CHAPTER V

SOLID WASTE

V. SOLID WASTE MANAGEMENT

A. ISSUES AND OVERVIEW

Fairfax County's Solid Waste Management Program had another productive year in FY 2007. As it has for the past 16 years, the county met its minimum annual waste delivery obligations to Covanta Fairfax Inc., owner and operator of the I-95 Energy/Resource Recovery Facility. During this same period, the program also provided waste collection and recycling services to over 43,000 homes in designated County Sanitary Districts, and moved a daily average of 150 tractor-trailer loads of municipal solid waste from the I-66 Transfer Station to the E/RRF or other appropriate disposal locations. In addition to these disposal activities, recycling in the county increased to 35 percent for all solid waste generated (as reported to the state), exceeding the state requirement of 25 percent by weight.

1. Energy/Resource Recovery Facility and Landfill Capacity

The E/RRF continued to serve as the primary disposal location for county municipal solid waste, processing approximately 1,060,000 tons of waste in FY 2007. Due to routine maintenance outages at the facility, the county bypassed approximately 30,000 tons of waste to landfills during the year, using contingency contracts that were in place. This is a 33 percent decrease from the amount of waste that was bypassed to landfills in FY 2006.

As in recent years, the E/RRF received a declining amount of waste from jurisdictions outside the county. Approximately seven percent of waste sent to the E/RRF was from local jurisdictions such as Prince William and Loudoun Counties and the District of Columbia. The remaining tonnage of waste processed at the facility was generated in Fairfax County. This increase, anticipated in the county Solid Waste Management Plan, is a primary reason why the county's recycling program must be expanded: by reducing the amount of municipal solid waste that needs to be disposed, the county can extend the capacity of the E/RRF to process materials that cannot be recycled.

2. Solid Waste Management Plan Implementation

The Solid Waste Management Plan was approved by the Board of Supervisors in 2004. Highlights of the implementation actions include:

a. Substantially Revised Solid Waste Management Ordinance

The Solid Waste Management Program completed a comprehensive revision to the county's solid waste management regulations (formerly Chapter 109), now found in Chapter 109.1 of the County Code. The new ordinance was promulgated by the Board of Supervisors after a public hearing on July 10, 2006; it expands the county's recycling requirements, as described later in this section.

b. Non-Residential and Multi-Family Residential Recycling Requirements

The Solid Waste Management Program implemented the new recycling requirements established in the revised county solid waste management code. These changes to the code require all non-residential properties in the county to recycle paper and cardboard, no matter the size of the building. All existing multi-family properties (constructed prior to July 2007) are required to recycle paper and cardboard and all multi-family properties constructed after July 2007 are required to recycle paper and cardboard as well as cans and bottles. These new recycling requirements will help the county reduce its waste stream to ensure adequate capacity for refuse disposal in the county system.

A significant public outreach and education effort accompanied the implementation of these new county-wide recycling requirements. Staff created the document known as the "Recycling Requirements Guide" with information describing the program and information worksheets intended to help the regulated community understand the requirements. The guidance document included a CD with an audio/visual presentation (viewable on a computer) that explains the program. The CD also contained an electronic version of the newly revised Chapter 109.1 and other accompanying documents. Approximately 2,500 copies of the document have been distributed to Fairfax County businesses. A similar document for multi-family residential properties was also prepared and distributed to about 400 apartment and condominium complexes.

c. Resources for Recycling Construction/Demolition Debris

The Solid Waste Management Program worked with the Metropolitan Washington Council of Governments to create the "Builder's Guide to Reuse and Recycling". This handbook, which is available free of charge, provides the locations where builders can recycle construction materials in Virginia, the District of Columbia and Maryland. Also, Chapter 109.1 requires that beginning July 1, 2007, construction and demolition contractors must recycle corrugated cardboard.

d. Remote Household Hazardous Waste Collection Events

In addition to its permanent collection sites at the I-66 and I-95 Complexes, the Solid Waste Management Program conducted five remote household hazardous waste events during FY 2007. The collection events were held at locations in the Mount Vernon, Mason, Dranesville, Hunter Mill and Braddock Districts. Additional events were held in the months of September and October 2007. These events are also part of the county's Environmental Improvement Program, and are dependent upon separate funding by the Board of Supervisors on an annual basis.

e. Environmental Excellence

The Solid Waste Management Program continued to maintain its Environmental Enterprise (E2) certification with the Virginia Environmental Excellence Program,

administered by the Commonwealth's Department of Environmental Quality. It also maintains its membership in the "Businesses for the Bay" program, a regional initiative supported in Virginia by VDEQ.

f. Solid Waste Management Award from the Solid Waste Association of North America.

