CHAPTER IV

SOLID WASTE

IV. SOLID WASTE MANAGEMENT

All materials in this chapter were supplied by the Division of Solid Waste Collection and Recycling and the Division of Solid Waste Disposal and Resource Recovery, both within the Fairfax County Department of Public Works and Environmental Services (DPWES). EQAC thanks DPWES for its contributions to this report.

A. ISSUES AND OVERVIEW

Fairfax County's Solid Waste Management Program (SWMP) had another safe and productive year in FY 2005. As projected, the county exceeded its obligations to Covanta Fairfax, the owner of the I-95 Energy Resource Recovery Facility (E/RRF) as well as collecting waste from over 43,000 homes in County Sanitary Districts with few complaints. The program consolidated waste at the I-66 Transfer Station and moved, on average, 140 tractor trailer loads daily to the E/RRF or other disposal locations. Recycling in the county averaged 32% for all solid waste generated, exceeding the state requirement of 25%. This year was spent working to implement the Solid Waste Management (SWM) Plan. The plan was approved by the Virginia Department of Environmental Quality (VDEQ) in 2004 and will serve as the roadmap for the next 20 years of integrated solid waste management in the county.

Solid Waste Task Force. As part of the approval of the SWM Plan by the Board of Supervisors, the Board appointed a citizens task force to investigate customer service, operations, environmental, and other issues identified by the Board and residents. A member of EQAC served on the task force, bringing a strong environmental perspective to the findings and recommendations of the task force. The concise report contained 31 major recommendations, 11 pertaining to environmental issues specifically. The full text and list of report recommendations can be viewed on the county's Web site at www.fairfaxcounty.gov/dpwes/swtf/finalreport/rptcontent.htm.

Environmental Excellence. The SWMP continued its certification as an Environmental Enterprise (E2) program in Virginia. One of the major requirements of the E2 designation is having a management system with environmental policies and procedures. The organization must also identify environmental goals and objectives and define how the organization will achieve and maintain those goals. To date, the SWMP has met all its targets and goals.

B4B. In another environmental initiative, the SWMP became a founding member of the Businesses for the Bay (B4B). B4B is a voluntary team of forward-looking businesses, industries, government facilities and other organizations within the Chesapeake Bay watershed that are committed to implementing pollution prevention measures in their daily operations to reduce chemical contamination and other waste releases into the bay.

Celebrate Fairfax. The program received recognition as the Best of Show ribbon winner during Celebrate Fairfax in June 2005, for its innovative "home party" demonstrating

recycling, waste reduction, household hazardous waste, and disposal strategies for its guests. The house also displayed the new Ford Hybrid Escape and an electric car that are used at county disposal facilities. The party, hosted by the Recycling Guys, was also a favorite with the guests because they learned how all facets of the recycling and disposal programs in the county integrate into one program to handle waste generated in the county in an environmentally responsible manner.

Credit cards have proven to be a real success with customers at the citizens' disposal facilities at I-66 and I-95 locations. Begun in FY 2004 as a pilot program, this customer service initiative accounted for over $584,008 in sales this year. Along with the new version of weighing software being fully deployed, the use of the credit card system was implemented seamlessly for commercial cash customers and residents.

The two solid waste divisions within the county government, the Division of Solid Waste Collection and Recycling (DSWC&R) and the Division of Solid Waste Disposal and Resource Recovery (DSWDRR) continued or expanded their programs and activities within the sanitary districts and at the I-66 and I-95 disposal locations. An updated strategic plan was completed, identifying goals, actions, performance measures, and outcomes for the program through 2010. These goals are reflective of the County's Framework for Excellence and also provide the basis for the SWMP's county budget. The goals tied to Framework for Excellence elements are:

- ***Maintain And Enhance An Integrated Solid Waste System***
  (County Vision Linkage to Three Elements: Maintaining Safe and Caring Communities, Practicing Environmental Stewardship, and Corporate Stewardship)

- ***Achieve Financial Viability Through Sound Financial Practices***
  (County Vision Linkage: Corporate Stewardship)

- ***Maintain Or Improve Internal Management System***
  (County Vision Linkage: Maintaining Healthy Economies)

- ***Provide Excellent Customer Service***
  (County Vision Linkage to Three Elements: Maintaining Safe and Caring Communities, Maintaining Healthy Economics, and Creating a Culture of Engagement)

- ***Enhance and Protect The Environment***
  (County Vision Linkage to Three Elements: Maintaining Safe and Caring Communities, Practicing Environmental Stewardship, and Creating a Culture of Engagement)

- ***Continue Internal and External Communication***
  (County Vision Linkage: Creating a Culture of Engagement).

1. Contractual Issues and Landfill Capacity

The E/RRF continued to serve as the primary disposal location for the County, processing over 1,033,190 tons of waste. Several projects involving the E/RRF are being investigated to determine their technical feasibility and cost, including the possibility of using the E/RRF as emergency backup power for the new Fairfax Water plant.

Due to major plant maintenance at the E/RRF, coupled with routine maintenance outages and an increase in Fairfax County waste, the county bypassed over 75,000 tons of waste to landfills during the year, using contingency contracts that were in place.

As in recent years, the E/RRF received a declining amount of waste from jurisdictions outside the county. Only about 10% of waste sent to the E/RRF was from local jurisdictions such as Prince William and Loudoun Counties and the District of Columbia. Fully 89% of the waste processed at the facility was generated in Fairfax County. Almost 99% of the Guaranteed Annual Tonnage (GAT of 930,750 tons) was generated by Fairfax County residents in FY 2005. This increasing amount of waste being generated in Fairfax County is part of the reason that curbside recycling must be expanded. By reducing the amount of cardboard, mixed paper, and plastics being disposed of, the County can extend the capacity of the E/RRF to process materials that cannot be recycled.

