the county website at: <http://www.fairfaxcounty.gov/dpwes/recycling/mat-light.htm>. This portion of the website also provides information about other organizations in the county that are accepting CFLs for recycling.

ii. E-Wastes



In FY 2012, the Solid Waste Management Program continued its *Electric Sunday* program whereby, on one Sunday each month, residents can bring their e-wastes, including televisions, for recycling to either the I-66 Transfer Station or the I-95 Solid Waste Complex.

In CY 2012, eleven *Electric Sunday* events were held where residents recycled obsolete and/or broken computers and peripherals as well as televisions. In CY 2012, about 1.3 million pounds of obsolete electronics,

including televisions, were collected for recycling from Fairfax County residents.

c. Review of Collection and Recycling Programs

In addition to county-wide recycling program management, the Solid Waste Management Program is responsible for:

- Collection of refuse and recyclables from about 44,000 residences, primarily on the east side of the county in designated Sanitary Districts.
- Collection of refuse and recyclables from county-owned properties.
- Seasonal curbside vacuum leaf collection for about 25,000 residences.
- The management of eight Recycling Drop-Off Centers.
- Removal of oversized piles of trash through the *Clean Streets Initiatives* and *MegaBulk* programs.
- Refuse removal due to evictions and other court orders.
- Assistance in the removal of materials damaged by storms, floods or other emergency situations.
- Public outreach and education on recycling, household hazardous waste and solid waste management.

The *Megabulk* program was originally established for county refuse and recycling customers in Sanitary Districts to collect oversized piles of refuse and yard debris. Customers schedule this service and pay an additional fee for the collection of oversized quantities of materials that are not part of the basic level of service for routine weekly collections. The service is now available to residents countywide for a fee, based upon equipment and personnel availability.

Working in conjunction with the Fairfax County Health Department, the Solid Waste Management Program's *Clean Streets Initiative* is designed to address complaints from residents about piles of refuse that are placed in neighborhoods where the property owner does not take responsibility for its timely removal or where no responsible party can be found. Under this initiative, the property owner is notified that the refuse must be removed and if he or she fails to do so or otherwise cooperate, the Solid Waste Management Program removes the refuse and bills the owner for removal of the material. If the property owner refuses to pay that bill, a lien is placed on the property.

By 2012, the distribution of rolling carts for recycling was completed to all of the county's 44,000 residential refuse and recycling collection customers. These containers allow residents to recycle cans, bottles, paper and cardboard in the same container that can be rolled to the curb. The containers also have lids to prevent recyclables from littering the neighborhood. The containers are sized at 65 gallons and provide more collection capacity than the former containers. The containers used previously were sized at 18 gallons and even though each customer had two bins, this equated to only 36 gallons of capacity. Therefore, the new containers provide almost double the capacity for the collection of recyclables.

These new containers have been outfitted with radio frequency identification tags. The RFID tag allows the county to attach the serial number of the cart to an individual address in order to ensure that each residence has the appropriate containers. The RFID tag is read using a hand-held device that scans the tag and records its location (using geographic positioning technology) and connects it to the address to which the container was delivered. In this fashion, the location of the carts can be tracked in order to maintain each cart at a particular address to protect the significant financial investment made to purchase the carts for 44,000 customers.

The Division of Solid Waste Collection and Recycling invested in a new customer service software system to better serve residents in 2011. The system has proven to be a reliable solution and is a vast improvement over what was previously in place. The new system is a Web-based tool hosted on a server maintained by the contractor which provides the software. The software was purchased to promote improved tracking and scheduling of customer service requests. It allows for the entire history of service at a particular location to be archived in the system so customer service representatives may see the entire service history at an individual address. It provides more information about the service request to be entered into the system which operates on a series of drop-down menus providing ease of use for customer service representatives.

i. Yard waste

Recycling of yard waste (brush, leaves and grass) is required for all residential properties in Fairfax County and collection of that yard waste is required to be provided as part of the base level of service by all permitted collection companies operating in the county from March 1 through December 24 of each year. Yard waste recycling is suspended in the months of



January and February because very few leaves and virtually no grass are generated during that part of the year.

