
ANNUAL REPORT ON THE ENVIRONMENT

CHAPTER IV

SOLID WASTE

IV. SOLID WASTE MANAGEMENT

A. ISSUES AND OVERVIEW

Fairfax County's solid waste program had a remarkable year in FY2004. As usual, the county exceeded its contractual obligations to the Covanta Energy Resource Recovery Facility (E/RRF) as well as collecting waste from over 40,000 homes in County Sanitary Districts with few complaints. This year, however, was a year of challenges and accomplishments. The business area faced the challenge of responding to a weather emergency in the form of Hurricane Isabel that devastated many homes in one sanitary district and generated record amounts of brush throughout the county.

The county staff also prepared a 20 year solid waste management plan (SWMP) for submission to the Virginia Department of Environmental Quality. The county accomplished the development of the SWMP by involving thousands of citizens in identifying issues they wanted addressed and strategies for resolving those issues over the next few years. The detailed recommendations of the SWMP will be discussed later.

The Solid Waste Management Program succeeded in being certified as an Environmental Enterprise (EE) program in Virginia. One of the major requirements of the EE 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.

The recycling program also received a national award for its efforts in organizing an America Recycles Day in conjunction with Herndon High School. The acknowledgement brought with it a check for \$7,500 to support continuing recycling and public education efforts.

Credit cards can now be used to pay for disposing of waste at the Citizens' Disposal Facilities at I-66 and I-95. This innovative approach coordinated the use of credit cards into the existing information, financial accounting and banking systems that support the ongoing management activities for the disposal program.

There are 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). These two divisions form a single business area, the Solid Waste Management Program. DSWC&R has a new director, who was selected after an extensive search following the retirement of the previous director.

This year, the business area has focused attention on implementing its goals from the Strategic Plan developed last year as part of the County Executive's ongoing Framework for Excellence. These goals were mirrored and reemphasized in budgets that support the business area's portion of the county's vision elements by:

- ***Maintaining And Enhancing An Integrated Solid Waste System***
(County Vision Linkage to Three Elements: Maintaining Safe and Caring Communities, Practicing Environmental Stewardship, and Corporate Stewardship)
- ***Achieving Financial Viability Through Sound Financial Practices***
(County Vision Linkage: Corporate Stewardship)
- ***Maintaining Or Improving Internal Management System***
(County Vision Linkage: Maintaining Healthy Economies)
- ***Providing Excellent Customer Service***
(County Vision Linkage to Three Elements: Maintaining Safe and Caring Communities, Maintaining Healthy Economics, and Creating a Culture of Engagement)
- ***Enhancing The Community And Protecting The Environment***
(County Vision Linkage to Three Elements: Maintaining Safe and Caring Communities, Practicing Environmental Stewardship, and Creating a Culture of Engagement).

1. Contractual Issues and Landfill Capacity

Covanta Fairfax, Inc. and its parent company, Covanta Energy, emerged from bankruptcy on March 5, 2004 after almost two years. Covanta was acquired by Danielson Holding Company. All required payments to the county had been satisfied previously. Maintenance and operation at the waste-to-energy facility had continued without disruption throughout the bankruptcy. This year, the facility processed over 1,084,000 tons of waste. It served a valuable community function by also being approved as a disposal site for the emerald ash borer that infected several ash trees in the county. In response to a request from the Virginia Department of Agriculture, the Energy/Resource Recovery Facility (E/RRF) was able to handle all the wood chips generated by the destruction of the trees and assure the 100% containment of the spread of the insects. Likewise, arrangements have been made to process contaminated nursery stock (sudden oak plant death disease) in the facility to prevent the spread of that disease to healthy plants in the area.

Due to routine maintenance outages at the E/RRF, significant weather events, and an increase in Fairfax County waste, the county bypassed 70,307 tons of waste to landfills during the year, based upon contingency contracts that were in place. Having these contracts in place was invaluable in expediting those situations when bypass capacity was needed.

