PREPARED FOR:

CITY OF MARTINSVILLE
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MARTINSVILLE, VIRGINIA 24112

CITY OF MARTINSVILLE
HENRY COUNTY
TOWN OF RIDGEWAY

SOLID WASTE MANAGEMENT PLAN
FIVE-YEAR UPDATE

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CITY OF MARTINSVILLE AND HENRY COUNTY
SOLID WASTE MANAGEMENT PLAN

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1.0 INTRODUCTION

1.1 SUMMARY

The purpose of this revised Solid Waste Management Plan (SWMP) is to meet the requirements of 9VAC20-130-10 et seq., which are the Regulations for Solid Waste Management Planning, Amendment 1, effective August 1, 2001. The Plan outlines the long-term strategy and goals set by the City of Martinsville, Henry County, and the Town of Ridgeway concerning solid waste management. This agreement was set to expire on December 31, 2015. Prior to that date, the parties evaluated their solid waste disposal practices and options.

1.2 PLAN GOALS

The goals of this SWMP include coordinating the efforts of the City of Martinsville, Henry County, and the Town of Ridgeway regarding solid waste management and planning. The Plan will develop objectives for the management of solid wastes, including, at a minimum, all of the following elements: source reduction, reuse, recycling, resource recovery (waste-to-energy), landfilling and transfer stations. In addition, the Plan will demonstrate how the goals and objectives for solid waste management will be met, as well as include a schedule for the implementation of these goals, as necessary.

2.0 PROJECTIONS AND WASTE QUANTITIES

2.1 SWMP COVERAGE AREA

The coverage area of this SWMP is the City of Martinsville (the City), Henry County (the County), and the Town of Ridgeway (the Town), herein called the Region. A Regional Map is provided in Appendix 1. The Region is located in the southern Piedmont region of Virginia, approximately 50 miles southeast of Roanoke and 40 miles north of Greensboro, North Carolina. The Region is surrounded by the Blue Ridge Mountains and borders North Carolina to the south.

The City of Martinsville, Henry County, and the Town of Ridgeway are members

of the West Piedmont Planning District Commission (PDC), which also includes the Counties of Franklin, Patrick, and Pittsylvania; the City of Danville; and the Town of Rocky Mount. The majority of the residential growth in the Region is centered around the existing cities and along primary transportation routes. Major transportation arteries through the Region include United States (U.S.) Highways 57, 58, and 220, and State Route 174.

According to the Virginia Employment Commission (VEC), the August 2016 unemployment rates for the City of Martinsville and Henry County were 7.0% and 5.6%, respectively. These values are marginally higher than the State of Virginia's unemployment rate for August 2016, of 4.1%. Major employers (100± employees) in the Region currently include Springs Industries Inc., Georgia-Pacific Corporation, West Window Corporation, Local Net, King's Grant, Multi-Wall Packaging, Texturing Services, Inc., Shenandoah Furniture, Inc., Lowe's Home Improvement, Resurgence Properties LLC, WestRock, Stanleytown Health Care Ctr, Nautica, Applied Felts, Bassett Furniture, Hooker Furniture, Commonwealth Laminating, Solutia, Inc., O-I, Ebay Enterprise, Master Brand Cabinets, Inc., Prillaman & Pace, Inc., Warren Trucking Co, Nilit, Monogram Snacks, Drake Extrusion, Patrick Henry Community College, and the Henry County Government.

2.2 POPULATION DATA AND PROJECTIONS

Population data and projections for the Region were obtained from the VEC, who in turn references the U.S. Census Bureau. Table 1 summarizes the population data and projections for the planning period of 2020 through 2040. Generally, the total population for the entire Region is projected to increase approximately 4.10% over the next twenty years. The population for the City is projected to increase from 13,821 persons in 2010, to 14,217 persons in 2020, and then continue to increase by approximately 5.5% for each of the next two 10 year census periods for a total projected population of 15,878 persons in 2040. The population for Henry County is projected to remain steady around 54,150 persons from 2010 to 2020, and then increase by approximately 2.0% for each of the next

two 10 year census periods for a total projected population of 56,387 persons in 2040.

Table 1. Population by Jurisdiction.

Jurisdiction	2000	2010	2020	2030	2040
City of Martinsville	15,416	13,821	14,217	15,052	15,878
Henry County*	57,930	54,151	54,182	55,233	56,387
Totals	**73,346**	**67,972**	**68,399**	**70,285**	**72,265**

*The population for Henry County includes the Town of Ridgeway.

The 2010 Census Population provided by VEC for the City, as well as projections for the next 30 years is provided in Appendix 2. General information regarding size, location, and general information for each jurisdiction is provided below.

2.2.1 CITY OF MARTINSVILLE

The City of Martinsville is centrally located within Henry County, and encompasses approximately 11 square miles. As shown in Table 1, the 2010 Census Population for the City of Martinsville was 13,821 persons. Primary travel throughout the City is provided by U.S. Highways 58 and 220 and State Route 57.

The City of Martinsville hosts many of the larger industries and employers in the Region including Hooker Furniture Company, Nationwide Homes, Southern Finishing, Inc., Virginia Mirror Co., The Lester Group, and Fanueil, Inc.

2.2.2 HENRY COUNTY

Henry County is located in the southern Piedmont region of Virginia and bordered by Patrick County to the west, Franklin County to the north, Pittsylvania County to the east, and North Carolina to the south. The County is approximately 382 square miles in size and includes the Town of Ridgeway. Other unincorporated communities within the County include Axton, Bassett, Chatmoss, Collinsville, Fieldale, Laurel Park, Spencer, and Stanleytown. In addition, Henry

County is home to the Martinsville Speedway, which hosts the NASCAR Sprint Cup Racing Series, bringing thousands of visitors and tourists into the Region multiple times a year. The 2010 Census Population for Henry County was 54,151 persons (including the Town of Ridgeway population).

Generally, land use throughout the communities consists primarily of small to medium residential areas, commercial business areas and industrial parks. The commercial business areas and industrial parks host some of the region's major employers including Eastman Chemical, Monogram Food Solutions, Springs Global US, Inc., Applied Felts, Bassett Furniture Industries, Bassett Mirror company, Inc., Drake Extrusion, Inc., Georgia Pacific, Multi-Wall Packaging, Stanley Furniture Co, West Window Corp, ALCOLA

The County and its surrounding Counties provide a variety of recreational activities to visitors year round, such as Fairystone State Park, Smith Mountain Lake, Smith River, and the Blue Ridge Parkway. U.S. Highways 58 and 220, and State Route 57 provide primary travel throughout the County.

2.2.3 TOWN OF RIDGEWAY

The Town of Ridgeway is located in the southern portion of Henry County and is the only incorporated town within the County. The Town is approximately 0.94 square miles in size and had a 2000 Census Population of 775 persons.

2.3 COMPOSITION OF SOLID WASTE

All of the solid waste, except recyclables, collected within the City of Martinsville, Henry County, and the Town of Ridgeway is transported to the First Piedmont Transfer Station where the ultimate disposal will be determined. Based on the 2015 waste stream volumes recorded at the First Piedmont Transfer Station, solid waste from residents, businesses, and industries within the City of Martinsville accounts for approximately 15 percent of the waste collected. Residents, businesses, and industries in Henry County and the Town of Ridgeway generate the remaining 85 percent.

Of the waste accepted at the transfer station during 2015, residential/commercial

waste represents 45 percent of the total waste collected within the Region. Industrial, construction demolition debris (CDD) and yard waste represents 24 percent. Sludge, which is not accepted at the Transfer Station but rather hauled directly to Upper Piedmont Landfill (UPL) in Roxboro, NC represents 15 percent. Recyclables accounts for the remaining 16 percent. Recyclables are collected separately from the solid waste and transferred to a local processing facility; thus, those values are reported in the upcoming sections of this report. Waste summary reports for 2015 are presented in Appendix 3.

2.4 CURRENT MARKET CONDITIONS

1. A jurisdiction's ability to provide recycling services to its residents and businesses is directly related to the overall value of those collected recyclables. The City of Martinsville and Henry County are continuously investigating markets and providing recycling services to residents and businesses, as economically feasible based on the available recycle/reuse markets. Currently, there is no composting performed by the City or County. All yard waste is transported to the First Piedmont Transfer Station. Glass recycling was discontinued when it was determined to no longer be cost efficient. However, there are private companies within the region that accept this material for recycling. The City is recycling paper, cardboard, metals, plastic, tires, used oil, used antifreeze, batteries, paint, televisions and electronic waste. The County is recycling cardboard, newspaper, aluminum and tin cans, Nos. 1 and 2 plastics, and most basic household electrical items such as toasters, VCRs, DVD players, and televisions 20 inches or smaller. The County recycles used oil and reuses it to heat the County and Public Service Authority's maintenance complex. The City reuses oil to heat their garage complex. They also recycle wood waste into boiler fuel for use outside the Region. Milled pavement material is recycled/reused for roadway base and/or shoulder stone. Christmas trees are collected and ground to be reused as mulch in streetscape locations throughout the City and County. The current markets in the County and the surrounding region allow certain materials such as newspaper, cardboard, plastics, metal, and aluminum and tin

cans to be cost-effectively collected and transferred to a local processing facility for recycling and/or reuse.

Unfortunately, based on the local and regional markets, it is currently not cost-effective for the City and the County to recycle textiles, glass, yard waste, electronics (except for those sited above), and abandoned automobiles. The City and County will continue to investigate the local and regional markets to determine if a cost-effective method of recycling these materials becomes available.

2.5 SOLID WASTE GENERATION AND FLOW PATTERNS

Currently, solid waste is collected from residences, businesses, and industries through curbside collection or private contractors. Convenience center sites are also provided throughout the Region.

2.5.1 TYPES OF WASTE GENERATED

Generally, the waste generated and handled within the Region consists of residential and commercial municipal solid waste (MSW), industrial waste, commercial demolition debris (CDD), sludge, vegetative and yard waste, and primary recyclable materials (PRM). PRM generally includes paper; cardboard; metal; plastic; glass; chipped or mulched waste wood; textiles; tires; used oil and oil filters; used antifreeze; batteries; electronics; and tree stumps greater than six inches in diameter. For the purposes of this report, waste will be presented in four(4) categories: MSW, Industrial, sludge and recyclables. MSW will include residential and commercial waste and Industrial will include industrial waste, CDD and yard waste. Based on the waste collection and disposal records for the Region in 2015, MSW, Industrial waste and sludge constitutes approximately 45 percent, 24 percent and 15 percent respectively, of the solid waste generated and collected within the Region. The remaining 16 percent consists of primary recyclable materials (PRM). The percentages of these items and the composition of the waste generated in the Region are presented in Chart 1.

