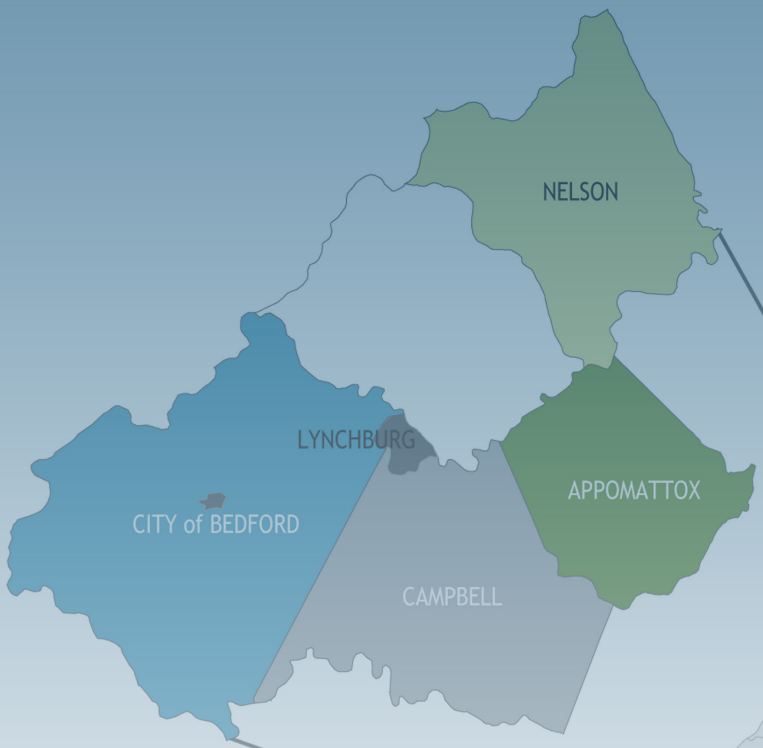
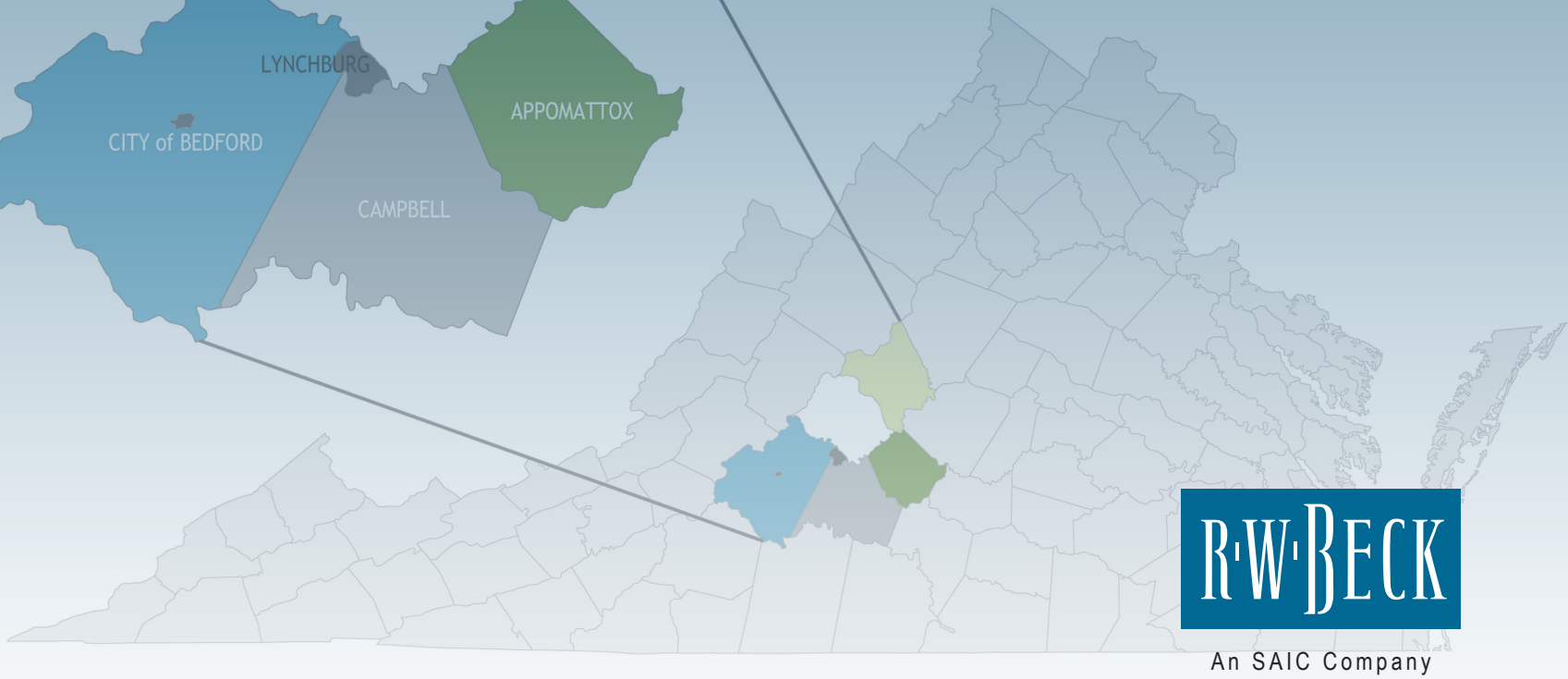
REGION 2000 SERVICES AUTHORITY

SOLID WASTE MANAGEMENT PLAN

(9 VAC 20-130-10 ET SEQ)

APRIL 2010





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R. W. BECK
REGIONAL SOLID WASTE MANAGEMENT PLAN
Region 2000 Services Authority

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EXECUTIVE SUMMARY

The Region 2000 Partnership, located in south-central Virginia, is comprised of the following 11 communities:

- Appomattox County;
- Town of Appomattox;
- Amherst County;
- Town of Amherst;
- Campbell County,
- Town of Altavista;
- Town of Brookneal;
- Nelson County;
- City of Lynchburg;
- Bedford County; and
- City of Bedford.

Of these 11 communities, five (Appomattox County, Campbell County, Nelson County, the City of Lynchburg and the City of Bedford) decided to jointly address solid waste management needs by forming a regional solid waste planning unit. As required by Virginia Waste Management Board's Regulations for Solid Waste Management Planning (9 VAC 20-130-180 through 220) any group of communities that form a regional entity to jointly address solid waste management must first be recognized as a region by Virginia DEQ, and secondly prepare a Solid Waste Management Plan (the Plan) to demonstrate to DEQ that the Regional Authority has concisely planed out long-term solid waste collection and disposal needs.

The first Regional Solid Waste Management Plan, prepared by R. W. Beck, Inc. addresses the above mentioned 9 VAC 20-130-10 et. seq. Waste Management Board Regulations for Solid Waste Management Planning. The Plan presents the context for how the five members that currently comprise the Region 2000 Services Authority (the Authority) plan on addressing their solid waste collection and disposal needs and the context in which solid waste management programs occur in the region. The current focus of the member jurisdictions is to develop a regional approach to solid waste management that will result in greater cooperation, decreased cost of providing service to their customers and citizens and better protection of human health and the environment. By working together, the member jurisdictions also recognize that a coordinated regional approach provides an enhanced ability to control costs as environmental regulations continue to tighten and the need exists to provide better and

longer range solid waste planning. As partners in the Authority, all five communities will, as of July 1, 2008, combine their regional solid waste disposal needs into one integrated solid waste management system.

The structure of the following solid waste management plan is as follows:

Section 1.0 Introduction

Section 1 provides a brief overview of the relevant Virginia Waste Management Board Solid Waste Management Planning Regulations in addition to the background of the Region 2000 solid waste planning unit and a summary of the region's solid waste goals and objectives.

Section 2.0 Background Information

Section 2 presents information on the status of solid waste management within the United States, focusing on solid waste and recycling generation and disposal and waste composition rates.

Section 3.0 Region 2000 Demographic Data

Section 3 provides a detailed breakout of population, housing, income and other relevant demographic data for the five communities that comprise Region 2000 solid waste planning unit. Information is included on climate, transportation and economic development issues.

Section 4.0 Solid Waste Generation and Composition Rates

Section 4 contains projections and characterization of the future solid waste stream for the area. The section presents information on the regional solid waste generation quantities and disposal for a 20 year period. Existing landfill capacity is analyzed in light of the projections. The discussion of regional waste generation and composition issues includes sections on the projected tonnage amounts, disposal capacity and cell development of the two regional landfills, special wastes and waste stream composition.

Section 5.0 Existing Solid Waste Management System

Section 5 describes the major components of the current solid waste management systems for the five participating communities. Included in this section is an overview of acceptable materials at the regional landfills, and the individual and regional base, adjusted and final recycling rates calculated using DEQ Forms 50-30.

Section 6.0 Budget

Section 6 provides the Services Authority's FY 2009 operating budget.

Section 7.0 Hierarchy

Section 7 contains a discussion of the waste management hierarchy as it relates to regional solid waste management practices. The hierarchy includes source reduction, reuse, recycling, resource recovery and incineration and landfilling. A discussion on future disposal options is provided.

Section 8.0 Goals and Objectives

Section 8 analyzes the various goals and objectives of the regional solid waste management program. These goals include collection and disposal, recycling, public awareness policies and litter control programs.

Section 9.0 Implementation Schedule

Section 9 summarizes the various goals and objectives of the regional solid waste management program over the 20 year planning period.

Section 10.0 Resolutions

Section 10 contains the resolutions relating to the formation of the solid waste planning unit, Virginia DEQ's recognition of Region 2000 as a solid waste planning unit, and adoption of the first ever Region 2000 solid waste management plan.

Section 11.0 Funding and Financing

Section 11 provides an overview of the funding mechanisms and financing methods that the Services Authority will implement to ensure the financial integrity of the Services Authority.

Section 12.0 Public Participation

Section 12 provides information on when and where the Authority and the individual communities will address opportunities for public participation of the regional solid waste management plan.

Section 13.0 Record Keeping

Section 13 identifies a central archive authorized to receive and record information on disposal and landfill activities in the area.

Key Findings

Key Findings from the Plan include the following:

- The member jurisdictions have agreed to use their existing disposal facilities together via regionalization, operating under a regional Services Authority.

Under this scenario, member jurisdictions of the Authority would send their solid waste to either the Campbell County (Campbell) or City of Lynchburg (Lynchburg) landfills. Under this approach, the landfills would have approximately 14 years of capacity assuming a regional start date of July 1, 2008.[1]

- The population of the five communities that comprise the regional solid waste planning unit is expected to increase from 154,440 to 172,639 in the next 25 years[2].
- In 2007, the five jurisdictions disposed of 253,366 tons of solid waste. By 2027 this is projected to grow to 266,340 tons.
- A site life analysis was performed to determine the approximate life of each landfill operating as the regional facility. The analysis assumed that the Authority would accept waste from Appomattox County, the City of Bedford and Nelson County beginning July 2008. Assuming a start date of July 1, 2008, it is estimated that the City of Lynchburg Landfill has 5.3 years worth of disposal capacity while the Campbell County landfill is estimated to have 8.8 years of disposal capacity.
- Assuming 14 years of disposal capacity remains, the Authority is considering the possibility of creating a new landfill, transfer station and/or waste-to-energy facility to handle the region's future disposal options. In addition, a comparative analysis was conducted to determine the feasibility of constructing a transfer station and a waste-to-energy facility to handle the regions waste. The Services Authority is also considering the expansion of existing facilities by expanding the Campbell County permitted capacity within the permitted area by combining phase III and Phase IV.
- A total of 62 percent of the waste stream entering the City of Lynchburg Landfill in 2007 was comprised of MSW. Industrial Waste comprised 25 percent with Sludge another 10 percent.
- A total of 59 percent of the waste stream entering the Campbell County Landfill in 2007 was comprised of MSW. Industrial Waste comprised 23 percent with C&D another 9 percent.
- In 2007, the Base Recycling Rate for Region 2000 was calculated by R. W. Beck to be 32.8 percent. The Adjusted Recycling Rate was calculated to be 41.4 percent while the Final Calculated Recycling Rate is awaiting DEQ approval.

[1] This projection is based on a 0.25 percent annual increase in tonnage and the assumption that all waste currently handled by the member jurisdictions will continue.

2 Source: Weldon Cooper Center for Public Service, Demographics and Workforce Section, www.coopercenter.org/demographics/

Section 1
INTRODUCTION

1.1 Legislation

The following solid waste management plan has been prepared in accordance with the Virginia Waste Management Board's Regulations for Solid Waste Management Planning, Amendment 2, 9 VAC 20-130-10 et seq., and effective date November 28, 2007.

1.2 Authority (9 VAC 20-130-20)

The regulations were promulgated pursuant to Chapter 14 (Sec.10.1-1400 et seq. and specifically Sections 10.1-1402, 10.1-1411 and 10.1-1413 of Title 10.1 of the Code of Virginia which authorized the Virginia Waste Management Board to promulgate and enforce such regulations as may be necessary to carry out its duties and power, and the intent of the Virginia Waste Management Act and the federal acts.

1.3 Purpose (9 VAC 20-130-40)

The purpose of the regulations as generally stated in 9 VAC 20-130-40 and elsewhere in the regulations is to:

1. Establish minimum solid waste management standards and planning requirements for protection of public health, public safety, the environment, and natural resources throughout the Commonwealth;
2. Require the development of a comprehensive and integrated solid waste management plan that addresses all components of the solid waste hierarchy established by the United States Environmental Protection Agency (EPA) as embraced by the Commonwealth as follows:
   - Source Reduction (most desirable activity)
   - Reuse
   - Recycling
   - Resource Recovery (waste-to-energy)
   - Incineration
   - Landfilling (least desirable activity)

3. Promote local and regional planning that provides for environmentally sound and compatible solid waste management with the most effective and efficient use of available resources;
4. Establish procedures and rules for designation of regional boundaries for solid waste management plans;
5. Establish state, local government, or regional responsibility for meeting and maintaining the minimum recycling rates of 25 percent;
6. Establish the requirement to withhold permits for failure to comply with the regulations;
7. Provide a method to request reasonable variance or exemptions from the regulations;
8. Provide for reporting and assessment of solid waste management in the Commonwealth.

1.4 Overview

The Counties of Amherst, Appomattox, Campbell, Nelson and Bedford and the Cities of Lynchburg and Bedford, Virginia form a Local Government Council situated in South Central Virginia. The Local Government Council was established under section 15.2-4200 of the Code of Virginia as one of 21 planning districts which serve the local governments of the Commonwealth. The Local Government Council works to provide services for member localities and identify and develop opportunities for coordination among the region's local governments. As a part of its Strategic Planning initiative, Virginia's Region 2000 Partnership Local Government Council (the Council) identified regional solid waste management as a concept that should be investigated as a part of its effort to promote regional cooperation and more effective provision of public services within the Council's community. The following local governments within and adjacent to the Council are currently working together on this concept:

- Campbell County;
- Nelson County;
- Appomattox County;
- City of Bedford; and
- City of Lynchburg[1]

The current focus of the member jurisdictions is to develop a regional approach to solid waste management that will result in greater cooperation, decreased cost of providing service to their customers and citizens and better protection of human health and the environment. By working together, the member jurisdictions also recognize

[1] Amherst County was originally involved in this process, but decided to withdraw from the regional concept in September 2007.

that a coordinated regional approach provides an enhanced ability to control costs as environmental regulations continue to tighten and the need exists to provide better and longer range solid waste planning. As partners in Region 2000, all five communities will, as of July 1, 2008, combine their regional solid waste disposal needs into one integrated solid waste management system. These five communities have created the Region 2000 Services Authority (Services Authority).

Virginia Department of Environmental Quality (DEQ) regulations 9 VAC 20-130-180 through 220 mandates that any new regional solid waste planning unit (SWPU) must be designated a region by DEQ before being considered for joint development of a solid waste management plan. As such the communities that comprise the Region 2000 SWPU (described in Section 1.5) petitioned the director of the Virginia DEQ for designation of a region. The Virginia Department of Environmental Quality is currently in the process of recognizing Region 2000 as a solid waste planning unit.

9 VAC 20 regulations also state that any new regional entity, such as the Services Authority, must submit a revised solid waste management plan that details how the participants plan on meeting the mandatory regulations as a region. The following solid waste management plan, detailed in Sections 1 through 11 of this report, intends to fulfill the DEQ requirements as such.

1.5 Background and Planning Area

Between 2004 and 2007 members of the Region 2000 Partnership decided to look into the creation of a SWPU and create a regional boundary (in accordance with 9 VAC 20-130-180 through 9 VAC 20-130-220) for solid waste management issues. Of the seven communities that initially approached the possibility of forming a SWPU, five (Appomattox, Campbell and Nelson Counties and the Cities of Lynchburg and Bedford) agreed to participate in the SWPU.

In 2004, a Working Group, comprised of local community representatives and Region 2000, conducted preliminary evaluations of the regionalization concept. This preliminary evaluation identified the following three regional alternatives:

- Joint use of existing disposal facilities;
- Creation of a new landfill;
- Creation of a Waste-to-Energy facility; and
- Creation of a Transfer Station.
- Based on the initial analysis, the Working Group recognized potential benefits in the regional concept, and recommended that these issues be studied in further detail by a solid waste management consulting firm (R. W. Beck, Inc.). Table 1-1 below shows the local governments within and adjacent to Region 2000 that participated in the study and the title and year of their independent solid waste management plans.

Table 1-1
Solid Waste Plans

Participant	Name and Date of Original SWM Plan
Campbell County	Campbell County, Town of Altavista, Town of Brookneal Solid Waste Management Plan (February 2005)
City of Bedford	City of Bedford Solid Waste Management Plan (February 2007)
Nelson County	Thomas Jefferson Planning District Commission Solid Waste Management Plan (October 2006)
City of Lynchburg	City of Lynchburg Solid Waste Management Plan (September 2007)
Appomattox County[2]	Appomattox County Solid Waste Management Plan (September 2005)

Following a competitive selection process, in January 2005 Region 2000 retained the services of R. W. Beck, Inc. (R. W. Beck) to complete a regional solid waste management analysis.

In April 2005, the Council and the participating communities completed a "Regional Solid Waste Management Analysis" with assistance from R. W. Beck. The report evaluated multiple regionalization scenarios such as the joint use of existing facilities, waste-to-energy and transfer stations. This analysis concluded on a preliminary basis that the joint use of existing facilities represents the most viable disposal option for all of the participating communities. Key benefits for the joint use of existing facilities include:

- Establishment of a regional solid waste entity would significantly enhance opportunities for other regional solid waste functions such as solid waste management planning, achievement of recycling goals, collection and disposal of household hazardous waste, and more efficient collection and convenience center operations.
- Significant cost savings to local governments and customers from consolidating landfill operations.
- More efficient landfill operations due to increased economies of scale.
- Reduced air emissions as the City of Bedford and Nelson County would decrease hauling distance by using landfills within the Council, instead of outside of the Council[3].

[2] While Appomattox County initially decided not to formally participate in the effort, the County has joined the Services Authority as of May 2008.

[3] The City of Bedford developed a transfer station that replaced its landfill in February 2007. Without the regionalization option, the City would transfer its' waste outside of the Region. Nelson County currently transfers its' waste to Amelia County.

- Greater environmental control due to continued operation of environmental systems associated with each community's Subtitle D landfills, and ultimately closure of each landfill sooner than currently permitted.

Among the member jurisdictions, there are two landfills with significant remaining capacity in Region 2000 (e.g. Campbell County and City of Lynchburg). Operating as an Authority, only one of the two landfills would accept waste for disposal at a time. The member jurisdictions will be required to send all of their solid waste to the active landfill. The Campbell County Landfill will be inactive first and all waste from the member jurisdictions will be sent to the Lynchburg Landfill. Once the Lynchburg Landfill reaches capacity, all waste would go to the Campbell County Landfill. Although the Campbell County Landfill would not accept waste for disposal while inactive, operations would continue to occur from a regulatory perspective (i.e., environmental monitoring, post-closure of closed landfills, site maintenance). This approach of sequencing the use of the landfills has been approved by the Virginia Department of Environmental Quality (VDEQ). Under this approach, the landfills would have approximately 14.1 years of combined capacity assuming a regional start date of July 1, 2008[4].

Figure 1-1 illustrates the location of the members of the region in relation to the Commonwealth of Virginia. Figure 1-2 provides a map of the location of existing disposal facilities in the Region. For the purpose of this plan, the term "Region" and "Authority" may be used interchangeably.