Fairfax County's Solid Waste Management Program was awarded a national excellence award from the Solid Waste Association of North America. The award is for excellence in the category of "Integrated Solid Waste Management Systems" where the county was recognized for its superior performance in the management of the entire countywide solid waste management program.

3. Solid Waste Disposal Fee

The contract waste disposal fee, offered to companies that sign agreements with the county, was $46.95 per ton in FY 2007 and increased to $49.95 in FY 2008. The increase helped to offset rising operational costs due to escalating fuel prices and contractual payments. The contract disposal fee covers transportation and disposal of waste, but does not fully cover the cost of all community benefit programs (e.g. recycling education, household hazardous waste, and enforcement) provided by the Solid Waste Management Program. In FY 2007 and FY 2008, the General Fund transfer to partially offset the cost of these community benefit programs was $2.5 million. Prices for all disposal of materials are posted on the county's Web site and at the facilities.

B. PROGRAMS, PROJECTS, AND ANALYSIS

1. Waste Disposal Program

a. I-95 Sanitary Landfill and Citizens Disposal Facility

i. Groundwater Monitoring

Groundwater Protection Standards were established for the I-95 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 VDEQ in August 2002. The VDEQ commented on the report and the county addressed VDEQ's comments by submitting a revised report and Corrective Action Plan on April 30, 2004 for approval. The reports describe the nature and extent of groundwater contamination, provide a risk assessment for these conditions, and establish a proposed program of corrective action. The county has proposed to implement a five-part remedy for groundwater at the I-95 Landfill. Proposed components of the program consist of:

- Institutional controls,
- Engineering controls,
- Monitored natural attenuation,
- Accelerated bioremediation (reductive dehalogenation), and
- Direct oxidation.

The county will implement institutional controls in accordance with the closure and post-closure care plan. A variety of engineering controls (leachate collection, landfill gas system, and placement of cover) will be used. As presented in the Assessment of Corrective Measures report, the concentration of most regulated constituents began to attenuate relatively abruptly after engineering controls were implemented during the 1990s. Natural attenuation will be enhanced by injection of food grade material that will enhance microbial activity via reductive dehalogenation. Direct oxidation will be employed in one area of the facility. Two common forms of permanganate (potassium and sodium) will be used. Both are strong oxidizing agents. This will be done in the selected areas. A Corrective Action Monitoring Plan has been submitted to VDEQ along with the Corrective Action Plan.

As part of the investigation, the county has drilled and sampled 16 additional monitoring wells to further delineate and remediate any groundwater problems. Staff will continue to perform the groundwater monitoring to comply with the VDEQ's requirements of assessment monitoring. Further, staff will monitor the additional parameters at supplemental locations as specified in the Corrective Action Plan. These proactive steps will be used at the I-95 Landfill to assure protection of the groundwater resources. These advanced steps are believed to be among the first used at a Virginia landfill.

ii. Landfill Closure

Closure construction work continued during FY 2007 for the areas where municipal solid waste was previously disposed. Final closure consists of capping the landfill with a thick, low permeability soil layer to minimize surface water infiltration. Additional landfill gas control systems are being installed as part of the closure design. Placement of the closure cap is expected to be completed by September 2007. To date, the final cap has been placed over 105 of 135 acres to be closed. The project was awarded Project-of-the Year by the VA-DC-MD Chapter of the American Public Works Association.

