

<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
1.1 Legislation.....	1
1.2 Authority (9 VAC 20-130-20) .....	1
1.3 Purpose (9 VAC 20-130-40).....	1
1.4 Planning Area.....	2
1.5 Planning Period.....	2
1.6 Critical Definitions (9 VAC 20-130-10).....	2
<b>2.0 BACKGROUND INFORMATION .....</b>	<b>6</b>
2.1 Status of solid waste management nationally .....	6
2.1.1 Waste generation.....	6
2.1.2 What is in the waste? .....	7
2.1.3 Disposal.....	7
2.1.4 Recycling .....	8
2.1.5 Waste reduction and reuse .....	8
2.2 Highlights from original solid waste plan (1991).....	9
2.2.1 Waste generation projections.....	9
2.2.2 System components .....	11
2.2.3 Goals of Original Plan .....	12
2.2.4 Long Term Vision for Integrated Waste Management System .....	13
2.2.5 Short-term (interim) vision for Integrated Waste Management System.....	14
2.2.6 Twenty-year milestones .....	14
<b>3.0 DEMOGRAPHIC DATA.....</b>	<b>17</b>
3.1 Buchanan County, Virginia .....	17
3.1.1 Location .....	17
3.1.2 Population .....	17
3.1.3 Geographic conditions .....	20
3.1.4 Climate.....	20
3.1.5 Transportation.....	20
3.1.6 Infrastructure.....	21
3.1.7 Economic Growth .....	21
3.1.8 Land Use .....	25
3.1.9 Community Facilities/Activities: .....	27
3.2 Dickenson County.....	27
3.2.1 Location .....	27
3.2.2 Population .....	28
3.2.3 Geographic conditions .....	31
3.2.4 Climate.....	32
3.2.5 Transportation.....	32
3.2.6 Infrastructure / Utilities & Services .....	33
3.2.7 Economic Growth .....	33
3.2.8 Land Use .....	38
3.2.9 Community Facilities/Activities .....	39
3.3 Russell County .....	39
3.3.1 Location .....	39
3.3.2 Population .....	40
3.3.3 Geographic conditions .....	43
3.3.4 Climate.....	44

3.3.5	Transportation .....	44
3.3.5	Infrastructure / Utilities & Services .....	45
3.3.6	Economic Growth .....	46
3.3.7	Land Use .....	49
3.3.8	Community Facilities/Activities: .....	51
3.4	Population Summary.....	52
<b>4.0</b>	<b>WASTE GENERATION AND COMPOSITION.....</b>	<b>53</b>
4.1	Existing Conditions (2003).....	53
4.2	Historical Waste Generation (1998 – 2003) .....	55
4.2.1	Total Tonnage Recorded at Transfer Stations .....	55
4.2.2	Pounds per person per day .....	57
4.3	Projected Waste Generation Rates Relative to Disposal Needs .....	59
4.3.1	Population Growth Rate.....	59
4.3.2	Commercial and industrial growth.....	60
4.3.3	Annual change in MSW (residential/commercial) tonnages .....	60
4.3.4	Annual change in total tonnage with population considered .....	61
4.3.5	Projected tonnages .....	61
4.4	Waste Composition.....	65
<b>5.0</b>	<b>EXISTING SOLID WASTE MANAGEMENT SYSTEM .....</b>	<b>67</b>
5.1	Collection.....	67
5.1.1	Overview.....	67
5.1.2	Russell County Collection sites .....	70
5.2	Transfer Operations .....	71
5.2.1	Summary of transfer station information.....	71
5.2.2	Contractual Relationships .....	72
5.2.3	Tipping Charges and Fees at transfer station.....	72
5.2.4	Materials permitted for acceptance at transfer stations.....	74
5.2.5	Materials not accepted at the transfer stations .....	75
5.3	Disposal.....	76
5.3.1	Landfill.....	76
5.3.2	Previously operated landfills.....	76
5.3.2.A	Previously operated landfills continued.....	77
5.3.3	Household hazardous waste collection .....	77
5.3.4	Central Archive.....	77
5.4	Recycling .....	78
5.4.1	Description of programs .....	78
5.4.2	Recycling rates.....	79
5.4.3	Composition of materials recycled .....	81
5.4.4	Volunteer Programs .....	81
5.4.5	Recycling Markets .....	82
5.4.6	Projected recycling rates .....	82
5.5	Public Education .....	82
5.6	Public/Private Partnership.....	82
<b>6.0</b>	<b>BUDGET.....</b>	<b>83</b>
<b>7.0</b>	<b>WASTE MANAGEMENT HEIRARACHY .....</b>	<b>83</b>
7.1	Source reduction .....	84
7.2	Reuse.....	84
7.3	Recycling .....	85

7.4	Resource recovery and incineration.....	86
7.5	Landfilling.....	86
<b>8.0</b>	<b>GOALS AND OBJECTIVES OF PROGRAM.....</b>	<b>86</b>
8.1	Collections .....	87
8.2	Transfer .....	88
8.3	Disposal.....	89
8.4	Recycling .....	90
8.5	Litter Prevention and Control .....	92
<b>9.0</b>	<b>IMPLEMENTATION SCHEDULE .....</b>	<b>94</b>
<b>10.0</b>	<b>FUNDING AND FINANCING .....</b>	<b>95</b>
<b>11.0</b>	<b>PUBLIC PARTICIPATION .....</b>	<b>97</b>
<b>12.0</b>	<b>RECORD KEEPING.....</b>	<b>98</b>

## LIST OF TABLES

<b>Table 1</b>	Key Elements of Existing Solid Waste Program .....	ES3
<b>Table 2</b>	USA Waste Generation – Pounds per Person per Day .....	6
<b>Table 3</b>	USA Waste Composition by Material Type .....	7
<b>Table 5</b>	USA Recycling and Composting Rates .....	8
<b>Table 6</b>	USA Source Reduction .....	9
<b>Table 7</b>	Tonnage Projections From Original SWMP .....	10
<b>Table 8</b>	1991 Solid Waste System Components .....	11
<b>Table 9</b>	Summary of Goals and Action Items .....	12
<b>Table 10</b>	Proposed Action Long Term Vision .....	13
<b>Table 11</b>	Proposed Action Short Term Vision .....	14
<b>Table 12</b>	Twenty-Year Milestones .....	14
<b>Table 13</b>	Population - Buchanan County 1990-2014 .....	17
<b>Table 14</b>	Population Projections 1980-2030 .....	18
<b>Table 15</b>	Population by Age .....	18
<b>Table 16</b>	Selected Racial Data Estimates by Population and Percentage .....	19
<b>Table 17</b>	Household Income and Benefits .....	19
<b>Table 18</b>	Unemployment Rates-Buchanan County 200-2014 .....	22
<b>Table 19</b>	Commuting Patterns .....	23
<b>Table 20</b>	Major Employers in Buchanan County .....	23
<b>Table 21</b>	County Versus State Data .....	23
<b>Table 22</b>	Employment by Industry – Buchanan County .....	24
<b>Table 23</b>	Taxable Sales 2000-2014 .....	25
<b>Table 24</b>	Population – Dickenson County 1990-2014 .....	29
<b>Table 25</b>	Population Projections 1990-2040 .....	29
<b>Table 26</b>	Population by Age .....	30
<b>Table 27</b>	Selected Racial Data by Population and Percentage .....	30
<b>Table 28</b>	Household Income and Benefits .....	31
<b>Table 29</b>	Dickenson County Unemployment Rates 2000-2014 .....	34
<b>Table 30</b>	Commuting Patterns .....	34
<b>Table 31</b>	Major Employers – Dickenson County .....	35
<b>Table 32</b>	County Versus State Data .....	35
<b>Table 33</b>	Employment by Industry – Dickenson County .....	36
<b>Table 34</b>	Taxable Sales 2000-2014 .....	37
<b>Table 35</b>	Population – Russell County 1990-2014 .....	40
<b>Table 36</b>	Population Projections 1990-2040 .....	41
<b>Table 37</b>	Selected Racial Data Estimates by Population and Percentage .....	41
<b>Table 38</b>	Population by Gender & Age 2000-2010, 2014 .....	42
<b>Table 39</b>	Household Income and Benefits .....	43
<b>Table 40</b>	Employment Rates –Russell County 2000-2014 .....	46
<b>Table 41</b>	Cummuting Patterns .....	47
<b>Table 42</b>	Major Employers – Russell County .....	47
<b>Table 43</b>	County Versus State Data .....	48
<b>Table 44</b>	Taxable Sales 2000-2014 .....	48
<b>Table 45</b>	Employment by Industry – Russell County .....	49
<b>Table 46</b>	Population Summary 1990-2014 .....	52