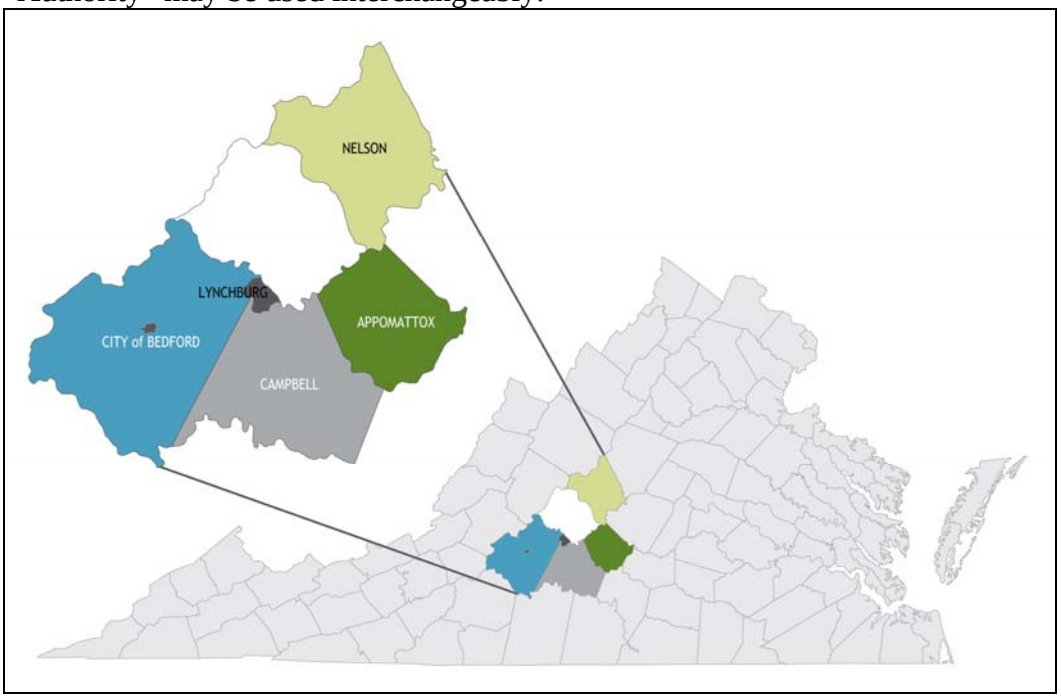

Figure 1-1: Member Communities

[4] This projection is based on a 0.25 percent annual increase in tonnage and the assumption that all waste currently handled by the participating communities will continue.

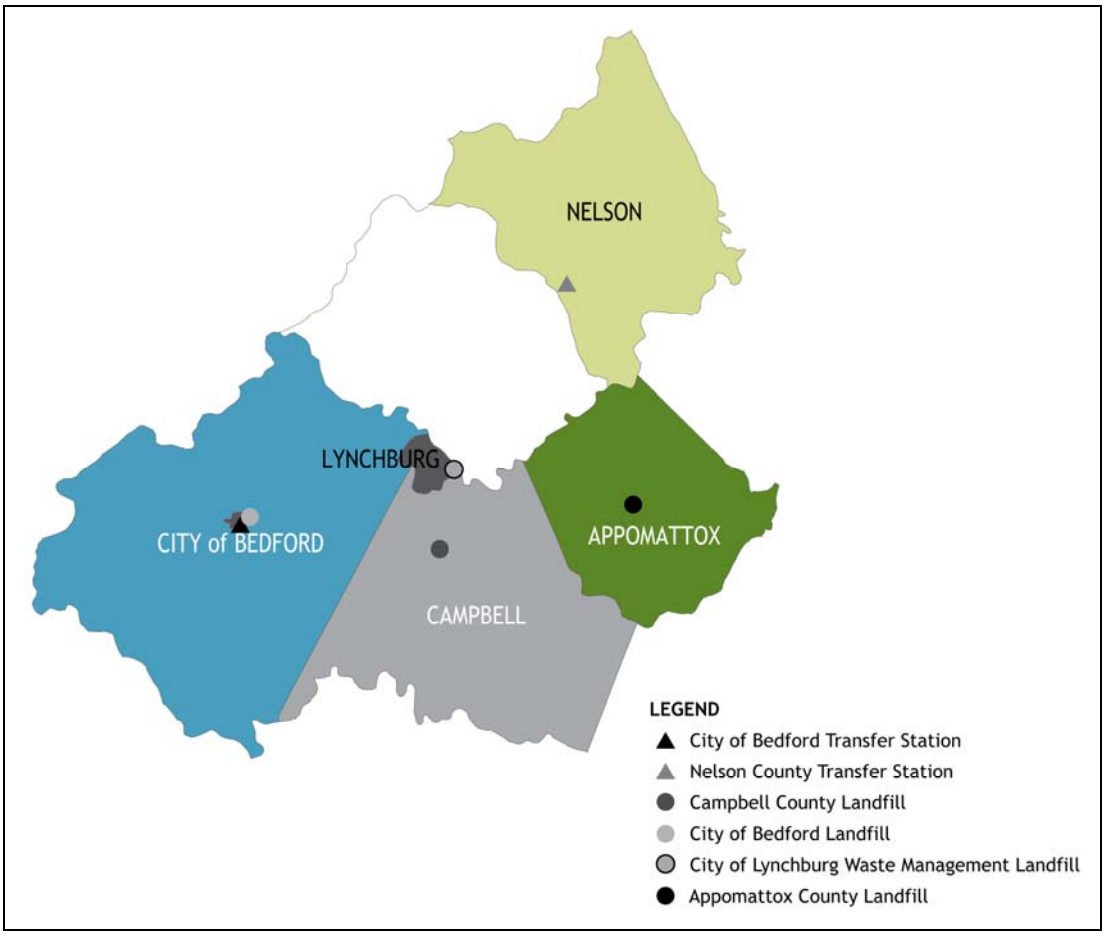

Figure 1-2: Existing Solid Waste Facilities

1.6 Summary of Region 2000 Goals and Objectives

Table 1-2 below summarizes the initial goals and objectives that the individual communities that comprise Region 2000 sought to achieve in order to move forward toward a regional solid waste plan. Appendix B displays the Region's "Master Schedule" detailing by Calendar Year (2007-2008), each major "Activity" that the Authority and the individual communities need to conduct to move forward toward solid waste regionalization.

Table 1-2
Summary of Original Plan and Goals

1. Evaluate the potential for alternative approaches to solid waste management practices within the region through the Strategic Planning Initiative of 2002 utilizing an Executive Committee and the formation of a Working Group.
2. Address solid waste management from a regional standpoint, thereby enhancing project economics and the environment and public health.
3. For each locality to determine the feasibility of solid waste management alternatives within its own jurisdiction for the purpose of developing an integrated solid waste management system.
4. Develop a regional solid waste management council within the District where local government officials and community representatives could exchange information, ideas and evaluate possible regional approaches towards solid waste management.
5. Address the short term and long term needs of the planning area with respect to solid waste management.
6. Encourage operation of solid waste disposal facilities and collection services among District localities where possible.
7. Develop the most cost-effective and environmentally sound solid waste management system for the planning area.
8. Meet the recycling mandates as set forth by the DEQ in the most feasible and practical manner.
9. Determine feasibility of building three Transfer Stations. (Two smaller ones in the City of Bedford and in the Nelson County area, and one larger facility in the Lynchburg area).
10. Determine feasibility of Waste-to-Energy.
11. Determine feasibility of a regional cooperative operation of landfill facilities.
12. Hire a Consultant to conduct a regional solid waste management analysis.
13. Determine budget and other financial estimates for a regional cooperation including cost savings to each individual community.
14. Elicit feedback from citizens of respective communities.
15. Prepare new Regional Solid Waste Management Plan.

1.7 Planning Period

The planning period for this solid waste management plan is 20 years from 2008 through 2028. Projections of the amount of solid waste generated, and the remaining capacity for the regional disposal facilities will be shown in detail in Section 4.0.

1.8 Critical Definitions (9 VAC 20-130-10)

It is important that the reader of this solid waste management plan have a clear understanding of the terms used throughout the report. The following selected definitions are taken directly from the regulations:

Integrated Waste Management Plan – means a governmental plan that considers all elements of waste management during generation, collection, transportation, treatment, storage, disposal, and litter control and selects the appropriate methods of providing necessary control and services for effective and efficient management of all wastes. An "integrated waste management plan" must provide for source reduction, reuse and recycling within the jurisdiction and the proper funding and management of waste management programs.

Principle Recyclable Materials (PRM) – means paper, metal, plastic, glass, commingled yard waste, wood, textiles, tires, used oil, used oil filters, used antifreeze, batteries, electronics, or material as may be approved by the director. Commingled materials refers to single stream collections of recyclables where sorting is done at a materials recovery facility.

Recycling – means the process of separating a given waste material from the waste stream and processing it so that it may be used again as a raw material for a product, which may or may not be similar to the original product. Recycling shall not include processes that only involve size reduction.

Reuse – means the process of separating a given solid waste material from the waste stream and using it, without processing or changing its form, other than size reduction, for the same or another end use.

Source Reduction – means any action that reduces or eliminates the generation of waste at the source, usually within a process. Source reduction measures include process modifications, feedstock substitutions, improvements in feedstock purity, improvements in housekeeping and management practices, increases in the efficiency of machinery, and recycling within a process. Source reduction minimizes the material that must be managed by waste disposal or nondisposal options by creating less waste. "Source reduction" is also called "waste prevention," "waste minimization," or "waste reduction."

Treatment – means any method, technique, or process, including but not limited to incineration, designed to change the physical, chemical or biological character or composition of any waste to render it more stable, safer for transport or more amenable to use, reuse, reclamation or recovery. Per email from DEQ, treatment includes tire shredding but does not include mulching.

Used or Reused Material - means a material which is either:

1. Employed as an ingredient (including use as an intermediate) in a process to make a product, excepting those materials possessing distinct components that are recovered as separate end products; or
2. Employed in a particular function or application as an effective substitute for a commercial product or natural resource.

For purposes of this plan, "used or reused material" means a given solid waste material that is separated from the waste stream and used, without processing or changing its form, for the same or another end use.

1.9 Additional Definitions

The following words and terms when used in this plan shall have the following meaning: (*Note:* The following definitions are taken from the Virginia Solid Waste Management Regulations, 9 VAC 20-80-10 or other appropriate sources.)

Agricultural Waste - means all solid waste produced from farming operations.

CDD Waste - construction, demolition and debris waste defined generically as a category of waste as reported to DEQ which includes the wastes defined below.

Collector - person or business that collects and transports solid wastes or recyclables from residences or businesses for a fee.

Commercial Waste - means all solid waste generated by establishments engaged in business operations other than manufacturing or construction. This category includes, but is not limited to, solid waste resulting from the operation of stores, markets, office buildings, restaurants and shopping centers.

Composting - means the manipulation of the natural process of decomposition of organic materials to increase the rate of decomposition..

Construction Waste - means solid waste that is produced or generated during construction, remodeling, or repair of pavements, houses, commercial buildings, and other structures. Construction wastes include, but are not limited to, lumber, wire, sheetrock, broken brick, shingles, glass, pipes, concrete, paving materials, and metal and plastics if the metal or plastics are a part of the materials of construction or empty containers for such materials. Paints, coatings, solvents, asbestos-containing material, any liquid, compressed gases, or semi-liquids and garbage are not construction wastes.

Contamination - means the degradation in quality of naturally occurring water, air or soil resulting either directly or indirectly from human activity.

Convenience Center - means a collection point for the temporary storage of solid waste provided for individual solid waste generators who choose to transport solid waste generated on their own premises to an established centralized point, rather than directly to a disposal facility. To be classified as a convenience center, the collection point may not receive waste from collection vehicles that have collected waste from more than one real property owner. A convenience center shall be on a system of regularly scheduled collections.

DEQ - Virginia Department of Environmental Quality.

Debris Waste - means solid waste resulting from land clearing operations. Debris wastes include, but are not limited to, stumps, wood, brush, leaves, soil, and road spoils.

Demolition Waste - means solid waste produced by the destruction of structures and their foundations and includes the same materials as construction wastes.

Discarded Material - means a material that is: (i) abandoned material; (ii) recycled material; or (iii) considered inherently waste-like.

Disposal - means the discharge, deposit, injection, dumping, spilling, leaking or placing of any solid waste into or on any land or water so that such solid waste or any constituent of it may enter the environment or be emitted into the air or discharged into any waters.

Friable Asbestos - means any material containing more than 1.0 percent asbestos by weight that, when dry, may be crumbled, pulverized or reduced to powder by hand pressure and regulated as a special waste.

Garbage - means readily putrescible discarded materials composed of animal, vegetable or other organic matter.

Green Box Site - means a convenience center that utilizes roll off or front load containers less than 20 cubic yards in capacity for the collection and / or transportation of solid waste.

Groundwater - means water below the land surface in a zone of saturation..

Hazardous Waste - means a "hazardous waste" as defined by the Virginia Hazardous Waste Management Regulation, 9 VAC 20-60-12 et seq. Hazardous wastes are wastes that, if not handled or disposed of properly, could cause injury or death, or damage or pollute land, air or water. Hazardous waste determinations are based on whether the waste is currently "listed" by the EPA or exhibits a "characteristic" of hazardous wastes. Listed wastes are waste that either exhibit one of the characteristics or contain any number of toxic constituents that have been show to be harmful to health and the environment. The EPA list includes over 400 hazardous wastes. Characteristics of hazardous waste are "Ignitable/Flammable", "Corrosive", "Reactive" or "Toxic".

Household Hazardous Waste (HHW) – means any waste material derived from households (including single and multiple residences, hotels and motels, bunk houses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas) which, except for the fact that it is derived from a household, would otherwise be classified as a hazardous waste in accordance with 9 VAC 20-60.

Household Waste - means normal waste material, including garbage, trash and refuse, derived from households. Households include single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas. Household wastes do not include sanitary waste in septic tanks (septage).

Incineration - means the controlled combustion of solid waste for disposal.

Incinerator - means a facility or device designed for the treatment of solid waste by combustion.

Industrial Waste - means any solid waste generated by manufacturing or industrial process that is not a regulated hazardous waste. Such waste may include, but is not

limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/byproducts; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This does not include mining waste or oil and gas waste.

Industrial Waste Landfill - means a solid waste landfill used primarily for the disposal of a specific industrial waste or a waste which is a by-product of a production process.

Institutional Waste - means all solid waste emanating from institutions such as, but not limited to, hospitals, nursing homes, orphanages, and public or private schools. It can include regulated medical waste from health care facilities and research facilities that must be managed as a regulated medical waste.

Jurisdiction - means a local governing body; city, county or town; or any independent entity, such as a federal or state agency, which join with local governing bodies to develop a waste management plan..

Landfill - means a sanitary landfill, an industrial waste landfill, or a construction/demolition/debris landfill.

Litter - means waste material that is discarded, blown or scattered about a facility, road or public area.

Mulch - means woody waste consisting of stumps, trees, limbs, branches, bark, leaves and other clean wood waste that has undergone size reduction by grinding, shredding or chipping, and is distributed to the general public for landscaping purposes or other horticultural uses.

Municipal Solid Waste - means that waste which is normally composed of residential, commercial, and institutional solid waste and residues derived from combustion of these wastes.

Open Dump - means a site on which any solid waste is placed, discharged, deposited, injected, dumped or spilled so as to create a nuisance or present a threat of a release of harmful substances into the environment or present a hazard to human health. Such a site is subject to the open dump criteria in 9 VAC20-80-180.

Recycled Material - means a material that is derived from recycling.

Refuse - means all solid waste products having the character of solids rather than liquids and which are composed wholly or partially of materials such as garbage, trash, rubbish, litter, residues from clean up of spills or contamination, or other discarded materials.

Regional Authority - means the County of Campbell and the incorporated towns of Altavista and Brookneal, the County of Nelson and the County of Appomattox; and the Cities of Lynchburg and Bedford.

Regulated Medical Waste - means solid wastes so defined by the Regulated Medical Waste Management Regulations (9 VAC 20-120-10 et seq.) as promulgated by the Virginia Waste Management Board.

Residential Waste - means household waste.

Resource Recovery System - means a solid waste management system which provides for collection, separation, use, reuse, or reclamation of solid wastes, recovery of energy and disposal of non-recoverable waste residues.

Rubbish - means combustible or slowly putrescible discarded materials which include but are not limited to trees, wood, leaves, trimmings from shrubs or trees, printed matter, plastic and paper products, grass, rags and other combustible or slowly putrescible materials not included under the term "garbage."

Sanitary Landfill - means an engineered land burial facility for the disposal of household waste which is so located, designed, constructed and operated to contain and isolate the waste so that it does not pose a substantial present or potential hazard to human health or the environment.

Scrap Metal - means bits and pieces of metal parts such as bars, rods, wire, empty containers, or metal pieces that may be combined together with bolts or soldering which are discarded material and can be used, reused, or reclaimed. For the purposes of this plan, this definition includes the reclaimable metal parts of white goods.

Site - means all land and structures, other appurtenances, and improvements on them used for treating, storing, and disposing of solid waste. This term includes adjacent land within the facility boundary used for the utility systems such as repair, storage, shipping or processing areas, or other areas incident to the management of solid waste.. (Note: This term includes sites whether they are planned and managed facilities or open dumps.)

Sludge - means any solid, semi-solid or liquid waste generated from a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of treated effluent from a wastewater treatment plant.

Solid Waste - means any garbage, refuse, sludge and other discarded material, including solid, liquid, semisolid or contained gaseous material, resulting from industrial, commercial, mining and agricultural operations, or community activities but does not include (i) solid or dissolved material in domestic sewage, (ii) solid or dissolved material in irrigation return flows or in industrial discharges that are sources subject to a permit from the State Water Control Board, or (iii) source, special nuclear, or byproduct material as defined by the Federal Atomic Energy Act of 1954, as amended.

Solid Waste Management Facility ("SWMF") - means a site used for planned treating, storing, or disposing of solid waste. A facility may consist of several treatment, storage, or disposal units.

Source Separation - means separation of recyclable materials by the waste generator of materials that are collected for use, reuse or reclamation.

Special Wastes - mean solid wastes that are difficult to handle, require special precautions because of hazardous properties or the nature of the waste creates waste management problems in normal operations.

Transfer Station - means any solid waste storage or collection facility at which solid waste is transferred from collection vehicles to haulage vehicles for transportation to a central solid waste management facility for disposal, incineration or resource recovery.

Trash - means combustible and noncombustible discarded materials and is used interchangeably with the term rubbish.

Vegetative Waste - means decomposable materials generated by yard and lawn care or land clearing activities and includes, but is not limited to, leaves, grass trimmings, woody wastes such as shrub and tree prunings, bark, limbs, roots, and stumps..

White Goods - means any stoves, washers, hot water heaters or other large appliances. For the purposes of this plan, this definition also includes, but is not limited to, such Freon-containing appliances as refrigerators, freezers, air conditioners and dehumidifiers.

Yard Waste - means decomposable waste materials generated by yard and lawn care and includes leaves, grass trimmings, brush, wood chips, and shrub and tree trimmings. Yard waste shall not include roots or stumps that exceed six inches in diameter.

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Section 2
BACKGROUND INFORMATION

To provide background to the discussions contained in this solid waste management plan, a discussion of the status of solid waste management nationally and the Region 2000's goals and objectives are provided in this Section.

2.1 Status of Solid Waste Management Nationally

The following information is taken from "Municipal Solid Waste Generation, Recycling and Disposal in the United States: 2005 Facts and Figures," produced by the United States Environmental Protection Agency (EPA), EPA530-R-06-011, dated October 2006. This report provides data on the national municipal solid waste stream for 1960 through 2005 and is the most recent data provided by the EPA as of May 2007.

It should be noted that as used by the EPA, the term municipal solid waste (MSW) consists of "everyday" items such as product packaging, grass clippings, furniture, clothing, food scraps, newspapers, appliances and batteries. It does not include materials that may also be landfilled but are not generally considered MSW, such as construction and demolition debris, sludge and non-hazardous industrial wastes. Virginia's definition is similar defining MSW as waste that is normally composed of residential (household), commercial (businesses other than manufacturing or construction) and institutional solid waste. However, record keeping of localities may not segregate the waste materials in a similar way. Thus, when comparing the information in this section with the data in the solid waste plan, care must be given to the term MSW.

2.1.1 Waste Generation

According to the EPA report, the United States generated approximately 88.1 million tons of MSW in 1960 and approximately 245.7 million tons in 2005. This represents a 279 percent increase in the solid waste generated over the 45-year period. At the same time the United States population increased from 180.0 million persons in 1960 to 296.4 million persons in 2005 or almost a 165 percent increase over the 45-year planning period. Clearly, the increase in tonnage is not just a factor of population but is also impacted by other factors including the commercial sector. Table 2-1 summarizes the waste generation of MSW for 1960 – 2005 on a pounds per person per day basis.

Table 2-1
USA Waste Generation (MSW) 1960 – 2005
Pounds per Person per Day
as Reported by EPA

Year	Pounds per Person per Day
1960	2.68
1970	3.25
1980	3.66
1990	4.50
1995	4.45
2000	4.63
2001	4.45
2002	4.48
2003	4.53
2004	4.61
2005	4.54

The report noted that residential waste (including apartment houses) is estimated to be 55 percent and 65 percent of the total MSW generated, and that commercial waste (including institutional wastes, some industrial sites where packaging is generated and businesses) constitutes between 35 percent and 45 percent of the total MSW generated.

2.1.2 What is in the Waste?

In evaluating waste generation, the report examined the composition of the waste materials as discarded before recycling and the amount of the material recovered through recycling programs. Tables 2-2 and 2-3 summarizes the findings from this report.