Partial closure of Phase I of the ash landfill was continued during FY 2007. Side-slopes of filled cells are capped by using a synthetic landfill cap.

iii. Landfill Gas System and Air Emissions

The I-95 Landfill operates one of the largest landfill gas collection systems in Virginia, with over 300 installed wells extracting landfill gas for energy recovery. Approximately 3,000 cubic feet per minute (cfm) of this landfill gas

is distributed to a variety of energy recovery systems, including the six-megawatt Michigan Cogeneration Systems electric generating facility, and the 3-mile landfill gas pipeline that provides fuel as a substitute for natural gas at the Noman M. Cole Pollution Control Plant. The landfill gas pipeline project continues to provide significant energy cost savings at the NMCPCP.

During FY 2007, county staff continues to install new landfill gas wells to replace existing wells that cease to function properly due to normal landfill settlement.

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 is expected to save approximately $6,000 per year in heating costs. In 2006, the project was given a National Award by the USEPA's Landfill Methane Outreach Program.

During the reporting period, the county continued its solid compliance history with Virginia's air pollution and landfill gas control regulations. Quarterly methane gas surface emission and perimeter monitoring were conducted as required and annual air emission reports were submitted to the Virginia Department of Environmental Quality. VDEQ has found all submittals to be acceptable.

iv. Ash Landfill

Ash resulting from 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, a similar Covanta facility serving the City of Alexandria and Arlington County and the Noman M. Cole Pollution Control Plant is disposed at the I-95 Ash Landfill. Ash is placed in a double-composite lined landfill, controlled by state-of-the-art leachate collection and detection systems.

Phase IIB of the ash landfill (the third cell) began accepting ash in May 2005. Approximately 1,000 tons of ash is placed daily in the cell, which has capacity for ash disposal for three years and four months. Approximately 6,000 tons of shredded tires were used as a protective layer for the cell. Using this material not only recycled the tires, but also saved approximately

$86,000 in the cost of gravel and other aggregate materials. Construction of Phase IIIA of the Ash Landfill began in June 2007, and should be completed by December 2007.

The E/RRF's suite of pollution control equipment includes a dolomitic lime system that chemically treats the ash to reduce the possibility of metals leaching from the ash after landfilling. During FY 2007, ash produced at the Covanta facilities was analyzed by an independent lab and was found to be within the regulatory limits for all constituents (i.e., it is non-hazardous).

A metallic constituent of the E/RRF's ash of particular concern is cadmium. 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.

v. Citizens Disposal Facility

The CDF allows county residents and small businesses to bring their municipal solid waste directly to the I-95 Complex for disposal. The CDF offers a full range of recycling opportunities, as well as household hazardous waste disposal service. Recycling is free to residents. In FY 2007, users visited the I-95 CDF over 75,000 times.

b. Energy/Resource Recovery Facility

i. Overview

E/RRF operations 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 2006. This report states, "CFI has complied with the requirements of the Service Agreement, as amended, and has complied with the Facility's various environmental permit and regulatory obligations."

The E/RRF continued to produce up to 80 megawatts of electricity that was sold to Dominion Virginia Power. This is enough energy to power approximately 75,000 homes.

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 2007, the E/RRF processed approximately 1,060,000 tons of waste (over 88,000 tons per month). Approximately 960,000 tons of this waste originated in Fairfax County, with the remainder coming primarily from Prince William County.