<b>Table 47</b>	DEQ Form 50-25 Summary 2015.....	54
<b>Table 48</b>	Transfer Station Reporting Data – Buchanan County 2010-2015 .....	55
<b>Table 49</b>	Transfer Station Reporting Data – Dickenson County 2010-2015l.....	56
<b>Table 50</b>	Transfer Station Reporting Data – Rusesll County 2010-2015.....	56
<b>Table 51</b>	Transfer Station Reporting Data – Regional.....	57
<b>Table 52</b>	Evaluation of Waste Tonnage as Pounds Per Person Per Day Buchanan County.....	57
<b>Table 53</b>	Evaluation of Waste Tonnage as Pounds Per Person Per Day Dickenson County .....	58
<b>Table 54</b>	Evaluation of Waste Tonnage as Pounds Per Person Per Day Russell County.....	58
<b>Table 55</b>	Evaluation of Waste Tonnage as Pounds Per Person Per Day Regional ...	59
<b>Table 56</b>	Household and Commerical Waste Received at Transfer Stations .....	60
<b>Table 57</b>	Estimated Waste Tonnage 2004-2024 – Buchanan County .....	62
<b>Table 58</b>	Estimated Waste Tonnage 2004-2024 – Dickenson County .....	63
<b>Table 59</b>	Estimated Waste Tonnage 2004-2024 – Russell County.....	64
<b>Table 60</b>	Estimated Waste Tonnage 2004-2024 – Regional.....	65
<b>Table 61</b>	Regional Waste Composition by Material Type.....	66
<b>Table 62</b>	Regional Waste Composition by Product Type.....	66
<b>Table 63</b>	Summary of Information of Collections .....	67
<b>Table 64</b>	Russell County Collection Sites Tonnage.....	70
<b>Table 65</b>	Summary of Information on Transfer Stations .....	71
<b>Table 66</b>	Contractual Relationships .....	72
<b>Table 67</b>	Summary of Authority’s Tipping Charges.....	73
<b>Table 68</b>	Summary of Tipping Fees at Transfer Stations .....	73
<b>Table 69</b>	Sumary of Authority Agreements .....	74
<b>Table 70</b>	AEP Industrial Landfill.....	77
<b>Table 71</b>	Summary of Recycling Programs in the Region.....	79
<b>Table 72</b>	Locality Recycling Rate .....	80
<b>Table 73</b>	Recycling Datea by % Material .....	81
<b>Table 74A</b>	Summary of Operation Budgets and Revenues .....	83
<b>Table 75</b>	Summary of Refuse Facilities in Region .....	85
<b>Table 76</b>	Collection System Goals and Action Items .....	87
<b>Table 77</b>	Tansfer State System Goals and Action Items.....	88
<b>Table 78</b>	Disposal System Goals and Action Items.....	89
<b>Table 79</b>	Recycling System Goals and Action Items.....	91
<b>Table 80</b>	Litter Prevention and Contraol Goals and Action Items.....	92
<b>Table 81</b>	Projected Micsellaneous Expenditures by Authority 2004-2024 .....	95
<b>Table 82</b>	Projected Expenditures for Authority Transfer and Disposal 2000-2024 .....	96

## LIST OF FIGURES

<b>Figure 1</b>	Vicinity Map .....	8
<b>Figure 2</b>	Location Map .....	9
<b>Figure 3</b>	Buchanan County - Permit 218 Location Map .....	18
<b>Figure 4</b>	Dickenson County - Permit 261 Location Map .....	25
<b>Figure 5</b>	Russell County - Permit 515 Location Map .....	26



## APPENDICES

- Appendix 1** Regional Documentation
- Appendix 2** DEQ Forms 50-25
- Appendix 3** Summary of Previously Permitted Landfills and Location Maps
- Appendix 4** DEQ Recycling Reporting Form
- Appendix 5** Recycling Markets
- Appendix 6** Sampling of Public Education Materials
- Appendix 7** Questionnaire and Responses
- Appendix 8** Authority Meetings: Agendas and Minutes
- Appendix 9** Resolutions

## EXECUTIVE SUMMARY

The following solid waste management plan prepared for the Cumberland Plateau Regional Waste Management Authority (Authority) is submitted in accordance with 9 VAC 20-130-40 et seq. The region under the umbrella of the Authority is composed of Buchanan County and the incorporated town of Grundy, Dickenson County and the incorporated towns of Clinchco, Clintwood and Haysi, and Russell County and the incorporated towns of Cleveland, Honaker, and Lebanon. The region was formed in 1991 under the original solid waste management plan prepared by the Cumberland Plateau Planning District Commission in conjunction with Thompson and Litton for the Counties of Buchanan, Dickenson, and Russell. The plan was dated July 1, 1991. The documentation forming the region is included in Appendix 1.

Since 1991, the region has moved from landfill operations within each County to transfer operations with disposal outside of the region. In addition, since 1991, a regional authority has been established. This Authority has the oversight of the plan and control of the transfer operations. The Authority is responsible for the following activities:

- Financing of the transfer stations. The Authority took out \$3,000,000 in bonds in 1993 to cover the estimated cost of the construction of the three stations. These bonds were refinanced in 2001 leaving the Authority with a \$2,356,400 debt. Final payment on this initial bond was completed on December 1, 2008. In 2009, the Authority reviewed the conditions of all three facilities and decided to secure a bond for \$1.3 million for rehabilitating the facilities. In 2010 all work was completed for extending the life of the facilities for fifteen additional years. Final payment on the 2009 Bond was completed in November 2015.
- Oversight of and provision of funding to the Counties for the operations of the transfer stations. The localities can chose to provide manpower or to privatize the manpower for day to day operations. Only Russell County has privatized their operations.
- Collecting revenues from the Counties for use of the transfer stations.
- Permit compliance.
- Negotiating and holding the contract on hauling from the transfer stations to the landfill. Currently Advanced Disposal/Eco Safe Landfill holds the contract for hauling. CEI is sub-contracted by Advanced Disposal for hauling services.
- Negotiating and holding the contract on disposal. The Authority currently holds the contract with Advanced Disposal/Eco Safe Lanfill for disposal at the Blountville, TN landfill located in Sullivan County Tennessee.
- Negotiating and holding the contract for periodic household hazardous waste collection programs.
- The Authority has been actively involved in the promotion of recycling efforts in the region. In 1995, the Authority encouraged the establishment of County operated recycling drops off centers. Buchanan, Dickenson and Russell County embraced the program which still operates today.



The counties and some towns are responsible for some or all of the following activities:

- Collection services
- Recycling activities
- Litter control activities including clean-up of open dumps and enforcement of litter laws
- Public education
- Post closure activities at all closed landfills as required by DEQ.
- Both Buchanan and Dickenson Counties completed their PCC termination at the Hoot Owl Landfill Permit #218 and the Dickenson County Landfill Permit #261. Russell County has completed a partial PPC termination on Russell County Landfills Permits #258 and #515. Russell County is currently seeking out alternatives to treat their Leachate rather than pump and haul.

No treatment of any waste as defined in Section 1.6 occurs within the region.