2. Solid Waste Management (SWM) Plan Implementation

The SWM Plan, submitted to the Virginia Department of Environmental Quality in June, 2004, was approved by the commonwealth in early 2005. The plan represented over 18 months of public outreach and analysis by staff to identify the county's needs and capacity for waste collection, recycling, transportation, and disposal management through 2024. Following the extensive public outreach, public hearing process and the Board of Supervisors' approval of the plan, county staff began developing plans for implementing the next steps. Seven significant recommendations of the SWM Plan were:

- Emphasize source reduction and reuse as a priority public outreach message to residents.
- Increase curbside recycling to include plastic bottles, cardboard, and mixed paper.
- Expand recycling opportunities for all businesses.
- Study and evaluate improvements needed in residential waste collection.
- Continue to use the Energy/Resource Recovery Facility after 2011 when the construction bonds are paid.
- Explore ways to deal with construction/demolition/debris (CDD) wastes so that more is recycled and methods are available to dispose of CDD once the private landfills close.

- Expand public outreach and education to residents and the schools about waste generation rates and the need to recycle more to maintain disposal capacity at the E/RRF.

The SWM Plan discussed several issues surrounding the current system of residential solid waste collection in the County. The Board did not take any specific action on that issue, but appointed a Solid Waste Task Force (SWTF), comprised of 16 representatives of the residential waste collection industry, EQAC, customers, community representatives, and government managers, to study and resolve several customer service, environmental, operations, and communications issues identified during the development of the SWM Plan.

a. Solid Waste Task Force

The complete report of the SWTF is contained on the county's Web site at www.fairfaxcounty.gov/dpwes/swtf. The report contained 31 recommendations, 11 of which dealt specifically with environmental issues. The report examined environmental issues about:

- Using paper versus plastic bags for collection of yard waste;
- Allowing exemptions for homeowners associations from having separate collection of yard waste, if they have a grounds maintenance contractor;
- Expanding public outreach in general but especially about educating residents to manage yard waste through backyard recycling or community composting;
- Expanding e-waste collection events and adding more information to the county's Web site about the need to recycle;
- Removing Nickel-Cadmium (NiCad) and other rechargeable batteries from the waste stream and expanding the existing partnerships with private organizations to recycle batteries; and
- Coordinating emergency response.

b. Business Recycling

The Division of Solid Waste Collection and Recycling (DSWCR) held preliminary meetings with several business organizations to determine best practices about how to expand business recycling opportunities. Additional details are incorporated in the Recycling section of this chapter.

c. Residential Curbside Recycling

As a result of the SWMP, county staff has asked all collection companies to collect cardboard, mixed paper, and plastic bottles voluntarily, beginning July 1, 2005. Mandatory collection requirements for these materials will begin on January 1, 2006. This subject was also discussed and agreed upon by the Solid Waste Task

Force. These materials are in addition to aluminum and steel cans, newspapers, glass, and yard waste, which are already collected for recycling.

Fairfax County's waste generation rate is about 6.8 pounds per person per day currently. The county desires to recycle additional materials in future years in order to maintain sufficient capacity at the Energy/Resource Recovery Facility (E/RRF), where trash is processed to generate electricity.

d. Increased public outreach

One main theme from the SWTF was increasing public outreach for all aspects of the program. County staff is currently in the process of revising printed brochures containing information about all solid waste programs. The Web site has undergone an extensive update and now offers additional information for all residents and businesses. Additional public outreach is planned, such as targeting various media to get educational messages distributed to county residents about recycling, composting, waste reduction and reuse, and proper disposal of trash.

e. Continue to use the E/RRF after 2011 when the construction bonds are repaid

Work on the renegotiation of the contract with Covanta Fairfax, Inc., the private owner of the E/RRF, has begun. The initial work to develop a project management plan showing the steps required to be completed through 2011. County attorneys, engineering consultants, other professionals, and county staff are analyzing and evaluating the Service Agreement with a view toward what the agreement should be in 2011.

f. Explore ways to deal with construction/demolition/debris (CDD)

Preliminary conversations have begun about how to deal with CDD and how to best increase recycling of these materials. Since local CDD landfills report about seven years of capacity remaining, there is sufficient time to complete a thorough analysis of the markets, methods, uses, and costs of recycling CDD.

3. Use of Credit Cards

The citizens' disposal facilities began accepting credit cards on a pilot basis in early FY 2005. The initiative was so popular that it became an integral part of customer service, as about 13,418 transactions were paid by credit cards this year. Additionally, in FY 2005, the Solid Waste Collection and Recycling Division began allowing sanitary district customers to use credit cards to process payments for collection of oversize materials.

4. Solid Waste Disposal Fee

The contract waste disposal fee, offered to companies that sign agreements with the county, increased to $42.45 per ton for FY 2005. 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, enforcement, and community cleanups) supported by the Solid Waste Management Program. In FY 2005, the General Fund transfer for solid waste community benefit programs was $2.5 million.

In FY 2006, the disposal fee for waste disposed by collection companies will be raised by $2.50 to $44.95 per ton for all Fairfax County waste. The increase will help to offset increasing costs due to escalating fuel prices and contractual payments.

Staff evaluated the fees that residents and commercial cash customers pay to bring their waste to the citizens' disposal facilities this year. Using activity based cost analyses, staff determined that the current rate of $55 per ton for trash adequately covered the costs associated with transportation and disposal of the waste. No increase will be needed in FY 2006 for trash disposal, although the costs for certain individual materials such as yard waste will increase to $44.95. Prices for all materials are posted on the county's Web site.