Townhouse communities may apply to the county for approval of an alternative yard waste recycling system. The reason for this flexibility is lawns are typically small and these communities contract with landscaping firms to maintain common areas. Approximately 300 townhouse communities have approved alternative recycling systems for yard waste.

Woody materials, referred to as brush, comprise a significant portion of the yard waste collected in the county. Brush is managed at either the I-66 or I-95 facility and is ground into mulch. The mulch from these facilities is available free to county residents who can self-haul the material to the end use location. Typically, mulch is used as a top-dressing around decorative plantings to reduce weed growth and maintain soil moisture.

Leaves and grass comprise the balance of the yard waste managed in the county. This material is generally collected in bags or by curbside vacuum collection and is sent to either of two composting facilities where the material undergoes biological decomposition to turn it into compost. Typically, compost is used as a soil amendment or substitute. In CY 2012, a little under 244,000 tons of yard waste were recycled in Fairfax County.

Leaves collected in the fall by the county for customers receiving (and paying for) curbside vacuum leaf collection are ground during the vacuuming process. These ground leaves are taken to several Fairfax County parks where the ground leaf mulch is available for use by the Park Authority and by residents who can haul it away themselves for use in their yards.

ii. Recycling Drop-Off Centers

Fairfax County operates eight Recycling Drop-Off Centers at various locations throughout the county. These are unmanned facilities, open 24 hours and there is no fee to use them. In CY 2012, about 3,600 tons of recyclables were collected in the drop-off centers. Recycling Drop-Off Centers continue to play an important role in supporting recycling in the community, serving patrons in multifamily units and small businesses.

iii. Recycling by county agencies

All county agencies receiving refuse collection and recycling services from the Solid Waste Management Program participate in the county recycling program. In CY 2012, county agency locations recycled approximately 1,000 tons of material. The program provides containers for the collection of bottles and cans (plastic bottles, aluminum beverage cans and glass bottles) from buildings owned and occupied by Fairfax County and its employees. Recycling collection containers have been placed in all of the county's larger office buildings and

most of the smaller agency buildings in areas where beverages are sold and consumed like cafeterias and conference rooms.

iv. Document shredding

Fairfax County offers residents the opportunity to shred personal documents at certain locations around the county, usually in conjunction with electronic recycling events or household hazardous waste collection events. This service is offered to help residents protect their personal financial information while directing the shredded paper to a recycling facility. In CY 2012, 10 document shredding events were held and approximately 228,000 pounds of personal documents were shredded.

v. Public Education and Outreach

Public education and outreach are key components of any successful municipal recycling program. To that end, the Solid Waste Management Program has focused on developing creative education programs that take advantage of its partnerships with county agencies, Fairfax County Public Schools, community organizations, commercial businesses and privately-owned collection companies. Outreach programs consist of: activities and displays at county festivals; support and publicity for several events specifically dedicated to recycling; public speaking opportunities; and technical support in the research of recycling technologies and issues.

The Solid Waste Management Program continues to work closely with the Northern Virginia Regional Commission on a regional public information program entitled "KnowToxics." The purpose of this program is to educate business owners about their responsibility to comply with federal and state regulations that require proper disposal or recycling of spent fluorescent lamps, rechargeable batteries and computers and related electronics. The program is centered on its website (www.KnowToxics.com), which provides a resource where businesses can learn how to legally and appropriately manage these materials.

In March 2013, Fairfax County partnered with NVRC to create a training program to educate solid waste managers in the Northern Virginia area about the proper management of universal waste, a subcategory of hazardous waste, regulated by EPA and VDEQ. This was a "train-the-trainer" event where the attendees have been trained to be able to teach the course to other individuals, especially commercial property managers. This event attracted over 60 attendees who completed the course.

The Solid Waste Management Program has also continued a rechargeable battery recycling program, in collaboration with the Rechargeable Battery Recycling Corporation Program. RBRC is an industry-funded program where rechargeable batteries can be collected and sent for recycling at no charge.

Collection boxes for rechargeable batteries are now located at offices of all members of the Fairfax County Board of Supervisors and at major county buildings. A complete listing of collection locations is on the county website at: <http://www.fairfaxcounty.gov/dpwes/recycling/mat-bat.htm>

The Fairfax County Solid Waste Management Program partnered with the Metropolitan Washington Council of Governments to produce the Builder's Guide to Refuse and Recycling.