In addition to the daily record keeping, the Region documents its solid waste activities in several ways:

- Annual reports to the Cumberland Plateau Regional Waste Management Authority prepared by the Executive Director of the Authority
- Annual reports to the Board of Supervisors of the member Counties based on information provided by the Authority
- Periodic updates to the Authority and Boards by the Executive Director
- Annual submittal by March 31 of each year of the Waste Information and Assessment Report (Form 50-25) to DEQ
- Annual submittal by April 30 of each year of the Recycling Rate Report (Form 50-30) to DEQ
- Annual submittal usually by December of each year of the update to the financial assurance forms to DEQ

All these reports, updates and DEQ submittals as well as all background and permitting information relative to the transfer stations are kept in the central archive (files) of the Cumberland Plateau Regional Waste Management Authority located at 224 Clydesway Road, Lebanon, Virginia, 24266. Information on the landfills is kept at the Counties. The Director of DEQ or other DEQ representatives receive copies of appropriate information relative to the Region's solid waste management program through the following sources:

- Direct submittal to DEQ of Forms 50-25 and 50-30 on an annual basis
- Permit applications
- Permit amendment applications
- Updates to the solid waste management plan
- General correspondence which may be required from time to time

The following table summarizes important key elements of the Region’s existing program:

**TABLE 1  
KEY ELEMENTS  
EXISTING SOLID WASTE PROGRAM**

<b>ELEMENT</b>	<b>DESCRIPTION</b>
Collection	<ul style="list-style-type: none"> <li>• Buchanan County – Residential and commercial door-to-door collection.               <ul style="list-style-type: none"> <li>○ Town of Grundy – Residential and commercial door-to-door collection.</li> </ul> </li> <li>• Dickenson County – Residential and commercial door-to-door collection.               <ul style="list-style-type: none"> <li>○ Town of Clintwood – Residential and commercial door-to-door collection.</li> </ul> </li> <li>• Russell County – 14 green box sites               <ul style="list-style-type: none"> <li>○ Town of Cleveland - Residential and commercial door-to-door collection.</li> <li>○ Town of Honaker - Residential and commercial door-to-door collection.</li> <li>○ Town of Lebanon – Residential and commercial door-to-door collection.</li> </ul> </li> </ul>
Transfer	<ul style="list-style-type: none"> <li>• Buchanan County Transfer Station               <ul style="list-style-type: none"> <li>○ PBR # 106</li> <li>○ Opened March 1996</li> <li>○ 5,000 square feet</li> <li>○ Scales – (2) B Tek 10’x70’</li> <li>○ Cost \$73,412.50</li> <li>○ Managed by the Authority and staff by the County</li> <li>○ Tonnage transferred 2015 – 16,426 tons</li> </ul> </li> <li>• Dickenson County Transfer Station               <ul style="list-style-type: none"> <li>○ PBR #049</li> <li>○ Opened December 1993</li> <li>○ 5,000 square feet</li> <li>○ Scales – (2) B Tek 10’x70’</li> <li>○ Cost - \$73,412.50</li> <li>○ Managed by the Authority and staffed by the County</li> <li>○ Tonnage transferred 2015 – 10,049 tons</li> </ul> </li> <li>• Russell County Transfer Station               <ul style="list-style-type: none"> <li>○ PBR #001</li> <li>○ Opened April 1994</li> <li>○ 7,500 square feet</li> <li>○ Scales – (1) B Tek and (1) Meter Toledo 10’x70’</li> <li>○ Cost - \$73,412.50</li> <li>○ Managed by the Authority and staffed by a private contractor</li> <li>○ Tonnage transferred 2015 – 16,986 tons</li> </ul> </li> </ul>

ELEMENT	DESCRIPTION
	<ul style="list-style-type: none"> <li>• Hauling contract with Advanced Disposal and subcontracted with CEI Trucking, Inc. The contract expires on October 26, 2018.</li> <li>• Permits are held by Authority who owns the buildings and equipment and holds ownership of the properties in Buchanan and Dickenson. The Authority has a 25 year lease on the property at Russell County.</li> <li>• As of December 1, 2015, the Authority does not have any outstanding debt. Bond debt was paid off on December 1, 2015.</li> <li>• As permit holder, the Authority is responsible for permit compliance.</li> <li>• As owner of the buildings, the Authority is responsible for all maintenance/repairs and equipment replacement.</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>• Contract with Advanced Disposal/Eco Safe, Inc. It expires on October 26, 2018.</li> <li>• Location: Sullivan County Tennessee approximately 10 miles south of Bristol</li> <li>• TDEC Permit #SNL 820-000-0282 Ext., Class 1</li> <li>• Total acreage of site – 655 acres</li> <li>• Total acreage available for permitting – 255 acres</li> <li>• Life remaining – 78 years at 675 tons per day (2094).</li> </ul>
Recycling	<ul style="list-style-type: none"> <li>• DEQ Recycling Form for region – Recycling rate 2014 = 30%</li> <li>• Buchanan County – Currently Buchanan County offers a drop off site located in the town of Grundy for paper, plastic and cardboard. White goods collected and recycled. Tires collected. Individual recycling rate in 2014 of 25.2%. <ul style="list-style-type: none"> <li>○ Town of Grundy – No formal program but county operates drop off site in town limits. Shreds leaves, brush, and Christmas trees for mulch.</li> </ul> </li> <li>• Dickenson County – Currently Dickenson County offers drop off location in Clintwood and Haysi. Have one scrap metal dealer in County who recycles white goods, aluminum, scrap metal, and abandoned autos. Tires are collected. Individual recycling rate in 2014 of 33.4%. <ul style="list-style-type: none"> <li>○ Town of Clintwood – no formal program but county operates drop off site in town limits.</li> </ul> </li> <li>• Russell County – 7-8 drop off sites; plastic, newspaper, cardboard, aluminum and oil are collected. White goods and scrap metal recycled at transfer station. Tires sent off site for recycling. Individual recycling rate in 2014 of 31.9%. <ul style="list-style-type: none"> <li>○ Town of Lebanon – No formal program.</li> </ul> </li> <li>• Since original submittal of this plan on 06/25/04, the Authority has hired a full time recycling coordinator to work to improve the programs in the Region.</li> </ul>
Treatment	<ul style="list-style-type: none"> <li>• The region does not treat any waste per the definition in Section 1.6.</li> </ul>

During preparation of the plan, the following goals and objectives were developed for the program. See Section 8.0 for a more detailed description of the activities.

**Collection - Goals and Objectives:**

- Towns and Counties will continue to handle their own collection.
- Authority to evaluate the possibility of developing a private contract for collection in the region.
- Town of Lebanon may consider servicing citizens in immediately adjacent areas of Russell County with door-to-door service if practical.

**Transfer**

- Current hauling contract expires on October 26, 2018. Authority has been instructed to continue in its oversight role and will begin competitive bid process in early 2018.
- Repair work was completed in 2010, e.g. floor repairs, door repairs, lighting, new scales, new scale house, etc. Authority performed oversight during the repairs. Following completion of the repairs, the Authority agreed to create a line item in its budget for long term maintenance and repairs.

**Disposal - Goals and Objectives:**

- ◆ Current disposal contract expires on October 26, 2018. Authority has been instructed to continue in its oversight role and will begin competitive bid process in early 2018.
- ◆ The Advanced Disposal/Eco Safe waste disposal facility in Sullivan County, Tennessee has a life expectancy estimated to the year 2094. Thus, prior to the end of the planning period, the Authority will need to consider alternative disposal locations unless this facility is expanded.

**Recycling - Goals and Objectives:**

- ◆ Authority has hired a regional recycling coordinator to work with the Counties, Towns and the commercial sector. Coordinator is responsible for pursuing markets, assisting with the establishment of collection programs, developing educational programs, and expanding the overall interest in recycling in the region.
- ◆ Authority to consider assisting directly with the recycling programs but coordinator will need to research markets and develop a specific plan for the Authority to act on.
- ◆ Authority has established a periodic electronic waste collection program.
- ◆ Authority has established a periodic household hazardous waste collection program.
- ◆ The Authority will continue to encourage its localities to increase programs offered and public participation in annual environmental events.
- ◆ The Authority will continue to encourage the localities to increase the percentage of residents that are educated about proper disposal and recycling practices within the region.
- ◆ Secure additional competitive state grants to fund additional environmental education programs.
- ◆ Continue to expand and increase programs in the schools and community.