B. PROGRAMS, PROJECTS, AND ANALYSIS

1. Waste Disposal

a. I-95 Sanitary Landfill and Citizens' Disposal Facility

i. Groundwater Monitoring

Groundwater Protection Standards (GPS) 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 (ACM) report was submitted to VDEQ in August, 2002. The VDEQ commented on the ACM and the county addressed VDEQ's comments by submitting a revised ACM and Corrective Action Plan (CAP) on April 30, 2004 for approval. The report includes the nature and extent of groundwater contamination, risk assessment, and proposed 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 ACM, 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 (CAP).

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 CAP. 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 work continues ahead of schedule for the sections of the I-95 Sanitary Landfill that are undergoing final closure. Final closure consists of a thick low permeability soil layer to minimize surface water infiltration into the landfill. Additional landfill gas control systems are also being installed to control the generation of landfill gas. Placement of the closure cap started during May, 2003, and is expected to be completed by 2006 on the raw-waste portion of the landfill.

Closure of the first ash landfill cell will also begin during FY 2006. This 12 acre cell will be capped by using a synthetic landfill cap, and closure is anticipated to cost nearly $3 million.

iii. Landfill Gas System and Air Emissions

The I-95 Landfill also has one of the largest landfill gas collection systems installed at any facility in the state of Virginia, with over 300 extraction wells installed specifically for the purpose of collecting methane gas for utilization. Approximately 3,000 cubic feet per minute (cfm) of landfill gas is collected and distributed to a variety of devices, including two power plants operated by Michigan Cogeneration Systems (MCS) that generate over 6.1 megawatts of electricity, and through a pipeline to the Noman M. Cole Pollution Control Plant (NMCPCP). Nearly 20 landfill gas wells were replaced during FY 2005, as the wells occasionally become pinched during normal landfill settlement.

A gas distribution pipeline, a joint project between the county, MCS, and the NMCPCP, carries landfill gas to NMCPCP for the biomass incineration facility. This pipeline is over three miles in length and continues to result in significant savings in energy costs at the NMCPCP, estimated in 2004 at nearly $1 million for the year.

During FY 2005, staff from the county, with assistance from an outside contractor, converted the landfill shop facility to be heated by landfill gas instead of bottled propane gas. This conversion is expected to save several thousand dollars in heating cost each year.

The county is in compliance with the VDEQ's air regulations. Quarterly methane gas surface emission and perimeter monitoring are performed. Annual air emission reports have been submitted to VDEQ. VDEQ has found all to be acceptable.

iv. Ash Landfill

Incinerator ash is accepted at the I-95 Landfill from the NMCPCP and the Covanta Energy/Resource Recovery Facilities located in Alexandria and Lorton. Ash is placed in a double composite, lined landfill with state-of-the-art leachate collection and detection systems.

Construction of Phase IIB of the ash landfill (the third cell) was completed in November, 2004. Disposal of ash in this cell began during May, 2005. Approximately 1,000 tons of ash is placed daily in the new cell. This cell 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 $85,500 in the cost of gravel and other aggregate materials. Overall, the savings on the project amounted to $220,500.

Ash resulting from the combustion process reduces the waste to only 10% of its original volume and about 25% of its weight. Ash generated by the E/RRF is disposed in a much smaller area of the I-95 Landfill when compared to the amount of space that would be needed to dispose of the same quantity of unburned municipal solid waste. In December, 2004 and January, 2005, ash produced at both the facilities was analyzed by an independent lab and found to be within the permit limits for all constituents.

A dolomitic lime system added to the E/RRF chemically binds heavy metals with the ash to reduce leaching of metals into the groundwater. A constituent of potential concern is cadmium in the ash. Staff has supported and publicized efforts to collect rechargeable Nickel-Cadmium (NiCad) batteries separately for recycling. Through a partnership with the Rechargeable Battery Recycling Corporation (RBRC), retailers such as Wal-Mart, Radio Shack, and Best Buy collect old batteries as new ones are sold. The batteries are recycled at a permitted waste management facility specifically designed to recover metals. These small efforts will significantly reduce the amount of cadmium in the ash.

v. Citizens' Disposal Facility (CDF)

The CDF allows county residents and small businesses to bring their waste directly to the I-95 Complex for disposal. The CDF offers a full range of recycling opportunities as well as household hazardous waste (HHW) disposal. Recycling is free to residents and a small charge is made for some HHW materials. Waste is disposed at $55 per ton. In FY 2005, over 72,000 visits occurred at the I-95 CDF.

b. Energy/Resource Recovery Facility (E/RRF)

i. Overview

The E/RRF, owned and operated by Covanta Fairfax, Inc. (CFI), continues to operate within accepted industry standards as evidenced by the independent engineering report from Dvirka and Bartilucci in April, 2004. The report states, "CFI has complied with the requirements of the Service Agreement, as amended, and has complied with the requirements of the various facility permits." Operational upgrades to the facility have improved the overall performance of the facility and helped maintain a high availability of the facility during the past year.

These changes included:

- Addition of inconel (a hardened metal alloy) to the refractory of the furnace walls to extend the life of the refractory;
- Modernization of pit cranes;
- Overhaul of electric Turbine A during the cold iron outage;
- Improved combustion processes that resulted in decreased amounts of ash being produced over the past few years;
- Computerization of prevention and corrective maintenance requests tracking; and
- Addition of dolomitic lime to the ash conditioning system to reduce leaching of metal from ash that is landfilled.