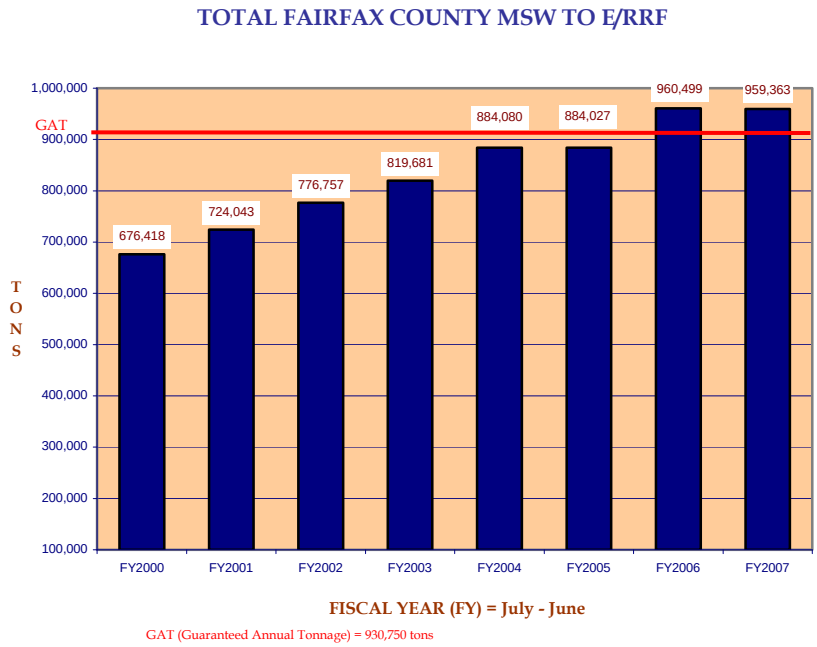

Figure V-1. Total Fairfax County municipal solid waste to the Energy/Resource Recovery Facility, FY 2000-2007

iii. Air Quality

The E/RRF's continuous emissions monitoring system samples flue gas from the combustion process and alerts Covanta operating personnel when emissions are approaching the concentration limits specified in the facility's air pollution control permits. Permit excesses must be reported to the VDEQ, with an explanation as to the circumstances of the event and proposed solutions, as warranted. The E/RRF continues to operate well under its air permit limits. Table V-1 summarizes the stack emissions that were documented by an independent lab test in June 2007 and reported to VDEQ.

Table V – 1 Energy/Resource Recovery Facility Emissions Results June, 2007[1]		
Parameter	**Permit Limit**	**Average E/RRF Result**
Sulfur Dioxide	29 ppm	5.25 ppm
Carbon Monoxide	100 ppm	6.5 ppm
Nitrogen Oxides	205 ppm	194.75 ppm
Hydrochloric Acid	29 ppm	10.64 ppm
Particulate Matter	27 mg/dscm	4.66 mg/dscm
Mercury	0.080 mg/dscm	0.00178 mg/dscm
Dioxin/Furans	30 ng/Nm3	0.646 ng/Nm3

ppm = parts per million mg = milligram ng = nanogram
Dscm = dry standard cubic meter

iv. Material Recovery

In addition to recovering energy from municipal solid waste to generate electricity, metals are recovered from the ash residue and recycled. In FY 2007, 18,021 tons of ferrous metal and 36 tons of non-ferrous metal were recovered from the ash and sold for recycling. The non-ferrous metal process was not operating during most of the year and Covanta has proposed to replace the system.

c. I-66 Transfer Station & Citizens' Recycling and Disposal Facility

The I-66 Transfer Station continues to handle approximately 75 percent of the county's municipal solid waste destined for disposal. The Transfer Station consolidates waste delivered by individual collection vehicles into large transfer trailers, hauling these trailers over the road primarily to the E/RRF for final disposal. As mentioned previously, an average of 150 loads were hauled from the facility each day in FY 2007. Primary benefits from this type of transfer system are a reduction in the number of vehicles traversing the county to reach the E/RRF 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 to landfills; in FY 2007, approximately 30,000 tons of waste were hauled from the Transfer Station to alternative disposal sites.

[1] Covanta Fairfax, Inc, Annual Compliance Stack & RATA Test Reports, (COV Report No. 3194), 08/07/07.

The VDEQ regulates the Transfer Station, and it is inspected by this agency on a quarterly basis; during all inspections of the facility during FY 2007, the VDEQ found the facility to be in full compliance.

i. Citizens Disposal Facility

The Transfer Station Complex also has one of the county's two Citizens' Recycling and Disposal Facilities, where residents and small businesses can self-haul their wastes and recyclables. In FY 2007, users visited the I-66 CDF more than 237,000 times. The CDF is being redesigned to accommodate growing demands for disposal and recycling services at that location. New scales and booths, improved entrance and egress, and more technology are being planned, to improve customer service and reduce wait times. These changes are not likely to be in place until FY 2008.

ii. Transfer Operations

The main responsibility of the Transfer Station is to move waste from northern and western parts of the county to the E/RRF. With increased development and population growth, waste collection companies are bringing more and more waste to the Transfer Station. Moreover, advanced technologies used by collection companies to control their costs have resulted in collection vehicles that can pack on and deliver more waste per trip. As the daily tonnage being managed by the transfer operations has grown, and in the face of a prohibition on new staff positions, the county has come to rely upon trucking contractors to supplement the county's fleet of tractor trailers.