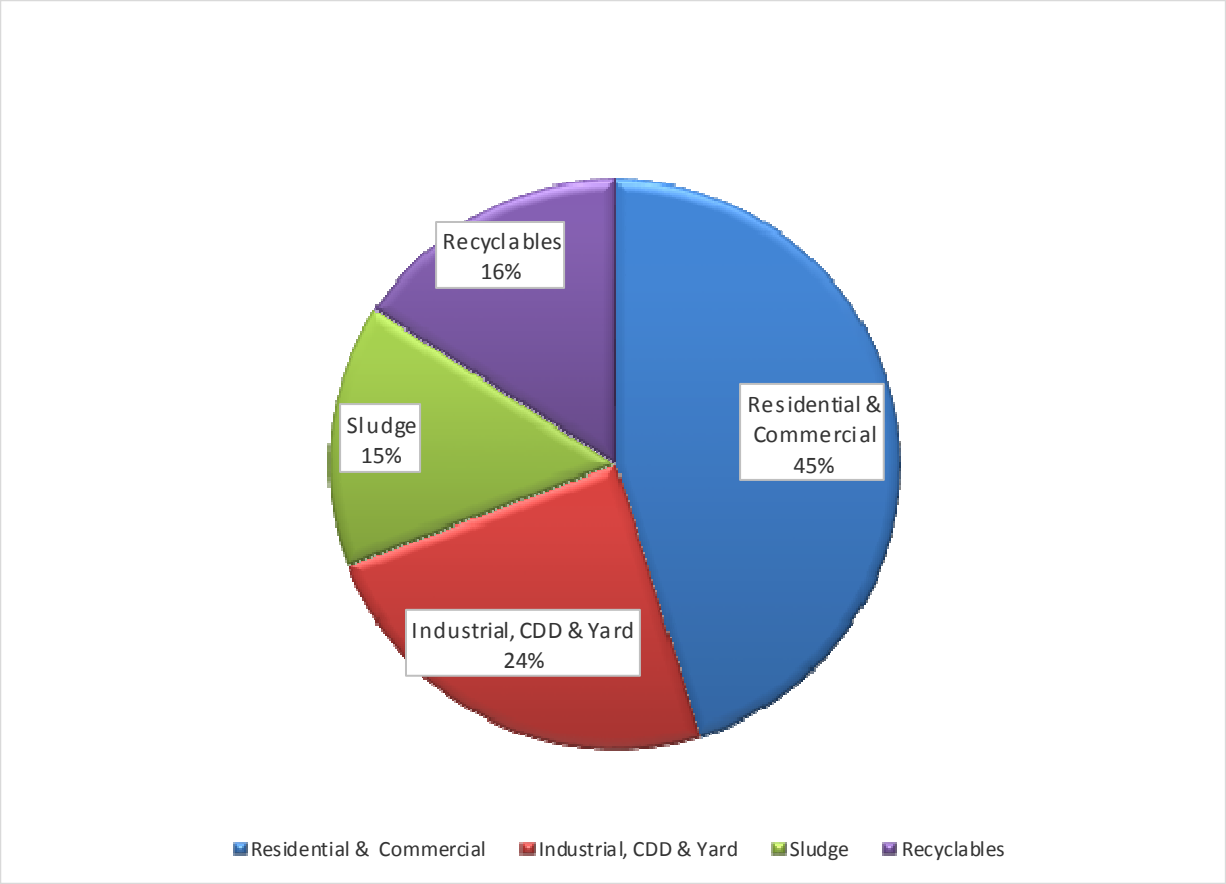


Chart 1. Composition of the solid waste generated and collected in the Region.

2.5.2 WASTE STREAM PROJECTIONS

Solid waste generation projections were calculated based on per day per capita rates estimated from the waste quantities recorded at the First Piedmont Transfer Station and the local jurisdictions during 2015. Descriptions of the projection methodology for each of the major types of waste generated in the Region are presented in the sections below. Supporting calculations are presented in Appendix 4.

2.5.2.1 Municipal Solid Waste

The Environmental Protection Agency (EPA) Office of Solid Waste and Emergency Response published per capita municipal solid waste (MSW) rates for the U.S. in a report entitled *Advancing Sustainable*

Materials Management: Facts and Figures Report for 2013. In 2013, Americans generated about 254 million tons of trash and recycled/composted 87 million tons of this material. On average, the per day per capita MSW generation estimate for the U.S. was 4.40 pounds with 1.51 pounds of this waste being recycled/composted. If recycling and recovery is removed, the average of the per day per capita MSW generation rate for 2013 was 2.89 pounds.

In order to determine if the average waste generation rate for the U.S. is applicable for the Region, the published per day per capita value was compared to the estimated tons per day per capita based on scalehouse records at the transfer station for 2015. In 2015, a total of 35,124 tons of MSW was disposed at the transfer station. As presented in the population projections in Appendix 3, the population in 2015 was 68,184 persons. Using the formula presented below, the per capita tonnage of MSW (PCT_{MSW}) for the City of Martinsville, Henry County, and the Town of Ridgeway, is 1.411E-03 tons per day per capita or 2.82 pounds per day per capita.

$$PCT_{MSW} = 35{,}124 \text{ tons}*(1 \text{ year}/365 \text{ days})*(1/68{,}184 \text{ persons})$$

$$= 1.411E\text{-}03 \text{ tons/day/capita}$$

$$= 2.82 \text{ pounds/day/capita}$$

The City of Martinsville, Henry County, and Town of Ridgeway MSW generation rate is almost half of the published U.S. MSW generation rate value. This is primarily due to the large amount of materials that are recycled within the Region.

As a result, to be conservative, the 2013 average U.S. MSW generation rate of 2.89 pounds per day per capita was selected to calculate the MSW generation projection for the planning period of 2015 through 2035. To calculate the total annual and cumulative MSW generation quantities, the per capita rate was then applied to the annual population

projections for the Region. Recycling quantities were removed from the per capita rate since they will be calculated for the Region separately.

As presented in Appendix 4, it is estimated that approximately 948,681 tons of residential waste will be generated in the Region in the next 20 years.

2.5.2.2 Industrial Waste

Industrial waste is collected separately in the Region from residential waste, and hauled to the First Piedmont Transfer Station. Since there are no published per capita generation rates for these types of waste, projections were estimated by calculating the per day per capita generation rate based on the 2015 scalehouse records provided by the transfer station.

During 2015, approximately 18,627 tons of non-hazardous industrial waste was collected in the Region and disposed at the sanitary transfer station. Using an estimated population in 2015 for the Region of 68,184 persons, the per day per capita tonnage of industrial waste (PCT_{IW}) is 7.485E-04 tons per day per capita or 1.50 pounds per day per capita, as presented in the formula below.

$$PCT_{IW} = 18{,}627 \text{ tons}*(1 \text{ year}/365 \text{ days})*(1/68{,}184 \text{ persons})$$

$$= 7.485\text{E-}04 \text{ tons/day/capita}$$

$$= 1.50 \text{ pounds/day/capita}$$

To calculate the total annual and cumulative non-hazardous industrial waste generation quantities, the PCT_{IW} was then applied to the annual population projections for the Region. Using this methodology, it is estimated that approximately 491,390 tons of industrial waste will be generated in the Region in the next twenty years. Calculations are presented in Appendix 4.

2.5.2.3 Sludge

The methodology used to calculate the industrial waste projections was also used to project the amount of sludge generated in the Region. During 2015, approximately 11,581 tons of sludge were hauled in the Region. Using a 2015 population of 68,184 persons, the per day per capita tonnage of sludge (PCT_{SLUDGE}) is 4.650E-04 tons per day per capita or 0.93 pounds per day per capita, as presented below.

PCT_{SLUDGE} = 11,581 tons*(1 year/365 days)*(1/68,184 persons)

= 4.650E-04 tons/day/capita

= 0.93 pounds/day/capita

It is estimated that approximately 305,509 tons of sludge will be generated in the Region in the next twenty years. Calculations are presented in Appendix 4.

2.5.2.4 Recyclable Materials

The recyclable materials projections were estimated using the per capita generation rate calculated from the 2015 population in the Region and the total amount of recyclable materials collected by the City of Martinsville, Henry County, and the Town of Ridgeway. For the purpose of this evaluation, recyclable materials were assumed to include paper, metal, plastic, waste wood, textiles, waste tires, used oil, used oil filters, used antifreeze, batteries, electronics, processed grease, and food waste.

The reported total quantity of recyclables collected in the Region in 2015 was 12,330 tons. Based on the population in 2015 of 68,184 persons, and the formula given below, a per capita tonnage of recyclable materials (PCT_R) for the Region of 1.034E-03 tons per day per capita or 0.99 pounds per day per capita was calculated.

PCT_R = 12,330 tons*(1 year/365 days)*(1/68,184 persons)

= 4.95 E-04 tons/day/capita

= 0.99 pounds/day/capita

To calculate the total recyclable material projections, this PCT_R was then applied to the annual population projections for the Region. Using this methodology, it is estimated that approximately 325,267 tons of recyclable materials will be generated in the Region in the next 20 years. Calculations are presented in Appendix 4.

2.5.2.5 Other Special Wastes

2.5.2.5.1. Mining Wastes

Mining waste is not recorded separately from the commercial and industrial waste tonnages. As a result, mining waste projections cannot be broken out individually and are included in the commercial and industrial waste projections presented in Section 2.5.2.2, respectively.

2.5.2.5.2. Agricultural Wastes

Agricultural waste is not recorded separately from the industrial waste tonnages. As a result, agricultural waste projections cannot be broken out individually and are included in the commercial and industrial waste projections presented in Section 2.5.2.2, respectively.

2.5.2.5.3. Spill Residues

Spill residue waste is not recorded separately from the industrial waste tonnages. As a result, spill residue waste

projections cannot be broken out individually and are included in the commercial and industrial waste projections presented in Section 2.5.2.2, respectively.

2.5.2.6 Household Hazardous Waste

Since household hazardous waste (HHW) is exempt from coverage under the hazardous waste regulation, the majority of residents dispose of these materials with the rest of their household garbage. The actual quantities of HHW are typically very small in comparison to general MSW; therefore, the projections of HHW are included in the MSW projections. Henry County, the City of Martinsville, and Gateway Streetscape work jointly to sponsor Household Hazardous Waste Days during the year. At these events, City and County residents may dispose of such items as paint, motor oil, gas, antifreeze, batteries, computer parts and used cell phones. Again, no business or commercial entities are allowed to participate.

3.0 SOLID WASTE MANAGEMENT SYSTEM

3.1 COLLECTION

3.1.1 RESIDENTIAL WASTE AND RECYCLING

Residential waste and recyclables are collected in the Region in three ways: (1) through convenience centers sites located throughout the County, (2) curbside collection programs, or (3) independent contracts with private haulers. A description of the residential collection for the City, County, and Town are presented below.

3.1.1.1 City of Martinsville

The solid waste collection needs for the majority of the residents in

the City of Martinsville are handled by a City-run curbside waste collection program. The City collects residential waste once per week for transport to the First Piedmont Transfer Station. Many apartment complexes in the City supply dumpsters for their residents to use. In addition, residents may choose to transport/haul their waste directly to the transfer station, if they so desire. The City also provides bulky trash (such as furniture, refrigerators, and washers) and brush pick-up to residents of the City, but require scheduling in advance. Also, an annual bagged leaf collection is provided in the fall.

Residents may drop-off their recyclable materials at the City of Martinsville drop-off center, which is operated by the City. The drop-off center does not have a designated capacity, and will be operated for as long as economically feasible for the City, but at least for the next 20 years, or through the planning period.

3.1.1.2 Henry County

Henry County does not provide curbside residential waste collection services to its residents. Therefore, residents may choose to independently contract with a private contractor or haul their waste directly to the transfer station. In addition, the County provides convenience centers for residents to utilize. These convenience centers do not have set capacities and will be operated for as long as economically feasible for the County, but at least for the next 20 years, or through the planning period.

Henry County also provides recycling of cardboard, plastics, newspaper, and scrap metal at the convenience sites located throughout the County.

3.1.1.3 Town of Ridgeway

The Town of Ridgeway does not provide curbside residential waste collection services to its residents. Therefore, residents may choose to

independently contract with a private contractor or haul their waste directly to the transfer station. In addition, residents within the Town may utilize the various greenbox drop-off collection sites and convenience centers located throughout Henry County.

3.1.2 COMMERCIAL INSTITUTIONS AND INDUSTRIES

Commercial and industrial waste and recyclables are generally collected in two ways: (1) collection programs provided by the local jurisdiction or (2) independent contracts with private haulers such as Waste Management or First Piedmont. No roll offs are provided by City or County. All of the waste collected from businesses, commercial institutions, and industries within the Region is transported to the First Piedmont Transfer Station for disposal. Waste delivered to the transfer station by private haulers is assessed a tip fee at the transfer station.