A complete plant shutdown occurred in October, 2004 to perform scheduled maintenance that could only occur with the plant not running. The "cold iron outage," as it was termed, was one of the significant events at the E/RRF in FY2005. During the month leading up to the five-day outage and the month following, staff carefully managed waste going to the E/RRF so that the waste pit would be almost empty at the time of the outage and not overflow when no waste was being processed. During the outage, parts of the facility that operate constantly were inspected and preventive maintenance performed. This increased level of maintenance is necessary about every five years to ensure the continued efficient operation of the facility.

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 about 76,000 homes.

ii. 15th Anniversary of E/RRF

During 2005, the E/RRF is celebrating 15 years of operation. Some of the exceptional statistics for the facility are that, since 1990, the E/RRF:

- **Processed 15 million tons of solid waste** (as much waste as was buried in the 260 acres of the I-95 Landfill from 1970 to 1995);

- **Generated 7.6 billion kilowatt hours of electricity** (enough power to serve about 76,000 homes for 15 years);

- **Saved the equivalent heating value of 26 million barrels of oil** that would be needed to produce the same amount of electricity; and

- **Saved total landfill capacity of 16,200 acre/ft by volume reduction** through processing at the E/RRF (enough space to fill a football stadium full to a height of almost a mile). Only 10% by volume of the waste remains after it is processed at the E/RRF.

Various permits continue to be under review by the Department of Environmental Quality as part of the ongoing regulation of the waste to energy industry.

iii. Quantity of Waste Processed

The county has guaranteed to provide, and the E/RRF has agreed to process, at least 930,750 tons per year of waste. In FY 2005, the E/RRF processed over 1,033,190 tons of waste (approximately 86,000 tons per month). Waste from Fairfax County accounted for 919,125 tons, with the remainder coming primarily from Prince William County. Due to scheduled outages, the cold iron outage, seasonal peaks in waste generation and other reasons, about 75,000 tons of waste were bypassed to landfills during the fiscal year.

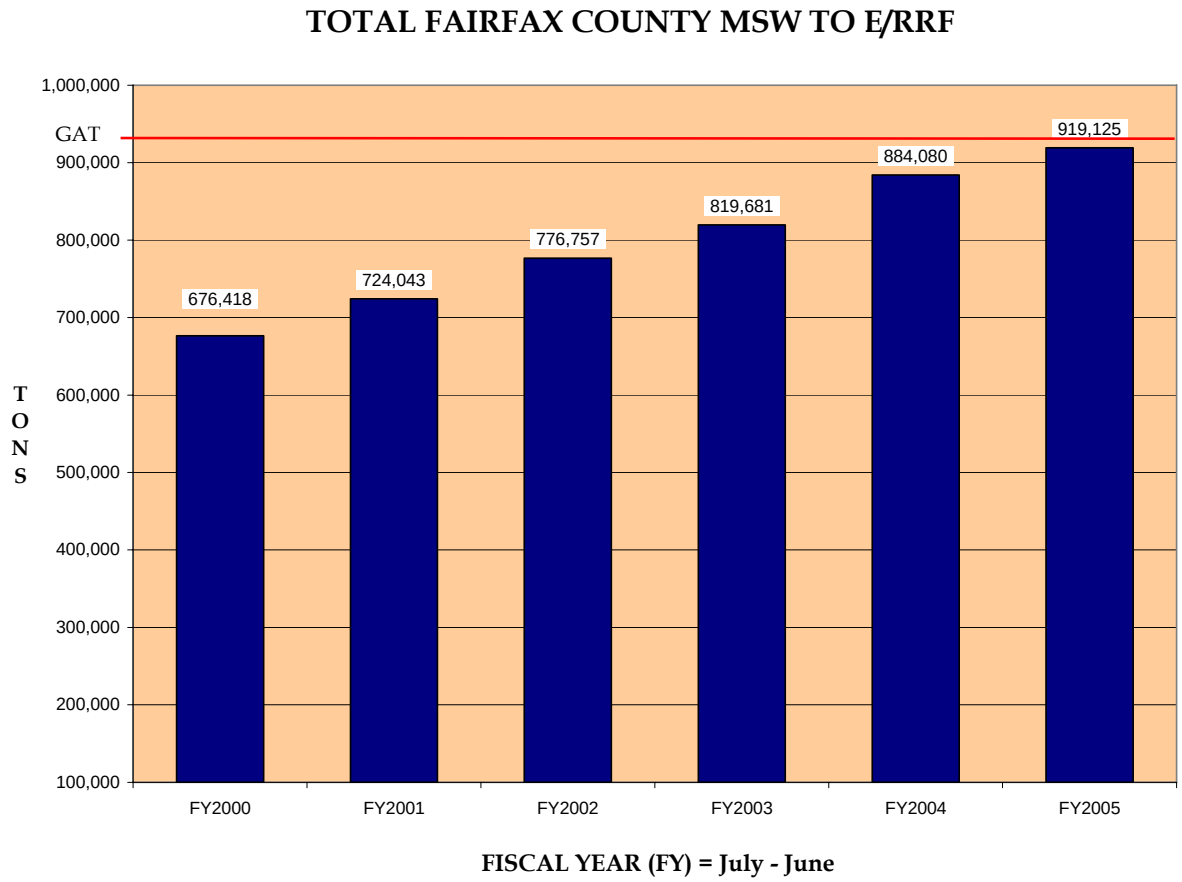

Figure IV-1. Total Fairfax County MSW to E/RRF: FY 2000-2005

iv. Air Quality

The E/RRF's continuous emissions monitoring system (CEMS) samples flue gas emissions and alerts Covanta staff to any areas that need attention. Permit exceedances must be reported to the VDEQ with an explanation as to the circumstances of the event. The E/RRF continues to operate well within the permit parameters for air emissions. The following stack emissions for certain constituents were documented by an independent lab test in June, 2004 and reported to VDEQ:

Table IV-1 Energy/Resource Recovery Facility Emissions Results: June, 2004		
Parameter	**Permit Limit**	**Average E/RRF Result**
Sulfur Dioxide (SO_2)	29 ppm	8.8 ppm
Carbon Monoxide (CO)	100 ppm	9 ppm
Nitrogen Oxides (NOx)	206.3 pph	193 pph
Hydrochloric acid (HCl)	29 ppm	3.9275 ppm
Particulate matter (PM)	27 mg/dscm	5.1575 mg/dscm
Dioxin/furans	30 ng/dscm	0.688 ng/dscm
Mercury (Hg)	80 ng/dscm	1.39125 ng/dscm

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

Source: Fairfax County Department of Public Works and Environmental Services

v. Materials Recovery

The E/RRF affords the ultimate in recycling of waste in that it takes waste and uses it to heat water to steam that turns turbines generating electricity. Moreover, once the process is complete, ferrous metals are recovered from the ash residue and recycled. In FY 2005, 19,915 tons of ferrous metal and 278 tons of non-ferrous metal were recovered from the ash and sold for recycling.

During FY 2005, Covanta discontinued operating the non-ferrous recovery system. This system was found to be ineffective to operate, due to high operating costs and poor market values for the recovered materials; further it was not a contract requirement for the facility.

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

The I-66 Transfer Station continues to handle roughly 75% of the waste destined for disposal in the county. The Transfer Station consolidates waste from small collection vehicles prior to transporting the waste to the E/RRF. Further, the Transfer Station plays a pivotal role when waste needs to bypass the E/RRF to landfills; in FY 2005 over 75,000 tons of waste was hauled from the Transfer Station to landfills. The VDEQ inspected the Transfer Station in June, 2005 and found that it was being operated within its permit limits.

i. Citizens' Disposal Facility (CDF)

The Transfer Station also serves as one of the county's two citizens' recycling and disposal facilities (CDF), where residents and small businesses can self-haul their waste and recyclables. In FY 2005, more than 254,000 visits were made to the I-66 CDF. The CDF is also being redesigned to accommodate the increased demand 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 will likely not be completed until late FY 2007.

ii. Transfer Operations

One of the main responsibilities at the Transfer Station is to move waste from northern and western parts of the county to the E/RRF. With increased building and population growth, waste collection companies are bringing more waste to the Transfer Station. Roughly 75% of the residential waste generated in Fairfax County is disposed of at the Transfer Station. Small collection trucks dump their loads on the tip floor, where the material is consolidated into larger tractor trailers. County staff relies on a contractor to provide additional drivers and vehicles that augment the county's fleet of tractor trailers. Approximately 140 trailer loads of waste move from the Transfer Station to the E/RRF and other disposal locations daily, reducing by two-thirds the number of trucks traveling to the I-95 Complex.

The County vehicle fleet, including the transfer trucks at the Transfer Station, now uses ultra-low sulfur diesel fuel. The purpose is to reduce air emissions as much as possible, while performing the mission of transporting increasing amounts of waste.

A contract has been solicited for the design and installation of an automated truck wash operation to be located in the existing truck wash building. The state-of-the-art system will recover and recycle water, discharging minimal amounts to the sewer, while reducing manpower requirements to wash large vehicles. County solid waste collection vehicles will be able to be washed here as well.

d. Household Hazardous Waste (HHW) Program

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

e. Other Programs

i. Program Enforcement

Fairfax County issues permits to all solid waste collection companies prior to allowing them to operate in the county. County staff has the responsibility to enforce violations of Chapter 109 of the Fairfax County Code; staff has been added in order to improve enforcement efforts. This is in response to an increased number of customer complaints about missed service and mixing recyclables with trash.

In February, 2005, the Board of Supervisors approved several administrative revisions to Chapter 109. An extensive rewrite of Chapter 109 is underway in order to address many of the measures that are needed to improve service delivery for county residents. Additionally, staff has historically updated the solid waste code on five-year intervals, but has moved the process to an annual review.

ii. Environmental Enterprise Designation

Since August, 2003, when VDEQ presented the Board of Supervisors with a certificate designating Fairfax County as an Environmental Enterprise (E2), the SWMP has met its environmental targets and reports. While participation in the Virginia Environmental Excellence Program is voluntary and on an department by department basis, to be considered for inclusion as an Environmental Enterprise, an organization must submit an application with the following information for each of its facilities under consideration:

- Policy statement outlining the facility's commitment to improving environmental quality;
- An evaluation of the facility's environmental impacts;
- Objectives and targets for addressing significant environmental impacts; and
- Description of the facility's pollution prevention program.

In addition, the organization must have a record of significant compliance with environmental laws and be in significant compliance with all applicable environmental requirements.

The SWMP is currently working toward certification as an Exemplary Environmental Enterprise (E3) program. The E3 level of participation is for those organizations with a fully-implemented environmental management system (EMS), a pollution prevention program, and demonstrated environmental performance. At the time of writing, the County's solid waste program has begun to develop the EMS and P2 programs required for E3 status, and expect to apply for this enhanced designation late in 2005.

During FY 2005, the SWMP also became a founding member of Businesses for the Bay (B4B). The mission of B4B is to build support for pollution prevention among all businesses throughout the watershed. Its goal is to contribute to the long term and voluntary improvement of the quality of the Bay and its rivers through widespread implementation of pollution prevention practices throughout the watershed.

