
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 far exceeds the Virginia minimum requirement of 25 percent. The program achieved a recycling rate of 47 percent last year. As always, the county has also met the minimum 930,750-ton 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 1,038,000 tons of waste in FY 2012, a four percent increase from FY 2011. The county bypassed 12,900 tons of waste to a municipal solid waste landfill due to scheduled 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. Highlights of the implementation actions as the plan enters its eighth-year milestone include the following:

a. Environmental Excellence

The Solid Waste Management Program continued to maintain its Environmental Enterprise certification with the Virginia Environmental Excellence Program, administered by the Virginia Department of Environmental Quality. Other Solid Waste Management Environmental Excellence goals and objectives for 2012 include the following:

- The installation of landfill gas heating systems for new bus repair garage and other buildings at the I-66 Landfill.

- The 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 with over one million pounds collected in 2011.
- Nearing completion of a 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 from ash generated from the combustion of refuse.
- Continued in-kind and financial support of various outreach events and programs to support environmental stewardship in Fairfax County including Earth Day, America Recycles Day and education programs at about 200 Fairfax County Public Schools.
- About 16,000 tons of construction and demolition debris delivered to the I-66 Transfer Station were transported to a CDD recycling facility rather than to a landfill for disposal. Unrecyclable but combustible materials from the CDD recycling facility are 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 three remote HHW collection events in 2011. These events are free 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 2012 and has been maintained at \$53.00 per ton in FY 2013. Disposal fees support all solid waste public benefit programs such as solid waste education, electronics recycling, document shredding, code compliance/enforcement and household hazardous waste. The base solid waste

disposal fee remains at \$60.00 per ton for FY 2013. 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 Solid Waste Management Program's Division of Solid Waste Disposal and Resource Recovery is responsible for providing the municipal solid waste disposal capacity required by 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 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 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 20-80-250.D.6.g, 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, an amendment to the I-95 Sanitary Landfill - Solid Waste Permit was approved by the Virginia Department of Environmental Quality. The amendment includes approval of the plan prepared to address the noted exceedances of certain Groundwater Protection Standards in landfill monitoring wells.

The Corrective Action Monitoring Plan required installation of eight additional performance and sentinel monitoring wells within 60 days of permit issuance. This work was completed in January 2011 in anticipation of permit issuance.

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 two 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. The initial injection process was completed in June 2011.
- Sampling of the newly installed wells will occur quarterly for the first 18 months, starting in March 2011 and then semiannually thereafter. The existing wells will continue to be sampled semiannually. If a percent reduction in the concentrations of parameters of concern is not observed after one year, the county will have the option of supplemental injections of the Hydrogen Releasing Compound or implementation of an alternative chemical oxidation remedy.
- A second round of injections was to have occurred in August 2012 to further enhance the overall response results.

Once every three years, a Corrective Action System Evaluation report will be submitted to the Director, VDEQ.

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 included in a public/private effort being

developed in the Lorton area to maximize sustainability opportunities, in a collective initiative called the Green Energy Triangle.

iii. Landfill Gas System and Air Emissions

The I-95 Landfill operates one of the largest landfill gas collection systems in Virginia, with over 350 installed wells extracting landfill gas for energy recovery. Approximately 2,500 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 will expire in December 2012 and an amendment has been approved which will maximize the gas going to the Noman Cole Plant for maximum benefit to the county.

County staff has also converted space heating at the landfill shop facility to landfill gas (the original heating system used bottled propane gas). This conversion saves approximately \$9,000 per year in heating costs and received a national award from the U.S. Environmental Protection Agency.

During the reporting period, the county continued its solid compliance history with Virginia's air pollution, landfill gas control and storm water management regulations. Methane gas surface emission and perimeter monitoring are conducted as per regulations and annual air emission reports were submitted to VDEQ. VDEQ has found all submittals to be acceptable.

iv. Ash Landfill

The E/RRF combustion process reduces the processed waste to only 10 percent of its original volume and about 25 percent of its original weight. Therefore, ash disposal requires significantly less landfill space than that which is consumed by the disposal of raw municipal solid waste. Incinerator ash from the E/RRF, from a similar Covanta facility serving the City of Alexandria and Arlington County and from the Noman Cole Plant are all disposed 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.