### **Litter Prevention and Control**

- ◆ The regional coordinator has been tasked with involvement in regional coordination of litter prevention and enforcement.
- ◆ The Authority through the coordinator will seek out alternative funding sources for litter prevention and clean up.
- ◆ The Authority through the coordinator will encourage the organization of grassroots environmental groups to assist in litter prevention and litter control activities. An example is the already established Keep Southwest Virginia Beautiful.
- ◆ The Counties will continue to map illegal dump sites and will coordinate clean up as funding is available.
- ◆ The Counties will continue to support existing Adopt a Highway and Adopt a Stream campaigns.
- ◆ The Counties will continue to provide periodic cleanup days throughout the year to encourage the collection of bulk items.
- ◆ The Counties will continue to provide and improve enforcement activities relative to illegal dumping and littering.

### **Treatment**

- ◆ The Region does not have any plans to incorporate treatment into their solid waste program.

## **1.0 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 1, 9 VAC 20-130-40 et seq., effective date August 1, 2001.

### **1.2 Authority (9 VAC 20-130-40)**

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%;
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 Planning Area**

The region under the umbrella of the Authority included in this solid waste management plan is composed of Buchanan County and the incorporated town of Grundy, Dickenson County and the incorporated towns of Clinchco, Clintwood and Haysi, and Russell County and the incorporated towns of Cleveland, Honaker and Lebanon. See Figure 1 for a vicinity map indicating the location of the region within Virginia and Figure 2 for Region Map. The region was originally formed in 1991.

## **1.5 Planning Period**

The planning period for this solid waste management plan is 20 years from 2016 – 2036.

## **1.6 Critical Definitions (9 VAC 20-130-40)**

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:

Construction, demolition and debris waste (CDD) – Construction and demolition waste means solid waste which is produced or generated during construction, remodeling, repair or destruction of pavements, houses, commercial buildings, or 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, any liquid, compressed gases or semi-liquids and garbage are not construction wastes. Debris waste means wastes resulting from land clearing operations.

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.

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 – means paper, metal (except automobile bodies), plastic, glass, yard waste, wood, and textiles. It does not include large diameter tree stumps.

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 does 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.

Supplemental recyclable material – means waste tires, used oil, used oil filters, used antifreeze, automobile bodies, construction waste, demolition waste, debris waste, batteries, ash, sludge, or large diameter tree stumps, or material as may be authorized by the director.

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 D. Gwinner, DEQ, treatment includes tire shredding but not 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.



## 2.0 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 an overview of the key points of the Region's original Solid Waste Management Plan dated July 1, 1991 are being provided in this Section.

### 2.1 Status of solid waste management nationally

The following information is taken from "Municipal Solid Waste in the United States: 2001 Facts and Figures Executive Summary," produced by the Office of Solid Waste and Emergency Response, United States Environmental Protection Agency (EPA), EPA530-S-03-011, dated October 2003. This report provides data on the national municipal solid waste stream for 1960 through 2001.

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 254.1 million tons in 2013. This represents a 260% increase in the solid waste generated over the 53-year period. At the same time the United States population increased from 180.0 million persons in 1960 to 316.12 million persons in 2013 or a 158% increase over the 41-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. The following table summarizes the waste generation for 1960 – 2013 on a pounds per person per day basis:

**TABLE 2**  
**USA WASTE GENERATION (MSW)**  
**1960 – 2015**  
**POUNDS PER PERSON PER DAY**  
**AS REPORTED BY EPA JUNE 2015**

<b>YEAR</b>	<b>POUNDS PER PERSON PER DAY</b>
1960	2.7
1970	3.2
1980	3.7
1990	4.5

<b>YEAR</b>	<b>POUNDS PER PERSON PER DAY</b>
1995	4.5
1999	4.6
2000	4.7
2005	4.6
2010	4.44
2013	4.4
2014	4.4

The report noted that residential waste is estimated to be 55% - 65% of the total MSW generated, and that commercial waste (including institutional wastes, some industrial sites where packaging is generated and businesses) constitutes between 35% and 45% 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. The following table summarizes the findings from this report:

**TABLE 3  
USA WASTE COMPOSITION  
BY MATERIAL TYPE  
AS SUMMARIZED IN EPA REPORT  
2014 DATA**

<b>MATERIAL</b>	<b>% OF TOTAL WASTE STREAM</b>	<b>RECOVERY AS A PERCENT OF GENERATION</b>
Paper	26.6	49.7
Glass	4.4	3.3
Metals	9.0	8.8
Plastics	12.9	3.5
Rubber, leather, & textiles	9.5	0
Wood	6.2	2.9
Yard trimmings	13.3	23.6
Food scraps	14.9	2.2
Other	3.2	6.0

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.

### 2.1.3 *Disposal*

The report tracks the ultimate handling of the wastes generated and indicates that 12.8% of the waste generated is combusted, 34% of the waste is recovered and that 53% of the waste is landfilled. In the 2014 report, it noted that the number of landfills has decreased from nearly

8,000 in 1988 to 1,858 in 2001 while the average landfill size increased. It further states that, “At the national level, capacity does not appear to be a problem, although regional dislocation sometimes occur.”

#### 2.1.4 Recycling

According to the report, the United States recycled approximately 5.6 million tons of materials in 1960 and approximately 89 million tons in 2014. This represents a 900% increase in recycling over the period. In addition, composting of yard trimmings, food scraps, and other MSW organic material has increased from negligible reported quantities in 1960 to 21.1 million tons in 2014. This does not include back yard composting projects. Thus, in 1960, the recycling rate as calculated as recyclables over total MSW was 6.4%, and in 2014 is 34% without composting or 29.7% with composting. The following table summarizes the recycling and composting rates for 1960 – 2014 on a pounds per person per day (PPPD) basis:

**TABLE 5  
USA RECYCLING AND COMPOSTING RATES  
1960 – 2014  
AS REPORTED BY EPA**

<b>YEAR</b>	<b>RECYCLING (PPPD)</b>	<b>COMPOSTING (PPPD)</b>	<b>TOTAL (PPPD)</b>
1960	.2	Neg.	.2
1970	.2	Neg.	.2
1980	.4	Neg.	.4
1990	.6	.1	.7
2000	1.0	.3	1.3
2005	1.1	.4	1.5
2010	1.1	.4	1.5
2012	1.1	.4	1.5
2013	1.1	.4	1.5
2014	1.1	.4	1.5

#### 2.1.5 Waste reduction and reuse

The following information is taken from the EPA document, “Advancing Sustainable Materials Management: 2014 Fact Sheet,” and republished November 2016 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 6  
USA SOURCE REDUCTION BY MAJOR CATEGORY  
2014  
AS REPORTED BY EPA**

<b>MATERIAL</b>	<b>TONNAGE (million tons)</b>	<b>% OF TOTAL REDUCTION</b>
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 2 and 5% 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.

## **2.2 Highlights from original solid waste plan (1991)**

The original solid waste management plan for the Cumberland Plateau Region was prepared by the Cumberland Plateau Planning District Commission in conjunction with Thomson and Litton and was dated July 1, 1991. The following sections provide highlights from the original plan.

### *2.2.1 Waste generation projections*

The following table summarizes the estimated waste tonnages in 1991, the projections during the original planning period and provides the actual 2003 tonnage data. In 1991, scales did not exist

at the landfills so tonnages were estimated from temporary weighing programs. When the transfer stations were constructed, scales were installed and the 2003 data represents actual reported values. The original plan stressed that without accurate scale information the projections could vary considerably.

**TABLE 7  
TONNAGE PROJECTIONS FROM ORIGINAL SWMP**

<b>COUNTY</b>	<b>1991 TONNAGE ESTIMATED FOR PLAN (Tons per year)</b>	<b>PROJECTED MINIMUM TONNAGE (Tons per year)</b>	<b>PROJECTED MAXIMUM TONNAGE (Tons per year)</b>	<b>TONNAGE DATA 2003 SCALE RECORDS</b>
Buchanan	31,200	28,600	47,190	20,472
Dickenson	15,600	15,730	28,600	10,607
Russell	35,880	14,300	28,600	22,945
<b>TOTAL</b>	<b>82,680</b>	<b>58,630</b>	<b>104,390</b>	<b>54,024</b>

Projected minimum and maximum tonnage taken from Page 18 of the original Solid Waste Management Plan. Values in the Plan were reported as tons per day based on a 5.5 day, week.