The E/RRF continued to receive about 19% of its waste from jurisdictions outside the county. However, as of February 2004, the District of Columbia elected to landfill its waste and not use the E/RRF as part of its new contracted services.

Additional agreements brought waste to the E/RRF from Fort Belvoir, Prince William County exchange of waste, and Alexandria Sanitation. Roughly 95% of the Guaranteed Annual Tonnage (GAT of 930,750 tons) waste was generated by Fairfax County residents in FY2004.

2. Solid Waste Management Plan (SWMP)

The development of the SWMP continued this year by engaging the community to identify its needs for waste collection, recycling, transportation, and disposal management for the next 20 years. A public opinion survey was conducted at many major events such as Celebrate Fairfax, Fall for Fairfax, and other community events. Thousands of residents were contacted or attended community meetings to discuss their concerns with collection, recycling, customer service, and other issues. This information formed the basis for the seven significant recommendations of the SWMP:

- Emphasize source reduction and reuse as a priority public outreach message to residents.
- Increase curbside recycling to include plastic bottles, cardboard, and mixed paper.
- Include all businesses in the recycling program.
- 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 SWMP contained an issue about the county increasing its oversight role in residential waste collection. Following the public hearing on May 10, 2004, the Board of Supervisors decided not to make any immediate changes in residential collection practices. The SWMP was submitted to the Virginia Department of Environmental Quality on June 22, 2004.

As a result of the concerns and issues that some residents had raised about the need for a thorough review of residential waste collection practices throughout the county, the Solid Waste Management Program Task Force was appointed by the Board of Supervisors to investigate the customer service, environmental, and operational issues that surround residential waste collection practices in the county. The Task Force will have its report to the Board by May 10, 2005.

3. Use of Credit Cards

The citizens' disposal facilities began accepting credit cards on a pilot basis this year in an effort to better serve our customers. As part of the evaluation, staff will evaluate the

impact of the transaction costs on the overall price that customers will pay to dispose of waste.

4. Solid Waste Disposal Fee

The contract waste disposal fee, offered to companies that sign agreements with the county, remained at \$39.95 per ton for FY2004. The contract disposal fee covers transportation and disposal of waste, but does not fully cover all community benefit programs supported by the Solid Waste Program.

The fee for FY2005 will be raised by \$2.50 to \$42.45 per ton for all Fairfax County waste. The increase is due to the tip fee increase from Covanta Fairfax that resulted in part from:

- Contractual reductions in the rate paid by Virginia Dominion Power for electrical capacity.
- Increased operations and maintenance costs (reagents to prevent pollution of the air and ash).
- Reduced revenue from investments.

Fees for residents and commercial cash customers to use the citizens' disposal facilities increased in FY2004 to \$55 per ton for trash. The increase was necessary to cover the additional costs of handling and transporting this waste for disposal. No increases in this rate are anticipated for FY2005, although the cost of individual materials such as yard waste will increase to \$42.45 for residents who bring their yard waste to a disposal site.

The tip fee traditionally covered the cost of community benefit programs such as household hazardous waste, recycling education and outreach, and code enforcement. In recent years, the tip fee had not covered all the costs of these community benefit programs, so reserves and funding from the General Fund have been needed. In FY2004, that amount was \$1.8 million. Staff will continue to monitor the situation closely to ensure that costs are met, contractual requirements fulfilled, and changes to procedures are made as required.

B. PROGRAMS, PROJECTS, AND ANALYSIS

1. Waste Disposal

a. I-95 Sanitary Landfill

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. Based on

the results and chemical analysis, the concentration of some constituents appear to exceed their respective groundwater standards in particular wells during monitoring events in 2002 and 2003. These wells are located very close to the buried waste. Pursuant to the landfill permit, VDEQ was notified. Exceeding the GPS limits required the county to perform an Assessment of Corrective Measures (ACM). In accordance with Waste Management Regulation 9 VAC 20-80-250.D.6.g, the Assessment of Corrective Measures report was submitted to VDEQ in August, 2002. VDEQ's comments were addressed in the revised ACM and Corrective Action Plan (CAP) which was submitted 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 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 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). 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

On January 16, 2003, VDEQ approved the closure and post Closure plan for Phases III and IV of the I-95 Sanitary Landfill, which cover approximately 135 acres. Phases III and IV will be subdivided into four units of 34 acres. A final cap, to minimize the surface water infiltration into the landfill, will be placed and a landfill gas control system will be installed to control the migration of

landfill gas. Placement of the closure cap started during May 2003, and is expected to be completed by 2006.