Table 2-2
USA Waste Composition by Material Type
As Summarized in U.S. EPA Report
2005 Data

Material	Percent of Total Waste Stream	Recovery as Percent of Waste Generation
Paper	34.2	50.0
Glass	5.2	21.6
Metals	7.6	36.8
Plastics	11.8	5.7
Rubber, leather, & textiles	7.3	13.2
Wood	5.7	9.4
Yard trimmings	13.1	61.9
Food scraps	11.9	2.4
Misc. Inorganic Wastes	3.4	Negative

Table 2-3
USA Generation and Recovery of Materials in MSW
(in millions of tons and % generation by material type)
as Summarized in EPA Report
2005 Data

Material	Weight Generated	Weight Recovered	Recovery as a Percent of Generation
Paper	84.0	42.0	50.0
Glass	12.8	2.8	21.6
Metals (total)	18.7	6.9	36.8
Plastics	28.9	1.7	5.7
Rubber, leather, & textiles	17.8	2.7	13.2
Wood	13.9	1.3	9.4
Yard trimmings	32.1	19.9	61.9
Food scraps	29.2	0.7	2.4
Misc. Inorganic Wastes	3.7	Negative	Negative

Based on this information a significant portion of the yard waste, paper and metal wastes are being recovered while there remains limited recovery of plastics, wood and food scraps.

In addition the report evaluated the waste stream by product type. Table 2-4 summarizes the findings of the report:

Table 2-4
USA Generation and Recovery of Products in MSW
(in millions of tons and % generation by material type)
As Summarized in EPA Report
2005 Data

Material	Weight Generated	Weight Recovered	Recovery as a Percent of Generation
Durable goods	40.3	7.5	18.5
Nondurable goods	63.7	20.5	32.1
Containers and packaging	76.7	30.5	39.8
Food scraps	29.2	0.7	2.4
Yard trimmings	32.1	19.9	61.9
Misc. Inorganic Wastes	3.7	Negative	Negative

2.1.3 Disposal

The report tracks the ultimate handling of the wastes generated and indicates that 13.6 percent of the waste generated is combusted, 32.1 percent of the waste is recovered and that 54.3 percent of the waste is landfilled. It also noted that although the number of landfills decreased from nearly 8,000 in 1988 to 1,654 in 2005, the average size of the individual landfills actually increased.

2.1.4 Recycling

According to the report, the United States recycled approximately 5.6 million tons of materials in 1960 and 58.4 million tons in 2005. This represents a 1,005 percent increase in recycling over the 45-year period. In addition, composting of yard trimmings, food scraps and other MSW organic material has increased from negligible reported quantities in 1960 to 20.6 million tons in 2005. This does not include back yard composting projects. Thus, in 1960, the overall recycling rate in the United States as calculated as recyclables over total MSW was 6.4 percent and in 2005 is 23.8 percent without composting or 32.1 percent with composting. The following table summarizes the recycling and composting rates for 1960 – 2005 on a pounds- per-person per day (lbs/person/day) basis:

Table 2-5
USA Recycling and Composting Rates
1960 – 2003
As Reported by EPA

Year	Recycling (lbs/person/day)	Composting (lbs/person/day)	Total (lbs/person/day)
1960	0.17	Negative	0.17
1970	0.22	Negative	0.22
1980	0.35	Negative	0.35
1990	0.64	0.09	0.73
1995	0.96	0.20	1.16
2000	1.03	0.32	1.35
2003	1.05	0.36	1.41
2004	1.07	0.38	1.45
2005	1.08	0.38	1.46

2.1.5 Waste Reduction and Reuse

The following information is taken from the EPA document, "Municipal Solid Waste in the United States: 2001 Facts and Figures," as cited above. When EPA established its waste management hierarchy in 1989, it emphasized the importance of reducing the amount of waste created, reusing whenever possible, and then recycling what is left. When municipal solid waste is reduced and reused, this is called "source reduction", meaning that the material never enters the waste stream. Instead it is managed at the source of generation. Source reduction includes the design, manufacture, purchase or use of materials, such as products and packaging, to reduce their amount or toxicity before they enter the MSW waste stream. Examples of source reduction activities are:

- Designing products or packaging to reduce the quantity or the toxicity of the materials used, or to make them easier to reuse.
- Reusing existing products or packaging; for example, refillable bottles, reusable pallets, and reconditioned barrels and drums.
- Lengthening the lives of products so less material is thrown away over time.
- Using packaging that reduces the amount of damage or spoilage of a product.
- Managing non-product organic wastes through onsite composting or other alternative disposal techniques.

According to the EPA, the United States prevented more than 55 million tons of MSW from entering the waste stream using 1990 as the baseline year. The EPA believes that reducing the amount of yard trimmings is particularly important in reducing the MSW in landfills across the United States. The following table taken from the EPA indicates the source reduction by major material categories:

Table 2-6
USA Source Reduction by Major Category
Year 2000 as Reported by EPA

Material	Million Tons	% Total
Durable goods (e.g. appliances, furniture)	5.4	9.8%
Nondurable goods (e.g. newspapers, clothing)	9.3	16.8%
Containers and packaging (e.g. bottles, boxes)	15.5	28.1%
Other MSW (e.g. yard trimmings, food scraps)	25.0	45.3%
Total Source Reduction (1990 baseline year)	55.1	100.0%

Source reduction avoided an increase in the waste stream from 1999 to 2000 of nearly 25 percent. According to EPA, between two and five percent of the waste stream is potentially reusable and reflecting the interest in reuse is the establishment of over 6,000 reuse centers throughout the country ranging from specialized programs for building materials, to salvage facilities at landfills, to local/national programs such as Goodwill and Salvation Army.

Section 3
REGION 2000 DEMOGRAPHIC DATA

3.1 Location

The five participating communities that comprise Region 2000 are located in South Central Virginia and include the Counties of Appomattox, Campbell and Nelson and the Cities of Bedford and Lynchburg. The total land mass of the five communities is approximately 1,365 square miles. The highest population densities exist in around the City of Lynchburg located geographically in the center of the five communities. Figure 3-1 displays the individual communities in relation to each other and the state as a whole.

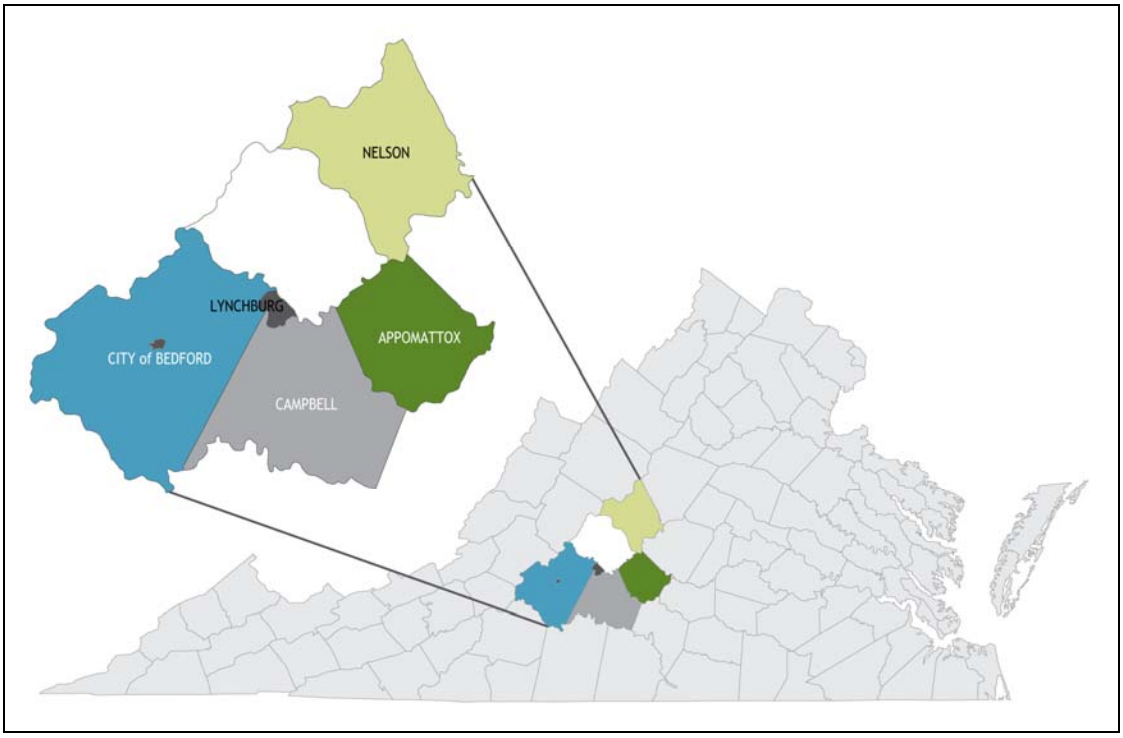

Figure 3-1: Map of Region 2000 Communities

3.2 Demographics

3.2.1 Population

The University of Virginia's Weldon Cooper Center for Public Service (the Center) provides population and other demographic information for both the state of Virginia, in addition to the state's counties and cities. The Center reports that the Commonwealth's population reached 7.6 million on July 1, 2006, which includes more than 560,000 new residents since 2000. The state's population growth is due, almost equally, to natural increase (more births than deaths) and to net in-migration.

The Center reports that the state as a whole had an annual growth rate of 1.3 percent between 1990 and 2000. The growth rate since 2000 has been slightly slower at 1.2 percent. In 2005 the state gained a net increase of 78,500 persons, lower than the average of 92,000 from previous years. The five fastest growing localities in the state, since 2000 are Loudon County (59%), Manassas Park City (35%), Prince William County (32%), Stafford County (30%) and Spotsylvania County (30%).

While most localities have gained population since 2000, 33 counties and cities have experienced population loses. These localities consist primarily of older central cities, such as Richmond, Petersburg, Portsmouth, Roanoke and rural localities in Southside and Southwest Virginia.

According to the Weldon Cooper Center, in 2005 the population of the five Region 2000 communities was 154,440. The Virginia Employment Commission projects that between 2010 and 2025 the population of the Region 2000 communities will grow approximately seven percent. Table 3-1 below provides a breakdown of the population projections for the Region by individual community, while Figures 3-2 and 3-3 display the overall population percent projections for 2005 and 2030.

Table 3-1
Regional Population Projections
2010-2030

Name	2005 [1]	2010 [2]	2015 [3]	2020 [2]	2025 [4]	2030 [2]
Appomattox County	13,900	14,188	14,451	14,713	14,984	15,254
Campbell County	51,300	52,972	53,960	54,948	55,986	57,023
Nelson County	15,000	15,557	16,113	16,668	17,283	17,898
Bedford City	6,200	6,070	6,018	5,966	5964	5,965
Lynchburg City	68,000	68,828	70,722	72,615	74,557	76,499
Total:	154,440	157,615	161,264	164,910	168,774	172,639

[1] Source: Weldon Cooper Center for Public Service, Demographics and Workforce Section, www.coopercenter.org/demographics/
[2] Source: Virginia Employment Commission, http://velma.virtuallmi.com/
[3] Extrapolated by R. W. Beck using the average of 2010 and 2020 population
[4] Extrapolated by R. W. Beck using the average of 2020 and 2030 population projections

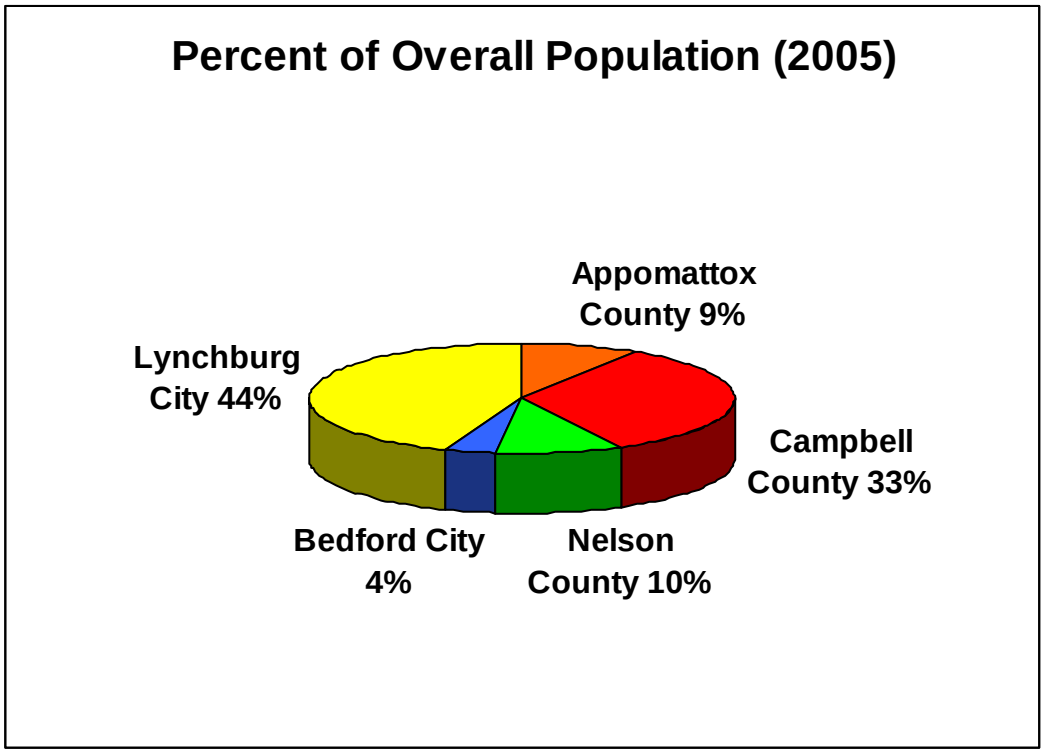

Figure 3-2: Population Percent Breakout (2005)

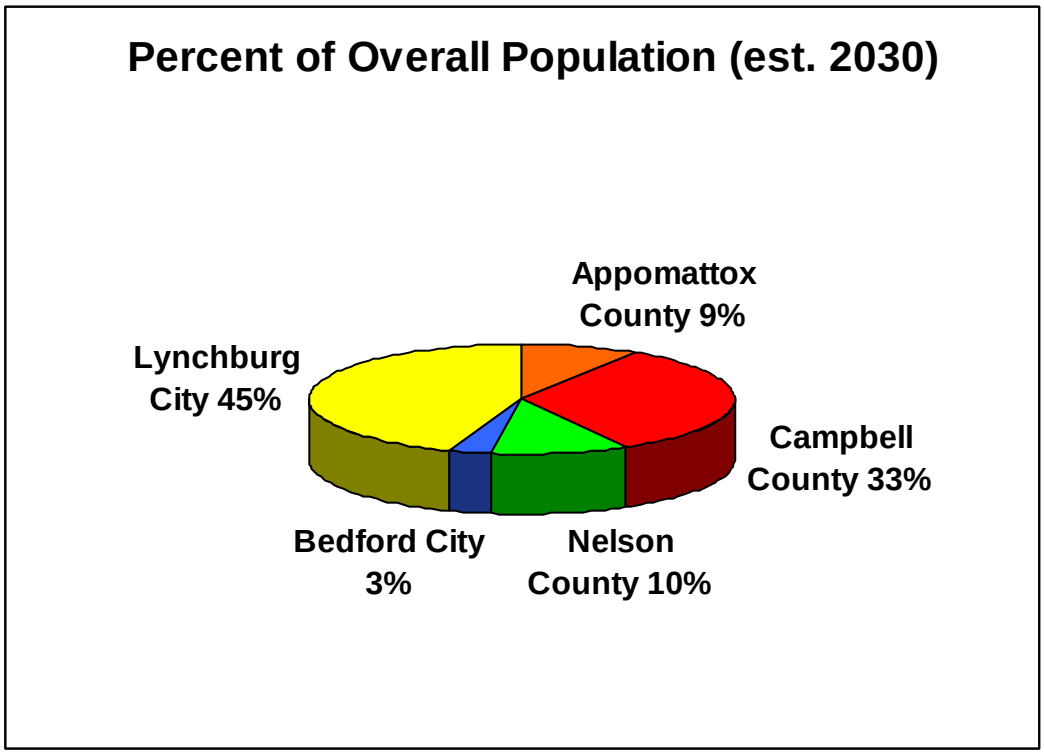

Figure 3-3: Estimated Population Percent Breakout (2030)

3.2.2 Additional Relevant Demographic Data

In addition to population growth, other relevant demographic data from the Region 2000 communities was researched and compared to the State-wide average. This included the number of housing units; the average household size; the average family size; population density; racial makeup; median household and median family income. Table 3-2 below presents the results of the analysis using the 2000 U.S. Census Bureau website and corresponding data, unless otherwise noted.

Table 3-2
Regional & Statewide Demographic Comparisons
2000 US Census Bureau (unless otherwise noted)

Demographic	Appomattox County	Campbell County	Nelson County	Bedford City	Lynchburg City	State Average
Total Number of Housing Units	5,828	22,088	8,554	2,702	27,640	2,904,192
Average Household Size	2.55	2.45	2.42	2.26	2.30	2.54
Average Family Size	2.94	2.91	2.88	2.87	2.92	3.04
Population Density [1]	40.3/mi^2	101.0/mi^2	31.7/mi^2	900.7/mi^2	1,355.1/mi^2	191.1/mi^2
Racial Makeup	75.9% White 22.9% Black 0.05% Hisp. 0.02% Asian 0.1% Native American	88.8% White 14.7% Black 0.8% Hisp. 0.6% Asian 0.5% Native American	82.7% White 14.9% Black 2.1% Hisp. 0.6% Asian 0.2% Native American	75.3% White 22.4% Black 0.9% Hisp. 0.6% Asian 0.1% Native American	66.6% White 29.7% Black 1.3% Hisp. 1.3% Asian 0.3% Native American	72.3% White 19.6% Black 4.7% Hisp. 3.7% Asian 0.3% Native American
Median Household Income	$36,507	$37,280	$36,760	$28,792	$32,234	$46,677
Median Family Income	$41,563	$42,901	$42,917	$35,023	$40,844	$54,169

Source: 2000 U.S. Census Bureau. American FactFinder, http://factfinder.census.gov
[1] Calculated using 2005 Virginia Employment Commission population numbers and square mileage provided by individual solid waste management plans

3.3 Geographic Conditions

3.3.1 Appomattox County

Appomattox County is located in south central Virginia, bordered by Amherst, Nelson, Buckingham, Prince Edward, Campbell and Charlotte Counties. It has a predominantly rural population. The Town of Appomattox and the Town of Pamplin are the most densely populated areas. The 345.21 square mile County has topography ranging from flat land and rolling hills in the southern and eastern portions to mountains located in the western and northern portion.

3.3.2 Town of Pamplin

The Town of Pamplin is located in the Counties of Appomattox and Prince Edward. According to the United States Census Bureau, the Town has a total area of 0.3 square miles, all land. The 2000 Census Population of the Town of Pamplin was 199.

3.3.3 Town of Appomattox

The Town of Appomattox is located in Appomattox County. According to the United States Census Bureau, the Town has a total area of 2.2 square miles. The Town was named for the Appomattox River and is best known as the site of Confederate General Robert E. Lee's surrender to Union General Ulysses S. Grant on April 9, 1865, signaling the end of the American Civil War. The 2000 Census Population of the Town of Appomattox was 1,761.

3.3.4 Campbell County

Campbell County is located in the south-central Piedmont Region of the Commonwealth of Virginia and is approximately 504 square miles in size. The County is bordered to the north by the City of Lynchburg, the James River and Amherst County; to the west by Bedford County; to the south by Pittsylvania County and Halifax County; and, to the east by Appomattox and Charlotte Counties.

3.3.5 Town of Altavista

The Town of Altavista is located in the southwestern portion of Campbell County, and borders Pittsylvania County to the south. The town was incorporated in 1912, and originally encompassed 1.87 square miles. To adequately plan for future growth, the Town annexed an additional 3.13 square miles of Campbell County in 1977. Thus, to date the Town is approximately 5.0 square miles in size. The 2000 Census Population of the Town of Altavista was 3,425 persons. Primary travel throughout the Town is provided by Route 29.

3.3.6 Town of Brookneal

The Town of Brookneal is located in the southeastern portion of Campbell County, and borders Halifax County. The Town is approximately 3.62 square miles in size and had a 2000 Census Population of 1,259 persons. Primary travel throughout the Town is provided by Route 501.

3.3.7 Nelson County

Nelson County is bounded on the northwest by the Blue Ridge Mountains and the Blue Ridge Parkway. The George Washington National Forest takes up much of the northwestern part of the county. The County is mountainous, although it begins to flatten as it stretches toward the James River along the southeast border. Commercial development in Nelson centers on the tourist areas near Wintergreen and Afton and near Lovingston along Route 29.

The county has a total area of 471 square miles. It is bordered on the east by the James River and on the west by the Blue Ridge Mountains. A large portion of the western section of the county is in the George Washington National Forest. Elevation range from about 500 feet above sea level near the James River to as high as 4,000 feet in the Blue Ridge. The climate is moderately warm in the summers, with temperatures averaging about 77 degrees in July. Winters are moderately cool, with temperatures in January averaging about 38 degrees. Average annual precipitation is about 42 inches.

