Solid Waste

PROGRAM DESCRIPTION

The Solid Waste Management Program provides the framework for an integrated solid waste management system that addresses refuse and recycling for county businesses and residents. Refuse and recycling collection services are available to all residents and businesses in the county by either privately-owned collection companies or county collection crews.

LINK TO THE COMPREHENSIVE PLAN

Fairfax County's Comprehensive Plan has established a number of objectives and policies in order to:

- ✓ Provide conveniently located solid waste management facilities and operations, while ensuring that these facilities are compatible with adjacent land uses.
- ✓ Provide an efficient, cost effective and environmentally sound comprehensive solid waste management system that meets the current and future needs of the County.
- ✓ Provide a waste reduction and recycling program readily available to all that meets the current and future needs of the County.
- ✓ Modify and expand the I-66 Solid Waste Transfer Station, and consider the portion of the I-95 Landfill currently under closure procedures for adaptive reuse for active and passive recreational purposes.

Source: 2007 Edition of the Fairfax County Comprehensive Plan, Area IV, and the Policy Plan Element, Public Facilities Section, as amended

CURRENT PROGRAM INITIATIVES

The County operates several facilities: the Solid Waste Transfer Station at the I-66 Solid Waste Management Complex in Fairfax, VA, the Energy/Resource Recovery Facility (E/RRF) at the I-95 Solid Waste Management Complex in Lorton, VA and the Newington Collection Operations Facility.

The I-95 Solid Waste Management Complex includes the E/RRF, the closed portion of the I-95 landfill, the operating portion used for ash disposal, and the recycling and disposal center providing services to residents and businesses and is located in Lorton, VA. The I-95 Landfill is used solely for the disposal of ash generated from the combustion process employed at the E/RRF. This landfill unit is also used to dispose of ash generated by a waste-to-energy unit that provides disposal service to the City of Alexandria and Arlington County and ash generated from the combustion of biosolids (sewage sludge) at the Noman Cole wastewater treatment plant operated by the Fairfax County Department of Public Works and Environmental Services

In addition, the I-95 Waste-to-Energy Facility is located on the site of the I-95 Landfill Complex. This facility receives the trash generated in Fairfax County and converts it to energy through a state-of-the-art combustion facility. The facility is owned and operated by Covanta Fairfax, Inc. The total capital cost of

the Waste-to-Energy Facility was $195,000,000, and was financed through the sale of revenue bonds and the owner's capital. Additional air pollution control equipment was installed at the facility to comply with provisions of the Clean Air Act. The capital cost for the air pollution systems was $7.75 million, and was funded through bonds originally issued for the facility and owner equity. The facility has also added an ash conditioning system at a cost of $500,000. The debt service on the facility was retired on February 4, 2011.

The I-66 Solid Waste Transfer Station includes the Transfer Station where waste is consolidated into tractor trailers to be transferred to the E/RRF, the closed I-66 landfill and the recycling and disposal center providing services to residents and businesses and is located in Fairfax, VA. The I-66 Transfer Station has been operational since 1983. Trash collection companies operating in the county deliver waste to the Transfer Station where it is removed from the collection vehicles and is transferred into tractor-trailer trucks. It is then transported to the I-95 Energy/Resource Recovery Facility in Lorton for disposal.

The Newington Collection Operations Facility provides for the rolling stock and appurtenant equipment needed for the collection of refuse and recycling to be staged and stored for daily use. The Newington Refuse Collection Complex currently houses the County's collection fleet along with administrative facilities for personnel. Infrastructure costs are paid by refuse collection fees charged only to approximately 44,000 residential county customers. About half of the county customers also receive curbside vacuum leaf collection service in the fall for an additional fee of $0.015 per $100 of assessed value of the home and property.

The County's twenty-year Solid Waste Management Plan was adopted by the Board of Supervisors in 2004 and updated in 2010. This Plan is required by state regulation administered by the VA Department of Environmental Quality and provides a framework for implementing solid waste management programs and facilities and show how the county will manage waste and recyclables for a 20-year period.

CURRENT PROJECT DESCRIPTIONS

1. **Newington Operations Facility Rehabilitation** (Mt. Vernon District): This is an on-going project to fund infrastructure improvements to the existing facility. These improvements include; replacing worn and leaking roofing, metal siding and gutters on the main building and the pole barn, upgrading faulty HVAC controls, replacing four obsolete garage doors, improving the men's locker room and replacing tile flooring in the main building. The project is a multi-phase project over several years that will not expand the footprint of the existing site.