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. The collected landfill gas is distributed to a variety of devices, including five enclosed flares and two power plants operated by Michigan Cogeneration Systems (MCS), generating over 6.1 megawatts of electricity.

The gas distribution pipeline, which the county and MCS installed between the I-95 Landfill and the Noman M. Cole, Jr. Pollution Control Plant (NMCPCP), continues to convey 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 2002 at nearly \$1 million for the year.

The establishment of the gas control systems, significantly ahead of State and federal requirements, has not only provided the landfill with outside revenue sources, but has significantly contributed to an improvement in air quality in the county.

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

iv. Ash Testing

Incinerator ash is accepted at the I-95 Landfill from the COVANTA Energy/Resource Recovery Facilities located in Alexandria and Lorton. Ash is placed in a double composite, lined landfill with leachate collection and detection systems. Construction of Phase IIB of the ash landfill is in progress, and the project will be completed by November, 2004.

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 needed to dispose of the same quantity of municipal solid waste. Ash produced at both the facilities was analyzed by an independent lab and found to be well within permit limits for all constituents.

One constituent of potential concern is cadmium in the ash. Staff intends to support and publicize an existing program for the return/exchange or recycling of rechargeable nickel-cadmium (NiCad) batteries by retailers such as Wal-Mart, Radio Shack, and Best Buy stores. The batteries are ultimately disposed in a safe location. Even small efforts will reduce the amount of cadmium in the ash.

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



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 higher availability of 93.3% in FY2003. These changes included:

- Renovation of the ash conveyor gallery;
- Conversion of all bags in the baghouse to Ryton material;
- Modernization of pit crane number 3;
- Replacement of turbine generator governors; and
- Computerization of prevention and corrective maintenance requests tracking.

A dolomitic lime system was added to the E/RRF to further condition the ash and bind metals within the ash. This chemical process that prevents metals from leaching when landfilled, provides additional assurance to the pollution prevention system of the E/RRF.

The E/RRF continues to produce up to 80 megawatts of electricity that was sold to Dominion Virginia Power. This is enough energy to power about 75,000 homes. Covanta's Supplemental Waste program was thoroughly reviewed by the VDEQ and a determination was made that supplemental waste materials coming into the facility could include any waste disposed by a residential or commercial organization.

The Title V Permit continues under review with VDEQ.

vi. Quantity of Waste Generated

The Guaranteed Annual Tonnage (GAT) is 930,750 tons per year and remains fixed until February, 2011, when the service agreement between the county and Covanta terminates and the bonds are paid. In FY2004, the E/RRF processed over 1,080,000 tons of waste or over 90,000 per month. Due to scheduled outages and other reasons, about 70,300 tons of waste were bypassed to landfills during the fiscal year.