3.3.8 City of Bedford

The City of Bedford is located within the physical boundaries of Bedford County which is located in the west-central portion of Virginia's central plateau. The City of Roanoke is located west of Bedford and the City of Lynchburg is located east of Bedford. The City is 6.81 square miles in area and is located within the physical boundaries of Bedford County. The City can be described as rolling hilly terrain with elevations of 900 to 1,100 feet above sea level. Bedford City lies in the Piedmont physiographic province and the Roanoke River watershed and enjoys plentiful surface water for agricultural, industrial, energy and recreational purposes.

3.3.9 City of Lynchburg

Lynchburg is a city of 50 square miles located near the geographic center of Virginia, bordered by the eastern edge of the Blue Ridge Mountains. The City is situated on the James River and is surrounded by the Counties of Campbell (south and east), Bedford (west) and Amherst (north and east). It is located approximately 180 miles southwest of the nation's capital, Washington, D.C., 54 miles east of Roanoke and 114 west of Richmond.

Lynchburg is part of the Lynchburg Municipal Statistical Area (1,802 sq. mi) that includes Bedford City, Lynchburg City, Bedford County, Campbell County, Amherst County and Appomattox County.

Lynchburg is nicknamed by residents as the "Hill City" and the "City of the Seven Hills," reference to seven distinct hills/neighborhoods in the original town limits.

Sources

Appomattox County Solid Waste Management Plan (September 2005)

Campbell County, Town of Altavista, Town of Brookneal Solid Waste Management Plan (June 2004)

Thomas Jefferson Planning District Commission Solid Waste Management Plan (February 2005)

City of Bedford Solid Waste Management Plan (January 2007)

City of Lynchburg Solid Waste Management Plan (February 2005)

3.4 Climate

The citizens of Region 2000 enjoy a mild temperate climate as evidenced by an average temperature of 75 degrees Fahrenheit in July and 34 degrees Fahrenheit in January. Rainfall averages approximately 40 inches annually, and snowfall averages approximately 21 inches per year.

Sources

Virginia's Region 2000 Economic Development Council:
http://www.region2000.org/edc/live/characteristics.htm
National and Local Weather Forecast, Radar, Map and Report: http://www.weather.com/

3.5 Transportation

Region 2000 is ideally located to major East Coast and Midwest markets - just 200 miles west of the Port of Hampton Roads. Areas such as New York, Philadelphia, Pittsburgh, Charlotte, Atlanta and Detroit are within a single day's drive.

3.5.1 Highways

The Region is bisected by US 29 (North/South) and US 460 (East/West); both are divided four-lane highways. US 501 is another major North/South thoroughfare that travels through the center of Lynchburg and Campbell County. The region is within 45 minutes of Interstate 81, the major North/South corridor in the state, and within 60 minutes of Interstates 64, the major East/West corridor in the state. Figure 3-4 displays the major transportation corridors bisecting the region while Table 3-3 displays the distance (in miles) to various major population centers.

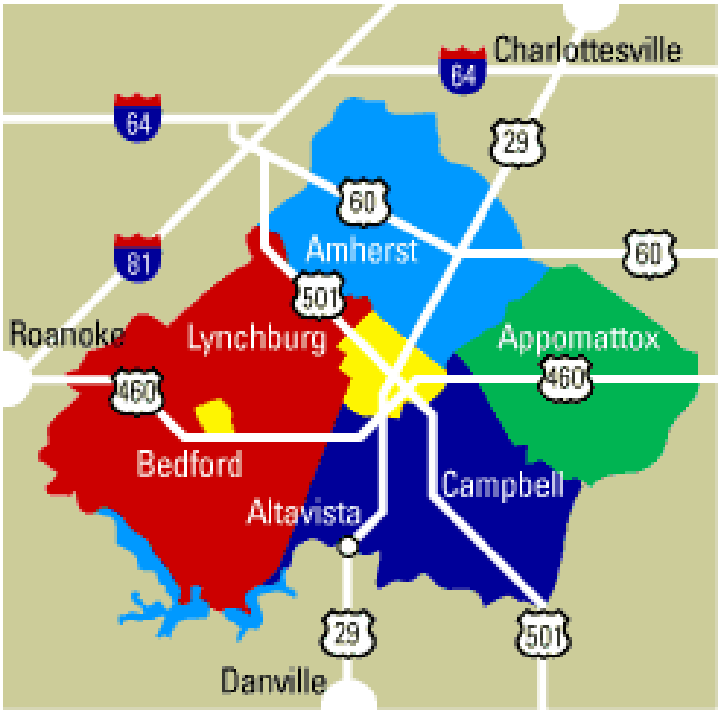

Figure 3-4: Regional Transportation Corridors

Source

Virginia's Region 2000 Economic Development Council:
http://www.region2000.org/edc/maps/roads.htm

Table 3-3
Distance to Selected Cities

City Name	Direction from Region 2000 Epicenter	Distance
Atlanta	Southwest	470 miles
Baltimore	Northeast	214 miles
Charlotte	South	203 miles
Chicago	Northwest	697 miles
Greensboro	South	110 miles
New York	Northeast	415 miles
Pittsburgh	Northwest	323 miles
Raleigh-Durham	Southeast	137 miles
Richmond	East	114 miles
Roanoke	West	54 miles
Washington, DC	Northeast	180 miles

Source

Virginia's Region 2000 Economic Development Council:
http://www.region2000.org/edc/maps/roads.htm

3.5.2 Air

The major airport serving the Region 2000 communities is the Lynchburg Regional Airport which is located between U.S. 29 and U.S. 460, approximately 5.7 miles to the south of downtown Lynchburg. The airport's commercial passenger service is provided by two regional carriers: Delta Connection/Atlantic Southeast Airlines with service to Atlanta Hartsfield International Airport; US Airways Express/Shuttle America and Air Midwest Airlines with service to Pittsburgh and Charlotte International Airports. The Regional carriers offer 24 daily arrivals and departures from 6:00 a.m. to midnight.

The next closest airport is the Roanoke Regional Airport, located 43.5 miles west of Lynchburg on U.S. 460, which is serviced by five commercial and commuter airlines.

Air freight can be handled directly from Lynchburg Regional Airport by charter or commercial services. Five freight forwarding companies serve the area daily. Two private airports serve Lynchburg in addition to Lynchburg Regional Airport.

The following Commercial Air services are listed below with the approximate distance from Lynchburg and the airlines serviced.

Lynchburg Regional Airport, Lynchburg 0.0miles (0.0 km.)

- Delta Connection/Atlantic Southeast Airlines
- US Airways Express

Roanoke Regional Airport, Roanoke 7.1 miles (11.4 km.)

- Atlantic Southeast Airlines
- Comair
- Northwest Air-link
- United Express
- US Airways

Shenandoah Valley Regional Airport, Staunton 33.7 miles (54.2 km.)

- US Airways Express

Charlottesville-Albemarle Airport, Charlottesville 41.9 miles (67.4 km.)

- Comair/Delta Connection
- Northwest Airlines
- United Express
- US Airways Express

Greenbrier Valley Airport, Lewisburg, WV 44.8 miles (72.2 km.)

- Delta Airlines
- US Airways

Sources

City of Lynchburg Solid Waste Management Plan (February 2005)

Virginia Economic Development Partnership: http://virginiascan.yesvirginia.org/

3.5.3 Railways

Reliable rail transportation services for the region are provided by CSX Transportation, Norfolk Southern Railway Company and Amtrak.

Sources

Virginia's Region 2000 Economic Development Council:
http://www.region2000.org/edc/maps/roads.htm

Virginia Economic Development Partnership: http://virginiascan.yesvirginia.org/

3.6 Economic Growth

According to Region 2000's Economic Development Council, Region 2000 is a prosperous community with the infrastructure, resources and economic vitality needed to sustain business and industry. According to the Federal Deposit Insurance Corporation (FDIC), the first quarter unemployment rate in 2008 for the state of Virginia was 3.8 percent. The first quarter unemployment rate in 2008 for Appomattox County, Campbell County, Nelson County and the Cities of Lynchburg and Bedford were 4.5 percent, 3.6 percent, 3.4 percent, 4.6 percent and 5.2 percent respectively.

The economic strength of the region lies in its broad base of employers. These include numerous manufacturers (plastics, wireless communications equipment, materials handling equipment, etc.), two large nuclear firms with three percent of the region's workforce, major insurance firms, a sizeable medical complex and five colleges and universities. Over 20 percent of the workforce continues to be employed in the technology-based manufacturing sector.

Table 3-4 below shows the selected major manufactures in the Region.

Table 3-4
Region 2000 - Selected Major Manufactures

Name	Product	Approximate Employment
BWXT (McDermott Intl.)	Nuclear Fuel	2,200
AREVA	Nuclear Maintenance & Repairs	1,600
R.R. Donnelley Printing Company	Publishing, Printing	550
Ross Products (Abbott Laboratories)	Adult/Infant Nutritional	800
BGF Industries	Fiberglass Fabrics	700
Southern Air	Heating/Cooling Systems	750
M/A-COM	Communications Equipment	500
C. B. Fleet Co., Inc.	Pharmaceuticals	450
Griffin Pipe Co.	Gray & Ductile Iron Pipe	340
Progress Printing	Publishing, Printing	350
Timken, Inc.	Bearings Manufacturing	320
Schrader-Bridgeport	Tire Valves	300
Frito-Lay Inc.	Snack Foods	300
Tessy Plastics	Injection Molding	140
Belvac Production Machinery, Inc.	Can making Equipment	150

The following data in Tables 3-5 and 3-6 was taken from the Virginia Economic Development Partnership (VEDP) website and displays the percent employment by sector and occupation for each of the five communities. The average for the region is also shown. Note that the total percentage might not equal 100 percent. The reason is not explained by the VEDP but seems to be due to a rounding issue.

Table 3-5
Region 2000- Percent Employment by Sector (1st Qtr. 2008)

Sector	Appomattox County	Campbell County	Nelson County	City of Bedford	City of Lynchburg	Region 2000 Average
Services	21.1	21.0	44.4	34.4	45.9	33.36
Government	26.1	15.6	18.9	17.4	9.9	17.58
Manufacturing	NA	21.6	7.1	13.8	16.0	14.63
Trade	17.7	16.8	7.5	16.9	16.4	15.06
Construction	10.7	14.7	9.4	10.1	3.0	9.58
Financial	2.0	3.1	3.3	3.5	6.0	3.58
Transportation & Utilities	3.4	5.0	2.8	1.1	2.0	2.86
Natural Resources and Mining	2.2	0.9	5.7	0.8	NA	2.4
Information	.4	1.3	0.8	1.9	0.9	1.02
Total	83.6	100.0	99.9	99.9	100.1	100.07

Table 3-6
Region 2000 - Employment by Percent Occupation (1st Qtr. 2008)

Sector	Appomattox County	Campbell County	Nelson County	City of Bedford	City of Lynchburg	Region 2000 Average
Sales & Office	25.5	24.2	22.9	28.4	29.6	26.12
Managerial, Professional & Related	21.7	19.4	23.1	24.9	25.5	22.92
Service	15.4	14.4	28.2	15.9	18.2	18.42
Production, Transportation & Material Moving	21.1	23.8	9.6	17.5	18.8	18.16
Construction, Extraction & Maintenance	15.3	17.7	12.7	12.9	7.8	13.28
Farming, Fishing & Forestry	1.1	0.5	3.4	0.5	0.1	1.12
Total	100.0	100.0	99.9	100.1	100.0	100.2

Sources

Virginia's Region 2000 Economic Development Council: http://www.region2000.org/edc/business/eco-base.htm

Virginia Economic Development Partnership – Community Profile: http://virginiascan.yesvirginia.org/

Additional Sources

Campbell County website: http://www.co.campbell.va.us/

U.S. Department of Labor, Bureau of Labor Statistics: http://www.bls.gov/lau/

Nelson County website: http://www.nelsoncounty.com/

City of Bedford website: http://www.bedfordva.gov/

City of Lynchburg website: http://www.ci.lynchburg.va.us/

FDIC: http://www2.fdic.gov/recon/ovrpt.asp?CPT_CODE=E40&ST_CODE=51&RPT_TYPE=Tables

Section 4
WASTE GENERATION AND COMPOSITION

4.1 Introduction

The member jurisdictions have agreed to use their existing disposal facilities together via regionalization, operating under a regional Services Authority (Authority). Under this scenario, member jurisdictions of the Authority would send their solid waste to either the Campbell County (Campbell) or City of Lynchburg (Lynchburg) landfills. The member jurisdictions include:

- Appomattox County
- City of Bedford
- Campbell County
- City of Lynchburg
- Nelson County

This would mean that only one of the two landfills would operate at a single time. The City of Lynchburg's landfill would be utilized first. The Campbell landfill would become inactive until the Lynchburg landfill reaches capacity. Although the Campbell landfill would not initially accept waste for disposal, operations would continue to occur from a regulatory perspective (e.g., environmental monitoring, post-closure of closed landfills, site maintenance). This approach provides an opportunity to maximize the use of resources and increase economies of scale.

Under this approach, the landfills would have approximately 14.1 years of capacity assuming a regional start date of July 1, 2008. The following information is based on information gathered from the member jurisdictions as well as statistics derived from the April 2006 Regional Solid Waste Management Financial, Operational and Regulatory Analysis report and the April 2005 Regional Solid Waste Management Analysis. Both reports were written by R. W. Beck.

The purpose of this section is to estimate the quantities of solid waste that will require disposal over the next 20 years from calendar year (CY) 2007 through 2027. R. W. Beck completed this analysis based on tonnage data provided by the member jurisdictions, as well as an assumed annual tonnage growth rate of 0.25 percent. The waste stream projections include both waste generated from the member jurisdictions, was well as waste disposed by commercial collection companies currently operating within those jurisdictions.

4.2 Historical Tonnage Amounts

R. W. Beck reviewed historical tonnage amounts from the five year period from 2003 through 2007 to gain a better understanding how much solid waste was disposed of during this time period.

R. W. Beck evaluated historical tonnage data provided by each of the communities included in the study. Table 4-1 summarizes the amount of solid waste disposed of from 2002 through 2007 by each of the member jurisdictions. Over this time period, total tonnage from the member jurisdictions increased from 223,353 tons in 2002 to 253,366 tons in 2007. Based on the amount from 2007, these communities disposed of approximately 975 tons per day based on an operation of five days per week[1] and 812 tons per day based on an operation of six days per week. Based on these amounts, R. W. Beck assumed that a regional facility would need a disposal rate of 900 tons per day.

Table 4-1
Member Jurisdictions' Landfill Disposal (Tons) 2003-2007

Calendar Year	Appomattox County	Campbell County	City of Lynchburg	City of Bedford	Nelson County	Total
2003	11,627	34,126	167,583	15,093	11,992	240,421
2004	12,639	42,575	172,968	5,958	13,510	247,650
2005	4,477	50,376	177,027	7,397	13,395	252,672
2006	1,369	60,293	181,517	7,365	14,238	264,782
2007	3,247	48,669	186,560	2,370	12,520	253,366
2007 Tons per Day						
5 days per week	13	187	718	9	48	975
6 days per week	10	156	598	8	40	812

Notes:

Tons per day based on 2007 tonnages.

The 2006 Campbell County landfill tonnage includes tonnage from Appomattox County.

Starting in 2005, Appomattox County began hauling some material to the Campbell County and City of Lynchburg landfills. This tonnage is reflected in the appropriate landfill. The tonnage from Appomattox County is expected to continue to be taken to the regional landfill once the Authority begins operations in July 2008 and therefore was included in the analysis.

[1] R. W. Beck calculated the tons per day based on a five day per week basis to provide an understanding of peak waste flows. For example, while facilities may be open Monday through Saturday, they will typically receive higher quantities of waste during weekdays.

4.3 Projected Tonnage Amounts (2007–2027)

The following section forecasts tonnage amounts from calendar year 2007 through 2027. These projections are all based on assumptions relating to the base year of 2007. Tonnage projections are based on the following:

- Historic figures,
- Form 50-25 submittals to DEQ by member jurisdictions,
- Conversations with staff from the member jurisdictions
- And an assumed population growth of 0.25 percent.

Table 4-2 presents the 2007 base year data plus the tonnage projections.

Table 4-2
Projected Region 2000 Landfill Disposal (Tons) 2007-2027

Calendar Year	Appomattox County	Campbell County	City of Lynchburg	City of Bedford	Nelson County	Total
2007	3,247	48,669	186,560	2,370	12,520	253,366
2008	3,255	48,791	187,027	2,376	12,551	253,999
2009	3,263	48,913	187,494	2,382	12,582	254,634
2010	3,271	49,035	187,963	2,388	12,614	255,271
2011	3,280	49,158	188,433	2,394	12,645	255,909
2012	3,288	49,280	188,904	2,400	12,677	256,549
2013	3,296	49,404	189,376	2,406	12,709	257,190
2014	3,304	49,527	189,850	2,412	12,741	257,833
2015	3,313	49,651	190,324	2,418	12,772	258,478
2016	3,321	49,775	190,800	2,424	12,804	259,124
2017	3,329	49,900	191,277	2,430	12,836	259,772
2018	3,337	50,024	191,755	2,436	12,868	260,421
2019	3,346	50,149	192,235	2,442	12,901	261,072
2020	3,354	50,275	192,715	2,448	12,933	261,725
2021	3,363	50,400	193,197	2,454	12,965	262,379
2022	3,371	50,526	193,680	2,460	12,998	263,035
2023	3,379	50,653	194,164	2,467	13,030	263,693
2024	3,388	50,779	194,650	2,473	13,063	264,352
2025	3,396	50,906	195,136	2,479	13,095	265,013
2026	3,405	51,034	165,624	2,485	12,128	265,676
2027	3,413	51,161	196,113	2,491	13,161	266,340

4.4 Theoretical Waste Generation Projections by Category

Appendix K contains a table which summarizes the theoretical waste generation projections by category for each member jurisdiction.

4.5 Remaining Landfill Capacity and Site Life

4.5.1 Lynchburg Landfill

The City of Lynchburg is currently operating in Phase III of its active four-phase landfill. The City is in the process of excavating material for daily and intermediate cover from the final permitted phase. The City currently anticipates final design and construction of Phase IV to occur during fiscal year 2008. Table 4-3 summarizes the remaining capacity of each phase of the active landfill as of approximately July 2008.

Table 4-3
City of Lynchburg Landfill – Remaining Capacity at July 2008

Phase	Design Capacity (cubic yards)	Percent Capacity Remaining	Remaining Capacity (cubic yards)
I	951,800	28.9%	275,392
II	1,022,300	22.0%	224,424
III	1,742,100	28.7%	499,445
IV	644,700	100.0%	644,700
TOTAL	4,360,900	37.7%	1,643,961

Source: City of Lynchburg Form 50-25 and survey data.

Based on the current disposal rate and a reported airspace utilization factor (AUF) of 1,650 pounds per cubic yard, R. W. Beck estimates the City of Lynchburg landfill would reach capacity in September 2015 if *not* operated as a regional landfill.

4.5.2 Campbell County Landfill

Campbell County began placing waste in Cell 5 of Phase III in October 2004. Phase III includes two additional cells – Cells 6 and 7 (not developed). The County has also permitted a five-cell Phase IV landfill. Table 4-4 summarizes the remaining landfill capacity of the Campbell County landfill as of January 1, 2007.

Table 4-4
Campbell County Landfill – Remaining Capacity at August 2008

Phase	Design Capacity (cubic yards)	Percent Capacity Remaining	Remaining Capacity (cubic yards)
III-5	413,036	52.2%	215,457
III-6	405,729	100%	405,729
III-7	643,318	100%	643,318
IV	1,525,828	100%	1,525,828
TOTAL	2,987,911	93.4%	2,790,332

1. Source: Campbell County Form 50-25
2. Cells 1-4 of Phase III are assumed to be at capacity.

Based on the current disposal rate, a reported waste density of 1,273 pounds per cubic yard and a cover soil usage of five percent of the waste volume, R. W. Beck estimated that Phase III of the Campbell County landfill would reach final capacity in September 2022 if *not* operated as a regional landfill. If Campbell County develops Phase IV of the landfill, R. W. Beck estimates the site will reach capacity in September 2041, if *not* operated as a regional landfill.

4.5.3 Appomattox County Landfill

The Appomattox County landfill was permitted on February 12, 1973 as Permit 86. The site is approximately 240 acres in size and is located on State Route 632, east of the Town of Appomattox. The landfill consists of eight cells (Cells A – G, and I), an area (formerly identified as Cell H) which is now dedicated to a tire recycling operation, and an expansion area which includes Cells J and K. Cells A – G were previously closed, and Cell I was capped in 2009 but final certification from DEQ has not been received at this time.

The proposed expansion area consisting of Cells J and K is undergoing permitting which has proceeded through the public comment period and draft permit process. The final permit has not yet been issued. Cell J is estimated to have a capacity of 1.1M cubic yards and Cell K to have an estimated capacity of 0.23M cubic yards.

The Appomattox County landfill including Cells J and K is not part of the Regional landfill capacity. A letter is included in Appendix L from Appomattox County indicating this. Cells J and K will not be constructed but they will remain dormant. In the future, should the County elect to leave the Regional Authority (which will require modification to the Member Use Agreement) to resume landfill operations on their site, DEQ will be duly notified and the Regional Solid Waste Management Plan will be modified.