2. **I-66 Permit and Receiving Center** (Springfield District): $1,674,000 for the renovation of the existing permit and receiving center at the I-66 Transfer Station. The building was opened in 1983 and currently houses the permit offices, main scales, and limited locker room facilities. The renovation work includes the installation of a new HVAC system, renovations to bathroom facilities and conference areas, modifications to the existing scale house and other related modifications to meet present needs and building codes. Construction work is anticipated to be completed in FY 2017.

3. **I-66 Truck Ramp Retaining Wall** (Springfield District): $1,546,623 for the renovation of the truck ramp retaining wall that provides access to the lower level of the transfer station below the refuse chutes at the I-66 Transfer Station. The ramp and retaining wall were built in 1995 and have significantly settled and displaced with the current danger of collapsing. Construction is anticipated to be completed in FY 2017.

4. **I-66 Environmental Improvement Program** (Springfield District): This is an on-going project to fund the environmental management activities for the I-66 landfill which was closed in 1982. The work will include repairing areas which have settled due to decomposition of the waste, operating and maintaining the landfill gas system that provides fuel for heating at several structures, conducting groundwater corrective action, installing a low-permeability cap on the existing slopes and improving the storm water management system.

5. **I-66 Household Hazardous Waste Rehabilitation** (Springfield District) $500,000 to provide the design, construction, reconstruction, and retrofit of the I-66 Transfer Stations existing Household Hazardous Waste (HHW) Collections Facility. This facility handles the majority of all household hazardous waste processed within Fairfax County. The current facility is aging and in need of renovation and reconstruction to meet ever increasing Household Hazardous Waste Collection Regulations and to provide safe disposal of substances collected. Additionally, the original use of the facility was to only collect HHW five days a week. Service days have recently been increased to seven days a week due to the ever growing volume processing demand of HHW within Fairfax County.

6. **I-66 Basement Drainage Renovation** (Springfield District) $200,000 to provide the repair and possible retrofit of the tipping floor drainage system under the I-66 Transfer Station. This drainage system processes all liquids produced from the tipping floor and any additional substances generated through the transportation of solid waste. Currently, the liquid is collected in floor drains located in the loading area of the basement. These drains are connected to an oil-sand separator located in the floor of the building and then moved to a grinder pump that pumps all collected material to the sewer force main located in front of the Transfer Station. The goal of this project is to assess the condition of the line connecting to the force main, repair if damaged, clean all laterals to the oil-sand separator, and to replace the existing pumping system. The long term goal of this project is to solidify the facilities compliance with Solid Waste Regulations.

7. **I-95 Landfill Methane Gas Recovery** (Mt. Vernon District): $2,210,181 for the installation and reconstruction of the methane gas extraction system at the I-95 Landfill, including collection wells and pipes. This project is a multi-phase project. All of the recovered methane is being utilized to either produce electricity for sale to Dominion Virginia Power, to replace natural gas used as fuel to combust hydrocarbons created during thermal treatment of biosolids at the Noman M. Cole, Jr. Pollution Control Plant, and to replace propane used to heat the I-95 Landfill maintenance shop during the winter. The major landfill gas piping replacement project began in FY 2015 and is anticipated to be completed in FY 2016. Additional improvements to gas control/treatment systems are scheduled to commence in FY 2017 and be completed in FY 2018.

8. **I-95 Environmental Compliance** (Mt Vernon District): $2,765,378 to support two environmental initiatives associated with the I-95 complex. The first initiative will provide for the continuation of ground water investigations and remediation efforts in accordance with the ground water Corrective Action Plan for the I-95 Landfill. This initiative will provide funding in the event additional corrective measures are needed. Investigations and corrective action efforts may involve installation of ground water monitoring wells, injection of products intended to reduce concentrations of constituents of concern, and/or recover and treat ground water, among other alternatives. The second initiative will provide for Stormwater Improvements**.** Most of the existing storm water detention basins that manage stormwater flow at the I-95 landfill will be reconstructed or renovated with retrofits installed to improve storm water flow and water quality discharge. This initiative includes assessment of the existing storm water network, recommendations for improvements, design, regulatory support, construction and construction management. These improvements are required to comply with Virginia Pollutant Discharge Elimination System permit requirements. These initiatives were originally included within the Landfill Leachate Facility project but are now represented in a separate project.

Aerial view of the I-95 Energy/Resource Recovery Facility.

9. **I-95 Area Three Lined Landfill** (Mt. Vernon District): $800,000 is estimated for the construction of Phase IV, if needed, and is included as part of long range planning. Phase I, II, and III liner systems are now complete, providing estimated disposal capacity into 2031 at the current disposal rate. Phase IIIB was completed during FY 2013. No new landfill cell development is anticipated in the near future.