The City of Martinsville provides collection to many of the businesses and institutions throughout the City. The City has different collection routes for each day of the week; thus, the number of times the City picks up at each business varies. Many of the businesses and institutions in the City are provided with collection by City trucks numerous times in one week. Commercial institutions, business, and industries in Henry County and the Town of Ridgeway, as well as those within the City of Martinsville who are not provided refuse collection from the City, must contract individually with a private hauler for their waste collection and disposal. However, all of this waste is transported to the First Piedmont Transfer Station where final disposal is determined.

3.2 DISPOSAL

There is currently not an active permitted solid waste landfill located in the Region. The permitted waste disposal capacity for the Martinsville Sanitary Landfill was consumed in 2006. Upon closure, the City of Martinsville contracted with First Piedmont Corporation to operate a transfer station located at the existing landfill site.

The First Piedmont Transfer Station transports all waste that the Martinsville Landfill previously accepted to permitted facilities. The transfer station is located at 225 Arden Circle in Henry County, Virginia, approximately one mile northeast of the Martinsville City limits. The transfer station is a 16,000 square foot facility. A map indicating the location of this facility is provided in Appendix 5. A list of the solid waste facilities in the Region that have at one time received a permit from the Department of Environmental Quality (DEQ) is provided in Appendix 6.

3.2.1 MUNICIPAL SOLID WASTE

The First Piedmont Transfer Station accepts household waste, MSW, CDD, non-hazardous industrial waste that meets all of the requirements of the Virginia Solid Waste Management Regulations (VSWMR), yard waste, recyclables, and many other items. The transfer station does not accept polychlorinated biphenyls (PCBs), regulated medical waste, regulated hazardous waste, radioactive waste, friable asbestos, sewage, flammable liquids/solids, and liquid wastes. Sludge is not accepted at the transfer station but hauled directly to UPL in Roxboro, NC along with any residential and commercial waste that may contain food.

3.2.2 INDUSTRIAL WASTE

There are currently no active industrial waste or CDD landfills permitted in the Region. Thus, industrial waste, CDD and yard waste generated within the Region that is acceptable at the First Piedmont Transfer Station is transported to the First Piedmont landfill in Ringgold, VA. Waste that is not authorized for disposal is sent to a facility outside of the Region, which is permitted to accept those wastes.

3.2.3 SLUDGE

There are currently no active sludge disposal facilities permitted in the Region and this waste is not accepted at First Piedmont Transfer Station, but is hauled by FPC directly to Upper Piedmont Landfill (UPL) in Roxboro, NC.

Waste that is not authorized for disposal is sent to a facility outside of the Region, which is permitted to accept those wastes.

3.3 RECYCLING

As mentioned previously, the City of Martinsville, Henry County, and the Town of Ridgeway provide the collection of recyclables to their residents through convenience center sites located throughout the County, and drop-off sites for recyclables in the City of Martinsville. Recyclables, such as newspaper and newspaper inserts, paper products, cardboard, metal, plastics, wood waste, waste tires, used oil, used oil filters, used antifreeze, batteries, processed grease, and food waste, are recycled by residents, commercial institutions, businesses, and industries in the Region. Glass recycling quantity represented is from private companies within the Region that collect this material. The general composition of the recyclables collected within the Region in 2015 is presented in Chart 2.

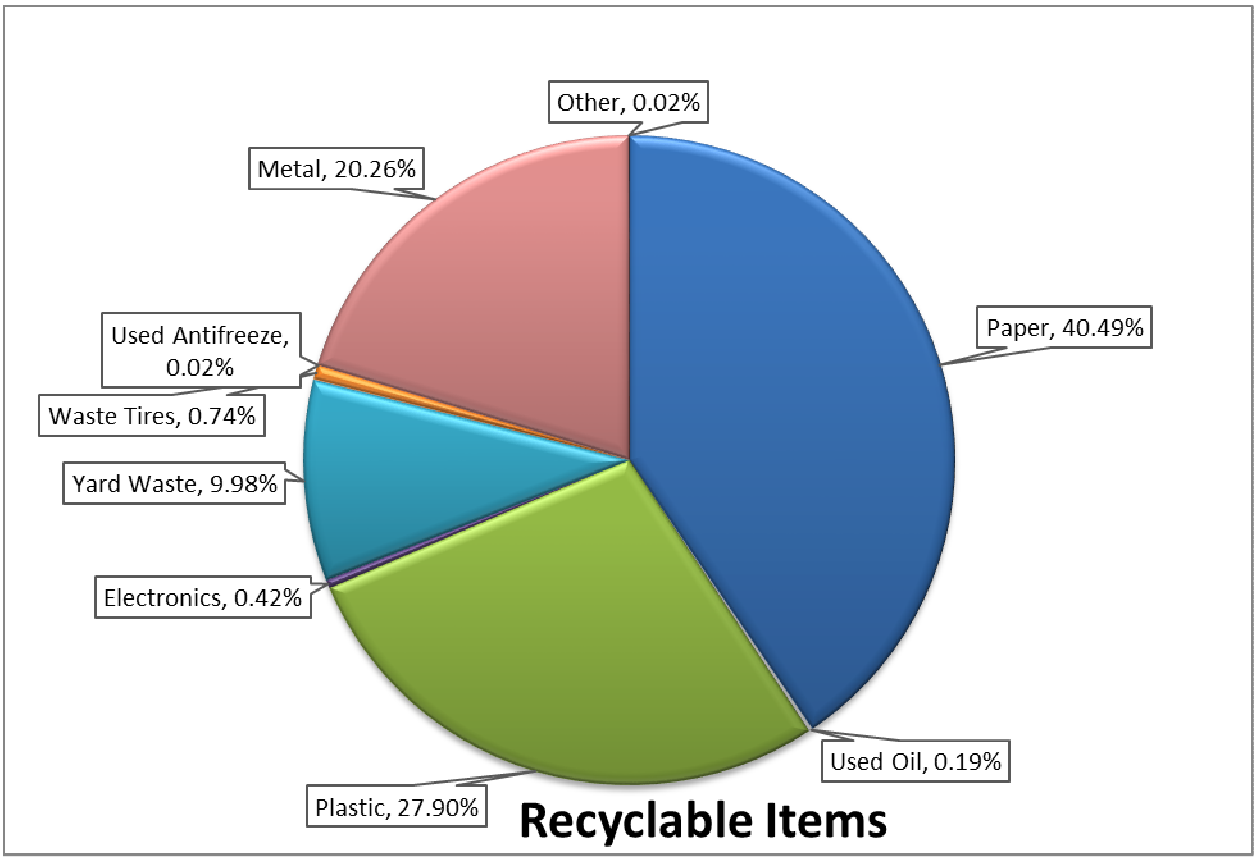


Chart 2. Composition of the recyclable materials collected and handled in the Region.

As shown in Chart 2, paper accounts for approximately 40 percent of all of the materials recycled in the Region. Plastics represent the next highest percentage of the recyclables collected in the Region with approximately 28 percent.

3.4 WASTE TREATMENT

Currently, the City of Martinsville, Henry County, and the Town of Ridgeway do not perform any waste treatment processes. At this time, no waste treatment processes are proposed during the 20-year planning period; however, the City and County will continue to evaluate waste treatment processes throughout the planning period.

3.5 PUBLIC EDUCATION

Information about solid waste management programs and recycling is provided to residents and businesses through local information programs. Each jurisdiction's information program includes news releases and advertisements for both local and regional newspapers. Newsletters, brochures, flyers, and presentations are also used, as necessary.

The City of Martinsville utilizes a local television channel that announces the times and dates of recycling collections, as well as what materials are collected for recycling. Henry County and the City of Martinsville also have a joint program called *Gateway Streetscape* that sponsors household hazardous waste collection events. The program also sponsors a Smith River Clean-Up event, which provides volunteers to collect trash that has accumulated along the banks of Smith River.

Gateway Streetscape also provides educational materials to local residents of the City and the County regarding proper waste disposal and litter prevention. In addition, the City of Martinsville and Henry County also each imposes fines to those that are caught littering or illegally disposing waste materials. The City and the County plan to continue these educational and litter prevention programs throughout the planning period. In addition, the City and the County plan to investigate and implement additional litter prevention programs, as economically feasible, throughout the planning period.

3.6 PUBLIC/PRIVATE PARTNERSHIPS

As mentioned in the previous sections, there are many partnerships between the local jurisdictions within the Region and private companies. Many homeowners in the City of Martinsville and Henry County contract with a private hauler to provide curbside collection of residential waste to its members. In addition, many of the businesses and industries in the City, County, and Town contract independently with private haulers, such as Waste Management, Inc. and First Piedmont Corporation to provide waste collection and hauling services to the transfer station.

Henry County contracts with The City of Martinsville regarding their waste disposal. The City of Martinsville contracted with First Piedmont Corporation in 2005 for the operation of a transfer station to handle all of the Regions waste disposal needs when the Martinsville landfill closure occurred. The City extended the contract with First Piedmont Corporation for operation of the transfer station through 2020.

The individual jurisdictions may seek and enter into additional public/private partnerships on an as-needed basis in the future to continue to provide cost-effective solid waste management services to their residents.

3.7 SOLID WASTE ARCHIVE

Records and documentation for the First Piedmont Transfer Station, owned and operated by the First Piedmont Corporation, are stored on-site in the main office, and have been submitted to the Director of the DEQ or his/her designee. A record of the waste quantities billed to the City by First Piedmont Transfer Station and the waste quantities from the City owned and operated drop-off facility, are kept on-file at the County's Administration Building. The City and *Gateway Streetscape* submit annual recycling reports, as required.

A record of the waste quantities billed for the County by First Piedmont Transfer Station and the waste quantities from the County owned and operated drop-off facilities, are kept on-file at the County's Administration Building. Records for the closed County solid waste landfills are stored at the office of the Director of Regulatory Compliance and Technical Applications. Finally, records related to the closed EI DuPont Incinerator and Landfill are retained by DuPont. The DEQ has been informed of the associated contact and archive location for these facilities, as well as the other facilities presented on the list in Appendix 5, but not mentioned here. Any new solid waste disposal sites will be documented and a copy will be submitted to the Director of the DEQ or his/her designee.

3.8 EVALUATION OF SOLID WASTE COLLECTION SYSTEMS

Each year, the City of Martinsville and Henry County evaluate the cost of providing solid waste collection services to local residents against the funding available through rates/fees. In addition, the City and/or the County investigate additional recycle and reuse markets. Based on these evaluations, the City and/or the County determine what solid waste services it can cost-effectively provide to local residents and businesses.

4.0 HIERARCHY

The Virginia Waste Management Board Regulations for Solid Waste Management Planning, Amendment 1, 9 VAC 20-130-10 *et seq*., require the Plan to develop comprehensive and integrated solid waste management plans that consider, at a minimum, all components of the following hierarchy: (1) source reduction; (2) reuse; (3) recycling, (4) resource recovery (waste-to-energy); (5) incineration; and, (6) transfer stationing. A general description of each of the components is presented in the sections below. Implementation of each component of the hierarchy is presented in Section 6.0 of the Plan.

4.1 SOURCE REDUCTION

The purpose of source reduction is to reduce the amount of waste generated at the point of generation, or at the source. Source reduction may mean a change in a method of packaging or a change in a process design to eliminate or reduce waste. In most cases, packaging of a product influences the buyer either to purchase or not to purchase the product. As this is the case, controls will need to be placed on packaging from the state or federal level.

It is not believed that viable source reduction can occur at these industries at this time on a local level. In order to quantify source reduction, a full-scale regional study would need to be performed, which is beyond the scope of this Plan update.