2. Waste Reduction and Recycling Programs

a. Overview of Recycling Programs

The Fairfax County Solid Waste Management Program, Division of Solid Waste Collection and Recycling (DSWC&R) is responsible for the management and implementation of the countywide recycling program to ensure compliance with Fairfax County's solid waste management code, Chapter 109, and state law and associated regulations. The VDEQ is responsible for administering regulations that require all municipalities in the Commonwealth to recycle at least 25 percent of the total volume (by weight) of municipal solid waste (MSW) generated in the jurisdiction. These regulations are codified as 9 VAC 20-130-10 and became effective on August 1, 2001. Annual reports documenting the recycling rate for the preceding calendar year are now due to the VDEQ by April 30 each year.

Fairfax County currently administers Chapter 109, Solid Waste Regulations, which provides the minimum requirements for solid waste collection, recycling, and disposal for collection companies, residences, and commercial properties located within Fairfax County.

The county requires annual reports on the tonnages of recyclables collected by individual solid waste collectors permitted to operate in the county, commercial businesses that generate regulated quantities of MSW, and the Material Recovery Facilities (MRFs) and other recycling entities operating in Fairfax County. These reports are due to the county by the end of February of each year. These reports are evaluated and data compiled to calculate the countywide recycling rate, which for calendar year 2004 was 32%. Figure IV-2 depicts the historical quantities of recyclables collected in the county since the recycling program's inception in 1988. Fairfax County continues to exceed the state-mandated requirement to recycle at least 25% of the total amount of solid waste generated within its borders.

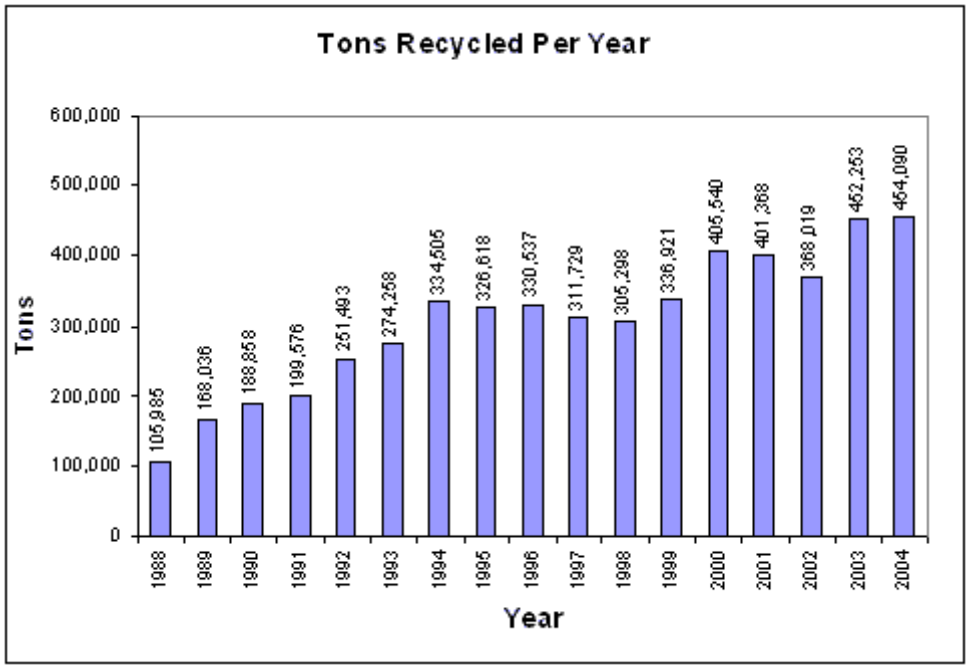

Figure IV-2. Historical Quantities of Materials Recycled in Fairfax County

To thoroughly understand how recycling works in the county, it is important to distinguish between the types of recycling programs in effect in the county. The two major county recycling programs are the curbside residential collection of recyclables and the business recycling program.

Curbside residential collection of recyclables is controlled by Chapter 109, which requires the collection of newspaper, glass food and beverage containers, metal food and beverage containers, and yard waste. During the evaluations conducted for the 20-year solid waste management plan and the activities of the Solid Waste Task Force, recommendations were made to require all permitted collection companies operating in the county to collect additional recyclables curbside from all single-family and townhomes in the county. These additional materials are mixed paper, flattened cardboard, and plastic bottles and jugs. They are the identical recyclables that have been collected curbside (since 2000) from residents in sanitary districts, where collection is provided by the Fairfax County Division of Solid Waste Collection & Recycling (DSWC&R).

Permitted collection companies have agreed to voluntarily initiate the curbside collection of these additional materials starting July 1, 2005, with the collection for recycling becoming mandatory on January 1, 2006. The county has also agreed to provide outreach assistance to the collection companies to help ensure a uniform recycling message to residents across the county.

Business recycling requirements are also planned to be revised during the coming year. Many businesses operating in the county are covered by recycling

requirements, while others are not. The following businesses *currently* are required to recycle in the identified fashions:

- Office buildings - recycling is required only if the office building has more than 200 full-time employees. If recycling is required, then only the recyclable material generated in the highest quantity must be recycled.

- Commercial Business Centers (strip malls, large shopping malls, commercial business parks etc.) - recycling is required only if the businesses in the commercial business center generate more than 100 tons of refuse per year. If the commercial business center generates more than 100 tons of refuse per year, then only the recyclable material generated in the highest quantity must be recycled.

- Multi-family housing (apartment and condominium complexes only - not townhome developments) - recycling is required only if the building has more than 100 units; no recycling is required if the building has 99 units or less. If the building has more than 100 units, only newspaper, and no other commodity, must be recycled.