The ash landfill has been constructed in four phases. Phases I and II have reached capacity and an

intermediate cover has been placed. Approximately 1,000 tons of ash is placed daily in the ash landfill. Construction of Phase IIIA of the ash landfill was completed during March 2008 and is the currently active landfill cell. Phase IIIA has capacity for ash for approximately five years and Phase IIIB is currently under construction.

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 2012, 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.

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 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 October 2011. 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.

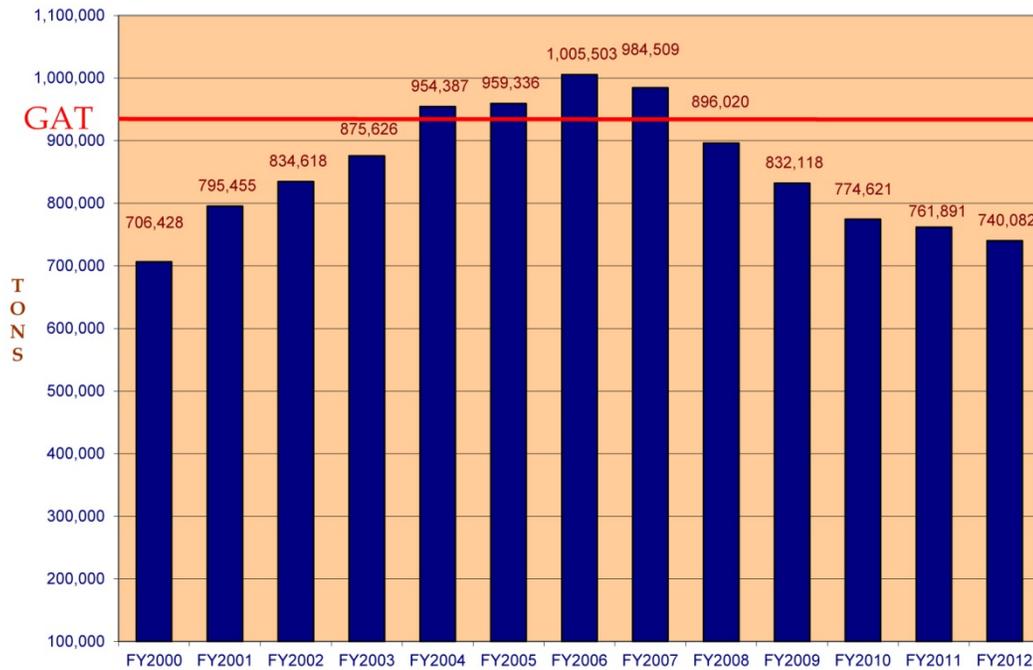
ii. Quantity of Waste Processed

The county has guaranteed to provide, and the E/RRF has agreed to process, at least 930,750 tons of municipal solid waste per year. In FY 2012, the E/RRF processed approximately 1,039,000 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 has been reduced, mostly due to the economic slowdown.

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 2011 and reported to VDEQ.

TOTAL FAIRFAX COUNTY MSW



FISCAL YEAR (FY) = July - June

Figure V-1. Total Fairfax County Municipal Solid Waste FY 2000-2012

Table V-1 Energy/Resource Recovery Facility Emissions Results June 2011		
Parameter	Permit Limit	Average E/RRF Result
Sulfur Dioxide (SO ₂)	29 ppm	5.72 ppm
Carbon Monoxide (CO)	100 ppm	4.75 ppm
Nitrogen Oxides (NO _x)	205 ppm	176 ppm
Hydrochloric Acid (HCl)	29 ppm	5.73 ppm
Particulate Matter (PM)	27 mg/dscm	0.56 mg/dscm
Mercury (Hg)	0.080 mg/dscm	.00219 mg/dscm
Dioxin/Furans*	30.0 ng/dscm	1.82 ng/dscm

ppm = parts per million
Dscm = dry standard cubic meter

mg = milligram

ng = nanogram
* only one unit tested annually

I-95 Energy/Resource Recovery Facility, Annual Operations Monitoring Report, Fiscal Year 2011, October 2011, Dvirka and Bartilucci, Consulting Engineers

iv. Material Recovery

In addition to recovering energy from municipal solid waste, metals are recovered from the ash residue and recycled. In FY 2012, 27,383 tons of ferrous metal and 1,343 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 county has supplemented its fleet of tractor trailers with private trucking contractors.