The county vehicle fleet, including the transfer trucks at the Transfer Station, now uses ultra-low-sulfur diesel fuel. This reduces air emissions as much as possible, while performing the mission of transporting increased amounts of waste.

An automated truck wash system has been installed in the existing truck wash building. The state-of-the-art system will better recover and recycle 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.

d. Household Hazardous Waste Program

Information regarding the Household Hazardous Waste Program and the Conditionally Exempt Small Quantity Generator service is provided in the Hazardous Materials chapter of this report.

e. Other Relevant Activities

All solid waste collection companies in Fairfax County must hold a Certificate to Operate and individual vehicle permits, both issued by the Solid Waste Management Program. Approximately 35 firms hold county CTOs. An integral requirement of these permitting programs is that permitted collectors comply with all applicable provisions of Chapter 109.1, the county's solid waste management ordinance. As mentioned earlier, Chapter 109.1 came into effect in July 2006, and is an extensive rewrite of the original solid waste ordinance, Chapter 109.

The Solid Waste Management Program, therefore, has responsibility for enforcing Chapter 109.1 and to resolve any potential violations observed by Program staff. In addition to this responsibility, the Solid Waste Management Program also coordinates with other county agencies as necessary to lead enforcement of relevant provisions from 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

a. Overview

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 VDEQ is responsible for establishing the regulations that require all municipalities in the Commonwealth to recycle a certain 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 threshold. Smaller communities, with low population or low employment statistics across the Commonwealth, 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 the VDEQ each year in the spring. Fairfax County's recycling rate for calendar year 2006 was 35 percent, which represents a full 10 percentage points above the required rate of 25 percent.

Chapter 109.1 requires annual reports on the tonnages of recyclables collected by solid waste collection companies, non-residential businesses and commercial establishments, Material Recovery Facilities and other entities operating in Fairfax County. These reports are evaluated, and their data compiled to calculate the countywide recycling rate. Figure V-2 depicts the historical quantities of

recyclables collected in the county since calendar year 2000. Since the recycling program's inception in 1988, the county has recycled approximately six million tons, and continues to exceed the state-mandated requirement.