The county's 20-year solid waste management plan recommended that business recycling be expanded in the county. To that end, staff is presently creating a plan to have detailed conversations with a variety of businesses in the county to determine the best approaches to successfully improving business recycling in the county. These activities are currently underway, and will end with a revision to the Fairfax County Code to codify the new requirements.

b. Other Collection and Recycling Programs

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

- Collection of refuse and recyclables from about 43,000 residences, primarily on the east side of the county;
- Collection of refuse and recyclables from county-owned buildings;
- Seasonal vacuum leaf collection from approximately 20,000 residences;
- The Recycling Drop Off Centers (RDOCs);
- Refuse removal due to evictions and other court orders; and
- All public outreach and education for recycling and waste management programs.

Brief descriptions and updates of programs are provided in the subsequent sections of this report.

i. Residential Recyclables Collection Programs

Residential recycling of several Principal Recyclable Materials (PRMs as defined by VDEQ regulations) became mandatory in 1992 for all single family homes, residential townhouses, apartment complexes, condominium units, and residential duplexes with curbside collection. PRM recycling became mandatory in 1993 for residential units and building complexes with dumpster service, and curbside residential collection of recyclables is regulated under Chapter 109 of the Fairfax County Code.

Weekly curbside collection of newspaper and glass and metal food and beverage containers is required to be conducted at all residences with curbside collection services provided either by county employees in the Sanitary Districts or by the other private collectors permitted to operate in the county. For multifamily dwellings such as apartment buildings and condominiums, recycling is required only if the building has more than 100 units; no recycling is required if the building has 99 units or less. If the building has more than 100 units, only newspaper, and no other commodity, must be recycled.

In order to ensure that new multifamily dwellings are designed (prior to construction) to provide adequate common areas for the installation and operation of recycling equipment, amendments were made to the Fairfax County Public Facilities Manual that became effective for new Site Plans submitted after September 1, 1993. The amendments require that, in any new construction of multifamily residential complexes with more than 100 units, a space be provided to accommodate recycling for the building. A Recycling System Statement on the Site Plan cover sheet identifies properties required to recycle, so that appropriate facilities may be designed prior to building construction. These requirements do not apply to townhome residential complexes that will have curbside collection of refuse and recyclables, because they are provided with curbside recycling service.

ii. Yard Waste

Recycling of yard waste (small branches, leaves and grass) is also required for residential units in Fairfax County. Curbside collection of yard waste is required to be provided by all refuse and recyclables collection companies operating in the county. The county provides this service to approximately 43,000 customers in Sanitary District areas.

Woody materials, referred to as brush, comprise a portion of the overall quantity of yard waste collected in the county. Brush is managed at either the I-66 or I-95 facility and is ground into mulch if it is unbagged. The mulch from these facilities is available for free to county residents who can self-haul the material to the end use location. Mulch is typically 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 total quantity of yard waste managed in the county. This material is generally collected in bags and is sent to either of two composting facilities, where the material undergoes a biological decomposition to turn it into compost, which is used as a soil substitute. In 2004, 122,710 tons of yard waste were recycled in Fairfax County.

iii. Recycling Drop Off Centers (RDOCs)

Fairfax County operates eight Recycling Drop Off Centers located at various locations throughout the county. The number of RDOCs has decreased from the fourteen available in 1995, since participation in curbside recyclables collection reduces the need for the RDOCs. However, the RDOCs provide additional recycling opportunities for residents or businesses served by privately-owned refuse and recyclables collection companies that are not required by Chapter 109 to collect these additional materials (mixed paper, cardboard, and plastic bottles and jugs). These RDOCs are relied upon by small commercial operations in the county to facilitate their recycling while reducing their costs for refuse disposal.

iv. County Agency Routes

All county agencies serviced by county staff for the collection of refuse and recyclables participate in recycling for that particular location. In calendar year 2004, county agency locations recycled approximately 735 tons of materials. The Solid Waste Management Program staff provides all backup support to ensure adequate communication of the recycling requirements as well as operational support for general programs or other special activities as needed.

v. Public Education and Outreach

Public education and outreach form the basis of any county's recycling efforts. To that end, the county's Solid Waste Management Program focuses on the development and implementation of creative education programs that can take advantage of partnerships with county agencies, Fairfax County Public Schools, community organizations (i.e., Girl/Boy Scouts, Youth Groups, Jaycees), commercial businesses, and private haulers. Outreach programs consist of activities and displays at county festivals, the support and advertisement of several days every year specifically dedicated to recycling efforts, public speaking opportunities, and technical support of recycling activities and issues.

Annually, the Solid Waste Program participates in Clean Fairfax Council's Earth Day/Arbor Day event, Celebrate Fairfax, and Fall for Fairfax. These events are a major portion of the county's overall public outreach campaign and provide the program with the opportunity to provide technical guidance as well as practical information about the county's solid waste and recycling programs.

In 2005, the Solid Waste Program won Best of Show at the Celebrate Fairfax event in June with an interactive display of equipment and programs.

The Solid Waste Management Program is a sponsor of the annual Earth Day/Arbor Day event promoted by Clean Fairfax Council. This year, the Solid Waste Management Program supported the Johnie Forte Jr. Environmental Scholarship, which awarded ten $500 scholarships to applicants from the Fairfax County Public Schools. Student groups receiving the grants are invited to the annual Earth Day/Arbor Day celebration at Northern Virginia Community College to make a presentation regarding the use of the grant to the community and the Board of Supervisors. The annual Fairfax County Business Recycling Awards are also presented at the same event; this year, awards were given in four categories to:

- Raytheon Corporation - Continuing Excellence;
- U.S. Army Garrison, Fort Belvoir – Government;
- Mitretek - Large Business; and
- The Peterson Company – Property Management.