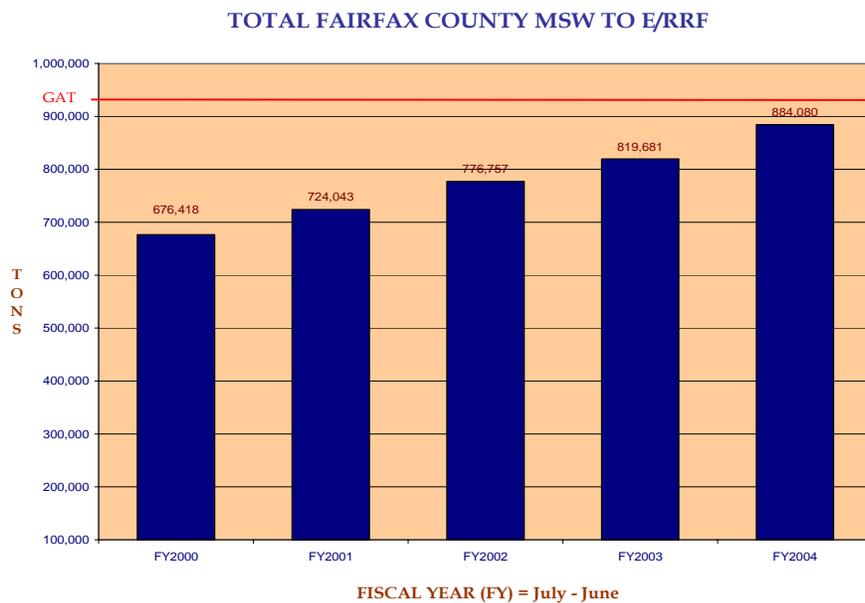


Figure IV-1. Total Fairfax County MSW to E/RRF FY2000-FY2004

The Solid Waste Management Plan (SWMP) projected waste disposal needs through 2024 and found that there will probably be capacity at the E/RRF to dispose of waste through 2024. To ensure that disposal capacity remains at the E/RRF, an increase in recycling amounts of about 120,000 tons per year will be needed.

One concern identified in the SWMP was the need to develop strategies for managing construction/demolition/debris (CDD) waste in the near future.

Local private CDD landfills will be filled in a few years and CDD capacity throughout the State is projected at only 7.1 years. While the rate of generation of CDD is slowing, there will still be significant amounts of CDD to be disposed or recycled in the future.

vii. Air Quality

The E/RRF's continuous emissions monitoring system (CEMS) samples flue gas emissions and alerts 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 emissions results for certain constituents were documented by an independent lab test in June, 2003:

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 (NO _x)	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

viii. Wastewater Discharge

Beginning in October, 2003, the average daily flow of wastewater from the E/RRF was significantly reduced from about 105,000 gallons per day (gpd) to about 45,000 gpd. This trend coincided with the end of the prolonged drought experienced by the area. Under drought conditions, the specific conductivity of water used for the cooling towers is elevated, requiring more blowdown of water to maintain the specific conductivity criteria. Cooling tower water is the major component of the facility's wastewater discharge.

ix. 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, both ferrous and non-ferrous metals are recovered from the ash residue and recycled. In FY2003, 22,204 tons of

ferrous metal and 318 tons of non-ferrous metal were recovered and sold for recycling. This represented a 7% increase in ferrous metal recovery but a decrease of 129 tons in non-ferrous metal recycling.

x. I-66 Transfer Station, Landfill & 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. Moreover, the Transfer Station plays a pivotal role when waste needs to bypass the E/RRF to landfills. The VDEQ inspected the Transfer Station and found that it was being operated within its permit limits.

The Transfer Station also serves as one of the county's two Citizens' Disposal Facilities (CDF), where residents can self-haul their waste and recyclables. Over 301,000 resident visits occurred at CDFs at the Transfer Station and I-95 Complex in FY2004, an increase of 8.3% over FY2003.

The Commercial Cash program became a permanent service to businesses this year, allowing many of the smaller companies to dispose of waste and pay with check or cash instead of having to post a disposal bond. To date about 3,525 commercial cash accounts have been established.

Another innovation has just begun at the CDF that allows residents and commercial cash accounts to pay by credit cards for waste disposal. This joint venture with other county departments will be in a pilot phase for six months to evaluate its costs and benefits to customers.

Transportation requirements to move waste from northern and western parts of the county continue to require the use of a contractor to provide the drivers and vehicles. Approximately 120 trailer loads of waste move from the Transfer

Station to the E/RRF daily, reducing by two-thirds the number of trucks traveling to the I-95 Complex.

A study is underway to determine the best configuration of the Transfer Station to accommodate residents who use the facility along with commercial waste collection vehicles. Part of the study will review the CDF area to ensure that space is being maximally used.