The tonnage as recorded for 2016 is significantly lower than that estimated in the original plan. While the Counties may have realized a slight decrease in tonnage due to the declining population, the reduction most likely indicates an over estimation of the tonnage during preparation of the original study.

2.2.2 System components

The solid waste management system consisted of the following components in 1991:

**TABLE 8  
1991 SOLID WASTE SYSTEM COMPONENTS**

COMPONENT	DESCRIPTION
Buchanan County	<b>Collection:</b> The County provided door-to-door service to approximately 7,200 residences and 700 business pick-up points excluding the Town of Grundy. The Town had its own sanitation service and offered door-to-door collection to its residences.
	<b>Disposal:</b> The County landfill, Permit 218, was placed into operation in 1974 and had an estimated closure date of June 1992. The landfill consisted of approximately 28 acres, which would require closure under the 1988 regulations. Tires were collected and shredded prior to placement in the landfill. No scales existed at the landfill. No tipping fees were charged. The landfill was operated on a 6-day work week.
	<b>Recycling:</b> White goods only.
	<b>Estimated cost of system:</b> <ul style="list-style-type: none"> <li>• \$122.70 per ton for collection and disposal</li> <li>• \$63.57/year per person</li> </ul>
Dickenson County	<b>Collection:</b> The County contracted the collection of solid waste to M.T.D., Inc., a locally owned and operated private company. The contract included collection of waste at County-owned, 6-yard green boxes and waste hauling to the County owned and operated landfill. In 1991, approximately 44 green box sites existed. Commercial businesses had to contract directly with the private contractor for collection. The contractor also collected white goods, scrap metal, tires and debris. The Town of Clintwood owned and operated its own sanitation department servicing businesses and residences within the town limits. Town residences were paying \$4.25 per month for service. The Town did not pay a tipping fee at the landfill. Haysi and Clinchco were served by the County green boxes.
	<b>Disposal:</b> Disposal of all waste collected was at the Dickenson County landfill Permit 261, permit date November 14, 1978. The landfill is located on a previously developed surface mine bench. The property on which the landfill was situated was leased in 1991 from Clinchfield Coal Company by the Board of Supervisors. As of 1991, the landfill consisted of two asbestos waste disposal sites, a sanitary fill area, a debris disposal area and a tire disposal area.

COMPONENT	DESCRIPTION
	Approximately 11.2 acres had been used for fill activities and of that approximately 8.3 acres would require closure under the new solid waste regulations. The landfill had an estimated life expectancy to early 1994. No tipping fees were charged at the landfill. The landfill was operated on a 5-day work week.
	<b>Debris and yard waste:</b> These materials were burned on site at the landfill.
	<b>Recycling:</b> Only scrap metal and white goods were recycled.
	<b>Estimated cost of system:</b> <ul style="list-style-type: none"> <li>• \$69.91 per ton for collection and disposal</li> <li>• \$56.32 per person per year</li> </ul>
Russell County	<b>Collections:</b> The County had an annual lease with Harold Beasley Disposal Service to provide service to 15 drop-off centers. The Towns of Cleveland, Honaker and Lebanon operated their own sanitation services and provided door-to-door collection to residents and businesses.
	<b>Disposal:</b> Disposal of waste collected in the County was at the County landfill, Permit 515. The landfill had been in operation since July 20, 1988 and in 1991 approximately 12 acres were active. The landfill is equipped with a single synthetic liner system, leachate collection system, leachate storage facilities and groundwater monitoring system. The landfill was expected to be full by July 1992. A potential 2-acre expansion area existed with an estimated life of 10 – 15 years. The County was considering the expansion option seriously. No tipping fees were charged at the landfill. The landfill was operated on a 6-day work week.
	<b>Recycling:</b> Scrap metal, tires and white goods
	<b>Estimated cost of system:</b> <ul style="list-style-type: none"> <li>• \$61.16 per ton for collection and disposal</li> <li>• \$17.98 per person per year</li> </ul>

\* Costs for collection and disposal include the Town and Counties collection costs.

### 2.2.3 Goals of Original Plan

Under the original plan, the following goals were identified:

**TABLE 9  
SUMMARY OF GOALS AND ACTION ITEMS**

ORIGINAL GOAL	ACTION ITEM
To address solid waste management from a regional standpoint, thereby enhancing project economics and the environment and public health.	ARC Planning Grant late 1991 funded planning services of Thompson & Litton, Inc. Regional solution means reduced tipping fees, minimizing impact on citizens and business.
To view solid waste as a resource, not simply “trash”	Private sector to investigate markets for

<b>ORIGINAL GOAL</b>	<b>ACTION ITEM</b>
which should be buried and forgotten	recyclables
To minimize reliance on landfilling as a sole or principal means of solid waste management.	Recycling to become part of management plan
To provide an opportunity for the creation of jobs in the planning area upon implementation of the solid waste management system.	Contracts require that local qualified personnel be hired as truck drivers, fuel and parts for trucks be purchased in the CPPDC.
To meet the recycling mandates as set forth by the DWM in the most feasible and practical manner.	In addendum 7/2/93, CPRWMA to initiate RFP to solicit services of private waste management firms for recycling
To address the short term and long term needs of the planning area with respect to solid waste management.	
To provide an update to DWM with respect to ongoing and future work necessary to implement a regional solid waste system	Completed as part of the addendum to the Waste Management Plan dated August 2, 1993.
To file a petition to the DWM for the establishment of a regional boundary between the counties of Buchanan, Dickenson, and Russell.	Spring of 1992, SCC issued a charter to the Authority, thereby deeming it to have been lawfully and properly created.
To develop the most cost-effective and environmentally sound solid waste management system for the planning area.	All counties have signed User Agreements with the CPRWMA

#### *2.2.4 Long Term Vision for Integrated Waste Management System*

The three Counties under the original plan envisioned a regional system overseen by a solid waste authority. The long-term vision included the following activities:

**TABLE 10  
PROPOSED ACTIVITIES LONG TERM VISION**

<b>ACTIVITY</b>	<b>DESCRIPTION</b>
Collection	Each county and town in the planning area would collect solid waste and deliver the materials to a transfer station for haulage to the regional facility. Russell and Dickenson Counties were to evaluate their collection systems relative to “flow control.”
Transfer Stations	The Authority would operate three solid waste transfer stations (one in each county) for the delivery of solid waste to the regional facility. These transfer stations would be centrally located to best facilitate delivery of waste to the regional facility.
Central Processing Facility	Solid waste would be delivered to a central processing facility for recycling purposes. It was envisioned that the system would separate such materials as ferrous metals, glass, non-ferrous materials, and plastics. Such a system was considered feasible only from a regional perspective.
Further Waste Reduction	Two further waste reduction techniques were being evaluated while the original 1991 plan was being prepared. The first was composting and the second was waste to energy. The evaluation had not been



ACTIVITY	DESCRIPTION
	completed.
Landfilling	Residual materials from the central processing facility, which could not be composted or combusted, and possible ash from the waste-to-energy facility would be landfilled in a modern, state-of-the-art landfill. It was estimated that if all the facilities were constructed as outlined above, the landfill would only need to handle approximately 10% of the waste materials delivered to the landfill.

### 2.2.5 Short-term (interim) vision for Integrated Waste Management System

The three Counties under the original plan envisioned a regional system overseen by a solid waste authority. The short-term (interim) vision included the following activities:

**TABLE 11  
PROPOSED ACTIVITIES SHORT TERM VISION**

ACTIVITY	DESCRIPTION
Collection	The existing collection system currently in place in each of the counties would remain in place.
Landfilling	Landfills would continue in each of the counties until completion of the regional system. Vertical or lateral expansions may have been needed for Buchanan and Dickenson Counties or interim disposal alternatives within the region explored.