4.2 REUSE

Reuse is the use of a solid waste material that has been separated from the waste

material, without processing or changing the material's form, for the same or another end use. Some examples of reusable items are glass soft drink bottles, bricks, and some wood products.

At this time, there are very few markets for reusable waste products. In the majority of cases, a manufacturer uses all new materials when manufacturing a product. Additionally, many waste products are not reusable until cleaned or disinfected. These processes require time and money, which most manufacturers are not willing to expend.

4.3 RECYCLING

Recycling is the process of separating a given waste material from the waste stream and processing it so that it is used again as a raw material for another product, which may or may not be similar to the original product. Recycling involves the separation of a waste material from the waste stream, collection, processing, marketing, sale, and utilization as a raw material.

There are several positive aspects to recycling. Recycling removes products from the waste stream resulting in less waste disposed. Less waste disposed conserves transfer station space. Recycling also removes, in most cases, materials that are non-biodegradable and would not decompose in a landfill, even if they were disposed. Recycling helps in the conservation of natural resources by utilizing materials that have already been processed, rather than using virgin materials. The use of recycled products rather than the use of virgin materials does not generally affect the usability of a manufactured product. However, it can affect the quality of a manufactured product.

4.4 WASTE-TO-ENERGY/INCINERATION

A resource recovery system, or a waste-to-energy system, is defined as a solid waste management system that provides for the collection, separation, recycling, and recovery of energy or solid wastes, including the disposal of non-recoverable waste residues. Incineration is defined as the controlled combustion of solid waste for disposal. It is different from resource recovery in that no usable product is generated from the

combustion of the waste. The sole purpose of incineration is to burn the waste to reduce the quantity to be managed or disposed.

The two major types of resource recovery facilities are (1) the refuse derived fuel (RDF) facility and (2) the mass burn facility. RDF systems utilize a separation process that divides material that is combustible from material that is non-combustible. The non-combustible material may be collected and sold as a recyclable or reusable product. The combustible material is processed into pellets or fluff (RDF) and sold or used by the manufacturer as a fuel for combustion. Revenue results from the sale of both the non-combustible material, as well as the RDF itself.

Mass burn facilities do not utilize a separation process. All municipal solid waste is directly fed into the incinerator, which burns the waste at a high temperature. The resulting heat may be used to generate steam or electricity. It should be noted the mass burn of municipal solid waste results in the production of both air emissions and ash. The air emissions are regulated by state and federal agencies. The ash must be transfer stationed as a waste. This being the case, the locality must still plan for the disposal of a waste product, although the amount of waste to be disposed will be greatly decreased.

4.5 LANDFILL

Generally, a landfill is a facility that is permitted to accept waste materials for the placement and burial of that waste. As mentioned previously, there is not an active solid waste landfill located in the City of Martinsville, Henry County, and the Town of Ridgeway that currently services the disposal needs of the Region. At this time, transfer stationing appears to be the most feasible of the solid waste disposal alternatives. It is possible; however, with the rising costs of meeting stricter regulatory requirements, transfer stationing may become as nearly an expensive venture as other hierarchy items, such as resource recovery and the option of landfilling within the Region could be investigated again.

4.6 TRANSFER STATION

Generally, a transfer station is a facility that is permitted to accept waste materials for transport to a permitted landfill, incinerator, recycling center or other waste disposal facility. Municipal and private trucks collect waste and haul it to a transfer station for temporary deposition. Transfer stations can be equipped with material recovery facilities to remove recyclables from the waste stream. When a region does not possess the resources to develop and operate a solid waste landfill, a transfer station is a feasible solution to provide the necessary waste disposal services to the area.

5.0 OBJECTIVES

The primary objective of this SWMP is to coordinate the efforts of the City of Martinsville, Henry County, and the Town of Ridgeway regarding solid waste management and planning. To accomplish this goal, each jurisdiction should continue to develop and implement budgets and funding strategies, as well as maintain a solid waste archive.

A second objective of this SWMP is to enlist public participation for solid waste management. To accomplish this objective, each jurisdiction should continue to develop education programs to increase public awareness and provide information to residents regarding locations of recyclable collection areas and materials accepted at the areas. In addition, each jurisdiction should continue to promote the importance of recycling to their residents, as well as provide incentives to businesses who participate in the recycling program.

The third and final objective of this SWMP is to maintain regulatory compliance with the Virginia Solid Waste Management Planning Regulations, Virginia Solid Waste Management Regulations, and additional state regulations, federal regulations, and local ordinances. This will be done by consistently providing regular updates and necessary amendments, as required by 9VAC20-130-10 *et seq.*

6.0 PLAN IMPLEMENTATION

A description of how each component of the hierarchy is currently implemented in the Region and a schedule of future component implementation, as applicable, is presented in the

sections below. An implementation schedule of activities to be performed by the City, County, and/or the Town during the next 20 years, concentrating on implementing the related hierarchy items, is presented below:

Year(s)	Activity
2005	Contracted with First Piedmont Corporation to construct the transfer station at the landfill site.
2005 – 2007	Identified methods to increase reuse and recycling of collected materials. Investigated local markets for recyclable materials.
2006 – 2007	Closed the City of Martinsville Landfill and update the SWMP.
2011	Submit SWMP 5-Year Update Plan.
2011 – 2030	Evaluate emerging technologies designed to promote source reduction, reuse, and recycling.
2016	Submit SWMP 5-Year Update Plan.
2016	Extended contract with First Piedmont Corporation to continue providing waste disposal services at the transfer station through 2020.
2016 – 2035	Continue evaluating emerging technologies designed to promote source reduction, reuse, and recycling.

6.1 SOURCE REDUCTION

As mentioned previously, at this time, it is not believed that viable source reduction can occur on a local level; thus, there is currently no active plan to implement source reduction programs in this SWMP.

During the planning period, the City of Martinsville, Henry County, and the Town of Ridgeway will identify and evaluate regional or local programs that utilize and encourage practices that minimize waste generation. The City and the County through its *Gateway Streetscape* program will also promote to consumers the benefits of purchasing items in bulk and with less packaging. Through the public awareness program, the City and the County will achieve source reduction at the consumer level.

Further investigation is needed to fully understand and quantify source reduction programs that are occurring within the Region at the local businesses and industries.

6.2 REUSE

Currently, there are few markets for reusable waste products within the Region. As mentioned previously, most industrial facilities in the Region use new materials when manufacturing a product. Additionally, many waste products are not reusable until cleaned or disinfected, which require time and money, which most manufacturers are not willing to expend. However, the City is currently reusing wood waste, milled asphalt, and used motor oil.

Reuse typically occurs on an industry level and cannot be controlled at this time by the local jurisdictions within the Region. During the planning period, the City of Martinsville, Henry County, and the Town of Ridgeway will identify and evaluate regional or local programs that utilize and encourage practices that reuse materials. The City and the County through the *Gateway Streetscape* program will provide educational programs and materials to the residents, businesses, and industries that promote the benefits of reusing materials through direct donations between user and reuser and/or packaging.

6.3 RECYCLING

To determine the existing level of recycling that is occurring in the Region, the adjusted recycling rate for 2015 was calculated. From this, the need for additional recycling programs can be determined and implemented, as necessary. The recycling rate is defined as the sum of the quantity of recycled Principal Recyclable Material (PRM) and Total Number of Credits (Recycling Residue, Solid Waste Reused, Non MSW Recycled) divided by the sum of the quantity of PRM recycled, credits granted, and total MSW disposed, multiplied by 100, as shown in the following equation:

$$\frac{Total\ PRM + TotalCredits}{Total\ PRM + Total\ Credits + Total\ MSW\ Disposed} \times 100$$

A sample of the Locality Recycling Rate Report Form that each jurisdiction is required to complete and submit to the DEQ is provided in Appendix 7.

Using the information collected by each jurisdiction within the Region, the parameters in the recycling rate equation are as follows:

Total PRM Recycled = 12,330 tons

Total Credits (Solid Waste Reused) = 0

Total MSW Disposed = 53,641 tons

Using these values, the above calculation yields an adjusted recycling rate of approximately 19 percent.

This recycling rate exceeds the minimum recycling rate of 15 percent required by the Virginia Regulations for the Development of Solid Waste Management Plans. Supporting calculations are provided in Appendix 8.

The City of Martinsville, Henry County, and the Town of Ridgeway plan to continue to successfully achieve and maintain a countywide recycle rate of at least 15 percent. To do this, the City, County, and the Town will continue to evaluate the need for additional services or methods that will help to increase the recycling rate. An implementation schedule of activities to be performed by the City, the County, and/or the Town during the next 20 years is presented in Section 6.0.

Currently, the City is operating a drop-off collection site for recyclables, and the County is operating several convenience centers for residents to deliver their recyclables, such as paper, metals, plastic, used tires, used oil, and used anti-freeze. The City and the County will continue to provide these services, and investigate adding additional services when economically feasible. In addition, the City will also investigate expanding their recycling services to items such as electronics and textiles. Currently, the markets in the region do not allow these materials to be recycled cost-effectively.

In addition, the City of Martinsville and Henry County will continue to encourage businesses to actively recycle. Currently, businesses are requested to provide Gateway

Streetscape with solid waste generation and recycling levels every year. Businesses will be educated on what materials can be reused and/or recycled; more efficient use of paper; or using recyclable paper rather than new paper. The City and the County will investigate providing incentives to businesses that are actively participating in the recycling program.

Educating students in the Martinsville City Public School system and the Henry County Public School system, starting as early as kindergarten and continuing through high school levels, is also an effective way of informing future adults of proper solid waste management, as well as informing parents and the community. Students often become the biggest advocates of recycling, ensuring that recycling is occurring in the schools as well as in their homes. Therefore, the City and the County will investigate expanding their existing educational program into the school system, thereby increasing student awareness and involvement in the recycling program.

For recycling to be completely successful, participation must be obtained from governments, businesses, and residents, such that recycling is a part of people's daily routine. On-going educational programs and publications are vital to obtain a countywide recycle rate greater than the state mandated rate of 25 percent. The City and the County should provide every effort to adequately educate the public about recycling programs, make these programs conveniently available, and consider incentives that promote source reduction, reuse, and recycling. Since many find it easier to dispose of their waste rather than recycle, residents must be directly encouraged in a positive way to participate or be provided with incentives to do so.

6.4 WASTE-TO-ENERGY/INCINERATION

Currently, a waste-to-energy or incineration facility is not a financially advantageous option to the Region due to the available transfer station disposal space and high level of recycling maintained throughout the Region. The City of Martinsville, Henry County, and the Town of Ridgeway may investigate participating in a waste-to-energy or incineration facility, if so desired in the future. However, a landfill gas (LFG) to energy plant is located at the closed Martinsville Landfill.

6.5 LANDFILL

As a result of costs and the amount of waste generated in the Region, other than recycling, landfilling is not the most feasible of the solid waste disposal alternatives available to the Region; thus, it has not been selected as the primary component of the hierarchy to provide solid waste management for the Region.

As mentioned previously, the Martinsville Sanitary Landfill was closed in 2006 once the permitted capacity was consumed. Now that the landfill is closed, the City of Martinsville and Henry County have contracted with First Piedmont Corporation to operate a transfer station located at the existing landfill site. FPC utilizes two landfill sites for ultimate disposal of most of the waste collected within the Region.

FPC's Industrial landfill operates under the Virginia Department of Environmental Quality (DEQ) Permit Number 065 and encompasses approximately 250 acres. The gross capacity of the facility is approximately 8,165,757 cubic yards. Based on the current waste acceptance rate, the anticipated life of the facility is 32 years. Currently, the landfill's regular operating hours are 7:00 am to 5:00 pm Monday through Friday, and from 7:00 am to 12:00 pm on Saturday. The landfill is closed on Sundays and on New Years Day, Thanksgiving Day, and Christmas Day.