The Solid Waste Management Program continues to be a prime sponsor of Fall for Fairfax. This event provides a great opportunity to conduct public outreach and disseminate technical guidance and practical information on using the county's solid waste management system.



The Solid Waste Management Program is a proud financial sponsor of the annual Earth Day/Arbor Day celebrations promoted by Clean Fairfax. The program also supports the Johnie Forte, Jr. Environmental Scholarship, which awarded fifteen \$500 grants to applicants from the Fairfax County Public Schools. Details of the Johnie

Forte, Jr. grant program are available on Clean Fairfax's website at: <http://www.cleanfairfax.org>. Over the years, Clean Fairfax has awarded over \$85,000 worth of grants through the Johnie Forte program.

The Solid Waste Management Program also supports Fairfax County's Employees for Environmental Excellence. The group meets monthly and works on projects designed to encourage county employee participation in recycling and other environmental protection activities. It also supports the FEEE website available in the county's Intranet where information about recycling in county buildings is provided.

The program also uses the Internet by posting pertinent information about timely subjects on the program's website. Information about the program's involvement in community events, as well as new information about solid waste matters, can be found at: www.fairfaxcounty.gov/living/recycling.

Staff continues to update the Solid Waste Management Program’s website to improve its ease of use for residents and businesses. Information is continuously updated to help county residents, solid waste industry companies and schools access forms, data and publications about the program.



The program also published an electronic “listserv” to county collection customers to automatically send updates to customers on the program and to provide updates regarding service changes due to inclement weather. A similar

“listserv” tool was developed to give vacuum leaf collection customers the most up-to-date information on the exact dates that the leaf collections would be conducted on their streets in order to ensure that residents would have time to rake their leaves to the curb.

3. Composting

Composting in Fairfax County currently consists of backyard composting programs as detailed in the county’s Solid Waste Management Plan.

While it is EQAC’s view this is a great start to a successful program, there are further gains in the area of composting to be made. The waste stream is changing and a large part of this is due to separating recyclables. Separating food waste would capitalize on current programs and enhance composting in county recycling efforts.

Americans all across the country waste food and the residents of Fairfax County are no different. Clean Fairfax cites that Americans waste 35 percent of their fish, 33 percent of their meat, and 20 percent of their vegetables.

This is an incredible amount of waste that, for the most part, is unnecessary. Education would follow the mantra of reduce, reuse and recycle, focusing on reduction. Stopping food waste at the source is paramount. Behavior change is difficult at best and educating the public on food waste is the first step to changing behavior. An informed population would understand the cost implications associated with not only over-purchasing at the local grocer, but also the environmental impact when the trash is tossed.

Using a process of separation, food waste can be eliminated from the waste stream. Curbside pickup would support residential collection and larger scale pickup would support institutional needs. Placing food waste into a composting program provides a useful product in comparison to traditional burning and ash production, which must be managed into the future.

4. Clean Fairfax

Clean Fairfax Council, now known as Clean Fairfax, is a private, nonprofit (501(c)(3)) corporation dedicated to educating residents, students and businesses in Fairfax County about litter prevention and recycling. Clean Fairfax focuses on environmental education provided to students and adults throughout the county. Clean Fairfax continues efforts of updating the educational and interactive programs for students, community service opportunities for students (i.e., support at the council's office or organizing clean ups), classroom presentations and presentations to homeowner associations and other groups.

A key effort of the council is the sponsorship of spring and fall cleanups. These cleanups rely on volunteers who desire to clean up a certain area of the county. The council asks volunteers to plan their cleanup by selecting a site, gathering volunteers and setting a date and time. Clean Fairfax supplies all the necessary tools provided (gloves, trash bags, recycling bags, vests and safety tips) for a successful cleanup. A follow-up form is available on the Clean Fairfax website to track progress, tally volunteer hours and trash pickup tonnage. Last year, Clean Fairfax worked with over 1,200 volunteers at 85 assisted clean ups, picking up over 67,000 pounds of trash, on and around Fairfax County's roads, parks and side streets. Clean Fairfax also organizes periodic clean-up projects around the Government Center, with Fairfax County employees and area businesses.