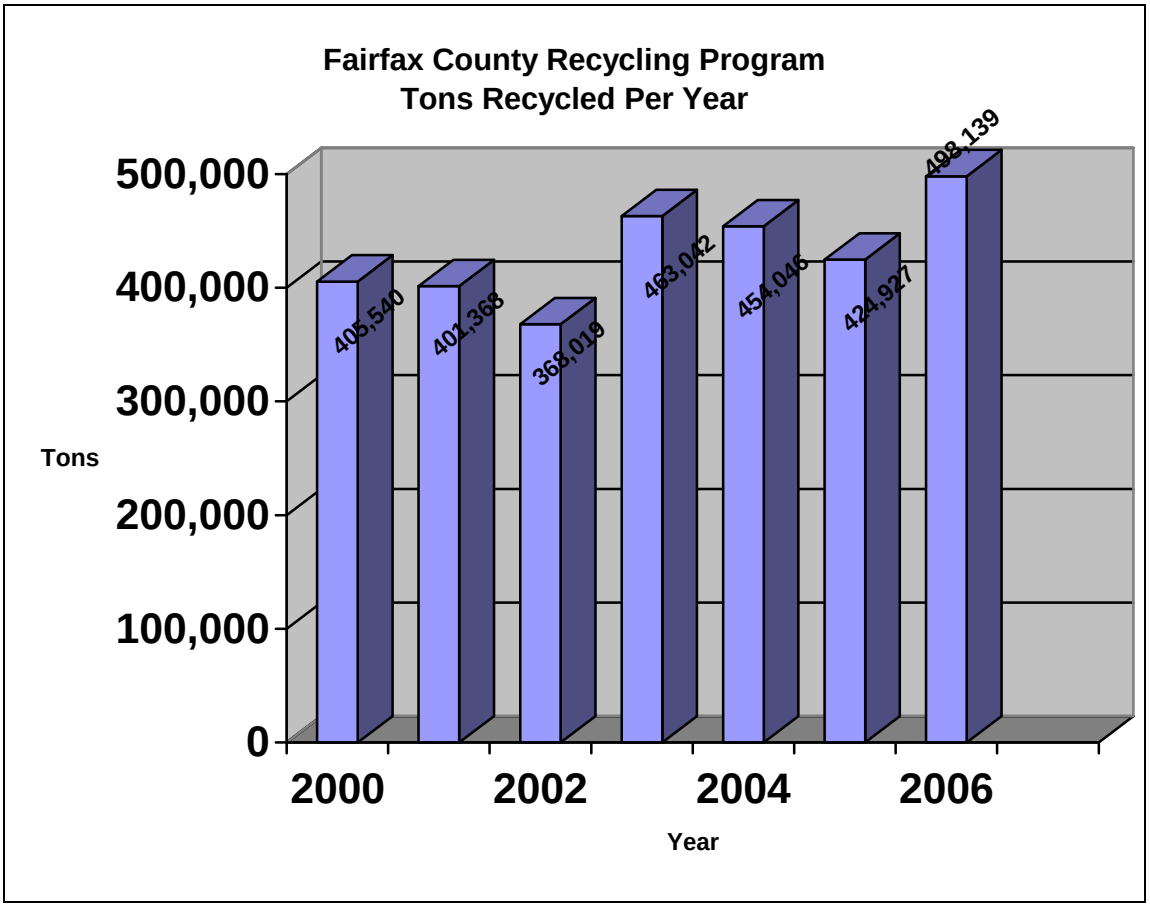

Figure V-2 - Historical Quantities of Materials Recycled in Fairfax County

b. Changes for 2006

As discussed earlier, the county promulgated a substantially-revised solid waste management ordinance, Chapter 109.1. The revised code now requires recycling as described below.

- All non-residential entities in the county are required to recycle mixed paper and flattened cardboard. All non-residential entities that generate a Principal Recyclable Material other than mixed paper and cardboard will be required to recycle that material in addition to the mixed paper and cardboard.

- All multi-family buildings in existence prior to July 2007 are required to recycle mixed paper and flattened cardboard.

- All multi-family buildings constructed after July 2007 are required to recycle mixed paper, flattened cardboard, metal food and beverage containers, glass food and beverage containers and plastic bottles and jugs. Appliances from these properties are also required to be recycled.

- All schools and institutions are required to recycle mixed paper and cardboard by July 2007.

- All refuse and recycling collection companies providing curbside service to residential customers are required to collect mixed paper, flattened cardboard, metal food and beverage containers, glass food and beverage containers and plastic bottles and jugs.

- All construction and demolition contractors are required to recycle cardboard by July 2007.

c. Review of Collection and Recycling Programs

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

- Collection of refuse and recyclables from about 44,000 residences, primarily on the east side of the county in designated areas entitled Sanitary Districts.
- Collection of refuse and recyclables from county-owned buildings.
- Seasonal curbside vacuum leaf collection for approximately 20,000 residences.
- The management of eight Recycling Drop-Off Centers.
- 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 and waste management.

Two additional service programs were instituted in 2006 and continued in 2007: the "Megabulk" program and the "Clean Streets Initiative" program.

The Megabulk program was originally established for county refuse and recycling customers in Sanitary Districts, providing collection service for 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 now is being made available 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. If the property owner fails to respond in a timely manner or refuses to cooperate, the Clean Streets Initiative program removes the refuse and bills the property owner for removal of the material. If the property owner refuses to pay the county for the removal of the material, a lien is placed on the property.

i. Yard Waste

Recycling of yard waste (brush, leaves, and grass) is required for residential units in Fairfax County. Curbside collection of yard waste is required to be provided by all refuse collection companies operating in the county, from March through December of each year. The revisions to Chapter 109.1 clarified that yard waste collection would begin in March each year, and that no special separation would be required during January and February, other than Christmas tree collection.