### 2.2.6 Twenty-year milestones

The following twenty-year milestones were set in the original plan:

**TABLE 12  
TWENTY-YEAR MILESTONES**

ITEM	TIMETABLE	CURRENT STATUS
<b>1. Transfer Stations (Developmental)</b>		
Finalize Waste Management, Inc agreement	August/September 1993	In 2013, agreement was made with Advanced Disposal, LLC.
Rehabilitation – Dickenson Co.	Opened December 1993	Completed 2010
Rehabilitation – Russell Co.	Opened April 1994	Completed 2010
Rehabilitation – Buchanan Co.	Opened March 1996	Completed 2010
Commence Operations (Full Scale)	April 1994	See above.
<b>2. Transfer Stations (operational)</b>		
Procure Equipment	Ongoing/As needed	Three new loaders were leased in Jan 2016
Hire Staff	September 1993-March 1994	Authority provides funding to Counties for operation

ITEM	TIMETABLE	CURRENT STATUS
Develop Operational Procedures	September – November 1993	Done
Negotiate Service Agreements for utilities	September – December 1993	Done
<b>3. Recycling Program</b>		
Evaluate existing system performance	September – November 1993	Using money received from an ARC grant, the Authority contracted with TH&P Environmental Engineering to complete a report on recycling in the region. The report was dated 1996 and made recommendations for drop off collection.
Evaluate Alternatives	November 1993-February 1994	See above.
Develop RFP	February – April 1994	No activity
Evaluate proposals	April – June 1994	No activity
Consider Privatization	June – August 1994	No activity
Implementation	August 1994- January 1995	The Authority started to implement the recommendations of the recycling study by purchasing collection boxes. However, only Russell County availed themselves of the program and still continues to run it today. The other Counties did not have funding available to proceed with recycling.
Hire a Regional Coordinator	Spring 2004	The Authority hired a regional litter and recycling coordinator to assist the member counties with development and implementation of recycling programs.
<b>4. Future Landfilling Alternatives</b>		
Evaluate potential CPRWMA landfill in Planning Area	Spring 2012	The Authority and its member counties did a study in 2012 that determined that the cost saving of a transfer station system veruses a landfill would not be needed.
Decision on CPRWMA landfill	Spring 2012	Completed 2012

ITEM	TIMETABLE	CURRENT STATUS
<b>5. Solid Waste Management Plan Amendments</b>		
Amend plan per DEQ regulations	September 1998 September 2003 September 2008 September 2013 March 2016	Plan being updated in 2016 per Amendment 1 of the regulations.
<b>6. Future recycling program (Re-evaluation of item #3)</b>		
Evaluate recycling program	July 2017	No activity
Develop additional alternatives	Aug-September 2017	No activity
Develop RFP	September 2017	No activity
Evaluation of proposals	September–November 2017	No activity
Award contract for recycling	January 2018	No activity
<b>7. Repeat Step #4</b>		
	5 year increments up to 2021	No activity
<b>8. Repeat Step #6</b>		
	5 year increments up to 2026	No activity

As the current plan will indicate, consideration of a regional central processing facility and/or a landfill have been dropped from further consideration and limited recycling activities have been implemented in the region due to the expense.

### 3.0 DEMOGRAPHIC DATA

#### 3.1 Buchanan County, Virginia

##### 3.1.1 Location

Buchanan County, Virginia is located in the southwestern portion Virginia along the border of Kentucky, which lies to the west. The county shares a border with West Virginia to the northeast. This 508 square mile community is bounded by Dickenson County to the southwest, Russell to the south and Tazewell to the east.

Roanoke is approximately 200 miles east and Richmond, the state capital, is 389 miles east.

##### 3.1.2 Population

Grundy, the county seat, functions as the trade center for Buchanan County and for portions of neighboring counties in Kentucky and West Virginia. According to the 2014 Census Bureau American Community Survey Estimates, the town had a total population of 1,063. Vansant, a few miles to the south of Grundy, is the other population center with a total population of 433.

Table 13  
Population - Buchanan County, Virginia  
1990-2014

Population  
Town of Grundy & Vansant CDP, Virginia

Census	Year	Population	% Annual Change	Grundy		Vansant	
				Population	% Annual Change	Population	% Annual Change
Census	1990	31,333					
Estimate	1991	31,400	0.21%				
	1992	31,200	-0.64%				
	1993	30,700	-1.60%				
	1994	30,300	-1.30%				
	1995	29,700	-1.98%				
	1996	28,900	-2.69%				
	1997	28,400	-1.73%				
	1998	27,900	-1.76%				
	1999	27,500	-1.43%				
Census	2000	26,978	-1.90%	1,105		989	
Estimate	2001	26,319	-2.44%				
	2002	25,945	-1.42%				
	2003	25,407	-2.07%				
	2004	24,950	-1.80%				
	2005	24,452	-2.00%				
	2006	23,992	-1.88%				
	2007	23,526	-1.94%				
	2008	23,090	-1.85%				
	2009	22,860	-0.99%	1,041		805	
Census	2010	24,028	5.10%	1,021	-1.92%	470	-41.61%
Estimate	2011	23,888	-0.58%	1,247	11.13%	573	21.91%
	2012	23,837	-0.21%	1,081	-13.31%	411	-28.27%
	2013	23,555	-1.18%	1,254	16.00%	293	-28.71%
	2014	23,106	-1.90%	1,063	-15.23%	433	47.78%

Source: US Census Bureau & US Census Bureau American Community Survey Estimates

The entire coal-producing region of southwest Virginia has seen significant population decline since the mid-1980's due to dramatic job loss in the coal industry. The weak economy forced workers to move to find jobs elsewhere. Another factor in the decline is the loss of young adults leaving the area for education or employment. Isolation, poor transportation routes and limited commercial variety make it difficult to attract new residents and new industry.

Population projections from the Virginia Employment Commission show population decreases for Buchanan County through 2020 of about -3.00% a year. For the next twenty years (2030-2040) the county is projected to gain population at rates of approximately 0.14%.

In the county, the population is spread out with 19.5% under the age of 19, 5.5% from 20 to 24, 24.5% from 25 to 44, 31.0% from 45 to 64, and 19.4% who are 65 years of age or older. The median age is 45.3 years.

Table 14  
Population Projections - Buchanan County, Virginia  
1990-2040

Year	US Census Bureau	VEC Projections	% Annual Change By Decade	
1990	31,333			
2000	26,978		1990-2000	-13.90%
2010	24,098		2000-2010	-10.67%
2020		23,383	2010-2020	-2.96%
2030		23,263	2020-2030	-0.51%
2040		23,296	2030-2040	0.14%

Source: Virginia Employment Commission

Table 15  
Population by Age - Buchanan County

Age	Buchanan County								
	2000			2010			2014 Estimates		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
<b>Total population</b>	26,978	13,681	13,297	24,098	12,310	11,788	23,106	11,770	11,336
<b>Under 5 years</b>	1,288	654	634	1,114	591	523	1,020	520	500
<b>5 to 9 years</b>	1,582	838	744	1,176	589	587	1,108	583	525
<b>10 to 14 years</b>	1,671	818	853	1,349	692	657	1,190	612	578
<b>15 to 19 years</b>	1,925	1,016	909	1,416	789	627	1,186	611	575
<b>20 to 24 years</b>	1,588	882	706	1,316	706	610	1,282	714	568
<b>25 to 29 years</b>	1,737	899	838	1,440	784	656	1,424	801	623
<b>30 to 34 years</b>	1,929	1,034	895	1,418	802	616	1,346	740	606
<b>35 to 39 years</b>	2,300	1,206	1,094	1,519	802	717	1,351	756	595
<b>40 to 44 years</b>	2,440	1,319	1,121	1,739	895	844	1,541	806	735
<b>45 to 49 years</b>	2,219	1,150	1,069	1,982	1,024	958	1,692	876	816
<b>50 to 54 years</b>	2,086	1,026	1,060	2,086	1,102	984	1,854	917	937
<b>55 to 59 years</b>	1,647	825	822	1,936	971	965	1,950	1,010	940
<b>60 to 64 years</b>	1,474	737	737	1,739	816	923	1,675	813	862
<b>65 to 69 years</b>	1,043	523	520	1,352	669	683	1,548	714	834
<b>70 to 74 years</b>	820	333	487	1,107	502	605	1,200	582	618
<b>75 to 79 years</b>	576	211	365	686	318	368	886	370	516
<b>80 to 84 years</b>	361	115	246	415	153	262	485	212	273
<b>85 and over</b>	292	95	197	308	105	203	368	133	235

According to the US Census American Community Survey of 2014, there were 23,106 people, 9,406 households, and 6,618 families residing in the county, which calculates to a population density of 48 persons/mi<sup>2</sup>. There are 11,508 housing units at an average density of 24 units/mi<sup>2</sup>.