The UPL facility operates under the North Carolina Department of Natural Resources (NCDNR) Permit Number 73-04. The gross capacity of the facility is approximately 8.5 million cubic yards. The annual capacity is approximately 240,900 tons per year and the anticipated life of the facility is 30 years (at its current rate of waste acceptance). The landfill's regular operating hours are 8:00 am to 5:00 pm Monday through Friday, and from 8:00 am to 12:00 pm on Saturday. The landfill is closed on Sundays and on the New Years Day, Thanksgiving Day, and Christmas Day

6.6 TRANSFER STATION

At closure of the Martinsville Landfill, First Piedmont Corporation funded to construct a transfer station. They operate, maintain and finance the transfer station at the

existing landfill. This facility accepts wastes that were previously taken at the landfill except for sludge, which is hauled directly. The transfer station is privately owned and funded; thus, the City of Martinsville is a customer under contract with First Piedmont Corp. who charges them a tipping fee by weight. Henry County and the Town of Ridgeway contract with the City of Martinsville and thus pay the same tipping fee.

It is anticipated that the transfer station will be in operation through the planning period of 2015 to 2035, and beyond. The transfer station operates at an average of 248 tons of waste per day. The maximum rated capacity of the transfer station facility is 1,850 tons per day.

The transfer station's regular operating hours are 7:00 am to 4:30 pm Monday through Friday, and from 7:00 am to 12:00 pm on Saturday. The transfer station is closed on Sundays and on the following holidays: New Years Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day, and Christmas Day. However, FPC will operate the Transfer Station an additional 6 weekend hours (2 on Saturday/4 on Sunday, or all 6 on Sunday) to accommodate Henry County's weekend collection program. In addition, they will operate on any holiday when Upper Piedmont Landfill is accepting waste.

First Piedmont Corporation (FPC) transports the incoming waste from the City, the County, and the Town to a solid waste disposal facility permitted to accept these types of materials. Residential and commercial waste is currently transported to Upper Piedmont Landfill (UPL) in Roxboro, North Carolina. Industrial, CDD and yard waste are transported and disposed at the First Piedmont Landfill in Ringgold, Virginia. First Piedmont Corporation (FPC) may choose to transport the waste collected at their transfer station to another permitted disposal facility in the future, as necessary. Further information on these facilities is provided under Section 6.5 Landfill.

7.0 FUNDING AND CONSTRUCTION SCHEDULES

7.1 FUNDING

As presented in Section 3.0 of this Plan, each jurisdiction within the Region possesses its own mechanisms to provide waste services to their residents and businesses.

Residents and businesses within the City of Martinsville are assessed a fee for their waste collection services, and are directly billed by the City. Henry County funds its solid waste management services through general tax funds. Services that are provided to residents, businesses, or industries by private haulers are direct billed by those private contractors.

The facility is required to assure all closure construction costs and post-closure care costs with the DEQ through a general reserve fund. To date, the 42.5-acre facility has been closed. It is estimated that approximately $3.5 million is required for post-closure care. Post-closure care costs include landfill gas monitoring, groundwater monitoring, leachate management (if necessary), routine maintenance and mowing, and vector control.

7.2 CONSTRUCTION SCHEDULES

No construction is anticipated in the next 5 years.

8.0 PUBLIC PARTICIPATION

8.1 PUBLIC/PRIVATE PARTNERSHIPS

As mentioned in Section 3.5 of this Plan, there are many public and private partnerships in the Region concerning solid waste management. It is anticipated that these partnerships will continue throughout the planning period, as necessary, to provide cost-effective services to the residents of each jurisdiction.

Commercial and business establishments are required by the Region to submit information on waste generated and recycled. With this information, generation quantities and waste types can be more accurately determined. In addition, potential expansions in solid waste services provided to businesses and industries within the Region can be investigated.

8.2 PUBLIC HEARINGS

Public hearings are scheduled to be held by the City of Martinsville and Henry

County on December 13 and 20, 2016, respectively, in accordance with the public participation requirements outlined in 9VAC20-130-130. A copy of the notices published in the local and regional newspapers and the minutes of the public hearings are provided in Appendix 9.

Copies of the Solid Waste Management Plan will be posted at various locations in the City of Martinsville and Henry County for public review prior to the public hearings.

8.3 RESOLUTIONS

Board of Supervisors and City Council meetings will be held by the City of Martinsville and Henry County on December 13 and 20, 2016, respectively. City of Martinsville and Henry County's action to adopt this Solid Waste Management Plan will be concurrent with the public hearing meetings on December 13 and 20, 2016, respectively, and are provided in Appendix 9.

9.0 CONCLUSION

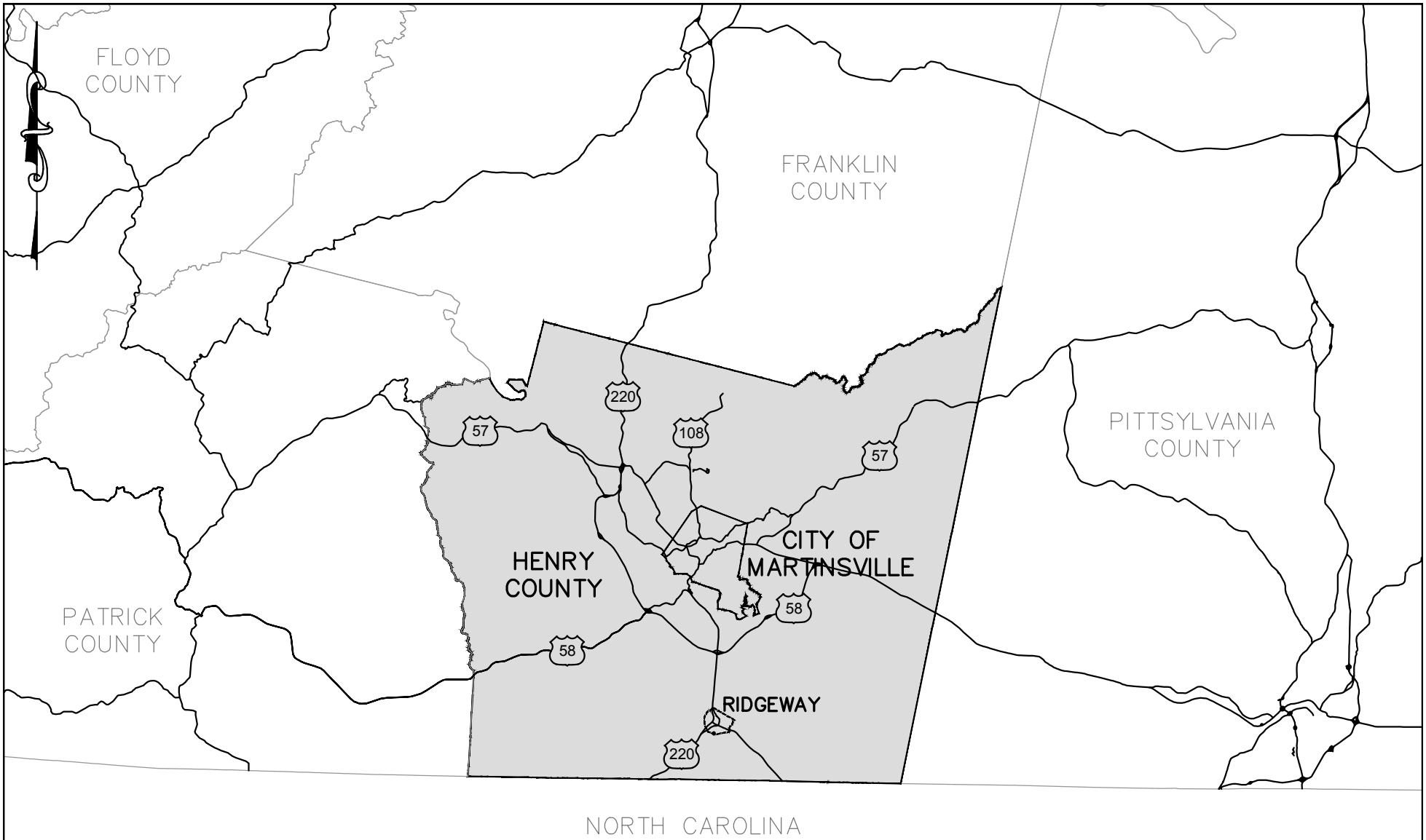
The purpose of this Plan is to provide the City of Martinsville, Henry County, and the Town of Ridgeway with goals for the long-term management of solid waste. For the Plan to succeed, the full participation of all of the residents, businesses, and industries of the Region must be acquired.

Based on the information provided by the Region, recyclables account for over half of the materials generated and handled within the Region, resulting in a 19 percent adjusted recycling rate being achieved by the residents and businesses in the Region. This exceeds the regulatory minimum rate of 15 percent. To maintain this recycling rate and regulatory compliance, each jurisdiction should continue to promote recycling and investigate providing incentives to businesses that actively participate in the recycling program.

In addition, the Region should continue to evaluate alternatives to landfilling whenever feasible, and implement available alternatives when it is economically beneficial to the Region. Finally, the Plan should be updated, as necessary, to maintain regulatory compliance and consistency with the actual services and needs of the Region.

APPENDIX 1

Regional Map



NOTE:
BASE MAP INFORMATION PROVIDED BY VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT).

GRAPHIC SCALE

0 3 6 12

(MILES)

						JOYCE ENGINEERING	SCALE	PROJECT NO.	CITY OF MARTINSVILLE AND HENRY COUNTY SOLID WASTE MANAGEMENT PLAN REGIONAL MAP	DRAWING NO.
	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP		1"=6 MILES	241		1

2211 W. MEADOWVIEW RD.
GREENSBORO, NC 27407
PHONE: (336) 323-0092

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APPENDIX 2

Population Projections

POPULATION PROJECTIONS
CITY OF MARTINSVILLE, HENRY COUNTY AND THE TOWN OF RIDGEWAY
(2010-2040)

Year	City of Martinsville	Henry County*	Total Regional Population
2010	13,821	54,151	67,972
2011	13,860	54,154	68,014
2012	13,899	54,157	68,057
2013	13,939	54,160	68,099
2014	13,978	54,163	68,141
2015	14,018	54,166	68,184
2016	14,057	54,170	68,227
2017	14,097	54,173	68,270
2018	14,137	54,176	68,313
2019	14,177	54,179	68,356
2020	14,217	54,182	68,399
2021	14,298	54,286	68,585
2022	14,380	54,391	68,771
2023	14,463	54,495	68,958
2024	14,545	54,600	69,145
2025	14,629	54,705	69,334
2026	14,712	54,810	69,522
2027	14,796	54,916	69,712
2028	14,881	55,021	69,902
2029	14,966	55,127	70,093
2030	15,052	55,233	70,285
2031	15,133	55,347	70,480
2032	15,214	55,462	70,676
2033	15,295	55,577	70,872
2034	15,377	55,692	71,069
2035	15,459	55,807	71,267
2036	15,542	55,923	71,465
2037	15,626	56,038	71,664
2038	15,709	56,154	71,864
2039	15,793	56,271	72,064
2040	15,878	56,387	72,265

*Population projections for Henry County include the Town of Ridgeway.