Testing and evaluation of low sulfur fuels for the transport vehicles continues. The purpose is to reduce air emissions as much as possible while continuing to provide the transport capacity required to dispose of increasing amounts of waste.

xi. Household Hazardous Waste (HHW) Program

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

xii. Program Enforcement

Staff continued to respond to an increasing number of complaints related to customer service and violations of Chapter 109 of the Code of Fairfax. With the consolidation of residential waste collection businesses, an increased number of customer complaints about missed service were handled in 2003. Also the enforcement staff had to deal with the effects of Hurricane Isabel.

xiii. Environmental Enterprise Designation

On Monday, August 4, 2003, the DEQ presented the Board of Supervisors with a certificate designating Fairfax County as an Environmental Enterprise. Both the Solid Waste Management Program and Vehicle Services are participants in the program. The Solid Waste Management Program includes the I-95 Complex, the I-66 Transfer Station, and Refuse Collection. The Vehicle Services program includes maintenance facilities located at Newington, West Ox Road, Alban Road, and Jermantown.

The designation is the result of an initiative begun by the county's Environmental Coordinating Committee (ECC) on June 29, 2001, when 29 persons from various county agencies participated in a one day environmental management system workshop. The ECC is a collaborative, interagency management committee, chaired by Deputy County Executive Robert A. Stalzer, that was established to ensure an appropriate level of coordination and review of the county's environmental policies and initiatives.

Participation in the Virginia Environmental Excellence Program is voluntary and on an organization by organization 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.

2. Waste Reduction and Recycling Programs

a. Overview of Recycling Programs

The Fairfax County Division of Solid Waste Collection and Recycling (DSWCR) 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.

To comply with the requirement to measure and track the recycling rate, Fairfax County currently administers Chapter 109 which provides the requirements for solid waste collection, recycling and disposal for residences and commercial properties located within Fairfax County.

The county requires annual reports on the tonnages of recyclables collected by individual solid waste haulers permitted within 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 compiled to calculate the countywide recycling rate, which for calendar year 2003 was 37%. The following chart (Figure 3) depicts the historical rates of recyclables generated in the county since the recycling program's inception in 1988.

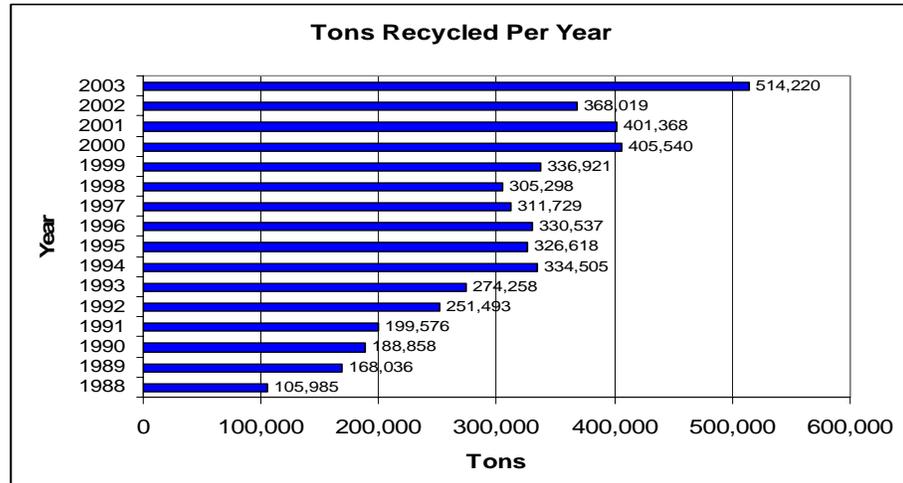


Figure IV-2 - Historical Quantities of Materials Recycled in Fairfax County

The recycling rate of 37% increased over the rate calculated for calendar year 2002, which was reported as 32%. The reasons for this are twofold: first, the quantity of paper collected for recycling in the county was increased by approximately 34,821 tons; and secondly, the amount of yard debris collected increased due to storm damage caused by Hurricane Isabel. Fairfax County exceeds the state's recycling requirement, where 25% of the total tonnage of MSW generated in the county must be recycled.