This environmental scholarship program for school students is a portion of SCRAP, the Schools/County Recycling Action Partnership. The SCRAP partnership was created by the Fairfax County Public Schools and Fairfax County Division of Solid Waste Collection & Recycling (DSWC&R) to provide opportunities for the students of Fairfax County Public Schools to learn about recycling and other environmental issues and enhance recycling throughout the system. The Partnership functions in a cooperative and collaborative manner to assist in increasing the recycling awareness and practice at Fairfax County Public Schools (FCPS) by:

- Developing opportunities for students to learn about recycling and other environmental issues;
- Providing support for school recycling activities to assist achieving recycling goals; and
- Providing environmental science expertise to support student projects and activities.

The Partnership unites the resources of both organizations in a unique relationship to expand upon and enhance the existing FCPS recycling program for the benefit of the schools and the environment. DSWC&R originated the SCRAPbook, a resource tool distributed to all science teachers in the FCPS system. This brochure details all of the opportunities provided by DSWC&R and Clean Fairfax Council to aid in the instruction of students, including training and presentations, tours, and details of application for the Johnie Forte grant award.

In April, 2005, Fairfax County partnered with FCPS's Chantilly Academy to recycle obsolete electronics. Usable computers were donated to the Academy to support the school's computer operation and repair classes for students. Additionally, 35 families with students enrolled in FCPS in need of computers were given refurbished equipment repaired by students attending the Academy. Training on how to operate the equipment was provided by students and teachers of the Academy. Over 700 residents donated computers and about 50 tons of obsolete computer equipment was reused or recycled rather than sent for disposal.

The Solid Waste Management Program also promotes an annual Clean Your Files Week, geared to county agency staff to remind staff of the benefits of recycling of office paper. This effort is managed by the Employee Recycling Committee (ERC). The ERC meets monthly and works on projects beneficial to improving county employee participation in recycling. The group coordinated and implemented several projects this year including: the Clean Your Files Week contest; the county employee's Earth Day celebration; participation in America Recycles Day, and the Employee Recycling Committee Recycler of the Year award (the ERICA award).

The Clean Your Files Week contest provided an award, prizes, and publicity for the winning agency in the county's newspaper, the Courier. The contest encourages office workers to recycle more paper and creates a team-building for staff in county agencies. More than 60 additional tons of paper were collected from county office buildings during the month-long contest.

The Earth Day celebration concentrated on the participation of many county agencies with responsibility for environmental protection and stewardship in the county. These agencies placed informational booths in the Government Center during the lunch hour so that all employees could better understand services provided by these agencies.

The ERICA award is presented to the county employee(s), individuals or groups who demonstrate exceptional commitment to recycling in the workplace. A formal presentation is made to the winner(s) at their agency's workplace to demonstrate appreciation to that agency for allowing the employee to participate in recycling. These activities have strengthened the county employees' resolve and dedication to recycling.

America Recycles Day (ARD) 2004 was celebrated on November 13th with the Community Recycling Roadshow at Herndon High School. County staff again partnered with volunteers to show how recycling activities can support the local community. Students Against Global Abuse (SAGA), the student environmental club at Herndon High School, helped staff collect computers, cell phones, bicycles, and eyeglasses. ServiceSource, a sheltered workshop for

adults with disabilities, collected over 20 tons of used computers and other electronic equipment at this single event.

OAR of Fairfax (Opportunities, Alternatives and Resources) collected 274 used cell phones for victims of domestic violence. Pedals for Progress collected 130 bicycles to be shipped overseas to help people who need basic transportation. Eyeglasses were collected by the Reston Lion's Club for overseas medical clinics. In addition to these nonprofit agencies, other partners included Herndon High School, Town of Herndon, Clean Fairfax Council, Amphora Bakery, and Safeguard Shredding. Inc., which provided free shredding and recycling of sensitive documents. America Recycles 2004 is a nationwide celebration with community-based events that bring together many organizations and people. Locally, Fairfax County Public School students were invited to write an exciting adventure for the Recycle Guys, the colorful mascots of the recycling program. Winners were chosen from submissions from each of three age groups. Each winner received a gift certificate to a bookstore.

Public outreach and education is accomplished through involvement in community events and public speaking opportunities as well as the Solid Waste Program's membership in the Lorton Citizens Alliance Team (LCAT), Business Advisory Committee, and Citizens' Advisory Committee on Solid Waste.

The Solid Waste Management Program takes full advantage of the Internet by placing pertinent information about timely subjects on its Web site. Information about the program's involvement in community events as well as new information about solid waste matters is updated on the Web at:
www.fairfaxcounty.gov/gov/dpwes.

Staff routinely updates all of the written publications to account for changes in programs and activities. Publications are revised to ensure the clarity of the contents and that they are informative and present information in a suitable fashion to address a particular question or issue. All publications will eventually be available on the county Web site to allow for the ease of access and printing for distribution. Additionally, the county maintains an automated recycling information line (703-324-5052) for resident access to recycling opportunity information.

The Solid Waste Management Program staff is also using the Web to disseminate information to citizens as well as the regulated community as a service to customers. An electronic e-mail to county collection customers has been developed to automatically send updates to customers on the program as well as updates regarding service 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 collection will be conducted on their streets to ensure that residents have time to rake leaves to the curb.

REFERENCES

All materials were supplied by the Division of Solid Waste Collection and Recycling and the Division of Solid Waste Disposal and Resource Recovery.