APPENDIX 3

Annual Waste Summary Report

City of Martinsville Solid Waste Management Plan 5-Yr Update

TABLE I

TOTAL WASTE STREAM BY GEOGRAPHIC AREA
JANUARY, 2015 - DECEMBER, 2015

Type of Waste	CITY (tons)	% of City Waste	COUNTY (tons)	% of County Waste	TOTAL	% of WASTE
Residential & Commercial	5,269	24.51%	35,049	53.13%	35,124	45.23%
Industrial, CDD & Yard	2,794	13.00%	18,592	28.18%	18,627	23.99%
Sludge	11,581	53.88%	0	0.00%	11,581	14.91%
Recyclables	1849.5	8.61%	12330	18.69%	12,330	15.88%
TOTALS	**21,493**		**65,971**		**77,662**	
% of total tons	15%		85%			
Avg. Tons/Day	248.1					

TABLE II
WASTE STREAM FOR REGION
JANUARY, 2011 - DECEMBER, 2015

YEAR	RESIDENTIAL/ COMMERCIAL	INDUSTRIAL/ CDD/YARD	SLUDGE	TOTAL
2011	34,185	21,649	10,686	66,521
2012	33,792	19,553	8,909	62,254
2013	33,922	19,641	10,965	64,528
2014	32,582	18,123	11,376	62,081
2015	35,124	18,627	11,581	65,332
TOTALS	169,605	97,593	53,518	320,715
% of WS	52.9%	30.4%	16.7%	
AVG. TONS/YR		64,143		
AVG. TONS/DAY		204.9		

APPENDIX 4

Solid Waste Projections

MUNICIPAL SOLID WASTE GENERATION PROJECTIONS FOR THE CITY OF MARTINSVILLE, HENRY COUNTY, AND THE TOWN OF RIDGEWAY

Given:

Tons MSW/person/day = 1.445E-03

(Use EPA estimate of 2.89 lbs/person/day)

Year	Total Regional Population	Tons MSW/day	Annual MSW Needs (Tons)	Cumulative MSW Needs (Tons)
2010	67,972	98	35,850	35,850
2011	68,014	98	35,872	71,722
2012	68,057	98	35,895	107,617
2013	68,099	98	35,917	143,534
2014	68,141	98	35,939	179,474
2015	68,184	99	35,962	215,436
2016	68,227	99	35,985	251,420
2017	68,270	99	36,007	287,428
2018	68,313	99	36,030	323,458
2019	68,356	99	36,053	359,510
2020	68,399	99	36,075	395,586
2021	68,585	99	36,173	431,759
2022	68,771	99	36,272	468,031
2023	68,958	100	36,370	504,401
2024	69,145	100	36,469	540,870
2025	69,334	100	36,568	577,438
2026	69,522	100	36,668	614,106
2027	69,712	101	36,768	650,874
2028	69,902	101	36,868	687,742
2029	70,093	101	36,969	724,710
2030	70,285	102	37,070	761,780
2031	70,480	102	37,173	798,953
2032	70,676	102	37,276	836,230
2033	70,872	102	37,380	873,609
2034	71,069	103	37,484	911,093
2035	71,267	103	37,588	948,681
2036	71,465	103	37,692	986,373
2037	71,664	104	37,797	1,024,171
2038	71,864	104	37,903	1,062,074
2039	72,064	104	38,008	1,100,082
2040	72,265	104	38,114	1,138,196

INDUSTRIAL WASTE GENERATION PROJECTIONS FOR THE CITY OF MARTINSVILLE, HENRY COUNTY, AND THE TOWN OF RIDGEWAY

Given:

Total Industrial Waste (IW) Disposed in 2015 (tons) =	18,627
Total Population in 2015 (persons) =	68,184
Tons Industrial Waste/person/day =	7.485E-04

Year	Total Regional Population	Tons IW/day	Annual IW Needs (Tons)	Cumulative IW Needs (Tons)
2010	67,972	51	18,569	18,569
2011	68,014	51	18,581	37,150
2012	68,057	51	18,593	55,743
2013	68,099	51	18,604	74,347
2014	68,141	51	18,616	92,962
2015	68,184	51	18,627	111,590
2016	68,227	51	18,639	130,229
2017	68,270	51	18,651	148,879
2018	68,313	51	18,663	167,542
2019	68,356	51	18,674	186,216
2020	68,399	51	18,686	204,902
2021	68,585	51	18,737	223,639
2022	68,771	51	18,788	242,426
2023	68,958	52	18,839	261,265
2024	69,145	52	18,890	280,155
2025	69,334	52	18,941	299,096
2026	69,522	52	18,993	318,089
2027	69,712	52	19,045	337,134
2028	69,902	52	19,097	356,231
2029	70,093	52	19,149	375,379
2030	70,285	53	19,201	394,581
2031	70,480	53	19,255	413,835
2032	70,676	53	19,308	433,143
2033	70,872	53	19,362	452,505
2034	71,069	53	19,415	471,920
2035	71,267	53	19,470	491,390
2036	71,465	53	19,524	510,913
2037	71,664	54	19,578	530,491
2038	71,864	54	19,633	550,124
2039	72,064	54	19,687	569,811
2040	72,265	54	19,742	589,553

SLUDGE GENERATION PROJECTIONS FOR THE CITY OF MARTINSVILLE, HENRY COUNTY, AND THE TOWN OF RIDGEWAY

Given:

Total Sludge Disposed in 2015 (tons) = 11,581
Total Population in 2015 (persons) = 68,184
Tons Sludge/person/day = 4.653E-04

Year	Total Regional Population	Tons Sludge/day	Annual Sludge Needs (Tons)	Cumulative Sludge Needs (Tons)
2010	67,972	32	11,545	11,545
2011	68,014	32	11,552	23,097
2012	68,057	32	11,559	34,657
2013	68,099	32	11,567	46,223
2014	68,141	32	11,574	57,797
2015	68,184	32	11,581	69,378
2016	68,227	32	11,588	80,966
2017	68,270	32	11,596	92,562
2018	68,313	32	11,603	104,165
2019	68,356	32	11,610	115,775
2020	68,399	32	11,618	127,393
2021	68,585	32	11,649	139,042
2022	68,771	32	11,681	150,722
2023	68,958	32	11,712	162,435
2024	69,145	32	11,744	174,179
2025	69,334	32	11,776	185,956
2026	69,522	32	11,808	197,764
2027	69,712	32	11,841	209,604
2028	69,902	33	11,873	221,477
2029	70,093	33	11,905	233,382
2030	70,285	33	11,938	245,320
2031	70,480	33	11,971	257,291
2032	70,676	33	12,004	269,296
2033	70,872	33	12,038	281,333
2034	71,069	33	12,071	293,404
2035	71,267	33	12,105	305,509
2036	71,465	33	12,138	317,647
2037	71,664	33	12,172	329,819
2038	71,864	33	12,206	342,025
2039	72,064	34	12,240	354,265
2040	72,265	34	12,274	366,540

RECYCLABLE MATERIALS GENERATION PROJECTIONS FOR THE CITY OF MARTINSVILLE, HENRY COUNTY, AND THE TOWN OF RIDGEWAY

Given:

Total Recycled in 2015 (tons) = 12,330
Total Population in 2015 (persons) = 68,184
Tons Recyclables/person/day = 4.954E-04

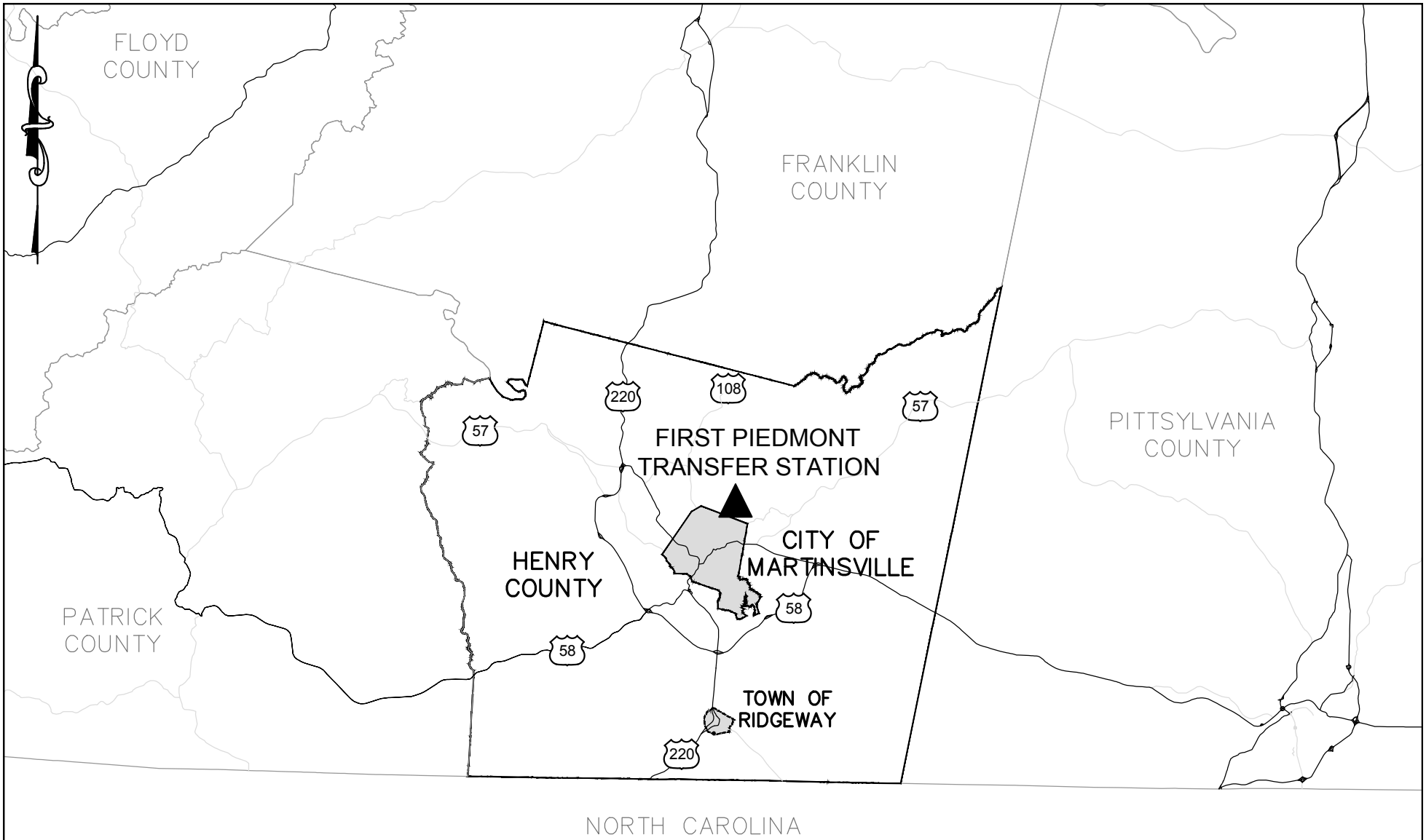
Year	Total Regional Population	Tons Recyclables/day	Annual Recyclable Needs (Tons)	Cumulative Recyclable Needs (Tons)
2010	67,972	34	12,292	12,292
2011	68,014	34	12,299	24,591
2012	68,057	34	12,307	36,898
2013	68,099	34	12,315	49,213
2014	68,141	34	12,322	61,535
2015	68,184	34	12,330	73,865
2016	68,227	34	12,338	86,203
2017	68,270	34	12,346	98,548
2018	68,313	34	12,353	110,901
2019	68,356	34	12,361	123,263
2020	68,399	34	12,369	135,631
2021	68,585	34	12,403	148,034
2022	68,771	34	12,436	160,470
2023	68,958	34	12,470	172,940
2024	69,145	34	12,504	185,444
2025	69,334	34	12,538	197,982
2026	69,522	34	12,572	210,554
2027	69,712	35	12,606	223,160
2028	69,902	35	12,641	235,801
2029	70,093	35	12,675	248,476
2030	70,285	35	12,710	261,186
2031	70,480	35	12,745	273,931
2032	70,676	35	12,781	286,712
2033	70,872	35	12,816	299,528
2034	71,069	35	12,852	312,380
2035	71,267	35	12,888	325,267
2036	71,465	35	12,923	338,190
2037	71,664	36	12,959	351,150
2038	71,864	36	12,995	364,145
2039	72,064	36	13,032	377,177
2040	72,265	36	13,068	390,245