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 pollutant 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 to convert space heaters to use landfill gas at the Department of Vehicle Services shop near the closed I-66 Landfill was completed. 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 booths, improved entrance and egress and newer technology have been 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 permitted collectors must demonstrate that 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 debris landfills.

2. Waste Reduction and Recycling Programs

The Solid Waste Management Program's Division of Solid Waste Collection and Recycling assumes the lead role regarding the management and implementation of the countywide recycling program.

The Virginia Department of Environmental Quality is responsible for establishing the 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 2011 was 47 percent, which represents a full 22 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 1999. Since the recycling program’s inception in 1988, the county has recycled over eight million tons and continues to exceed the state-mandated requirement.

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.

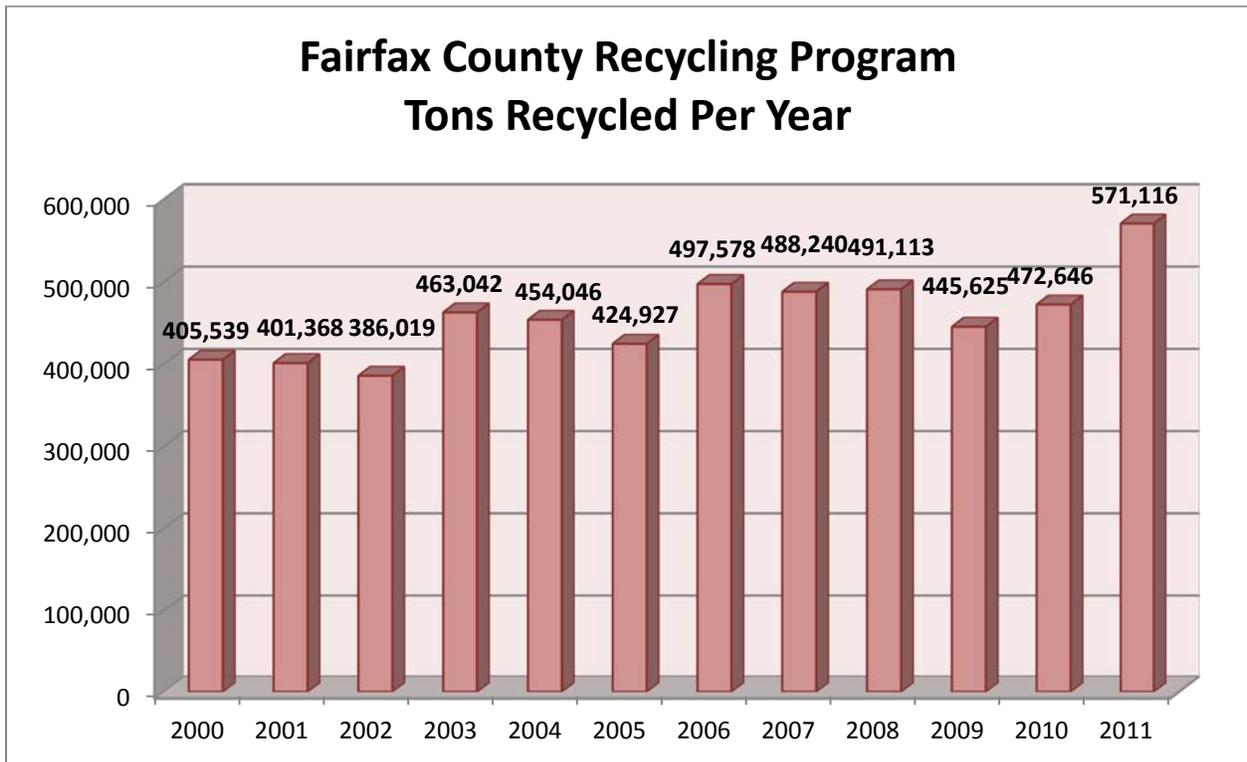


Figure V-2 - Historical Quantities of Materials Recycled in Fairfax County

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 take 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 HHW 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 2011, over one 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 storm, 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, 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 and bottles and 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 that has proven itself to be a reliable system that is a vast improvement over the former. 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 that customer service representatives can 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 1st through December 24th 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 because lawns are typically small and these communities contract with landscaping firms that groom 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 2011, about 226,000 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. No new centers have been added to the county system in approximately 11 years, but the existing facilities are used frequently by residents and small businesses. About 4,000 tons of recyclables are collected annually 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 FY 2012, county agency locations recycled approximately 1000 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 2011, 10 document shredding events were held and approximately 35,000 tons 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 partner with the Fairfax County Wastewater Treatment Program in its educational effort entitled “Sewer Science.” This program is a hands-on class that Wastewater Management employees introduced into Fairfax County high schools. The program teaches high school students about municipal wastewater treatment through a week-long laboratory that simulates wastewater treatment processes. Sewer Science, which supports the Virginia Standards of Learning for biology and chemistry, is taught by science teachers with assistance and support from county employees.

Both the county’s stormwater program and the solid waste management program have been invited to assist in the Sewer Science program to teach high school students about how stormwater is managed and what happens to refuse and recyclables in the county. Staff members from all three of these county environmental programs collaborate with high school science teachers to tailor information to meet the educational needs of the students.

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 April 2012, NVRC convened 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 the USEPA 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. NVRC intends to continue this training and provide the organization and the venues for the training to occur. Five members of the Fairfax County Solid Waste Management Program staff attended the training.