Several other factors, codified in Chapter 109, affect the ability of the county to increase the quantity of materials recycled. 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 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. Chapter 109 does not require private refuse collection companies to collect any other types of paper (including office paper or cardboard), nor does it require the collection of any plastic. However, in the County Sanitary Districts, the Solid Waste Management Program staff elected to expand curbside residential recyclables collection by including mixed paper (magazines, newspaper inserts, paperboard, cardboard, office paper etc.) and plastic bottles. This expansion has resulted in a 20% increase in the quantity of recyclables collected within Sanitary Districts as compared to the quantity of recyclables collected in residential areas served by private haulers operating in the county.

Business recycling in Fairfax County is limited by county guidelines which do not require participation by the majority of businesses operating in the county. Only the following businesses 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.

As demonstrated, the limitations on curbside collection and the business recycling thresholds limit the quantity of recyclables that can be collected in the county. In 2003/4, the Solid Waste Management Program staff addressed the need for increases in recycling through the completion of the state-mandated Solid Waste Management Plan. The Plan states that private waste collection companies should be required to provide expanded recycling services to their customers. This approach would allow for countywide collection of mixed paper, cardboard and plastic bottles at single family and townhouse developments throughout the county. Additionally, the Plan also supports the inclusion of additional businesses in recycling requirements. Staff is committed to supporting these changes to assist in the expansion of recycling activities within the county.

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 42,000 residences primarily on the east side of the county;
- Collection of refuse and recyclables from county buildings;
- Vacuum leaf collection for approximately 19,000 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. As noted earlier, curbside residential collection of recyclables is controlled by Chapter 109 of the Fairfax County Code. As stated previously, privately-owned refuse and recyclables collection companies are not currently required by Chapter 109 to collect these additional types of recyclables. However, staff is working to revise the code provisions as part of the Solid Waste Management Plan implementation.

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 haulers permitted to operate in the county. For multifamily dwellings such as apartment buildings or 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 which 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 Debris

Recycling of yard debris (small branches, leaves and grass) is also required in Fairfax County. Curbside collection of yard debris is required to be provided by the privately owned refuse and recyclables collection companies operating

in the county and the county staff providing similar service to approximately 42,000 customers in Sanitary District areas.

Woody materials, referred to as brush, comprise a portion of the overall quantity of yard debris 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 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 debris managed in the county. This material 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 2003, Fairfax County recycled 119,039 tons of yard debris. Yard debris increased by approximately 12,221 tons in calendar year 2003, mostly due to the storm damage attributable to Hurricane Isabel.

County staff is aware of the impact of plastic bags on the production of compost from yard debris. When leaves, grass or brush is contained by the homeowner in plastic bags for collection at the curb, the plastic bags go to the composting facility where a bag spitting machine cuts the bags open to release the yard debris. This equipment revolves in a circular fashion during operation. While rotating, the split plastic bags entangle the yard debris, especially the brush, into a mass where the plastic bags cannot be removed. The yard debris contaminated with plastic bags cannot be composted because there is no feasible technique to remove the plastic bag from the entangled brush. Compost has little value on the open market when contaminated with plastic bags. Unfortunately, the collection of yard debris in transparent plastic bags is specifically allowed as provided by Chapter 109. The reason that yard debris is permitted to be collected in transparent bags is to allow the collection staff to discern that the bag contains yard debris rather than trash. The County Code also allows for the collection of yard debris in reusable containers and paper bags, which eliminates the plastic contamination problem. The Solid Waste Management Program staff is evaluating this situation for the long-term waste management program currently under review by a Board-appointed advisory group.

iii. Recycling Drop Off Centers (RDOCs)

Fairfax County operates eight Recycling Drop Off Centers located at various points 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 at the curb (mixed paper, cardboard and the Nos. 1 and 2 plastics bottles and jugs). These RDOCs are relied upon

by small commercial operations in the county to facilitate their recycling while significantly reducing their costs for refuse disposal. However, the RDOCs are part of the community benefit programs, which do not generate sufficient revenue to cover the cost of operation.