TOTAL SOLID WASTE GENERATION PROJECTIONS FOR THE CITY OF MARTINSVILLE, HENRY COUNTY, AND THE TOWN OF RIDGEWAY

Year	Annual Disposal Needs Less Recycling (Tons)	Cumulative Disposal Needs Less Recycling (Tons)	Cumulative Disposal Needs With Recycling (Tons)
2010	65,964	65,964	78,256
2011	66,005	131,970	156,561
2012	66,047	198,017	234,915
2013	66,088	264,104	313,317
2014	66,128	330,233	391,768
2015	66,170	396,403	470,268
2016	66,212	462,615	548,818
2017	66,254	528,869	627,417
2018	66,295	595,164	706,066
2019	66,337	661,501	784,764
2020	66,379	727,880	863,512
2021	66,559	794,440	942,474
2022	66,740	861,180	1,021,650
2023	66,921	928,101	1,101,041
2024	67,103	995,204	1,180,648
2025	67,286	1,062,490	1,260,472
2026	67,469	1,129,959	1,340,512
2027	67,653	1,197,612	1,420,772
2028	67,837	1,265,449	1,501,250
2029	68,023	1,333,472	1,581,948
2030	68,209	1,401,681	1,662,867
2031	68,398	1,470,080	1,744,011
2032	68,589	1,538,668	1,825,380
2033	68,779	1,607,447	1,906,975
2034	68,970	1,676,417	1,988,797
2035	69,162	1,745,579	2,070,846
2036	69,354	1,814,934	2,153,124
2037	69,547	1,884,481	2,235,631
2038	69,742	1,954,223	2,318,368
2039	69,936	2,024,158	2,401,335
2040	70,131	2,094,289	2,484,534

APPENDIX 5

Map of Active Waste Facilities in the Region



NOTE:
BASE MAP INFORMATION PROVIDED BY VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT).

GRAPHIC SCALE

0 3 6 12

(MILES)

						JOYCE ENGINEERING	2211 W. MEADOWVIEW RD GREENSBORO, NC 27407 PHONE: (336) 323-0092	SCALE 1"=6 MILES	PROJECT NO. 241	CITY OF MARTINSVILLE AND HENRY COUNTY SOLID WASTE MANAGEMENT PLAN ACTIVE SOLID WASTE MANAGEMENT FACILITIES	DRAWING NO. 2
	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP						

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L:\Martinsville\dwg\2016 swmp\2016 SWMP Solid Waste Management Facilities.dwg, Layout: REGIONAL MAP 11-30-16 - 12:59pm

APPENDIX 6

List of All Solid Waste Facilities in the Region

SOLID WASTE FACILITIES IN THE CITY OF MARTINSVILLE, HENRY COUNTY, AND THE TOWN OF RIDGEWAY

Facility Name	Permit Number	Type of Facility	Status	County/City	Year Permitted	Mail Address	Telephone
EI DuPont Incinerator	007	Incineration/Energy	Closed	Henry	1971	EI DuPont, Martinsville, VA 24112	276-666-5000
EI DuPont Landfill	008	Industrial	Closed	Henry	1971	EI DuPont, Martinsville, VA 24112	276-666-5000
Henry County Sanitary Landfill	003	Sanitary	Closed	Henry	1971	Henry County, Collinsville, VA 24078	276-634-2540
Henry County Sanitary Landfill	320	Sanitary	Closed	Henry	1981	Henry County, Collinsville, VA 24088	276-634-2540
Patrick Henry Correctional Unit #28	PBR281	RMW (S)	Unknown	Henry	--	18155 AL Philpott Highway, Spencer, Va 24165	276-957-2234
Martinsville Sanitary Landfill	049	Sanitary	Closed	Martinsville	1972	City of Martinsville, Martinsville, VA 24114	276-403-5154
First Piedmont Corporation - Martinsville Transfer Station	PBR520	Transfer Station	Active	Martinsville	2005	P.O. Drawer 1069, Chatham, VA 24531	434-432-0211
Memorial Hospital of Martinsville and Henry County	PBR130	RMW (I)	Closed	Henry	1998	Memorial Hospital of Martinsville and Henry County, P.O. Box 4788, Martinsville, VA 24115	276-666-7200
Memorial Hospital of Martinsville and Henry County	PBR297	RMW (I&S)	Unknown	Martinsville	--	Memorial Hospital of Martinsville and Henry County, P.O. Box 4788, Martinsville, VA 24115	276-666-7200

Legend:
Incineration/Energy = Incineration/Energy Recovery Facility
Industrial = Industrial Landfill
RMW (I) = Regulated Medical Waste Incineration
RMW (I&S) = Regulated Medical Waste Incineration & Steam Sterilization
RMW (S) = Regulated Medical Waste Steam Sterilization
Sanitary = Sanitary Landfill

APPENDIX 7

Locality Recycling Rate Report Form

VIRGINIA ANNUAL RECYCLING SUMMARY REPORT

Calendar Year 2015

September 2016

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Virginia's State Recycling Summary Report for Calendar Year 2015

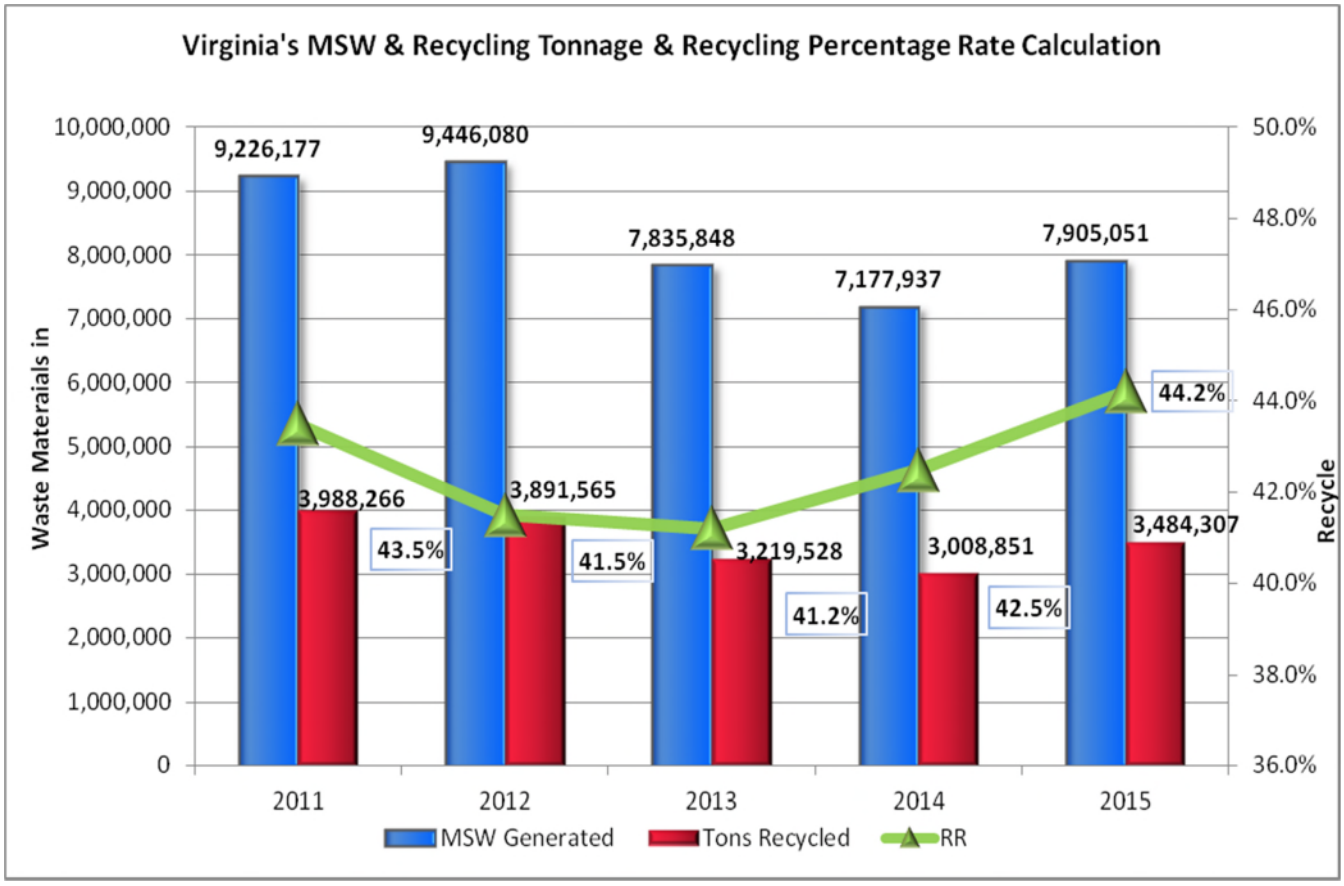
Executive Summary

The calendar year 2015 Annual Recycling Rate reporting by Virginia Solid Waste Planning Units (SWPUs) with populations above 100,000[1] established a calculated recycling rate for Virginia of 44.2 %. This calculation included credits for solid waste reused, non-MSW recycled, and recycling residues. This rate was based on the data submitted by the 17 SWPUs required to report for 2015.

Introduction

The Virginia Department of Environmental Quality (DEQ) has completed its review of the recycling rate data reported for calendar year 2015. DEQ has reviewed 41 submitted reports. The data represent recycling information from 113 Virginia cities, counties and towns.[1] Recycling rate reports were also submitted by 26 SWPUs that were not required to report for 2015.

Virginia's annual recycling rate for 2015 as seen on the graph below is based only on data from the required reports submitted by the 17 SWPUs with populations above 100,000.



[1] *Virginia Code §10.1-1411 was amended by legislation introduced during the 2012 Session of the Virginia General Assembly and requires annual recycling rate reporting by each SWPU or locality with a population of greater than 100,000 according to the most recent U.S. Census. Each SWPU or locality with a population of 100,000 or less according to the most recent U.S. Census must submit a recycling survey report once every four years. Planning units in this latter category will next report in 2017 for calendar year 2016.*

Areas Reporting Highest Rates

Historically, higher recycling rates have been reported in the more densely populated areas of the state. These areas are represented primarily by the 17 SWPUs with populations over 100,000.[1] These areas include:

Calculated Regional Recycling Rate by Year

Area	2015	2014	2013
Fredericksburg Area	46.2%	43.6%	46.3%
Hampton Roads/Tidewater Area	33.7%	31.3%	33.5%
Lynchburg Area	40.1%	41.5%	38.9%
Northern Shenandoah Valley	49.7%	41.4%	40.4%
Northern Virginia	47.4%	45.4%	46.0%
Richmond Area	62.7%	57.5%	57.4%
Roanoke Area	39.0%	27.8%	35.4%

Mandated Recycling Rates

Pursuant to Virginia Code § 10.1-1411.D, each SWPU is required to achieve and maintain a minimum 25 percent annual recycling rate *unless*:

- Its population density is less than 100 persons per square mile, or
- Its civilian unemployment rate is 50 percent or more above the state unemployment average.

SWPUs meeting these criteria are required to achieve and maintain a minimum 15 percent recycling rate.

Solid Waste Management Planning and Recycling Action Plans

DEQ continues to review the required solid waste management plans and any updates submitted by the SWPUs for completeness, including locality or regional recycling program information. All SWPUs are required to maintain or exceed the mandated recycling rate for their jurisdiction(s). If at any time the SWPU reports less than the required 15 percent or 25 percent recycling rate, DEQ will require that a Recycling Action Plan be developed and submitted as an amendment to the SWPU's solid waste management plan. Visit http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RecyclingandLitterPreventionPrograms/MandatoryRecyclingRates.aspx for additional information.