Although the landfill has ceased accepting waste and capped the last of the disposal areas, three operations within the landfill property will continue to support the solid waste activities in the County and the Region. These are identified as follows:

- Emanuel Tire Material Recovery Facility, PBR 547: This facility processes tires in to tire shred for use as an engineered product. The permit by rule was issued on December 15, 2009. This facility is privately owned and operated and receives tires from multiple locations and businesses throughout Virginia including the Region 2000 area. Under this permit by rule the facility may receive an average rate of 150 tons per day and a maximum of 250 tons per day.
- Appomattox County recycling facility: This facility is located within the County's original baling facility permitted as PBR # 163. The original baling facility was used to bale municipal solid waste prior to placement in the landfill. With the closure of the landfill and membership in Region 2000, the baling operation for MSW waste is no longer necessary. The County has retrofitted this operation and it is now being used to process recyclables including mixed paper, cardboard, and plastics. Currently the recyclables come from the County's collection system or from residents or businesses that self haul to the facility. However, in the future, the County would be interested in expanding this facility to meet the needs of the Region.
- Appomattox County wood waste grinding operation: This operation is located in an area within the landfill property which is used by the County to stock pile wood waste, yard waste and brush generated within Appomattox County. Periodically, the County contracts to have this material ground for mulch which is then distributed to end users.

4.5.4 Life of Regionally Operated Landfills

Estimates provided in this section will likely change depending on factors such as operations, tonnage flow and types of materials received. R. W. Beck would recommend that the Authority update the remaining capacity projections annually. Table 4-5 estimates the remaining landfill capacity available to the Authority as of July 2008.

Table 4-5
Estimated Authority Landfill Capacity at July 1, 2008, in cubic yards

Landfill	Estimated Capacity as of July 1, 2008
Lynchburg	1,643,961
Campbell	2,790,332
TOTAL	4,434,293

Based on the estimated capacity remaining as of July 1, 2008, a site life analysis was performed to determine the approximate life of each landfill operating as the regional facility. The analysis also assumed that the Authority would accept waste from Appomattox County, the City of Bedford and Nelson County beginning July 2008.

The site life analysis assumes that each landfill, when operated by the Authority, will perform similarly. For example, since each active landfill will dispose of approximately the same tonnage of waste annually, a similar amount of daily cover material will be used. In addition, the same equipment will be employed at each active landfill thus achieving similar compaction rates.

For the purposes of the site life analysis, R. W. Beck assumed that each regionally operated landfill will achieve an AUF similar to the City of Lynchburg's current operation. The City currently achieves an AUF of about 1,650 pounds per cubic yard based on the amount of waste disposed, including sludge from the City's wastewater treatment plant, and soil cover used. However, the City is currently evaluating land application of sludge as an alternative to landfill disposal. If the sludge is not disposed, the AUF would decrease to about 1,300 pounds per cubic yard.

Table 4-6 indicates the approximate life of each landfill in years and the predicted date when each facility will begin operation as the regional landfill.

Table 4-6
Authority Site Life Summary (Start Date July 2008)

Landfill	Life (in years)	Open Date
Lynchburg	5.3	7/1/2008
Campbell	8.8	10/1/2013
TOTAL	14.1	7/1/2008

Note: Assumes an AUF of 1,650 pounds per cubic yard for the Lynchburg and Campbell Landfills.

The site life analysis results above reflect the use of modified site specific information related to waste compaction densities, cover soil usage and types of material accepted (i.e., WWTP sludge). It assumes that when each landfill is operated by the Authority (rather than two independent operators operating under different conditions), operations at each site will be more similar. This translates into a longer site life based on higher AUFs for the two landfills combined compared to current operations at each facility. R. W. Beck estimates that the two landfills will provide the Authority with disposal capacity starting in July 2008 for about 14 years. Additional disposal options past the estimated 14.1 years life span of the two regionally operated landfills is addressed in Section 7.8.

4.5.5 Sequencing of Landfills and Timing of New Cell Development

Although the City of Lynchburg landfill does not have the greatest operational capacity remaining, it is most prepared to operate as the regional facility. In order to accept significant increases in waste quantities, the Campbell County landfill would require several capital improvements.

Once the Lynchburg landfill reaches capacity, all waste would go to the Campbell County landfill. In order to ensure that landfill space does not expire before a facility,

or new cell, is ready to operate, the Authority will want to plan and implement capital improvements and cell development in a timely manner. New cells should be ready at a minimum six months, recommended one year, before the developed capacity is anticipated to expire. The Authority should re-evaluate the remaining capacity on an annual basis.

4.6 Additional Materials and Special Wastes

The three operating landfills in the region (Campbell County, Appomattox County and the City of Lynchburg) track their waste in accordance with the categories outlined in DEQ Form 50-25 which includes the following:

- Municipal Solid Waste
- Construction/Demolition/Debris
- Industrial Waste
- Regulated Medical Waste
- Vegetative/Yard Waste
- Incinerator Ash
- Sludge
- Tires
- White Goods
- Friable Asbestos
- Petroleum Contaminated Soil

Only those facilities that treat, store or dispose of solid waste must complete Form 50-25 due to DEQ by March 31 of each year (9VAC 20-130-165.A). The Communities track the following materials under their recycling programs. These materials are listed under 9 VAC 20-130-150.3 as special wastes:

- Waste Tires
- Used Oil
- Used Oil Filters
- Used Anti-Freeze
- Abandoned Automobiles Removed
- Batteries

Septage is not accepted at the landfills and is not tracked by the localities under the solid waste programs. Spill residues, if meeting the allowable limits of the regulations, would be recorded as “Other” on Form 50-25. Tables 4-7 through 4-9 summarize the waste types that were handled by the two participating landfills for Calendar Year 2007.

Table 4-7
DEQ Form 50-25 (Solid Waste Information & Assessment Program Reporting) – City of Lynchburg (2007)

Waste Type	Total Waste Received	Recycled On-Site	Composted On-Site	Landfilled On-Site	Incinerated On-Site	Sent Off-Site to be:		Stored On-Site:		Other	
						Recycled	Treated, Stored, Disposed	Beginning of Reporting Period	End of Reporting Period	Mulched	Other Than Mulched
Municipal Solid Waste	129,409.32	0.00	0.00	129,409.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction/Demolition Debris	369.83	0.00	0.00	67.18	0.00	0.00	0.00	0.00	0.00	369.83	0.00
Industrial Waste	52,072.42	16,309.52	0.00	35,762.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Regulated Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetative/Yard Waste	5,362.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5,362.16	0.00
Incineration Ash	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sludge	21,387.99	0.00	0.00	21,387.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tires	52.41	0.00	0.00	0.00	0.00	52.41	0.00	0.00	0.00	0.00	0.00
White Goods	164.91	0.00	0.00	0.00	0.00	164.91	0.00	0.00	0.00	0.00	0.00
Friable Asbestos	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Contaminated Soil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Wastes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	208,819.04	16,309.52	0.00	186,560.21	0.00	217.32	0.00	0.00	0.00	5,731.99	0.00

Table 4-8
DEQ Form 50-25 (Solid Waste Information & Assessment Program Reporting) – Appomattox County (2007)

Waste Type	Total Waste Received	Recycled On-Site	Composted On-Site	Landfilled On-Site	Incinerated On-Site	Sent Off-Site to be:		Stored On-Site:		Other	
						Recycled	Treated, Stored, Disposed	Beginning of Reporting Period	End of Reporting Period	Mulched	Other Than Mulched
Municipal Solid Waste	1,942.00	0.00	0.00	1,942.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction/Demolition Debris	2,262.00	0.00	0.00	827.00	0.00	0.00	0.00	71.00	62.00	153.00	1,291.00
Industrial Waste	478.00	0.00	0.00	478.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Regulated Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetative/Yard Waste	416.00	0.00	0.00	0.00	0.00	0.00	0.00	188.00	171.00	411.00	22.00
Incineration Ash	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sludge	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tires	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
White Goods	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Friable Asbestos	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Contaminated Soil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Wastes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	5,098	0.00	0.00	3,247.00	0.00	0.00	0.00	259.00	233.00	564.00	1,313.00

Table 4-9
DEQ Form 50-25 (Solid Waste Information & Assessment Program Reporting) – Campbell County (2007)

Waste Type	Total Waste Received	Recycled On-Site	Composted On-Site	Landfilled On-Site	Incinerated On-Site	Sent Off-Site to be:		Stored On-Site:		Other	
						Recycled	Treated, Stored, Disposed	Beginning of Reporting Period	End of Reporting Period	Mulched	Other Than Mulched
Municipal Solid Waste	30,035.00	0.00	0.00	30,035.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction/Demolition Debris	4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Waste	11,961.00	0.00	0.00	11,961.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Regulated Medical Waste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vegetative/Yard Waste	830.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	830.00	0.00
Incineration Ash	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sludge	2,373.00	0.00	0.00	2,373.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tires	279.00	0.00	0.00	0.00	0.00	279.00	0.00	0.00	0.00	0.00	0.00
White Goods	79.00	0.00	0.00	0.00	0.00	79.00	0.00	0.00	0.00	0.00	0.00
Friable Asbestos	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum Contaminated Soil	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Wastes	540.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	540.00
Total	50,397.00	0.00	0.00	48,669.00	0.00	358.00	0.00	0.00	0.00	830.00	540.00

4.6.1 Waste Generated Outside of the Commonwealth

Virginia Waste Management Board's regulations for Solid Waste Management Planning 9 VAC 20-130-165 stipulate that the regional solid waste management plant identify and estimate the amount of waste generated outside of the Commonwealth and the jurisdictions where such waste originated. No waste from outside the Commonwealth was disposed of in the Campbell County Sanitary Landfill, Appomattox County Landfill or the City of Lynchburg Landfill in 2007.

4.7 Waste Stream Composition

In form DEQ 50-25, DEQ identifies 11 waste categories for tracking in addition to a category for other types of materials. The following three pie diagrams (Figures 4.1, 4.2 and 4.3) illustrate the difference in the waste stream composition (total waste received) by the top six categories for the City of Lynchburg, Campbell County and Appomattox County landfills.

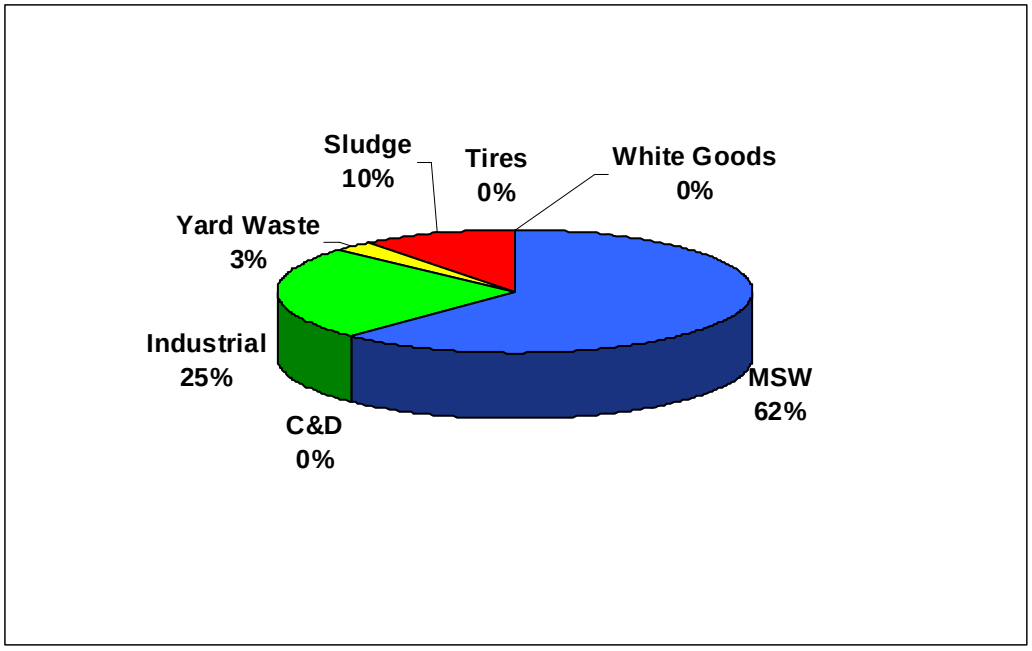

Figure 4-1: Waste Stream Composition – City of Lynchburg Landfill (2007)

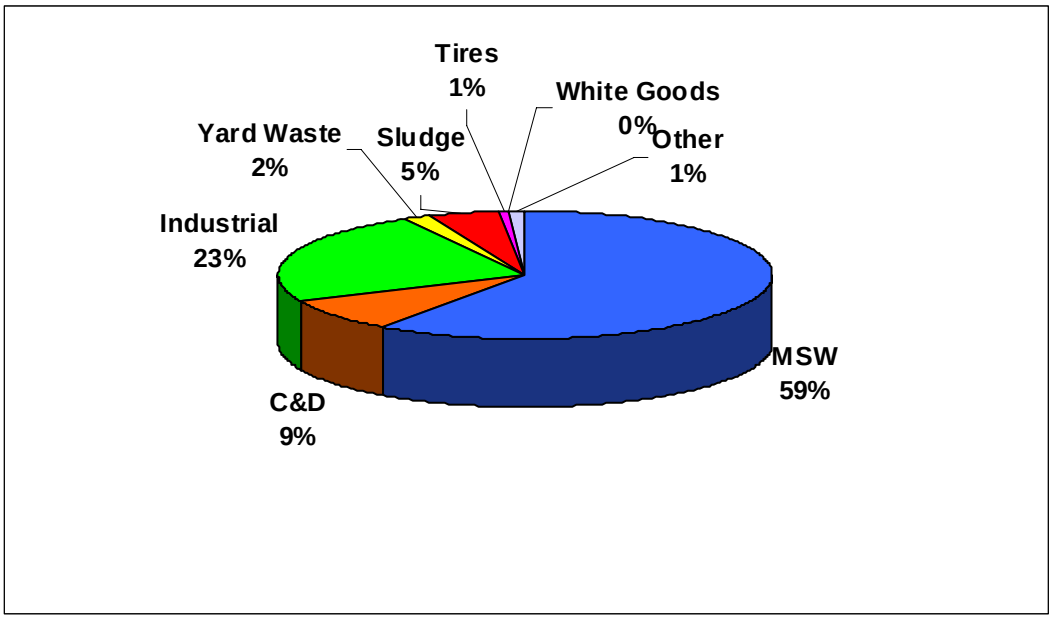

Figure 4-2: Waste Stream Composition – Campbell County Landfill (2007)

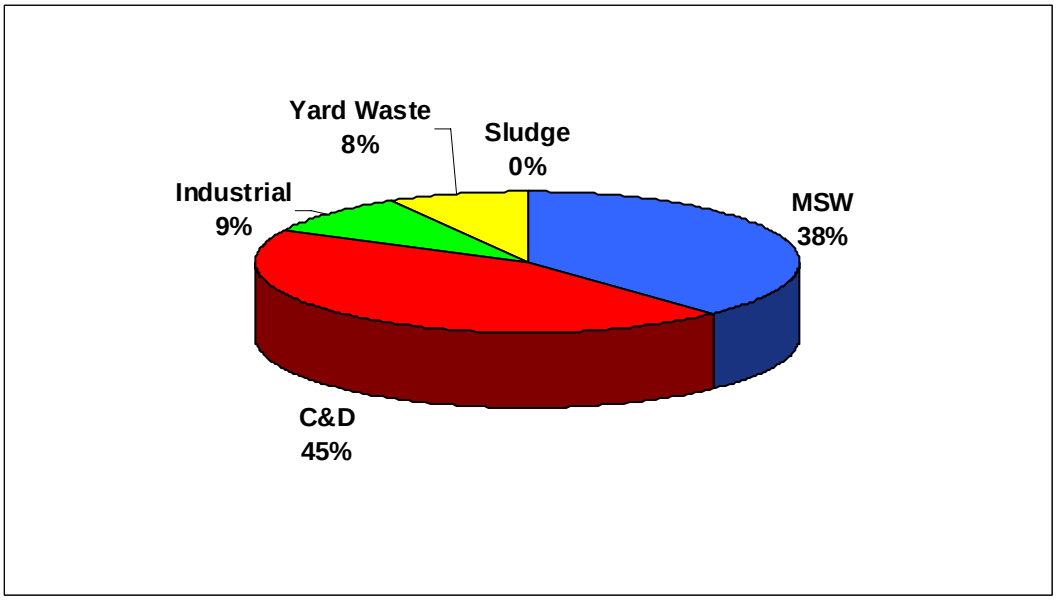

Figure 4-3: Waste Stream Composition – Appomattox County Landfill (2007)

Section 5
EXISTING SOLID WASTE MANAGEMENT SYSTEM

Section 5.1 describes the major components of the Region's current solid waste management system (as taken from the individual communities' solid waste management plans and discussions with the communities). Section 5.2 details the tons recycled in 2007 by material type and the individual communities recycling rates.

5.1 Highlights from the Current Solid Waste Management System for Appomattox, Campbell and Nelson Counties and the Cities of Bedford and Lynchburg

All information detailed in Section 5.1 was taken from the following seven reports listed below, recycling data from Form 50-30's from individual communities, and follow up conversations with the individual communities. The remaining landfill tonnage data for Campbell County and the City of Lynchburg was derived in Section 4.0. Note that the landfill and collection information detailed on the original plan highlights is subject to change with the creation of the new Regional authority.

1. Appomattox County Solid Waste Management Plan, September 2005
2. Campbell County, Town of Altavista, Town of Brookneal Solid Waste Management Plan, June 2004.
3. Thomas Jefferson Planning District Commission (Nelson County), February 2005.[1]
4. City of Bedford Solid Waste Management Plan, January 2007.
5. City of Lynchburg Solid Waste Management Plan, February 2005.
6. Region 2000, Regional Solid Waste Management Analysis, April 2005.
7. Region 2000, Regional Solid Waste Management Financial, Operational and Regulatory Analysis, April 2006

[1] Nelson County was previously a member of the Thomas Jefferson Planning District Commission (TJPDC) but is now part of Region 2000. TJPDC completed the regional solid waste management plan in February 2005 and Nelson County adopted the plan in October 2006. This region consisted of the following localities: the Counties of Albemarle, Fluvanna, Greene, the City of Charlottesville, and the towns of Columbia, Scottsville, and Stanardsville.

5.1.1 System Components

The major plan components (including collection, disposal, and recycling methods) for the residential, commercial and industrial solid waste management system for the five communities that make up Region 2000 are listed in Table 5-1.

Table 5-1
Components of the Solid Waste System

Locality & Year Plan Submitted	Major Plan Components
Appomattox County	<u>Main Disposal Site</u> ▪ Landfill Name: Appomattox County Sanitary Landfill – Permit # 086 ▪ Year Established: February 12, 1973 ▪ Unit Status: Cells A - G closed and under post closure care; ▪ Unit Status: Cell I (final cell) capped in October 2009 and awaiting final certification. Will then enter post closure care for 30 years. ▪ Unit Status: Cells J – K under DEQ permitting; (will be put on hold once permitted); Not part of Region 2000 capacity ▪ County sends all waste to a Region 2000 landfill. ▪ Materials Accepted: Landfill is not operating but within landfill site the following operations are being maintained: wood waste , yard waste and brush collection and grinding; scrap metal collection and recycling; Emanuel Tire – tire processing under PBR 547; recycling center <u>Residential Solid Waste</u> ▪ County collection – Citizens self haul to 7 convenience centers; County hauls from convenience centers to the Regional landfill. Some citizens contract directly for private collection ▪ Town of Pamplin – residential collection by private hauler; curbside 1/week; citizens can self haul to convenience centers ▪ Town of Appomattox – residential collection by private company; curbside 1/week;citizens can self haul to convenience centers <u>Commercial Solid Waste</u> ▪ Businesses and industries: Self haul to Regional landfill or contract with private hauler <u>Residential Recycling</u> ▪ Program Description: Drop off at convenience centers

Locality & Year Plan Submitted	Major Plan Components
	▪ Materials Collected: Cardboard, Mixed paper, scrap metal, plastic, wood waste, electronics, aluminum, grocery bags and textiles. ▪ Processing Facility: County processes cardboard, mixed paper and plastics at recycling facility; scrap metal is stockpiled at landfill site and then collected by private company; wood waste is stockpiled and ground; electronics are stockpiled then sent to a private company. Textiles are collected by a private company at each of the convenience sites. <u>Commercial Recycling</u> ▪ Program Description: County has placed boxes for cardboard collection at 10<u>+</u> businesses in the County. Businesses can also use the drop off facilities at the convenience centers or bring recyclable materials to the recycling facility. In addition, many businesses contract directly for recycling. ▪ Materials Collected: Cardboard, mixed paper, plastics, metals, wood and wastes <u>Yard Waste</u> ▪ Program Description; Drop-off - direct haul to landfill ▪ Processing Facility: Appomattox County Sanitary Landfill – Chipped on site, given to residents for free ▪ Materials Collected: Leaves, grass clippings, brush and tree trimmings <u>Bulky Items (Not white goods)</u> ▪ Program Description (i.e. curbside or drop-off): County – Drop-off at convenience centers then hauled by County to Regional Landfill; ▪ Processing Facility: Not processed but sent to Regional Landfill. In the future, the County may establish a reuse site to collect useful materials for the public to use. ▪ Materials Collected: Furniture, demolition materials etc. <u>Bulky Items (white goods)</u> ▪ Program Description (i.e. curbside or drop-off): County – Drop-off at convenience centers then hauled by County to landfill scrap metal pile; ▪ Processing Facility: Stockpiled then collected by private company for recycling ▪ Materials Collected: White goods (Stoves, washers, dryers, freezers, refrigerators)

Locality & Year Plan Submitted	Major Plan Components
Campbell County	<u>Main Disposal Site</u> ▪ Landfill Name: Campbell County Sanitary Landfill ▪ Year Established: October 26, 1979 (Permit # 285) ▪ Materials Accepted: MSW, commercial, CDD, non-hazardous industrial waste, tires, white goods, yard waste and recyclables ▪ Remaining Capacity as of August 2008: 2,790,332 CY (See Section 4.4.2 for assumptions) ▪ Equipment: One Compactor, two Track loaders, one Track Hoe, one Scraper, one Tank Trailer, one Lowboy Trailer, one Mad Vac Trailer, oneTractor with Bushhog, one Brush Chipper and three Personnel Vehicles <u>Residential Solid Waste</u> ▪ Who collects: In County - Private Haulers or self-haul to one of nine convenience centers. In Towns of Altavista & Brookneal - Curbside ▪ Collection Frequency: Within County – Citizens with private collection - Once per week or Residents may drop off at one of nine convenience centers. Towns of Altavista & Brookneal – Once per week. ▪ Container(s) used: County residents with private collection – 30-gallons. Town of Altavista – maximum of 30-gallons. Town of Brookneal – 30-gallons. ▪ Drop-off Centers: County residents may utilize one of nine convenience centers operated by County. <u>Commercial Solid Waste</u> ▪ Who collects: Private Haulers for customers within Campbell County. Town of Brookneal and Town of Altavista provide limited collection or self-hauled to landfill. ▪ Type of Service Provided (i.e. front load, roll-off): Majority front load or roll-offs. <u>Residential Recycling</u> ▪ Program Description (i.e. curbside or drop-off): Drop-off to Sanitary Landfill or private haulers will collect. ▪ Materials Collected: newspaper and newspaper inserts, paper products, cardboard, metal, bi-metal, aluminum, wood waste, waste tires, used oil, abandoned automobiles, batteries and electronics ▪ Processing Facility: Recyclables collected at Campbell County Sanitary Landfill. Various vendors process materials. Some residents bring directly to vendor for processing.