Clean Fairfax continues to organize and lead the Earth Day/Arbor Day event, now called SpringFest Fairfax, in partnership with the Department of Public Works and Environmental Services, the Fairfax County Park Authority, Fairfax Water, Fairfax Connector and Lorton Arts Foundation. Clean Fairfax now combines workshops and community service elements with this event. This past year at its new location at the Workhouse Arts Center in Lorton, over 3,000 children and families attended this all day event. Other major projects for the upcoming year include outreach on reducing residents' compliance on plastic grocery bags, promoting small scale, backyard composting and providing services and workshops at Fairfax County Farmers Markets.

Clean Fairfax's Executive Director works directly with many county staff members on litter control and recycling education issues and serves on the cross-agency Litter Task Force.

Clean Fairfax reaches Fairfax County residents by e-newsletters, Facebook and Twitter as well as an environmental blog updated twice weekly at www.cleanfairfax.org.

There are many other programs offered by Clean Fairfax, including programs beyond litter prevention and control. For more information, please visit the website at www.cleanfairfax.org or the SpringFest Fairfax website at www.springfestfairfax.org

5. Alice Ferguson Foundation

The nonprofit Alice Ferguson Foundation was established in 1954. While chartered in Maryland, it has implemented programs throughout the Potomac River watershed, with benefits to the main stem of the river as well as tributaries in Washington, DC, Maryland, Pennsylvania, West Virginia and Virginia. As stated on its website, the foundation's mission is "to provide experiences that encourage connections between people, the natural environment, farming and the cultural heritage of the Potomac River Watershed, which lead to personal environmental responsibility."

In April 2013, the foundation held its 25th annual Potomac River Watershed Cleanup. A total of 14,586 volunteers removed 312 tons of trash and debris from the region at 633 cleanup sites throughout Washington, D.C., Maryland, Virginia, West Virginia and Pennsylvania. The 312 tons of trash collected during the cleanup included 1,314 tires, 193,800 beverage containers, 27,200 plastic bags and 27,400 cigarette butts.

Other programs implemented by the foundation include:

- **Trash Free Potomac Watershed Initiative:** This is a program to reduce trash, increase recycling and provide education regarding trash issues in the watershed.
- **Potomac Watershed Trash Treaty:** As of summer 2012, this treaty commits 112 signers to achieving a "Trash Free Potomac by 2013" and to: support and implement regional strategies aimed at reducing trash and increasing recycling; increase education and awareness of the trash issue throughout the Potomac watershed; and reconvene annually to discuss and evaluate measures and actions addressing trash reduction. Fairfax County was one of the founding signers of the treaty in 2005.
- **Potomac Watershed Trash Summit:** The foundation convenes this meeting annually to provide a venue for key stakeholders to collaborate on strategies to eliminate trash from waterways, communities, streets and public lands, including regional public policy, model best management practices, business actions and public education.
- **Enforcement:** The foundation worked in partnership with the Metropolitan Washington Council of Governments' Police Chief Committee on "Litter Enforcement Month," which provided a focus on litter-related crimes and raised awareness of the harmful effects trash has on communities and the environment.

There are numerous other programs and initiatives that are implemented by the foundation; the reader is encouraged to visit the foundation's website at www.fergusonfoundation.org.

C. RECOMMENDATION

1. EQAC recommends investigation of furthering composting efforts to collect food waste and properly eliminate it from the waste stream by routing it into a process whereby composted material would produce a useful product.

REFERENCES

Much of the narrative and illustrations were supplied by the Solid Waste Management Program of the Department of Public Works and Environmental Services. EQAC also acknowledges Clean Fairfax and the Alice Ferguson Foundation for the information each organization provided.

Additional citations for the section on composting are as follows:

Clean Fairfax, 2012, "What Do We Want? Food Composting! When Do We Want It? NOW!" <http://www.cle Fairfax.org/2012/05/15/what-do-we-want-food-composting-when-do-we-want-it-now/>, accessed October 15, 2013.

Fairfax County Department of Public Works and Environmental Services, 2004, Solid Waste Management Plan, 2004-2024, Chapter 8 - Yard Waste, <http://www.fairfaxcounty.gov/dpwes/swmp/chapter-8.pdf>, accessed October 15, 2013.