iv. Privately-Owned Solid Waste Collectors

For areas of the county where refuse and recyclables services provided by the county have not been requested via the Sanitary District Petition process, privately-owned and operated refuse and recyclables collection firms, permitted by the county, collect these materials curbside from residences and commercial businesses. The independent haulers do not operate within specific geographic areas but rather compete for individual homes, contracts with civic or homeowner's associations, and commercial or office contracts. As such, there are instances within the county where refuse and recyclables collection trucks from several companies operate on the same street on the same day. This creates the obvious issues of truck traffic, air emissions, safety, roadway use, and certain operational inefficiencies with respect to duplicating collection routes. Moreover, during 2003, the consolidation of collection companies continued. This was one area that was discussed in the Solid Waste Management Plan, and the Board of Supervisors has formed a task force to discuss competition and other service delivery issues associated with residential waste collection.

All solid waste haulers permitted in Fairfax County are required to report residential recycling tonnages annually to the county. Reports requesting this information are sent out at the end of the calendar year and are due to the county by the end of February. These reports provide an accounting of the tonnages of individual recyclable commodities collected by individual haulers for use in the preparation of the recycling rate report due to VDEQ annually. Private solid waste haulers typically rely on weight tickets to provide the tonnages of recyclables collected and are required to maintain documentation of recyclables collected on file in their office for review and inspection upon request of the county.

v. Commercial Recycling Programs

The county also administers a commercial recycling program that is mandatory for businesses operating in the county based on the quantity of refuse generated or the number of employees occupying the building. Those commercial properties generating 100 tons of waste annually or housing 200 office workers are required to recycle the predominant Principal Recyclable Material (PRM) in the waste stream, typically office paper, and report these quantities annually to the county.

vi. Voluntary Commercial Source Reduction Programs

The county has promoted source reduction within the private sector by using case studies to publicize the efforts and cost savings realized by businesses that have set up successful source reduction programs. Technical assistance is provided to the private sector to assist them in the development of voluntary and mandatory recycling and source reduction programs. Source reduction in Fairfax County is a challenge because of the lack of manufacturing base where source reduction activities typically are concentrated. The most effective voluntary source reduction strategy that is feasible for Fairfax County is the management of grass clippings and other yard debris in home composting systems or by simply leaving them on the lawn for natural decomposition.

vii. 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 2003, county agency locations recycled approximately 784 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.

viii. 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 our partnerships with county agencies, Fairfax County Public Schools, community organizations (i.e. Girl 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 2004, the Solid Waste Program won first place for design at the Celebrate Fairfax Event in June with an interactive display of equipment and programs. In FY2003, the Solid Waste Management Program had also won a blue ribbon for content for the Celebrate Fairfax event.

The Solid Waste Management Program is a significant financial sponsor of the annual Earth Day/Arbor Day event promoted by Clean Fairfax Council. This

year, the Solid Waste Management Program was a significant financial sponsor of the Johnnie Forte Jr. Environmental Scholarship, which awarded six \$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 to Raytheon Corporation, SAIC Corporation, and Green Spring Village.

This environmental grant 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 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. In 2003, DSWCR created the SCRAPbook, a resource tool distributed to all science teachers in the FCPS system. This brochure details all of the opportunities provided by DSWCR and Clean Fairfax Council to aid in the instruction of students, including training and presentations, tours, and details of application for the Johnnie Forte grant award.

The Solid Waste 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 was managed by the renewed efforts of the Employee Recycling Committee (ERC). The ERC meets monthly and works on projects beneficial to improving county employee participation in recycling. The group developed and implemented three major projects this year, which were: the Clean Your Files Week contest; the county employee's Earth Day celebration; 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. In 2004, free ice cream certificates donated by Ben & Jerry's were given to the schools/groups with the most creative Clean Your Files/closets recycling projects. 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 went to the county employee who supported recycling efforts in the county and a formal presentation was made to the winners to demonstrate appreciation to that agency for allowing the employee to participate in recycling. All of these activities have strengthened the county employees' resolve and dedication to recycling.