Locality & Year Plan Submitted	Major Plan Components
	Commercial Recycling ▪ Program Description (i.e. curbside or drop-off): Drop-off to Sanitary Landfill and some private haulers will collect. ▪ Who Collects: Brought to Landfill or self-hauled to vendor for processor Yard Waste ▪ Program Description (i.e. curbside or drop-off): County Residents – Drop-off and chipped at Sanitary Landfill. Town of Altavista – collected curbside and brought to Campbell County Sanitary Landfill. Town of Brookneal – Collected curbside and kept with Town. ▪ Processing Facility: Campbell County Sanitary Landfill – Chipped on site, given to residents for free ▪ Materials Collected: Leaves and grass clippings ▪ Tons Recycled (2006): 1,046.3 (includes wood waste) Bulky Items ▪ Program Description (i.e. curbside or drop-off): County – Drop-off only. Town of Altavista – curbside. Town of Brookneal - curbside ▪ Processing Facility: Dropped off at Convenience Centers or Sanitary Landfill ▪ Materials Collected: Various vendors. Tire and white goods recycling and scrap metal recycling. Pay somebody to take Freon out of refrigerators. ▪ Tons recycled (2006): 106.0
Nelson County	Disposal Site: ▪ Transfer Station Name: Nelson County Transfer Station ▪ Year Established: 1994 ▪ Materials Accepted: Household waste, C&D & commercial waste, recycling ▪ Starting July 2008, County will send waste to a Region 2000 landfill. Residential Solid Waste ▪ Who collects: Private haulers & self-delivery to transfer station & collection centers ▪ Collection Frequency: Containers are picked up when full (average of once a week)

Locality & Year Plan Submitted	Major Plan Components
	▪ Container(s) used: 40 yd. compactor cans; 30 yd. recycle containers and 30 yd. open-tops ▪ Drop-off Centers: one staffed collection center, 10 unsupervised dumpster sites, four recycle sites at schools (at the end of 2007, there will be three staffed sites, six unsupervised dumpster sitesand four recycle sites at schools) Commercial Solid Waste ▪ Who collects: Private haulers or self-delivery to landfill ▪ Type of Service Provided (i.e. front load, roll-off): Front load, open-top roll-offs and private vehicles Residential Recycling ▪ Program Description (i.e. curbside or drop-off): Self-haul to green-boxes ▪ Materials Collected: Mixed paper and commingled glass, plastics and metals ▪ Processing Facility: Rockfish Collection Center, Transfer Station and recycling containers at Lovingston, Mac's Market, Faber, Montebello, Wintergreen and schools Commercial Recycling ▪ Program Description (i.e. curbside or drop-off): Private Haulers & self-haul to transfer station or end user (MRF, etc.) ▪ Who Collects: All private Yard Waste ▪ Program Description: Self drop-off and commercial haul ▪ Processing Facility: Transfer Station and one private stump-grinding facility ▪ Materials Collected: Grass, leaves and limbs at Transfer Station; stumps and tree trunks at private facilities ▪ Tons Recycled (2006): 2,250.4 Bulky Items ▪ Program Description (i.e. curbside or drop-off): Drop-off ▪ Processing Facility: Primarily Transfer Station, with limited drop-off at open-top sites ▪ Materials Collected: White goods, furniture, mowers, etc. ▪ Tons recycled (2006): 199

Locality & Year Plan Submitted	Major Plan Components
City of Bedford	Main Disposal Site: ▪ Name: City of Bedford Sanitary Landfill ▪ Year Established: 1962 ▪ New Transfer Station (150 tpd capacity) and Compost Facility began operations in January 2007 ▪ 38 Tons/day taken to Landfill (according to SWMP). 20 of 38 tons originating from Transfer Station and taken to Landfill is MSW. Remaining 18 tons C&D, special waste, yard, white goods, etc. ▪ Estimated remaining capacity of Landfill (2005): Three years ▪ Starting July 2008, County will send waste to a Region 2000 landfill. ▪ Equipment: – Track Loader, Front End Loader, Rubber Tire Loader, Road Tractor for hauling, two walking floor trailers, back hoe, pick up truck, tub grinder, bush hog, yard dog (tractor to pull the trailers around), Two 20-cy open top containers for bulk and white goods; Trammel screen for compost operation, electric mixer to mix compost and sludge Residential Solid Waste ▪ Who collects: City ▪ Collection Frequency: Once per week ▪ Container(s) used: City does not provide ▪ Drop-off Centers: Transfer Station Commercial Solid Waste ▪ Who collects: Private Haulers ▪ Type of Service Provided (i.e. front load, roll-off): Side-load Residential Recycling ▪ Program Description (i.e. curbside or drop-off): Curbside and drop-off ▪ Materials Collected: newspaper, plastic, aluminum, tin cans, green, brown and clear glass, cardboard, mixed paper ▪ Processing Facility: Bryant Salvage in Madison Heights, VA Commercial Recycling

Locality & Year Plan Submitted	Major Plan Components
	▪ Program Description (i.e. curbside or drop-off): Curbside ▪ Who Collects (2006): City of Bedford but some entities have own recycling program. City collects mixed paper only Yard Waste ▪ Program Description (i.e. curbside or drop-off) ▪ Processing Facility: City of Bedford Compost Facility ▪ Materials Collected: Brush, yard debris, leaves, bio-solids ▪ Tons Recycled (2006): 1,216.0 (includes wood waste) ▪ All yard waste and brush ground up and sold as mulch – most goes into compost ▪ Selling for $40/ton. Bulky Items ▪ Program Description (i.e. curbside or drop-off): Drop-off ▪ Processing Facility: Located in Montvale, Va. ▪ Materials Collected: Refrigerators (Freon must be removed first), washing machines, stoves, dryers, etc. ▪ Tons recycled (2006): 467
City of Lynchburg	Main Disposal Site ▪ Name: City of Lynchburg Waste Management Landfill ▪ Year Established: 1994 ▪ Materials Accepted: MSW, commercial, non-hazardous industrial, tires, white goods, yard waste and metals ▪ Remaining Capacity as of July 2008: 1,643,961 CY (See Section 4.4.1 for assumptions) ▪ Equipment: Three Compactors, two Dozers, one Track loader, two Wheel loaders, one Scraper, one Dump Truck, three Hook-lift Trucks, one Street Flusher, one Fuel Truck, one Service Truck, one Forklift, one Flatbed Trailer, one Tractor with Bushhog, one Riding Mower, and five Personnel Vehicles Residential Solid Waste ▪ Who collects: City curbside, self-haul and private sector ▪ Collection Frequency: once per week

Locality & Year Plan Submitted	Major Plan Components
	▪ Container(s) used: 32 and 64-gallon ▪ Drop-Off Centers: City of Lynchburg WM Landfill Commercial Solid Waste ▪ Who collects: City and private haulers ▪ Type of Service Provided (i.e. front load, roll-off): City and Private. City collects small businesses that choose to utilize city curbside collection program. Refuse placed in city-issued 32 or 64 gallon containers. Private haulers utilize various containers and collect using front load and roll-off vehicles Residential Recycling ▪ Program Description (i.e. curbside or drop-off): 9 drop-off centers ▪ Materials Collected: newspaper, mixed paper, OCC, plastic bottles and jugs (#1 & #2), aluminum and steel cans ▪ Processing Facility: City uses two local recyclers: Paperstock Dealers and Cycle Systems Commercial Recycling ▪ Program Description (i.e. curbside or drop-off): Private Haulers use drop-off containers at the business. Several use smaller recycling containers for office paper ▪ Who Collects: Various Private Haulers Yard Waste ▪ Program Description (i.e. curbside or drop-off): curbside and drop-off ▪ Processing Facility: used as Alternate Daily Cover at Landfill ▪ Materials Collected: brush, tree limbs, bagged leaves ▪ Tons Recycled (2006): 7,724.0 (includes wood waste) Bulky Items ▪ Program Description (i.e. curbside or drop-off): curbside and drop-off ▪ Processing Facility: City landfill – materials that can be recycled taken to Cycle Systems. Freon recycled at a local business ▪ Materials Collected: Household appliances, tires without rims, furniture, mattresses, and trash from residential remodeling and repair operations (if the work is performed by the resident and the proper building permit is

Locality & Year Plan Submitted	Major Plan Components
	displayed) ▪ Tons recycled (2006): 214.51

5.1.2 Materials Permitted for Acceptance at Landfills

In accordance with the Virginia Solid Waste Management Regulations, landfills may accept the following wastes subject to permit specific limitations:

1. Agricultural waste
2. Ashes and air pollution control residues that are not classified as hazardous waste. Incinerator and air pollution control residues should be incorporated into the working face and covered at such intervals as necessary to prevent them from becoming airborne
3. Commercial waste
4. Compost
5. Construction waste
6. Debris
7. Demolition waste
8. Discarded material
9. Garbage
10. Household waste
11. Industrial waste meeting all criteria contained in the VSWM regulations
12. Inert waste
13. Institutional waste except anatomical waste from health care facilities or infectious waste as specified in Waste Management Board's Infectious Wastes Regulations (VR 672-40-01)
14. Municipal solid waste
15. Putrescible waste. Occasional animal carcasses may be disposed of within a sanitary landfill. Large number of animal carcasses shall be placed in a separate area within the disposal unit and provided with a cover of compacted soil or other suitable material
16. Refuse
17. Residential waste
18. Rubbish
19. Scrap metal
20. Sludge. Water treatment plant sludge containing no free liquid and stabilized, digested or heat treated wastewater treatment plant sludge containing no free liquid may be placed on the working face along with municipal solid wastes and covered with soil or municipal solid wastes. The quantities accepted should be determined by operational conditions encountered at the working face

21. Trash
22. White goods, provided that white goods are free of chlorofluorocarbons and PCBs prior to placement on the working face
23. Non-regulated hazardous wastes and treated wastes rendered non-hazardous by specific approval only
24. Specific wastes as approved by the DEQ
25. Waste oil that has been adequately absorbed in the source of a site cleanup.
26. Vegetative waste
27. Yard waste

Source

Southside Regional Public Services Authority Solid Waste Management Plan. Revision 2, September 12, 2005. Draper Aden Associates.

5.1.3 Materials not Accepted at Landfills

The following wastes are considered to be unauthorized wastes and **are prohibited** at the landfills:

1. Under 9 VAC 20-80-250.C.17):
    a. Free liquids
        (1) Bulk or non-containerized liquid waste, unless:
            (a) The waste is household waste; or
            (b) The waste is leachate or gas condensate derived from that landfill and the facility is designed with a composite liner and leachate collection system.
        (2) Containers holding liquid waste, unless:
            (a) The container is a small container similar in size to that normally found in household waste;
            (b) The container is designed to hold liquids for use other than storage; or
            (c) The waste is household waste.
    b. Regulated hazardous wastes
    c. Solid wastes, residues or soils containing more than 1.0 ppb (parts per billion) of Dioxins
    d. Solid wastes, residues or soils containing more than 50.0 ppm (parts per million) of PCB's except as allowed under the provisions of 9 VAC 20-80-650
    e. Un-stabilized sewage sludge as defined by the Virginia Department of Health or sludges that have not been dewatered
    f. Pesticide containers that have not been triple rinsed and crushed

g. Drums that are not empty, properly cleaned and opened

h. Contaminated soil unless approved by the DEQ in accordance with the requirements of 9 VAC 20-80-630 or 9 VAC 20-80-700.

2. Additional wastes not accepted by the landfills:

a. Friable Asbestos – defined as any waste material containing more than 1.0 percent asbestos as determined using the polarized light microscopy methods specified in 40 CFR Part 763, Appendix E, Subpart E, Section 1, that when dry, is capable of being crumbled, pulverized or reduced to powder by hand pressure.

b. Hazardous Waste - defined as a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics may:

(1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness;

(2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed;

(3) have at least one of four characteristics: ignitability, corrosivity, reactivity and toxicity; or

(4) Hazardous wastes are regulated under the Virginia Department of Environmental Quality Hazardous Waste Management Regulations (9 VAC 20-60).

Source

Southside Regional Public Services Authority Solid Waste Management Plan. Revision 2, September 12, 2005. Draper Aden Associates.

5.2 Regional Recycling Rates

The Virginia Waste Management Board's 2001 August 1, 2001 regulations for solid waste management planning (9VAC 20-130-40 and 9VAC 20-130-120) state that state, local government or a region must meet and maintain a minimum recycling rate of 25 percent. However, in 2006 the Code of Virginia was amended to provide for a two-tiered recycling mandate for the Commonwealth's solid waste planning units (SWPU). All SWPU's are still required to meet the minimum recycling rate of 25 percent unless the population density is less than 100 persons per square mile or if their civilian unemployment rate is 50 percent above the statewide average. If one or both of these criteria are met, a minimum recycling rate of 15 percent is mandated. While Campbell County falls under this new mandate, Region 2000 as a whole does not. The population density for the five communities that comprise Region 2000 is approximately 114 per square mile. The average unemployment for the Region is currently 4.26 percent which is approximately 12 percent above that of the state wide average of 3.8 percent.

As the region does not meet either criteria, the region must maintain a 25 percent overall recycling rate. The following write-up and Table 5-2 in particular, calculates the individual communities recycling rate; displaying the "base", "adjusted" and "final" 2007 recycling rates derived from the individual communities Forms 50-30. The table also calculates the entire Region's "base" and "adjusted" recycling rate. The "final" regional recycling rate will not be known until Virginia DEQ provides final approval of the regional calculations.

The current "base" recycling rate for the region stands at 32.8 percent, while the adjusted recycling rate (which considers credits based on re-used and non-MSW recycled tonnages) is 41.4 percent. This adjusted recycling rate, in all likelihood, will decrease after the Virginia DEQ determines what percent of the adjusted tonnages can be considered in the final recycling rate calculation.

It is important to note that 96.82 percent of the regional materials recycled were considered "principle recycled material." This lends credence to the notion that more recycling or re-use of "supplemental" materials, such as household hazardous wastes, tires, electronics, etc. is needed and could boost the overall recycling rate of the region. The reuse of these supplemental materials should be a priority as the Region moves forward.

Table 5-2
Summary of Recycling Data (2007) as submitted to Virginia DEQ

Material	Appomattox County	Campbell County [A]	Nelson County [A]	Bedford City [A]	Lynchburg City [A]	Region 2000	% Of Total
Total Principle RM	Tons	Tons	Tons	Tons	Tons	Tons	%
Paper	598.0	8,905.0	725.95	232.0	49,731.0	60,191.95	61.48%
Metal	1,872.0	4,555.0	206.8	479.0	8,497.0	15,609.8	15.94%
Plastic	0.0	7.0	0.0	82.0	473.0	562.0	0.57%
Glass	0.0	0.0	0.0	55.0	16.0	71.0	0.0%
Commingled	0.0	0.0	214.32	0.0	0.0	214.32	0.22%
Yard Waste	416.0	1,080.0	565.0	200.0	4,574.0	6,835.0	6.98%
Waste Wood	213.0	1,229.0	5.4	945.0	8,993.0	11,385.4	11.63%
Textiles	25.0	0.0	1.0	0.0	20.0	46.0	0.0%
SUBTOTAL	3,124.0	15,776.0	1,718.47	1,993.0	72,304.0	94,915.47	96.82%
Total Supplemental RM	Tons	Tons	Tons	Tons	Tons	Tons	%
Waste Tires	345.0	334.0	16.41	24.0	589.0	1,308.41	1.33%
Used Oil	100.0	700.0	3.55	40.5	173.0	1,017.05	1.0%
Used Oil Filters	4.0	2.0	0.0	4.5	1.0	11.5	0.0%
Used Anti-Freeze	48.0	6.0	0.0	3.5	10.0	67.5	0.0%
Auto Bodies	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Batteries	51.0	37.0	22.1	83.0	17.0	210.1	0.21%
Sludge	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Electronics	2.0	8.0	0.0	32.8	19.0	61.8	0.0%
Other	287.0	00.0	31.0	0.0	0.0	318.0	0.32%
SUBTOTAL	837.0	1,087.0	73.06	188.3	809.0	2,994.36	2.86%

Table 5-2 Continued
Summary of Recycling Data (2007) as submitted to Virginia DEQ

Material	Appomattox County	Campbell County [A]	Nelson County [A]	Bedford City [A]	Lynchburg City [A]	Region 2000	% Of Total
MSW Reused	Tons	Tons	Tons	Tons	Tons	Tons	%
C&D Waste	0.0	0.0	596.0	0.0	0.0	596.0	0.61%
Debris Waste	0.0	0.0	45.0	0.0	0.0	45.0	0.0%
Ash	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
SUBTOTAL	0.0	0.0	641.0	0.0	0.0	641.0	0.61%
TOTAL PRM & SRM	3,961.0	16,863.0	1,790.8	2,181.3	73,113.0	97,909.8	100.0%
Total MSW Disposed	7,682.0	46,194.0	12,441.9	4,966.0	129,409.0	200,692.9	
Base Recycling Rate	*34.0%*	*26.74%*	*12.58%*	*30.5%*	*36.1%*	*32.8%*	
Recycling Credits (RC)	Tons	Tons	Tons	Tons	Tons	Tons	
Recycling Residue	0.0	0.0	0.0	0.0	0.0	0.0	
SW Reused	1291.0	0.0	180.0	0.0	0.0	1,471.0	
Non-MSW Recycled	0.0	0.0	0.0	2,333.3	39,500.0	41,833.3	
Total Recycling Credits	1291.0	0.0	821.0	2,333.3	39,500.0	43,945.3	
Adjusted Recycling Rate	43.0%	26.74%	17.35%	47.6%	41.1%	41.4%	
Final Calculated Recycling Rate	39.0%	26.74%	17.35%	35.5%	41.1%	Awaiting DEQ evaluation	

A) CY 2007 Recycling Rate Report approved by Commonwealth of Virginia DEQ.

5.2.1 Methodology to Determine Recycling Rates [2]

The methodology used to calculate the recycling rate is as follows.

1. The following formulas were used:

   Base Recycling Rate = [(PRMs) / (PRMs + M)] X 100

   Adjusted Recycling Rate = [PRMs + CR] / [PRMs + CR + M] x 100

   where:

   PRMs = Principal Recyclable Materials

   CR = Recycling Credits for residue, solid waste reused and non-MSW recycled

   M = Total Municipal Solid Waste Disposed within the NSWMPR

2. The amounts will be expressed in one of the following units:
   a. The actual weight of each component.
   b. The volume of each component.
   c. The estimated weight of each component based on the most accurate survey or estimated per capita weight.
3. PRMs include paper, metal (except automobile bodies), plastic, glass, commingled, yard waste, waste wood, textiles, tires, used oil, used oil filters, used antifreeze, batteries, electronics and inoperative motor vehicles.
4. The total municipal solid waste disposed will be the amount of MSW generated within the planning region.
5. If the region participates in the used tire management program sponsored by the DEQ, the amount of those tires may be added to the "PRM" amount in the recycling rate calculation.
6. Mulched or composted yard waste can be included in the "PRM" amount if it can be demonstrated that the finished mulch will be marketed or otherwise used productively.
7. Used oil, used oil filters and used antifreeze can be included in the "PRM" amount if it can be demonstrated that the materials will be marketed or used productively.
8. Where a source reduction of any municipal solid waste material or reuse of a principal recyclable material is documented to have occurred, is accurately quantified and is requested as a petition for a variance in accordance with 9 VAC 20-130-230, the DEQ may issue a credit for the amount to be added into the "PRM" amount in each calculation method.