10. **I-95 Landfill Leachate Systems** (Mt. Vernon District): $2,004,000 for leachate collection, including additional force mains, controls, upgraded pumping, landfill de-watering efforts, pretreatment, treatment and storage facilities to process fluids collected in the leachate collection system installed at the Municipal Solid Waste (MSW) and ash disposal areas of the landfill.

11. **I-95 Landfill Closure** (Mt Vernon District): This is an on-going project required to meet all state and federal regulations for placing the synthetic cap on the Area Three Lined Landfill unit and repairing or reconstructing the cap on the Municipal Solid Waste (MSW) unit at the I-95 Landfill. Four phases of closure will occur in the Area Three Lined Landfill (ATLL) unit and consist of capping the landfill with a flexible membrane liner and/or low permeability soil to prevent the water infiltration from run-on and other sources. Modifications are proposed to capped areas of the MSW unit to accommodate modernization of the Residential Disposal and Recycling Center and to make more storage areas available at the site for recyclables and other beneficial uses.

12. **I-95 Landfill Lot B Redesign** (Mt Vernon District) $1,250,000 for design, construction, reconstruction and retrofit of the I-95 landfill's existing Lot B area which is used for various residential solid waste drop-off activities. The area currently handles recyclables, solid waste, mulch/yard waste, household hazardous waste, white goods, and also encompasses other site activities such as vehicle fueling, washing, and maintenance. The goal of this project effort is to initially expand the paved area and re-arrange activities to allow for safer unloading and loading activities. A longer term future goal is to implement a covered structure within Lot B to further improve conditions for the residents, minimize operational nuisances such as contact stormwater and wind-blown dust and litter, and to provide for new waste processing equipment and methods (baler, sorting system, etc.) to maximize recycling revenue and diversion rates.

13. **I-95 Landfill Basin 19 Reconstruction** (Mt Vernon District) $1,750,000 for design, construction, reconstruction and retrofit of the I-95 landfill's existing stormwater basin 19 which handles the bulk of the stormwater flow from the landfill and other offsite flows from Mills Branch. The current basin is aging and spot repairs have not been adequate to limit the intrusion of groundwater directly into the basin and then directly into Mills Branch and on into the Occoquan River. Additionally, the basin was primarily design as an energy dissipation device for large storm events and provides little in the way of stormwater treatment prior to discharge; reconstruction will provide capacity to better treat stormwater.

14. **I-95 Transfer/MRF Facility** (Mt Vernon District) $3,000,000 for the design and construction of an enclosed facility to handle the Hazardous Waste Materials at the I-95 Complex. This building will comprise of two major components, the concrete base of the floor and walls and a fabric structure to enclose the facility. The base of the structure provides push walls for the dumping and loading activities as well as sound suppression. The fabric structure provides protection from the elements, natural lighting and clear span for dumping clearance inside the structure.

PROJECT COST SUMMARIES
SOLID WASTE
($000's)