Townhouse communities may be exempted from the requirement to recycle yard waste because the lawns are typically small and these communities contract with landscaping firms that groom common areas. In 2006 and continuing in 2007, Fairfax County required all townhouse communities that had been exempted from the requirement to recycle yard waste to reapply for the exemption. Over 800 requests for re-application were sent to townhouse communities.

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 to 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 2006, approximately 180,000 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. The RDOCs are unmanned facilities, open 24 hours, and there is no fee to use them. No new RDOCs have been added to the county system in approximately 10 years but the existing facilities are used frequently by residents and about 6,000 tons of recyclables are 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 multi-family units and small businesses.

iii. County Agency Routes

All county agencies receiving refuse collection and recycling services from the Solid Waste Management Program participate in the county recycling program. In calendar year 2006, county agency locations recycled approximately 740 tons of material. The Solid Waste Management Program provides the necessary support to ensure adequate communication of the recycling requirements, as well as operational support for general programs or special events as needed.

iv. Electronics Recycling

Fairfax County offers residents the opportunity to recycle computers and obsolete electronics four times each year. In 2006, about 436 tons of electronics were recycled from Fairfax County in partnership with the Keep It Green program, a partnership between Fairfax County and ServiceSource. ServiceSource is a non-profit organization that finds employment for persons with disabilities. It has partnered with a computer recycling firm that uses ServiceSource's labor pool to disassemble computers and peripherals. ServiceSource will take used electronic equipment at no charge ***except*** for computer monitors. It asks for a $10.00 donation for each computer monitor to pay for the management of the leaded glass that is contained in the cathode ray tube in the monitor. The leaded glass in the monitor is the material that the Solid Waste Management Program is trying to keep out of the county's waste stream.

v. 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.

vi. 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 (e.g., Scouts, Youth Groups, Jaycees), commercial businesses and privately-owned collection companies. Outreach programs consist of activities and displays at county festivals, the support and advertisement of several days throughout the calendar year that are specifically dedicated to recycling, public speaking opportunities and technical support in the research of recycling technologies and issues.

The Solid Waste Management Program partnered with the Fairfax County Wastewater Treatment Program in their educational effort entitled "Sewer Science". This program is a hands-on class that Wastewater Management employees have 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 the science teacher with assistance and support from county employees.

Both the county's stormwater program and the solid waste management program have been invited to assist the 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. Staffs 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. To date, the Solid Waste Management Program has made 20 presentations to Fairfax County high school students about how trash and recycling are managed in the county.

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 Web site: www.KnowToxics.com which provides a resource where businesses can learn how to legally and appropriately manage these materials.

The Solid Waste Management Program has also continued a rechargeable battery recycling program, in collaboration with the Rechargeable Battery Recycling 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 all Fairfax County Board of Supervisors' offices and major county buildings. A complete listing of collection locations is on the county Web site at:

http://www.fairfaxcounty.gov/dpwes/recycling/mat-bat.htm

Also, as mentioned earlier, the program partnered with MWCOG to produce the Builder's Guide to Refuse and Recycling.

Annually, the Solid Waste Program participates in Celebrate Fairfax and Fall for Fairfax. The Fairfax County Solid Waste Management Program won the "Best in Show" award in 2007 at Celebrate Fairfax for its booth at the event. Both of these events are a major portion of the county's overall public outreach campaign, and provide the program with opportunities to disseminate technical guidance and practical information on using the county's solid waste management system.

The Solid Waste Management Program is a proud sponsor of the annual Earth Day/Arbor Day celebrations promoted by Clean Fairfax Council. This year, the Solid Waste Management Program supported the Johnie Forte Jr. Environmental Scholarship, which awarded twelve $500 grants to applicants from the Fairfax County Public Schools. Student groups receiving the grants are invited to make a presentation regarding their use of the grant in front of members of the Board of Supervisors, at the annual Earth Day/Arbor Day celebration at Northern Virginia Community College. The annual Fairfax County Business Recycling Awards are also presented at this same event, recognizing businesses that excel in their recycling efforts.