America Recycles Day (November 15) (ARD) was celebrated with the Community Recycling Roadshow at Herndon High School. The theme of this event was to show how certain recycling activities can support the local community. DSWCR partnered with Students Against Global Abuse (SAGA), the student environmental club at Herndon High School, to collect computers, cell phones, and used tennis shoes in partnership with other community groups. ServiceSource collected used computers and other electronic equipment to support this organization that finds employment opportunities for persons with disabilities. OAR (Opportunities, Alternatives and Resources) collected used cell phones to be donated to women as communication tools to assist in the prevention of domestic abuse. The collection of used athletic shoes furthered the county's goal of collecting 5,000 pairs of shoes to be eligible to apply for a \$25,000 grant for a NikeGrind athletic field surface to be installed in the county. DSWCR also launched a new promotional tool known as the Recycle Guys, animated characters that present a coordinated recycling message that is to be adopted area-wide through northern Virginia, DC, and Maryland to present a recognizable recycling message to the region. The 2004 ARD event featured a recognition ceremony for recycling program volunteers and the winners of a contest to name the Recycle Guys in Fairfax County. Fairfax County's America Recycles Day program was awarded first prize in the national America Recycles Day program as the best in the nation. A formal award was presented to Fairfax County at a Board of Supervisor's meeting in June by the staff of America Recycles Day, Inc.

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.

An extensive public outreach effort this year has focused on obtaining citizens' input for the development of the Solid Waste Management Plan. Staff has engaged citizens in defining the questions to be used for an online public opinion survey. Staff attended various community association and business group meetings and events to present information about the existing solid waste management program and the needs for the future. Brochures explaining the Plan and its elements were distributed and surveys collecting public input were disseminated. This public awareness and education effort continued through spring of 2004.

The Solid Waste Management Program staff is continuously solicited to make presentations to a variety of citizen's groups every month of the year and; staff makes every effort to accommodate the quantity of requests. Program staff prepared formal presentations on a variety of issues and is available to community groups upon request.

Staff is in the process of updating all of the written publications to account for changes in programs and activities. Publications are being rewritten 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 (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 date that the leaf collection will be conducted on their street to ensure that residents have time to rake leaves to the curb.

C. RECOMMENDATIONS

EQAC was asked to review the 20-year Solid Waste Management Plan (SWMP) developed by the county staff for submission to Virginia Department of Environmental Quality (VDEQ). EQAC enthusiastically supports all of the recommendations in the 20-year SWMP (see the EQAC resolution to the Board of Supervisors from April, 2004 [Appendix A]). After the public hearing regarding these recommendations, a Solid Waste Management Plan Task Force (SWMPTF) was formed which has been tasked with refining and supplementing the recommendations set forth by the county staff in the 20-year plan. EQAC is a member of the county's Solid Waste Management Plan Task Force (SWMPTF) and EQAC eagerly awaits the report of the task force, due out mid 2005.

EQAC continues to support efforts to remove waste from the solid waste stream through recycling, however, there is room for improvement. EQAC recommends the following:

1. The county should continue to work with the solid waste hauler community to increase curbside recycling to include multiuse paper and plastic in addition to the items already being collected for recycling.
2. The county should develop policies that change the recycling requirement for office buildings such that the requirement will apply to office buildings with more than 100 full time employees (FTEs)—the requirement now applies only to office buildings with more than 200 FTEs.
3. The county should develop policies that change the recycling requirement for commercial business centers (CBCs, or strip malls) such that the requirement will apply to CBCs that generate more than 50 tons per year of solid waste—the requirement now applies only to CBCs that generate more than 100 tons per year.

REFERENCES

The narrative and illustrations were supplied by the Division of Solid Waste Collection and Recycling and the Division of Solid Waste Disposal and Resource Recovery.