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 Council. 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 Council’s website at: <http://www.cleanfairfax.org>. Over the years, Clean Fairfax Council has awarded over \$75,000 worth of grants through the Johnie Forte program.

This scholarship program is a portion of the Schools/County Recycling Action Partnership. This partnership was created by the Fairfax County Public Schools and the Solid Waste Management Program to provide opportunities for

the students of Fairfax County Public Schools to learn about recycling and other environmental issues and to enhance recycling throughout the system. The program developed the scrapbook, a resource tool distributed to all science teachers in the school system, that details all of the opportunities provided by the program and the Clean Fairfax Council to aid in the instruction of students, including training and presentations, tours and how to apply for the Johnie Forte grant award.

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. 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. The council is currently working toward a less paper-intensive outreach program including e-newsletters, an environmental blog and updated website, educational videos,

interactive programs for students, community service opportunities for students (i.e., support at the council's office), 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 clean up. 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 2300 volunteers, at 67 assisted clean ups, picking up over 1000 cubic yards of litter, on and around Fairfax County's roads, parks and side streets.

Clean Fairfax continues to organize and lead the Earth Day/Arbor Day event, with partnership with the Department of Public Works and Environmental Services and now combines workshops and community service components to this event.

Clean Fairfax's office is embedded in this Department and the Executive Director works directly with many county staff on litter control and recycling education issues and serves on the cross-agency Litter Task Force

Clean Fairfax continued a redesign of its website at www.cleanfairfax.org, adding Facebook and twitter to its suite of outreach materials. One of the main features of the website redesign is the ability to use the "Report a Litterer" program on line. This program allows residents who observe someone littering from a car to report information about the vehicle to Clean Fairfax. Clean Fairfax provides this information to the Fairfax County police, which issues a letter to the vehicle owner about littering.

There are many other programs offered by the Clean Fairfax, including programs that are beyond litter prevention/control aspects. For more information, please visit the website at www.cleanfairfax.org.

4. 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 2012, the foundation held its 24th annual Potomac River Watershed Cleanup. About 14,616 volunteers removed 262 tons trash and debris from the region at 660 of cleanup sites throughout Washington, D.C., Maryland, Virginia and Pennsylvania.

The 262 tons of trash collected during the cleanup included 1,566 tires, 185,350 plastic bottles, 31,456 plastic bags and 37,607 cigarette butts.

Other programs implemented by the foundation include:

Trash Free Potomac Watershed Initiative—This is a program to reduce trash and increase recycling, education and awareness of 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 Week,” 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. RECOMMENDATIONS

No new recommendations are proposed this year.

REFERENCES

Much of the narrative and illustrations were supplied by the following agencies of the Department of Public Works and Environmental Services:

- Division of Solid Waste Collection and Recycling.
- Division of Solid Waste Disposal and Resource Recovery.

EQAC also acknowledges Clean Fairfax and the Alice Ferguson Foundation for information provided through e-mail.