This scholarship program is a portion of SCRAP, the Schools/County Recycling Action Partnership. The SCRAP 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 Solid Waste Management Program developed the scrapbook, a resource tool distributed to all science teachers in the FCPS system, that details all of the opportunities provided by the Solid Waste Management 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 the county's Employee Recycling Committee. The ERC meets monthly and works on projects designed to encourage county employee participation in recycling. The group coordinated the county employee's Earth Day Expo celebration and the Employee Recycling Committee Recycler of the Year Award (a.k.a., the ERICA).

The county Earth Day Expo is held annually at the Government Center in conjunction with another event for all administrative assistants in the county. Many county agencies with responsibility for environmental protection and stewardship in the county participate, with informational booths staged in the Government Center during the lunch hour. These booths provide an opportunity for attending employees to better understand the services provided by these agencies.

America Recycles Day 2006 was celebrated on November 4, 2006 with the Community Recycling Road show at Herndon High School. Over the course of the day, approximately 361 cars came through a collection line at Herndon High School. About 270 pairs of eyeglasses were collected for the Lion's Club of Fairfax; OAR of Fairfax collected 117 cellular telephones; Safeguard Shredding reported shredding 2,500 pounds of paper documents; and Bikes for the World reported receiving over 100 bicycles. ServiceSource and CDM eCycling reported receiving 22 tons of computer and peripheral equipment (including several televisions, CD and DVD players and

telephones). Art for Humanity was able to collect 20 boxes of shoes, bed sheets, pillowcases and towels, along with 10 microwaves. Finally, about 62 pounds of rechargeable batteries were collected on behalf of the Rechargeable Battery Recycling Corporation.

Another aspect of the Solid Waste Management Program's public outreach and education effort is active involvement in community events and public speaking opportunities, and support to various community special interest groups such as the Lorton Citizens Alliance Team, the Business Advisory Committee and the Citizens' Advisory Committee on Solid Waste.

The Solid Waste Management Program also utilizes the Internet by posting pertinent information about timely subjects on the program's Web site. 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 completed a reorganization of the entire Solid Waste Management Program Web site in 2006 to improve its ease of use for residents and businesses. All publications are now available on the county Web site to allow easier access and distribution.

The Solid Waste Management Program also published an electronic e-mail to county collection customers, to automatically send updates to customers on the program, as well as 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 date that the leaf collection will be conducted on their street in order to ensure that residents have time to rake their leaves to the curb.

3. Clean Fairfax Council

Clean Fairfax Council is a private, nonprofit (501(c)(3)) corporation dedicated to the education of the residents of Fairfax County on issues relating to litter prevention and recycling. Environmental education is provided to students and adults throughout the county. All of the council's informational brochures are translated into the six major foreign languages used in Fairfax County: Korean, Spanish, Urdu, Farsi, Vietnamese and Chinese.

The council has many programs relating to litter, the primary one being the sponsorship of spring and fall cleanups. These cleanups are accomplished by the council sending information regarding the cleanups to all homeowner associations, public schools and assorted churches and businesses. The council asks volunteers to plan their cleanup by selecting a site, gathering volunteers and setting a date and time. Then, if they fill out a sign-up form and send it to the council, they are provided trash bags, recycling bags, vests and safety tips along with an automobile litter bag and a memento for each participant.

The council also sponsors an "Adopt-A-Spot" program whereby residents can adopt a spot for two years and pledge to clean it up four times a year. Additionally, the council produces the Fairfax County Earth Day/Arbor Day Celebration held in late April.

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

C. RECOMMENDATIONS

1. EQAC recommends that the county explore the possibility of establishing mechanisms to ensure that recycling efforts in county schools will be as rigorous as the efforts now required of county businesses.

2. EQAC recommends that, in order to improve residential recycling rates and reduce unsightly and litter-producing open recycling bins, the county establish a test program to determine the effectiveness of requiring the use of single, large closed containers for curbside pickup of all recyclable materials.

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.

The information about the Clean Fairfax Council was provided by Rosemary Byrne, Executive Director, Clean Fairfax Council