Recycling Success Stories and Related Report Information

Information provided by localities, from web-based resources, or other data sources.

City of Richmond: In July 2015, the City of Richmond enhanced its recycling program by going to 95 gallon recycling carts citywide. This led to a 50 percent increase in waste diversion, collection efficiencies, and an overall reduction in its carbon footprint.

City of Alexandria: The City of Alexandria has been testing the feasibility of asking residents to separate food waste for special collection and composting. The city offered free food waste collection services for some of its curbside collection customers and the program proved popular. However, residents of selected apartment buildings who were given this opportunity were much less willing to give it a try. City staff is evaluating the costs and environmental benefits of these two pilot efforts. According to the U.S. Environmental Protection Agency, 30 percent of the material in a residential trash can is food waste after traditional recyclables and yard waste have been removed. For more information visit https://www.alexandriava.gov/FoodWaste

Central Virginia Waste Management Authority (CVWMA): CVWMA made significant changes in its curbside and drop-off recycling programs. Items added to the program now include plastics #1 - #7 – bottles and containers, caps and lids (all free of food and residue). Also added are waxy coated cartons: milk, juice, juice boxes, soup, wine, cream, egg substitutes, and cat food boxes. Henrico County and CVWMA held a seminar in June 2016 on debris management and monitoring in the event of a FEMA-declared storm. Contracts in place will assist member jurisdictions with storm debris management. Information from ***CVWMA Regional Waste Line*** - http://cvwma.com/wp-content/uploads/2013/08/RWL_Aug_2016-1.pdf

Montgomery Regional Solid Waste Authority (MRSWA): During the last year, MRSWA updated its website: www.mrswa.com and on the homepage there is a video of the Recycling and Disposal Solutions of Virginia (RDS) facility in Roanoke. RDS has state of the art equipment to handle single stream recycling needs for numerous jurisdictions. MRSWA offers universal waste recycling to the public at no charge and household hazardous waste collection day, on the third Saturday each month.

Electronics Recycling: Though not included in the recycling rate**,** computer manufacturers are required to report to DEQ the amount of electronics recovered through their recycling networks. For calendar year 2015 they reported 2,218,416 pounds (1,109 tons) of electronics recovered. For more information about this program, visit http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RecyclingandLitterPreventionPrograms/ElectronicsRecycling/VirginiasComputerRecoveryandRecyclingAct.aspx .

Private Sector Reporting: Wal-Mart and Target provided recycling data for their Virginia stores to DEQ. This information was made available to all SWPUs on DEQ's recycling webpage for inclusion in their recycling reporting. Visit their links on the following webpage under Featured Topics: http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/RecyclingandLitterPreventionPrograms.aspx

Calculated Recycling Rates for 2015

Solid Waste Planning Unit Recycling Rates and Data

REPORTING ENTITY (17 Solid Waste Planning Units required to report annually) State Totals	2015 Recycling Rate (%) 44.2	2015 Total Recycled Tons (PRMs + Credits) 3,484,307 tons	2015 Total MSW Generation Tons (PRMs + Credits + MSW disposed) 7,905,051 tons
Alexandria (City) SWPU	48.6	96,739	186,943
Arlington County SWPU	44.5	145,792	265,120
Augusta –Staunton-Waynesboro SWPU	45.6	71,825	164,205
Central Virginia Waste Management Authority SWPU (counties of Charles City, Chesterfield, Goochland, Hanover, Henrico, New Kent, Powhatan and Prince George; cities of Richmond, Hopewell, Colonial Heights and Petersburg)	58.8	722,877	1,153,152
Fairfax County SWPU	49.6	585,849	1,230,415
Loudoun County SWPU	44.5	168,054	373,611
Montgomery Regional Solid Waste Authority SWPU (Montgomery County, Blacksburg and Christiansburg)	27.5	23,371	84,568
Mount Rogers PDC SWPU (counties of Bland, Smyth, Washington and Wythe)	20.5	15,137	132,391
Newport News (City) SWPU	40.7	88,182	194,703
Northern Shenandoah Valley Regional Commission SWPU (counties of Clarke, Frederick, Shenandoah, Warren and Page; City of Winchester)	49.7	138,682	278,805
Prince William County SWPU	33.7	230,563	561,108
Rappahannock Regional Solid Waste Management Board SWPU (Stafford County and city of Fredericksburg)	58.4	94,640	167,785
Region 2000 (counties of Nelson, Appomattox and Campbell; city of Lynchburg and town of Bedford)	39.1	131,965	329,060
Southeastern Public Service Authority SWPU (counties of Isle of Wight and Southampton; cities of Chesapeake, Franklin, Norfolk, Portsmouth, Suffolk and Virginia Beach)	31.7	593,372	1,863,291
Spotsylvania County SWPU	34.6	68,961	186,156
Thomas Jefferson PDC SWPU (counties of Albemarle, Fluvanna and Greene; city of Charlottesville)	40.3	158,442	318,208
Virginia Peninsulas Public Service Authority SWPU (counties of Essex, James City, King and Queen, Mathews, Middlesex and York; cities of Hampton, Poquoson and Williamsburg)	36.5	152,556	418,230
The calculated recycling rate is based only on data from the 17 SWPUs above required to report for CY 2015.	**2015 Recycling Rate (44.2 %)**	**2015 Total Recycled Tons (PRMs + Credits)**	**2015 Total MSW Generation Tons (PRMs + Credits + MSW disposed)**

REPORTING ENTITY (26 SWPUs with populations 100,000 or less not required to report, but Voluntarily Reporting)	2015 Recycling Rate (%)	2015 Total Recycled Tons (PRMs + Credits)	2015 Total MSW Generation Tons (PRMs + Credits + MSW disposed)
Accomack County SWPU	41.6	16,617	39,942
Amherst County SWPU	27.4	8,782	32,106
Bedford County SWPU	44.9	33,695	78,505
Botetourt County SWPU	19.2	4,012	20,895
Brunswick County SWPU	18.6	2,485	13,354
Carroll-Grayson-Galax SWPU	21.9	7,601	34,682
Craig County SWPU	18.8	494	2,622
Cumberland Plateau Regional Waste Management Authority SWPU (Buchanan, Dickenson and Russell counties)	30.2	18,832	62,293
Danville (City) SWPU	41.2	9,788	23,778
Fairfax (City) SWPU	59.3	33,038	55,730
Falls Church (City) SWPU	68.3	9,845	14,845
Fauquier County SWPU	40.3	30,903	76,643
Floyd County SWPU	22.6	3,190	14,110
Franklin County SWPU	33.2	16,742	50,380
Greater Rockingham SWPU	27.7	20,822	75,280
Harrisonburg City SWPU	39.0	17,799	48,073
Herndon (Town) SWPU	44.4	11,289	25,425
Lunenburg County SWPU	15.5	1,300	7,905
Manassas (City) SWPU	44.8	24,866	55,497
Martinsville (City) SWPU	18.7	12,330	65,971
New River Resource Authority SWPU (counties of Pulaski and Giles; city of Radford)	30.9	34,349	118,841
Patrick County SWPU	39.6	3,596	9,081
Rappahannock County SWMP	22.8	1,450	6,365
Roanoke City SWPU	62.6	64,590	103,179
Salem (City) SWPU	38.2	11,511	30,115
Vinton (Town) SWPU	58.7	5,077	8,644

All data based on adjustments by DEQ for consistency with 9VAC-20-130-125, with a 5 percent maximum percentage allowed for credits to the base recycling rate calculated by a solid waste planning unit. A 2 percent source reduction credit has been added to the calculated recycling rates for those planning units with a documented source reduction program.

PRMs (principal recyclable materials): paper, metal, plastic, glass, commingled materials, yard waste, waste wood, textiles, waste tires, used oil, used oil filters, used antifreeze, inoperative automobiles, batteries, electronics and other.

Credits: recycling residues, solid waste reused non-MSW recycled (includes construction and demolition material, ash and debris), and source reduction initiatives. Source reduction initiatives must be documented as SWPU policy and promoted across the SWPU.

Municipal Solid Waste (MSW) disposed: Municipal solid waste delivered to sanitary landfills or incinerators for disposal.

Solid Waste Planning Units Not Reporting

28 SWPUs with populations of 100,000 or less and not required to report for CY 2015.

Alleghany Highlands SWPU
Amelia County SWPU
Bath County SWPU
Bristol (City) SWPU
Buckingham County SWPU
Caroline County SWPU
Craig County SWMP
Culpeper County SWPU
Gloucester County SWPU
Highland County SWPU
King George County SWPU
Lee County SWPU
Louisa County SWPU
Lunenburg County SWMP
Madison County SWMP
Manassas Park SWMP
Northampton County SWPU
Northern Neck PDC SWPU (counties of Lancaster, Northumberland, Richmond and Westmoreland)
Orange County SWMP
Pittsylvania County SWPU
Prince Edward-Cumberland County SWPU
Roanoke County SWPU
Rockbridge – Lexington – Buena Vista SWPU
Scott County SWPU
Southern Crater Region SWPU (counties of Dinwiddie, Greensville, Surry, and Sussex; city of Emporia)
Southside Regional PSA SWPU (counties of Charlotte, Halifax and Mecklenburg)
Vienna (Town) SWMP
Wise County SWPU

Recycling Rate Calculation – 2015

Seventeen recycling rate reports, representing 113 Virginia localities, were received pursuant to the requirements of § 10.1-1411 of the Code of Virginia. The chart represents data only from the 17 SWPUs required to report for CY 2015. This represents a return rate of 100 percent of the required reports. Totals for these reports are presented below:

Principal Recyclable Materials (PRM) Tons

PRM Material	Tons Recycled
Paper	758,223
Metal	405,521
Plastic	21,477
Glass	12,247
Commingled	530,711
Yard Waste	455,890
Waste Wood	258,970
Textiles	21,978
Waste Tires	33,270
Used Oil	30,063
Used Oil Filters	2,365
Used Antifreeze	2,988
Batteries	11,291
Electronics	7,522
Inoperative Motor Vehicles	309
Other	103,072
Total PRM in Tons	**2,655,897**

Credits	Tons Recycled
Recycling Residue	18,061
Solid Waste Reused	480,600
Non-MSW Recycled	329,749
TOTAL CREDITS	**828,410**

MSW Disposed Tons	
Household Waste	3,700,831
Commercial Waste	611,602
Institutional Waste	49,200
Other	59,111
Total MSW Tons	**4,420,744**

2% Source Reduction Credit	0.14% overall

State Rate Calculation

((PRM + Credits) / (PRM + Credits + MSW Disposed)) x 100 + Source Reduction Credit

(3,484,307 / 7,905,051) x 100 + 0.14% = 44.2%

APPENDIX 8

Recycling Rate Estimates

RECYCLING RATE ESTIMATES
FOR THE
CITY OF MARTINSVILLE, HENRY COUNTY, AND THE TOWN OF RIDGEWAY

Principal Recycle Materials (PRM)

Item	**Quantity (Tons)**	**% of Total**
Paper	4,992.00	40.49%
Used Oil	23.00	0.19%
Plastic	3,440.00	27.90%
Electronics	52.00	0.42%
Yard Waste	1,230.00	9.98%
Waste Tires	91.00	0.74%
Used Antifreeze	2.00	0.02%
Metal	2,498.00	20.26%
Other	2.00	0.02%
Total Recyclables	**12,330**	
Total Disposed	53,641	
Total Credits	0	
Base Recycle Rate*	**18.7%**	
Final Recycle Rate**	**18.7%**	

*Recycle Rate = Total Recyclables / Total Reyclables+Total Disposed
** Recycle Rate = (Total Recyclables+Credit)/(Total Recyclables+Credit+Disposed)

APPENDIX 9

Public Hearing and Board/Council Documents