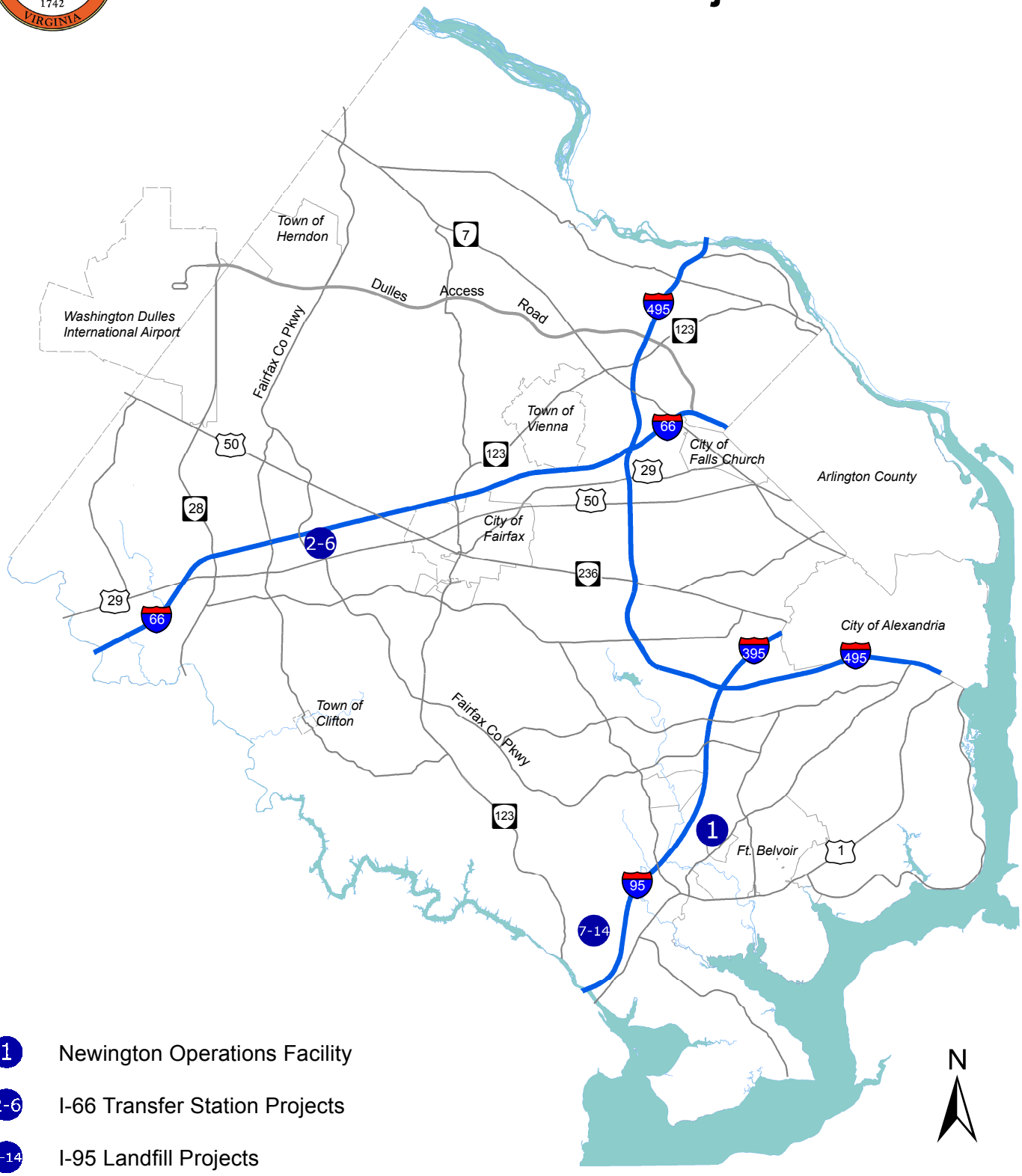
	Project Title/ Project Number	Source of Funds	Budgeted or Expended Through FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Total FY2017-FY2021	Total FY2022-FY2026	Total Project Estimate
1	Newington Operations Facility Rehabilitation / SW-000001	X	***C***	***200***	***200***	***100***	***64***		564		564
2	I-66 Permit and Receiving Center Renovation / SW-000011	X	***707***	***967***					967		1,674
3	I-66 Retaining Wall Truck Ramp / SW-000012	X	***850***	***696***					696		1,546
4	I-66 Environmental Improvement Program / SW-000013	X	***C***	***100***	***100***	***100***	***100***	***100***	500	***333***	833
5	I-66 Household Hazardous Waste Rehabilitation / TBD	X	***0***		500				500		500
6	I-66 Basement Drainage Renovation / TBD	X	***0***		200				200		200
7	I-95 Landfill Methane Gas Recovery / SW-000014	X	***1,667***	***300***	***243***				543		2,210
8	I-95 Landfill Environmental Compliance / SW-000016	X	***600***	***500***	***500***	***500***	***500***	***165***	2,165		2,765
9	I-95 Area 3 Lined Landfill / SW-000017	X	***0***					***50***	50	***750***	800
10	I-95 Landfill Leachate Facility / SW-000018	X	***500***	***400***	***300***	***200***	***200***	***200***	1,300	***204***	2,004
11	I-95 Landfill Closure / SW-000019	X	***C***	***250***	***750***	***300***	***200***	***200***	1,700	***240***	1,940
12	I-95 Landfill Lot B Redesign / SW-000020	X	***300***	***250***	***700***				950		1,250
13	I-95 Landfill Basin 19 Reconstruction / SW-000021	X	***0***			***500***	***500***	***750***	1,750		1,750
14	I-95 Transfer Materials Recovery Facility / SW-000022	X	***0***	***3,000***					3,000		3,000
	TOTAL		***$4,624***	**$6,663**	**$3,493**	**$1,700**	**$1,564**	**$1,465**	**$14,885**	**$1,527**	**$21,036**

Notes: Numbers in ***bold italics*** represent funded amounts. A "C" in the 'Budgeted or Expended' column denotes a continuing project.

Key: Stage of Development	
	Feasibility Study or Design
	Land Acquisition
	Construction

Key: Source of Funds	
B	Bonds
G	General Fund
S	State
F	Federal
X	Other
U	Undetermined

Solid Waste Project Locations



1 Newington Operations Facility

2-6 I-66 Transfer Station Projects

7-14 I-95 Landfill Projects

N

Distance in Miles
0 1 2 3 4

Note: Map numbers correspond to project descriptions in the text and cost summary tables. Only CIP projects with selected, fixed sites are shown on the map.