2 Source: Form 50-30 revised. Virginia Department of Environmental Quality. Commonwealth of Virginia Recycling Rate Report for Calendar Year 2007.

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Section 6
BUDGET

Budget estimates have been developed concerning the anticipated costs associated with the Services Authority. It should be noted that the budget estimates provided in this section should be considered preliminary, as efforts are still on-going to develop and refine the budget.

6.1 Services Authority Operating Budget for FY 2009

With significant input from the participating communities, R. W. Beck developed a preliminary operating budget for the Services Authority. The budget is for fiscal year 2009, assuming that the Services Authority will begin landfill operations approximately July 1, 2008. Table 6-1 contains the FY 2009 budget for the Services Authority

Table 6-1
Services Authority Budget

Budget Category	FY 2009 Budget
Personnel	$1,311,325
Landfill O&M	$1,758,200
Equipment Replacement	$406,525
Closure and Post-Closure	$465,725
Environmental and Future Planning Reserves	$100,000
Debt Service	$2,171,131
Total Annual Expenses	$6,212,906
Reimbursable Expenses	($422,286)
Interest Income	($2,500)
Net Operating Expenses	$5,788,120
Total Tonnage	254,634
Disposal Cost per Ton	$22.73

Per the Use Agreement for the Services Authority future budgets will be established on or before each March 1. The Services Authority shall adopt its Annual Budget for the ensuing Fiscal Year, which shall include, without limitation, projected Operating Costs and Operating Revenues, taking into account Tipping Fees established.

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Section 7
HIERARCHY

7.1 Waste Management Hierarchy

Region 2000 and its member localities continue to examine various alternatives for the management of solid waste in Central Virginia. The Virginia Waste Management Board Regulations for Solid Waste Management Planning, Amendment 1, 9 VAC 20-130-10 et seq., requires 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. Landfilling.

Elements higher in the hierarchy are more desirable, and tend to reduce the need for lower, less desirable, elements of the hierarchy. Therefore, when developing a solid waste management plan, preference should be given to those elements higher in the hierarchy.

The localities in the Region have developed and implemented an integrated solid waste management strategy. The Region will rely mainly on landfilling to meet their solid waste disposal needs and will continue to do so. Recycling and landfilling will play the major roles in the Region's integrated solid waste management plan with source reduction and reuse having smaller roles in the plan. Resource recovery and incineration are not currently considered viable options for the Region; however each was initially considered and will be discussed in this section. The Region plans to continue and expand its programs to meet the future solid waste needs of the community.

The following sections detail the integrated solid waste management hierarchy as it relates to the region, in addition to the future disposal options available to the region once the regional landfills reach capacity in 2022 as detailed in Section 4.

7.2 Source Reduction

Source reduction of the waste stream involves the alteration of a service, process, design or input material used for production and/or consumption of a good thus lessening the generation of the waste by-product.

The Virginia Solid Waste Planning Regulations (VR 672-50-01) define source reduction as "any action that reduces or eliminates the generation of waste at the source, usually within a process. Source reduction measures include process modifications, feedstock substitutions, improvements in feedstock purity, improvements in housekeeping and management practices, increases in the efficiency of machinery and recycling within a process."

Frequently, source reduction results in beneficial energy savings, and ideally, it decreases the generated quantity of both solid and hazardous waste. Source reduction can also be brought about through our free market system. The impact of consumer preferences for certain products or packaging can impact industries to change established procedures and also motivate local governments to impose restrictions on businesses.

Source reduction has commonly been thought of as industrial waste minimization, but due to the solid waste crisis has been incorporated in all areas from business to household. The reduction of business waste often comes with systems automation; i.e., use of fax machines, computers, e-mail, networking, and duplex copy machines, etc.

The reduction of the residential waste stream requires that citizens achieve greater awareness of disposal costs and the effect solid waste has on the environment. Public information offers educational benefits that help residents become aware of their throw-away mentality and its effect on costs and harm on the environment.

Section 2.1.5 previously discussed the trends in source reduction nationally, noting that the reduction of yard waste in landfills is the most significant source reduction activity at the moment as localities and states ban yard waste from landfills.

While individuals can attempt to reduce their volume of waste, source reduction policies will be aimed primarily at businesses and industries. Many source reduction policies are not feasible at the local level but are best handled at the state or federal level. Examples of this are the banning of yard waste from landfills or requiring minimum packaging standards. Financial incentives and disincentives, broad regulations concerning source reduction and changes to manufacturing processes are difficult to implement on a local basis. As waste tipping fees at the commercial sector will become more sensitive to the expenses involved in their disposal programs, and will begin to consider source reduction more closely.

To increase citizen awareness of source reduction activities that can be implemented on an individual basis, the Region will consider the implementation of a public information program designed to increase source reduction activity as time and funding permits. The program, if implemented, will primarily consist of information on source reduction activities. The DEQ can be used as a resource for obtaining

appropriate literature on source reduction activities and assistance in developing the program.

To facilitate this, the Services Authority has hired a Recycling Program Manager. The Recycling Manager's salary and benefits are split between the city of Lynchburg (40%), Campbell County (40%) and the regional authority (20%). A description of the Recycling Manager's duties and responsibilities are explained further in Sections 7.4 and 7.5.

It should be noted that source reduction activities will remain under the control of each individual locality. Therefore, it is not anticipated that the Authority will develop source reduction strategies over the 20-year life of the plan.

7.3 Reuse

Reuse is similar to source reduction as it prevents materials from entering the waste stream, but involves separating a given solid waste material from the waste stream and using it, without processing or changing its form, other than size reduction, for the same or another end use. Examples of reuse include such activities as swap shops or thrift stores, clothing collection centers, pallet reuse, use of refillable bottles, reconditioning of drums or barrels, use of saw dust from lumber mills for the manufacture of paper or particle board and waste exchange programs (such as HHW).

As with source reduction, private citizens can make an effort to reuse or encourage reuse of many items that would normally be discarded to the landfill. However, the focus of the program would be better aimed at the commercial sector including the Region businesses and industries.

The following activities are proposed under the 20 year life of plan relative to reuse, as interest and funding are available:

- Continue to educate the public relative to the need for reuse
- Expansion of education to commercial sector to address reuse
- Collection of data on commercial reuse programs

7.4 Recycling

Recycling is defined by the Virginia regulations as "the process of separating a given waste material from the waste stream and processing it so that it may be used again as a raw material for a product, which may or may not be similar to the original product." While Section 5.1.1 outlined the recycling programs for the individual communities in the Region it is not anticipated that further development will occur over the 20-year life of the plan.

Region 2000 and its member communities are operating a number of recycling programs, including curbside and convenience center (green-box) drop of programs, yard waste composting, white goods collection, used clothing reuse and household

hazardous waste collection programs. Section 5.2 displays the recycling materials, tonnage and rates for the Region 2000 community reported to DEQ as of 2007.

Regionalization has the potential to have a significant positive impact on recycling and waste diversion in the Region 2000 area by allowing more cost effective implementation and operation of recyclable material collection and processing infrastructure. The existing recycling infrastructure within Region 2000 is limited, incurs costs that are difficult to justify to rate payers and does not have a significant impact on total waste disposed. Individual jurisdictions do not typically generate enough recyclable material to justify investment in collection and processing equipment required to aggregate and process quantities of material sufficient to take advantage of today's high market values.

The aggregation of loose materials at widely dispersed drop-off centers throughout the region requires paying private sector waste haulers or material buyers the same hauling fees as for waste. Moreover, the hauler often charges for processing material; e.g. baling it, despite the fact that materials such as plastic and aluminum are currently worth $600 and $1,500 per ton, respectively. A regional system offers the opportunity to consider the following:

- The hiring of a regional Recycling Program Manager
  - Responsibilities include developing and implementing recycling and education programs and activities and ensuring compliance with Virginia Department of Environmental Quality annual recycling reporting requirements.
  - Program Manager reports to the Solid Waste Director.
- Promotes recycling and educates residents, businesses and schools in a uniform manner.

7.4.1 Citizens' Convenience Centers

The Campbell County Landfill should continue to operate as a citizens convenience station (CCS) when it is inactive (and subsequently Lynchburg when it closes). Each jurisdiction should also operate CCS throughout their community. Initially, R. W. Beck recommends that each jurisdiction continue to service their own CCS, including the CCS located at the inactive landfills. This includes hauling full containers, providing empty containers, and cleaning the site. Long-term, R. W. Beck recommends that the Authority coordinate a regional approach to providing this service either via the Authority or private sector. If the Authority provided service for the CCS, each jurisdiction should be responsible for a portion of the cost depending on the number of sites within each jurisdiction and the quantity of waste collected at each site (i.e., how often sites require service).

If the Authority accepted full responsibility for operation of the convenience stations, each jurisdiction should be required to upgrade their facilities to meet the Authority's service requirements. R. W. Beck recommends that each site be fenced for security and to prevent vandalism. Depending on the quantity of material received, types of

wastes accepted and number of customers, the Authority will need to evaluate the need for staffing each station. Unmanned stations are also more susceptible to disposal of prohibited wastes.

Currently, sites in Campbell County include compactors, which are all mobile. Some sites have roll-off and packer containers that are serviced by one truck through a service contract. The Authority should also evaluate the number of sites and quantities of waste collected to determine if some sites can be combined or closed altogether to reduce operations costs but without impacting customer service.

It's likely that two drivers and one laborer would be required to service and maintain all of the CCS. The Authority should evaluate the need to staff each station to manage non-permitted uses, such as use by commercial customers. Use of the stations by non-permitted customers' results in the loss of revenue generated at the landfill.

7.4.2 Household Hazardous Waste

Lynchburg currently provides no-fee HHW collection four times per year for City residents. Collection of HHW materials, such as used oil, paints, insecticides and pesticides, occurs on the second Saturday in April, June, August and October between 8 a.m. and 12 p.m. If the Authority took over operation of this program, they could provide the service to each of the member jurisdictions.

The City owns a portable trailer that could be purchased by the Authority and moved around to each community. Each community would be required to pay for its share of the program cost, but would not be required to participate. The City currently contracts with a private company to dispose of the materials collected, which has averaged approximately $15,000 per year. The Authority would need to establish a similar contract for disposal.

The Authority would also need to provide properly trained staff at each event. Training would consist of the OSHA 40-hour and 8-hour annual refresher HAZWOPER course. The City has provided staff for each event through overtime. If the City of Bedford and Nelson County participated, there could be as many as 20 HHW collection events each year.

R. W. Beck recommends that the Authority be responsible for this program serving all member jurisdictions. Providing HHW collection to each of the communities will minimize the amount of HHW that is disposed of in the landfill. Member jurisdictions would need to pay for their proportional disposal costs for HHW. R. W. Beck would recommend that the Authority develop a proposal for a regional HHW program.

7.4.3 Maintaining a 25% Recycling Rate

As discussed in Section 5.2 (Regional Recycling Rates), the Virginia Waste Management Board's August 1, 2001 regulations for solid waste management planning (9VAC 20-130-40 and 9VAC 20-130-120) state that a regional entity must meet and maintain a minimum recycling rate of 25 percent (with one amendment as described in Section 5.2).

The Region's 2007 "adjusted" recycling rate, as calculated from individual Forms 50-30 stands at 41.4 percent. The "final" regional recycling rate will not be known until Virginia DEQ provides final approval of the regional calculations.

The Authority plans on maintaining an overall recycling rate of 25 percent by:

- Continuing individual community recycling and diversion programs;
- Hiring a regional recycling manager;
- Surveying residents and businesses on how to improve recycling programs;
- Presentation to schools and other community functions;
- Helping businesses start or advance recycling programs; and
- Continuing the local litter prevention commission.

7.5 Resource Recovery (WTE) and Incineration

A resource recovery system, or a waste-to-energy system, is defined by Virginia's solid waste regulations as a solid waste management system that "provides for the collection, separation, recycling and recovery of energy or solid wastes, including 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 noncombustible 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 landfilled 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.

In the 2005 Regional Solid Waste Management Analysis, R. W. Beck performed a feasibility study for the region to utilize waste-to-energy (mass burn at 900 TPD) as their primary disposal mechanism. The analysis accounted for all costs and revenues that such a facility would incur. Some of the costs associated with a WTE facility that R. W. Beck analyzed included capital costs, operating and maintenance costs and costs relating to the disposal of the ash generated by the facility. R. W. Beck estimated that

a WTE facility that would process 900 tons per day of refuse would have a capital cost of approximately $117 million. Based on financing this cost with a 20-year bond at an interest rate of five percent, the annual debt service would total $9.4 million.

The operations and maintenance costs for a WTE facility would be expected to be in the range of $30 to $35 per ton based on R. W. Beck's industry experience. In an effort to develop fiscally conservative cost estimates, R. W. Beck used the rate of $35 per ton in 2006. R. W. Beck inflated operations and maintenance cost at 2.5 percent per year from 2006 to 2015. Based on an annual tonnage generation figure of 260,598 in 2006 (including BFI tonnage), total operations and maintenance costs for the year were forecast to be $9.1 million.

Revenue earned from the facility would have been contingent upon MSW tipping fees and the average price per kilowatt-hour that can be obtained in the wholesale electric market and the number of kilowatt-hours generated by the facility. Disposal costs per ton range from $71 per ton in 2006 to $81 per ton in 2015. These costs are driven up by large capital and operating and maintenance costs.

As a result of the analysis, R. W. Beck concluded that given the high costs associated with constructing and maintaining a waste-to-energy facility that the Region not consider waste-to-energy as a viable disposal option at that time. However, the option could be reevaluated in the future when landfills in Region 2000 are closer to reaching capacity.

7.6 Landfilling

The three Counties and two Cities that comprise Region 2000 will rely on Landfilling to meet the near-term disposal needs of its citizens. Beginning July 1, 2008 the five communities will send their solid waste to one of the two operating landfills in the region (Campbell County, or City of Lynchburg). R. W. Beck estimates that the two operating landfills will have a combined disposal capacity of 4,434,293 cubic yards (from Section 4 assumptions). Under this scenario, the Region would be able to operate the landfills for approximately 14.1 years (beginning in July 2008) before reaching capacity in August 2022. It is important to note that the Appomattox County Landfill does not contribute to the 14.1 years of remaining life, as discussed in Section 4. It is not anticipated that the Appomattox County Landfill will contribute to the regional system during the 20-year life. See letter in Appendix L relative to this.

The regional operating landfills, identified in Section 4, will continue to support the waste disposal needs of the region. This includes the disposal of all wastes currently permitted for the facility, including, but not limited to: MSW, C&D, Industrial waste, sludge, citizen's drop-off areas, HHW facilities and bulky item (white goods) disposal area.

Virginia DEQ mandates (via 9VAC 20 regulations), that each community or regional entity that submits a solid waste management plan account for the area's disposal needs on a 20-year basis. As discussed in Section 4, the remaining landfill space from the two operating Region 2000 disposal sites will reach capacity within 14 years. In

light of the limited lifespan of the two operating regional landfills, Region 2000 has explored options to provide for the area's future disposal needs once the operating landfill's current disposal cells have reached their capacity. The disposal options for additional years are discussed in Section 7.8 below. Note that no decision has yet been made as to which disposal option will be utilized. The following sections are intended to show to the Virginia Department of Environmental Protection that the Region has carefully thought out its disposal options once the current operating landfill capacity is reached.

7.7 Future Disposal Options

The 2005 Regional Solid Waste Management Analysis (and updated via the 2007 Region 2000 Services Authority Operations Plan performed by R. W. Beck) considered the most economically feasible disposal options for the Region for 2008 and beyond. The reports analyzed the following options to handle the region's waste:

- Joint use of existing landfilling facilities;
- Expansion of Existing Facilities;
- Construction of a new landfill;
- Construction of a transfer station; or
- Building a waste-to-energy facility.

The combined operating landfill capacity of the regional authority is 14.1 years, which is less than the 20 year planning period. It is important to note that the 14.1 years of remaining capacity does not include the Appomattox County Landfill as discussed in Section 4. It is not anticipated that the Appomattox County Landfill will contribute to the regional system during the 20-year life. This section is intended to provide discussion of options the regional authority will evaluate prior to the operating landfills reaching capacity.

Note that in addition to the sections below, Section 8.2 discusses the disposal system goals and actions items.

7.7.1 Joint Use of Existing Landfills

As discussed throughout the report, the 2005 Analysis recommended the joint use of the existing landfill facilities as the most viable disposal option for all of the participating communities. The 2005 Analysis assumed that the City of Lynchburg's landfill would be the first facility to serve as the region's disposal facility until it reaches capacity. Once the first landfill (e.g. Lynchburg) reaches capacity, all waste would go to the landfill in Campbell County. Assuming a regional start date of July 1, 2008, the two landfills will reach disposal capacity by 2022. See Section 4 for a detailed discussion on the remaining landfill capacity and site life of the two regionally operated landfills.

7.7.2 Expansion of Existing Facilities

One future disposal option would be to expand existing landfill facilities. For example, the Services Authority may consider expanding the Campbell County permitted capacity within the permitted area by combining Phase III and Phase IV. If permitted, the Services Authority would continue to own and operate a landfill.

7.7.3 Develop New Landfill within Region 2000

Another future disposal option would be to develop a new landfill facility within Region 2000. This concept would essentially mean continuing the practice of the Services Authority owning and operating a landfill within the Region. In order for this option to be developed, Region 2000 would need to acquire property or rely on one of the communities within Region 2000 to obtain property that would be suitable for the development of a landfill. Owning and operating another landfill would allow Region 2000 to better control costs since the facility would be located closer than another facility and because the region would not be subject to market pricing from a third party landfill. At the same time, Region 2000 would face the challenge of having to site a new landfill within its service area.

The following describes the advantages and disadvantages associated with a new landfill.

Advantages

- Minimizes transportation costs as collection vehicles and transfer trucks would remain in the region.
- Greater control of costs as compared to having to contract with a third party for disposal.
- Opportunity would exist to generate excess revenue for the benefit of member communities.
- Overall disposal capacity could be developed for 20 or more years, depending on the size of the site.
- Could consider expanding an existing landfill site within the region.

Disadvantages

- Another landfill would need to be sited and developed in the region.
- Depending on the location of the landfill, the need for a transfer station could exist for one or more community.
- The Services Authority would continue to have financial and operational liability for owning and operating a landfill.

Since the implementation of Federal landfill laws (Subtitle D) in the 1990's, landfills have become more sophisticated and expensive to operate. Consequently, the number of facilities has decreased while the size of remaining landfills has increased. As

existing facilities reach capacity and there are fewer suitable sites for landfills, future facilities will need to be regional in nature.

7.7.4 Transfer Station

A transfer station is a facility where solid waste collection vehicles discharge their loads into a receiving area; then, the waste is placed into larger hauling vehicles for travel to a disposal site such as a landfill or waste-to-energy facility. Among the Region 2000 communities, Nelson County has owned and operated a transfer station for a number of years and the City of Bedford utilizes a transfer station that they own and operate.

As the landfill space begins to diminish, Region 2000 may again consider utilizing transfer stations as its primary disposal option. Any future transfer station analysis would account for all costs that would be associated with such an operation such as capital costs, operations and maintenance costs, hauling costs from the transfer station to disposal site and tipping fees at the disposal site. The evaluation completed in the 2005 Analysis can provide a baseline of information concerning the future costs that may be associated with a transfer station system.

The following describes the advantages and disadvantages associated with transfer stations.

Advantages

- Occupies less space and fewer environmental issues than a landfill.
- Reduces the amount of waste going into landfills in Region 2000, thereby reducing the demand for additional landfills in the region.
- Communities in Region 2000 may eventually need a transfer station once their existing landfills reach capacity.
- Lower capital investment than compared to landfills.

Disadvantages

- Facility must be located in the center of the region.
- Currently premature to develop a major transfer station given the remaining disposal capacity in the existing landfills.
- The potential exists for high hauling and disposal costs since these services would be contracted with private companies.
- Loss of control over future price increases.
- Difficult to recover costs for existing debt service and unfunded closure and post closure costs with existing landfill operations.
- Represents a serious change in how solid waste services are provided within Region 2000.

Relying on transfer stations continues to represent a need for communities as they either fill up their existing landfills or rely on landfills that are located further distances from their collection areas. Key trends specific to transfer stations currently involve selecting appropriate compaction technologies for maximizing payloads and consideration of various transportation networks (e.g. trucks, railways and barges).

7.7.5 Waste-to-Energy

Waste-to-energy technology can be used as an integral component of a comprehensive, integrated solid waste management program. The Integrated Waste Services Association (IWSA) states that in addition to providing essential trash disposal services, today's waste-to-energy plants generate clean, renewable energy. Communities that utilize waste-to-energy are provided a disposal alternative to communities that would otherwise have to buy power from conventional power plants and dispose of their trash in landfills.