The racial makeup of the county is 96.1% White, 2.3% Black or African American, and 1.6% from other races. There were 9,406 households, with the average household consisting of 2.41 persons and the average family size being 2.89 persons.

The median income for a household in the county is \$29,678, and the median income for a family is \$39,722. Males have a median earnings of \$40,587 versus \$18,883 for females. The per capita income for the county is \$18,357 with 24.0% of the population and 20.6% of families living below the poverty line.

Table 16

Selected Racial Data Estimates By Population and Percentage

Jurisdiction	Population	White	Percent	Black or African American	Percent	Other	Percent
Buchanan County	23,106	22,204	96.1%	531	2.3%	370	1.6%

Table 17

HOUSEHOLD INCOME AND BENEFITS IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)

Income Group	Buchanan County Households	% of Households
Less than \$10,000	1,139	12.10%
\$10,000 to \$14,999	957	10.20%
\$15,000 to \$24,999	1,897	20.20%
\$25,000 to \$34,999	1,190	12.70%
\$35,000 to \$49,999	1,165	12.40%
\$50,000 to \$74,999	1,328	14.10%
\$75,000 to \$99,999	916	9.70%
\$100,000 to \$149,999	630	6.70%
\$150,000 to \$199,999	112	1.20%
\$200,000 or more	72	0.80%
Total	9,406	100.00%

Median Household Income Dollars	29,678
Per Capita Income Dollars	18,357
Poverty all families	20.60%
Poverty all people	24.00%

### *3.1.3 Geographic conditions*

The surface of the entire county is rugged and mountainous. Flat lands are rare and valley slopes are steep so that the entire area is covered with ridges, valleys and streams. Some of the ridges in the southern section of the county are sufficiently wide for roads and a few houses.

The maximum relief of the county is 2,890 feet, the lowest point being on Levisa Fork at the Kentucky boundary, where the elevation is 845 feet, and the highest on Big A Mountain, where the elevation is 3,735 feet. Sandy Ridge, the divide that forms the county boundary on the southeast, is the natural barrier that separates the county from other parts of Virginia. Another main divide that forms the boundary between Buchanan County and McDowell County, West Virginia is called State Line Ridge.

All the drainage of the county is tributary to Big Sandy River through its three main branches Russell Fork, Levisa Fork, and Tug Fork. Although most streams and creeks contain some water all year round, none has a very large flow. The topography of Buchanan County limits development somewhat to the low lying areas along streams and rivers.

Buchanan County lies in the Cumberland Plateau Physiographic Province where formations are mostly sandstone and shale with mineable coal deposits. The Province, for the most part, contains weather-resistant sandstone, which accounts for the steep V-shaped mountains.

### *3.1.4 Climate*

Buchanan County lies in the warm temperate region. Latitude, mountainous topography, and prevailing winds exert considerable influence upon the climate.

The area receives an average annual rainfall of 40.95 inches and an average snowfall of 23 inches. The average maximum temperature is 72 degrees, and the average minimum temperature is 36 degrees for the Cumberland Plateau region. Buchanan County's average July temperature is 76 degrees and for January the average temperature is 36 degrees.

Thunderstorms and cloudbursts, normally occurring in the summer months, produce heavy rainfall over sections of the county and runoff is significant. Prevailing winds are westerly at an average velocity of 8 miles an hour but can reach high speeds during storms.

### *3.1.5 Transportation*

#### **A. Highways**

There is no Interstate running through the County but U.S. Route 460 runs through its center from Richlands (Tazewell County) to the state line in common with Pike County, Kentucky. Route 460 is a major collector road providing direct access to Grundy, Keen Mountain, Vansant, and other communities. Route 83 runs east through the center of the county from Haysi

(Dickenson County) to McDowell County, West Virginia. Route 460 and Route 83 converge at Grundy.

Virginia Primary Route 80 provides access to the southwest and northwest corners of the county. It enters Buchanan County from Honaker in Russell County, enters Davenport, and exits Buchanan County to Haysi in Dickenson County.

#### **B. Air**

The nearest airport is the Mercer County Airport, located 42.3 miles to the north in West Virginia and is served by U.S. Airways. Raleigh County Memorial Airport is 57.2 miles away and is also served by U.S. Airways. The Tri-Cities Regional Airport lies 62.4 miles to the southeast in the Bristol/Johnson City, Tennessee area. It is served by five of the major airlines or their regional partners.

General aviation services can be found at Grundy Municipal Airport or at the Tazewell County Airport.

#### **C. Rail**

Norfolk Southern provides freight rail service to Buchanan County.

#### **D. Water**

The nearest ports are located in Richmond (389 miles) and Norfolk (480 miles).

### *3.1.6 Infrastructure*

#### **A. Electricity**

American Electric Power provides power to the County.

#### **B. Natural Gas**

Virginia Natural Gas provides natural gas to the County.

#### **C. Water**

Buchanan County Public Service Authority oversees the water supply in the County.

#### **D. Sewage**

Buchanan County Public Service Authority oversees the sewage treatment in the County.

### *3.1.7 Economic Growth*

Buchanan County's unemployment rate hit a high in 1994 at 18.3%. Since that high, the rate has been falling each year. In early 2004, the unemployment rate was between five and six percent. Between 2002 and 2004, the number of individuals in the labor force and the number of



unemployed declined by approximately the same amount. This could indicate that “discouraged workers” have stopped looking for work and have permanently left the work force. The high rates of individuals below the poverty level and on Medicaid also indicate that many are no longer looking for work.

Table 18  
Buchanan County Unemployment Rates 2000 - 2014

Year	Labor Force	Employed	Unemployed	Annual Unemployment Rate
2000	8,738	8,223	515	5.90%
2001	8,881	8,344	837	6.00%
2002	8,983	8,344	639	7.10%
2003	8,838	8,220	618	7.00%
2004	8,317	7,834	483	5.80%
2005	8,401	7,947	454	5.40%
2006	8,419	7,997	422	5.00%
2007	8,657	8,235	422	4.90%
2008	8,950	8,502	448	5.00%
2009	9,236	8,448	788	8.50%
2010	8,326	7,497	829	10.00%
2011	8,474	7,755	719	8.50%
2012	8,598	7,819	779	9.10%
2013	8,174	7,286	888	10.90%
2014	7,874	7,058	816	10.40%

Source: Virginia Employment Commission

Buchanan County sees fewer of its workers leaving the county to work elsewhere than does its neighbor, Dickenson County. According to the 2014 Census estimates, the worker retention rate was 50.6%, with 4,168 individuals, (out of a workforce of 8,235) traveling to surrounding counties to work. The median travel time to work was 33.4 minutes in the year 2014.