There are currently 89 waste-to-energy plants nationwide which dispose of more than 90,000 tons of trash each day, while generating enough clean electricity to supply energy to about 2.3 million homes. Through this public-private partnership, communities and waste-to-energy companies have invested approximately $1 billion to upgrade their air quality control systems while employing state-of-the-art emission control devices that reduce pollutants from today's facilities to levels far below state and federal standards.

As the landfill space begins to diminish, Region 2000 may again look at waste-to-energy as their primary disposal option. Any future analysis will account for all costs and revenues that such a facility would incur. Some of the costs associated with a WTE facility include capital costs, operating and maintenance costs, and costs relating to the disposal of the ash generated by the facility.

The following describes the advantages and disadvantages associated with WTE.

Advantages

- Facility generates revenue from electric sales.
- Occupies less space than a landfill.
- Reduces the amount of waste going into landfills, thereby extending the lives of current landfills and reducing the demand for additional landfills.

Disadvantages

- Capital requirements for the construction of the facility are extremely large, significantly driving up cost per ton figures relative to alternatives.
- Operations and maintenance expenses for WTE are high compared to those of landfills.
- Revenues from electricity sales typically are not significant enough to reduce operating costs to levels competitive with landfilling.

- Facility should be centrally located to minimize transportation costs.
- Facility will generate additional air pollution within region, raising environmental concerns.
- Certain WTE facility designs require large amounts of water to make up for evaporation losses.
- Operations will produce substantial tonnages of ash which must be tested and landfilled.
- A large waste stream must be dedicated to the facility for a long period of time.
- The WTE program may divert waste from composting and recycling programs.

WTE facility construction within the United States has been stymied over the past decade due to increasing regulatory requirements and the construction of new regional landfills. In addition, pressure from environmental groups concerned about pollution and low landfill disposal fees in much of the country has limited the development of new projects. No new WTE facilities have been built in the U.S. in recent years. There are a number of companies touting the benefits of emerging WTE technologies, such as gasification and plasma arc. However, based on analysis that R. W. Beck has completed for other clients, these technologies are untested in scenarios where they would process approximately 900 tons per day.

7.7.6 Storage and Treatment

Based on the definition included in the Solid Waste Management Regulations, the City does not currently treat or store municipal solid waste. It is not anticipated that this will develop over the next 20-year life of the plan.

Section 8
GOALS AND OBJECTIVES OF PROGRAM

The establishment of a regional solid waste entity would significantly enhance opportunities for other regional solid waste functions such as solid waste management planning, achievement of recycling goals, collection and disposal of household hazardous waste and more efficient collection and convenience center operations.

The following section outlines the goals and objectives for the Region 2000's establishment of a regional solid waste management program. Any future program activities may become regional overseen by the Region 2000 Services Authority.

The members of the Services Authority have developed and adopted this solid waste management plan for the following reasons:

1. Significant cost savings to local governments and customers from consolidating landfill operations.
2. To provide for the efficient and economical disposal of the solid waste.
3. To provide a reliable and long-term source of disposal for the five communities.
4. To protect the health, safety and welfare of their citizens by providing and planning for their present and future solid waste disposal needs.
5. To promote recycling activities and make a substantial effort to comply with State mandated recycling rate of 25 percent.
6. To develop an integrated approach for the handling and disposal of solid waste.
7. To effectively and efficiently use limited natural resources.
8. To protect the environment from the mismanagement of solid waste.
9. To comply with State Regulations 9 VAC 20-130-10 et seq.
10. More efficient landfill operations due to increased economies of scale.

Sections 8.1 through 8.5 provide milestones for plan implementation for collection, disposal, recycling, public awareness and litter control over the 20-year life of the plan.

8.1 Collections

Table 8-1
Collection System Goals and Action Items

Item Number	Goal	Action Item	Schedule	Estimated Costs (2007 dollars)
C-1	Appomattox, Campbell and Lynchburg to send all solid waste directly to one of the two Region 2000 landfills (e.g. Campbell County and City of Lynchburg) in Region 2000 in a coordinated manner. The City of Bedford and Nelson County would send waste to the one operating landfills via use of existing Transfer Stations.	To commence when date agreed by council.	July 1, 2008	N/A
C-2	Continue to provide a cost effective collection system for the citizens of the Region.	Need to evaluate opportunities for consolidation of operations.	July 1, 2008	N/A
C-3	Provide comprehensive services at the green-box and other collection sites in Appomattox Co., Campbell Co., City of Bedford and City of Lynchburg including trash disposal, bulky item collection, recycling and yard waste handling.	Expand the services as interest and funding become available. Services Authority might take over management of sites. Operations plan will update.	July 1, 2008	Currently unknown
C-4	Assess the need for transfer stations and WTE as the regional landfills near capacity.	Region 2000 will continue to assess need.	As necessary	No specific project costs at this time
C-5	Coordinate recycling efforts through the Regional Authority to comply with DEQ requirements and to meet recycling goals.	See Section 7	As necessary	Currently unknown

8.2 Disposal

Disposal consists of the operation of one of the two operating landfills (City of Lynchburg and Campbell County). The Campbell County landfill was placed in interim closure in 2008 and all disposal in the Region directed to the City of Lynchburg Landfill on July 1, 2008. Once the City of Lynchburg landfill reaches capacity, the Campbell County landfill will be placed in service until filled. No other disposal capacity currently exists for Regional usage.

Nelson County and City of Bedford utilize a transfer station to transfer their waste to the operating landfill. The transfer stations are not part of the Region 2000 operations. Appomattox will direct haul to regional landfill.

It is assumed that approximately 14 years of operation life will result from this arrangement. The Region began using the single landfill on July 1, 2008 and hence the estimated life at that time was 2022. The actual life expectancy will be a function of tonnage, the economy, and landfill operations.

As discussed in Section 4, the Appomattox County Landfill has stopped receiving waste and placed the cap on its last disposal cell. Final certification of this cap is still pending. Once the closure certification is received this landfill will enter into post closure care. The County is in the process of finalizing a permit amendment for an expansion area but this has not yet been approved. Once approved, these expansion cells will be moth-balled. This capacity is not part of the Regional capacity.

Several years prior to reaching capacity of the Campbell County landfill, an evaluation of options will be made to determine the future approach for managing the regional waste beyond the estimated 2022 operational date. The regional solid waste management plan will be modified to incorporate the chosen option. Table 8-2 below displays the region's disposal system goals, timeline and estimated costs.

Table 8-2
Disposal System Goals and Action Items

Item Number	Goal	Action Item	Anticipated Schedule	Estimated Costs (2007 dollars)
D-1	Open Lynchburg landfill first in 2008 to waste disposal from Region 2000 communities.	Provide adequate training to all operating personnel.	July 2008	Variable by locality
D-2	Maintain closure of the Lynchburg landfill in an environmentally sound manner (including leachate system) and in accordance with all federal, state and local regulations and initiate the 30 year post closure period.	Provide adequate training to all personnel in the closure and post closure of the landfill.	October 2013 through October 2043	Under Development
D-3	Assume operation of the Campbell County regional landfill.	Provide adequate training to all operating personnel	November 2013	Under Development
D-4	Maintain closure of the Campbell County landfill in an environmentally sound manner (including leachate system) and in accordance with all federal, state and local regulations and initiate the 30 year post closure period.	Provide adequate training to all personnel in the closure and post closure of the landfill	February 2022 thru February 2052	Under Development
D-5	Determine new disposal options.	Work with Region 2000 members to revisit 2005 plan.	Unknown	Under Development

8.3 Recycling

Regional recycling efforts are discussed in Section 7.4. Table 8-3 below includes these goals as well as additional recycling system goals, along with timelines and estimated costs.

Table 8-3
Recycling System Goals and Action Items

Item Number	Goal	Action Item	Anticipated Schedule	Estimated Costs (2007 dollars)
R-1	Increase recycling at convenience stations (CSS)	Regional coordination of CCS collection and promotion of recycling at these CCS	2009 - 2029	Under development
R-2	Increase diversion of household hazardous waste (HHW)	Regional coordination and expansion of HHW collection events	2009 - 2029	Under development
R-3	Maintain a 25% recycling rate	Continue sponsoring education programs in the classroom, utilize special events to promote recycling, provide educational materials to households	On going	Continue funding of recycling operations
R-4	Increase diversion of electronic waste	Develop collection events within Region	2009 - 2029	Under development
R-5	Increase diversion of construction and demolition waste (C&D), green waste and recyclable materials	Conduct planning study to evaluate options	Fall 2010	Under development
R-6	Increase diversion of ground brush (mulch) from disposal	Investigate additional markets for mulch	Summer 2010	Under development
R-7	Develop regional processing facility in conjunction with implementation of R-1 above.	Evaluate the cost effectiveness of a regional processing facility. Initiate evaluation through consideration of the use of the Appomattox County recycling facility.	FY 2010	Under development

8.4 Public Awareness

Region 2000 will strive to increase the public's perception of waste management and recycling goals throughout the Region. Table 8-4 lists three such goals that will be further developed and monitored by the Regional Recycling Program Manager over the 20 year life of the plan.

Table 8-4
Public Awareness Goals

Original Objective	Current Status
Conduct special educational programs within the public schools that illustrate the importance of proper waste disposal and waste reduction and promote such behavior.	Regional Recycling Program Manager has been hired to facilitate objective.
Develop and make readily available information and educational materials concerning solid waste and its proper management to all interested citizen groups and organizations.	Regional Recycling Program Manager has been hired to facilitate objective.
Utilize communication mediums such as local newspapers and radio stations to publicize local waste management regulations, problems, and the public's responsibility concerning them.	Regional Recycling Program Manager has been hired to facilitate objective.

8.5 Litter Control

The five communities that comprise Region 2000 will continue to support existing litter control and collection programs. While these litter control programs are expected to continue, it is not anticipated that they will be expanded over the 20-year life of the plan. An overview of the existing litter control programs for the five communities and the Region as a whole is provided in this section. Note that part of the job responsibilities of the Regional Recycling Program Manager (hired in 2008) is to oversee any litter control or remediation programs.

8.5.1 Appomattox County

Appomattox County employs two full time personnel to clean and maintain the citizen convenient centers on a daily basis. The County also responds to any citizen complaint regarding overflowing dumpsters littering the surrounding area. There is an Adopt-a-Highway program that is financed by individual entities within the County. In addition, the Virginia Department of Transportation has inmates from Campbell County pick up litter along the roads of Appomattox County. The County also mandates that all county trucks cover their loads/beds to reduce the amount of debris exiting the trucks while transporting

8.5.2 Campbell County

Campbell County retains a Litter and Environmental Commission, which speak at Ruritan Clubs and other civic groups about solid waste disposal and recycling issues. In addition, County personnel speak to students at local schools twice a year to educate them on the importance of proper solid waste disposal and recycling. New

programs and changes in existing programs are advertised and announced in local and regional newspapers, as well as often announced through radio and television.

The Town of Altavista also has a new government information channel that announces the times and dates of household waste and recycling collections, as well as what materials are collected for recycling.

8.5.3 Nelson County

The County employs a part-time recycling coordinator as a means of enhancing and improving this program. Trash cans help reduce litter in Lovingston, a major volunteer road cleanup is held every spring, and a major James River cleanup is held in the fall. The County is exploring a wood chipping operation at the transfer station to reduce the quantity of wood disposal.

Outreach programs in most localities generally include descriptions of waste management services available to residents on the website, in the annual county services brochure, postings at the courthouse and County Office building, and in ads and articles for special events (waste amnesty days, Christmas tree collection, etc.) in local newspapers. In the RSWA service area, outreach also includes website, public forums, flyers at the recycling center, radio advertisements, and inserts in local newspapers. General public service announcements on radio and television also help educate the public. Adopt-a-Street programs and highway signs promote litter control.

Public participation in solid waste management and planning occurs at advertised meetings of public bodies that discuss and act on the issues. In addition, Nelson County has a. “Keep Nelson Beautiful” program that promotes recycling and waste reduction as well as periodic clean-up days.

8.5.4 City of Bedford

The Keep Bedford Beautiful Commission has been a prominent force in promoting an interest among citizens to preserve the environment and control litter. They currently sponsor the Adopt-a-Highway and Adopt-a-Spot programs. The Keep Bedford Beautiful Commission also sponsors twice per year City clean-up events where volunteers walk the streets of the City and pick up litter. The Keep Bedford Beautiful Commission is funded by state litter control and recycling grants. The City of Bedford addresses litter control in the City Code Section 20-35.

8.5.5 City of Lynchburg

The City has an extensive litter control program. This program includes coordinating the clean up of litter with approximately 70 volunteer groups within the City. The City conducts a “March on Litter” campaign where City residents organize on the second Saturday of March to collect litter. In 2006, 150 participants collected eight tons of trash and litter. In addition, the City currently has an environmental education program for providing information to the public. The program has been designed to focus on basic environmental awareness issues, recycling, litter control and pollution

prevention education. The goal of the program is to educate the community through special promotional programs and organized community environmental events. This program will continue to be expanded as interest and funding allow.

8.5.6 Region 2000

As shown in Table 8-5, Region 2000 will continue to promote their existing litter control and prevention programs and expand as resources and interests allow.

Table 8-5
Region 2000 Litter Control Goals and Action Items

Item Number	Goal	Action Item	Schedule	Estimated Costs (2007 dollars)
LC-1	Hire Recycling Program Manager	N/A	July 1, 2008	$40,000.00
LC-2	Educate public relative to litter control	Continue to support existing educational programs. Expand as resources are available.	On-going	No specific funding required at this time
LC-3	Reduce litter in the Cities and Counties	Continue to support road cleanups by KAB affiliates, Adopt-A-Street and Adopt-A-Spot, City Walkers, community volunteers and VDOT. Expand as resources are available.	On-going	No specific funding required at this time
LC-4	Minimize illegal dumping	Continue to patrol communities and Provide comprehensive and timely collection services.	On-going	No specific funding required at this time

Section 9
IMPLEMENTATION SCHEDULE

The implementation schedule for the Region's waste management program has been summarized in Sections 8.1 through 8.5. The majority of the planned expenditures over the 20 year planning period will be associated with the replacement of existing equipment and the closure and maintenance of the landfills. Additional expenditures for the recycling programs, such as the hiring of the recycling manager, will be needed. It is important to note that most of the proposed expenditures are already included in the existing operating budget for the Services Authority in Section 6.1.

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Section 10
RESOLUTIONS

10.1 Formation of Solid Waste Planning Entity

Whereas the Counties of Appomattox and Campbell and the Cities of Bedford and Lynchburg had previously prepared individual solid waste plans, and whereas Nelson County had been part of the Thomas Jefferson Planning District Commission, the five communities will, beginning on July 1, 2008 combine their regional solid waste disposal needs into one integrated solid waste management system.

In 2007, the Region 2000 Local Government Council, representing the Counties of Appomattox, Campbell and Nelson, and the Cities of Bedford and Lynchburg agreed to become a new regional solid waste planning unit. A copy of the five local governing bodies' resolution authorizing the formation of the Region 2000 Solid Waste Authority is provided in Appendix C.

10.2 Virginia DEQ Recognition of Solid Waste Planning Unit

The Virginia Department of Environmental Quality is currently in the process of recognizing Region 2000 as a solid waste planning unit.

10.3 Resolution Adopting Regional Solid Waste Management Plan

Per 9 VAC20-130-140 of the Virginia Waste Management Board, as the Region 2000 solid waste management plan has been developed as a regional plan, a resolution approving the plan, adopted in accordance with the Virginia Area Development Act, the Virginia Water and Waste Authorities Act, and the provisions of the Code of Virginia (15.2-1300) has been approved by the Region 2000 Solid Waste Authority in 2007. A copy of the resolution approving the acceptance of the solid waste plan by each individual community is provided in Appendix D[1].

[1] It is important to note that Appomattox has not yet approved the SWMP for the Region 2000 Services Authority. When the preliminary draft of the SWMP was provided for the communities comprising Region 2000, Appomattox County was not yet involved. Once the SWMP has been finalized and sent to the Virginia DEQ for reevaluation, Appomattox County will approve the SWMP and provide the needed documents for this section of the Appendix

After the Regional Plan has been adopted by the Authority and the five individual communities, a copy of the adopted plan will be placed in the Administrative Offices of each County and City, and at the Region 2000 headquarters located at 828 Main Street, 12th Floor, Lynchburg, VA 24504.

Section 11
FUNDING AND FINANCING

This section provides an overview of the funding mechanisms and financing methods that the Services Authority will implement to ensure the financial integrity of the Services Authority.

11.1 Funding Mechanism

The Services Authority will be funded through tipping fees from the member communities and commercial customers. The projected per ton tipping fees have been developed based on the projected quantity of material that will be landfilled during FY 2008, which should allow the Services Authority to generate sufficient revenue levels. The Services Authority has the expectation that it will recover all of its expenses through its tipping fees. However, to the extent that there is a revenue shortfall, the Use Agreement for the Services Authority does include provisions that require each member jurisdictions to pay for its Pro Rata Share of the deficit. Each such Member Jurisdiction shall have a "moral obligation" to appropriate its Pro Rata Share of such Annual Deficit.

11.2 Financing

The Services Authority will have a need to issue debt to fund various capital expenses, which include but are not limited to the initial acquisition of assets, equipment and facility development/improvement. While the Services Authority is finalizing its options, it is expected that the Services Authority will issue revenue bonds to fund future debt. The Services Authority is currently in discussions with the Virginia Resources Authority (VRA). VRA provides cost-effective financial solutions to local governments and other public bodies for projects that improve the quality of life of Virginians.

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Section 12
PUBLIC PARTICIPATION

12.1 Public/Private Partnerships

The Authority seeks to support all activities relative to reuse, reduction and recycling. However, at this time, it does not have any contracted partnerships with the private sector. It is not anticipated that the Authority will initiate any new contracted partnerships with the private section over the 20-year life of the plan.

12.2 Public Hearings

Virginia Waste Management Board Solid Waste Management Planning Regulation 9 VAC 20-130-130 states that prior to the submission of a solid waste management plan, the submitter (Region 2000) shall publish a notice and hold a public hearing on the plan in accordance with the procedures of the Region 2000 planning agency. A record of the pubic hearing, copies of all written comments and the submitter's responses to the comments are provided in the Appendix.

The Region did not use a citizen advisory committee to prepare the plan. It relied on its staff and engineering consultant to develop the plan that was presented to communities that comprise Region 2000 during work session and then to the public during advertised public meetings. No other specific public participation activities were conducted for the plan. However, the plan will become the cornerstone of future public education activities.

To ensure compliance with 9 VAC 20-130-130, the authority, in addition to the individual communities will conduct a public meeting to discuss the waste management issues with community residents and to establish working relationships with community interest groups, businesses and industry.

12.2.1 Authority

On behalf of the Counties of Appomattox, Campbell and Nelson, and the Cities of Lynchburg and Bedford, the Authority advertised in The Union Star on January 23, 2008, and held a public hearing on the plan at the Lynchburg Public Library on February 7, 2008. A copy of the Notice of Public Hearing issued by the Authority is shown in Appendix F. All records and written comments are shown in Appendix G.

12.2.2 Individual Communities

In addition to the Notice of Public Hearing issued by the Authority, the individual communities each conducted a Public Hearing to provide residents and businesses with an option to comment on the regional solid waste management plan. Table 11-1 displays the advertisement media and the dates of the individual public hearings.

Table 12-1
Public Hearings

Name	Advertisement Media Used	Day of Week Pubic Hearing Scheduled	Month/Date/Year of Public Hearing	Location of Public Hearing
Appomattox County	The Times Virginian	Monday	May 19, 2008	Appomattox Community Center
Campbell County	The Altavista Journal	Monday	March 3, 2008	Board of Supervisors meeting room at the Haberer Building,
Nelson County	The Nelson County Times	Tuesday	February 12, 2008	Supervisors Room of Nelson County Courthouse
City of Bedford	The Bedford Bulletin	Tuesday	February 26, 2008	Council Chambers or City Hall
City of Lynchburg	The Lynchburg Ledger	Tuesday	March 11, 2008	City Council Chamber

Appendix H contains a copy of the Notice of Public Hearing that each individual community issued. Copies of the minutes and other notes from these meetings are included in Appendix I.

Section 13
RECORD KEEPING

After July 2008, when the Region 2000 Service Authority assumes ownership of the landfill, all reporting requirements relative to disposal and landfill operations will be assumed by the Regional Authority. Likewise, after July 2008, the Communities that comprise Region 2000 will initiate recycling reporting to the Regional Authority which will then be responsible for completing the 50-30 form for the Region. These reports, updates, and DEQ submittals as well as the background information are kept in the central archive (files) of the regional solid waste program located at the Region's Waste Management Department, located at 828 Main Street, 12th Floor Lynchburg, VA 24504. The same information will also be kept in the archives of the communities that comprise Region 2000. The Director of DEQ receives copies of the appropriate information through the following sources:

- Direct submittal to DEQ of Form 50-25 (Waste Assessment) and Form 50-30 (Recycling).
- New permit requests.
- Permit amendments.
- Updates to the solid waste management plan.

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