Table 19  
Commuting Patterns

People who live and work in the area	3,060
In-Commuters	4,767
Out-Commuters	4,168
Net In-Commuters (In-Commuters minus Out-Commuters)	599

Source: U.S. Census Bureau, On The Map Application and LEHD Origin-Destination Employment Statistics, 2012

Table 20  
Major Employers - Buchanan County

Company	Product	Employees
Buchanan County School Board	Educational Services	500 to 999 employees
Consol Buchanan Mining Co. LLC	Mining (except Oil and Gas)	250 to 499 employees
Keen Mountain Correctional Institute	Justice, Public Order, and Safety Activities	250 to 499 employees
Dominion Coal Corporation	Mining (except Oil and Gas)	250 to 499 employees
Sykes Enterprises	Administrative and Support Services	250 to 499 employees
Buchanan General Hospital	Hospitals	100 to 249 employees
Rapoca Energy Company	Mining (except Oil and Gas)	100 to 249 employees
County of Buchanan	Executive, Legislative, & Other General Government	100 to 249 employees
Food City	Food and Beverage Stores	100 to 249 employees
Wal Mart	General Merchandise Stores	100 to 249 employees

The poverty rate in Buchanan County is 24% versus 11.5% in Virginia. The per capita income for the county is only 18,357 versus 33,958 for Virginia. The proportion of county residents over the age of 25 without a high school diploma is much higher than in Virginia.

Table 21  
County Versus State Data  
Buchanan County

Economic Indicators	Buchanan	Virginia
Population with Public Health Coverage	51.70%	24.20%
Poverty Rate	24.00%	11.50%
Per Capita Income	18,357	33,958
Population Aged 16+ in Labor Force	40.80%	66.70%
Population Aged 25+ w/o High School Diploma	31.80%	12.50%

Source: United States Census Bureau American Community Survey Estimates

Mining jobs are still a significant sector of the employment in Buchanan County. Education services jobs make up the largest segment of jobs with health care and social services right behind mining and education services. Taxable sales for Buchanan County have been steadily

increasing since 2000 when sales totaled \$115,923,478. By 2014, sales were up to \$147,726,232.

The whole Cumberland Plateau Region is focused on the development of tourism as one way to strength the economy and create jobs. Industrial development is very limited in Buchanan County due to its isolation and the lack of large plots of fairly flat land. Information technology and health care are two areas that could see growth in the county

Table 22  
Employment By Industry  
Buchanan County

Category	Percentage
Mining	21.66%
Education Services	11.96%
Health Care and Social Assistance	10.74%
Retail Trade	9.83%
Public Administration	9.45%
Construction	6.13%
Admin, Support, Waste Mtg. Remediation	5.80%
Transportation and Warehousing	4.24%
Accomodation and Food Services	4.20%
Professional Scientific & Technical Svc	3.42%
Manufacturing	2.67%
Finance and Insurance	2.27%
Wholesale Trade	2.20%
Other Services	2.14%
Manangement of Companies and Interprizes	1.32%
Real Estate and Rental and Leasing	0.34%
Agriculture, Forestry, Fishing & Hunting	0.24%
Utilities	Confidential
Information	Confidential
Arts, Entertainment, and Recreation	Confidential
Source: Virginia Employment Commission	

Table 23  
Taxable Sales  
2000-2014

Year	Buchanan
2000	\$115,923,478
2001	\$114,597,950
2002	\$114,720,922
2003	\$112,152,118
2004	\$116,924,712
2005	\$107,211,477
2006	\$123,290,187
2007	\$127,687,900
2008	\$139,948,887
2009	\$127,560,716
2010	\$125,345,514
2011	\$142,304,553
2012	\$156,984,874
2013	\$148,802,737
2014	\$147,726,232

Source: Virginia Department of Taxation

### 3.1.8 Land Use

#### **A. Residential:**

In the coalfields of Virginia, 70% of the land is above a 20 percent slope and 90% is above a 12 percent slope. Much of the county is unsuitable for residential development. Most of the population density in Buchanan County is centered in the northwest-central area where both Grundy and Vansant are located. Of the 11,508 housing units in the county, 18% are vacant. The vacancy rate is 31% for housing in Grundy.

Since the population of the county is expected to continue to decline, there are no future growth areas for subdivision development. Provision of public services would need to be considered a priority before concentrated growth could be expected in new areas of the county.

#### **B. Commercial:**

Independent shopping establishments offering a variety of retail goods and services are located throughout the county. The county has one shopping center with 12 retail outlets. Grundy is the county seat and the commercial area as well with approximately 30 retail establishments. This

town was flooded out three times in the 20th century and the town center is being relocated from the banks of the Levisa Fork River to a site on higher ground.

Future commercial development in the county will depend on an increase in the population, an increase in jobs or an increase in tourism.

In 2004, the Virginia Coalfield Economic Development Authority approved a \$3 million loan to the Buchanan County Industrial Development Authority (IDA) for the construction of the University of Appalachia School of Pharmacy in Grundy. The University of Appalachia is projected to have an economic impact of approximately \$20 million per year and to create 138 new jobs in Buchanan County. The Appalachian School of Law is also located in Grundy.

**C. Industrial:**

There are a limited number of developed industrial parks in Buchanan County. This is partly due to the lack of large parcels of suitable land for development and the lack of good transportation routes. The decision was made to develop an informational park and service sector jobs as a way to diversify the economy of Buchanan County.

In 2003, the Virginia Coalfield Economic Development Authority granted \$1,040,000 to the Buchanan County Industrial Development Authority (IDA) to equip the Virginia Employment Commission's (VEC's) new customer contact center at the Buchanan Information Park. The board also approved up to a \$2,090,000 loan to the Buchanan County IDA for construction of a 30,000 sq. ft. addition to the Buchanan Information Park facility.

<b>SITE SPECIFICATIONS - INDUSTRIAL SITES –BUCHANAN COUNTY</b>					
<b>SITE NAME</b>	<b>LOCATION</b>	<b>MILES TO NEAREST INTERSTATE</b>	<b>MILES TO NEAREST 4-LANE HWY</b>	<b>SQUARE FOOTAGE</b>	<b>TOTAL ACREAGE</b>
Buchanan Informational Park	State Route 83	I-77 - 70 mi	Rt. 460 - 8 mi	38,013	4.75 acres

There is a unique opportunity for significant economic development in the coalfield counties with the plan to build the Coalfields Expressway along the region's ridge tops. Preliminary construction plans indicate that as many as 500 acres of new developable land will be created by the Expressway. With 500 acres of new developable land, the three counties could realize as many as 4,000 to 6,000 new jobs from the successful marketing of these new sites. With a standard accepted multiplier of 1.7 for indirect jobs, a total of 6,800 to 10,200 new jobs are foreseeable for the coal counties of Southwest Virginia.

When construction begins, it is estimated that 1,400 construction jobs will boost the local regional economy over the expected 10-year lifespan of the road's construction. Local income will also be generated by the purchase of supplies, materials, and equipment from local businesses. In the long-term, tourism will increase as destinations that are now remote become accessible. For example, currently the Breaks receives over 400,000 visitors a year, but the TVA estimates that when the Coalfields Expressway is in place, attendance could increase to 1 million visitors per year.

The hope is that local colleges and institutions will see their profiles and enrollment figures rise as more and more people consider higher education a viable alternative. Additionally, technology and industrial parks will finally be able to recruit to their full potential and existing businesses will be able to fan out and offer their goods and services to more and more customers.

#### **D. Agricultural:**

The amount of land used for farming is decreasing in Buchanan County. Land in farms decreased 27% from 8,627 acres in 1992 to 6,303 acres in 1997, while the average size of farms increased from 85 acres (1992) to 90 acres (1997). The number of full time farms decreased 58% during the same period from 36 farms in 1992 to 15 farms in 1997.

Crops such as burley tobacco and hay account for nearly 60% of the market value of agricultural products sold. Beef cattle and livestock sales make up the remaining 40% of the market.

#### **E. Open Space/Recreation:**

Nearly all of Buchanan County is covered in trees. Over 90 percent of the county is covered by hardwood forest growth and about 1% is evergreen forest.

##### *3.1.9 Community Facilities/Activities:*

Buchanan County General Hospital, located in Grundy, is a 134-bed hospital that serves the county.

Public schools in the county include 2 elementary, 4 combined, and 4 high schools. Several schools are located in Grundy including Mountain Mission School, a private K-12 school. The town is also home to the Appalachian School of Law and the planned University of Appalachia School of Pharmacy.

The Jefferson National Forest and the Breaks Interstate Park in neighboring Dickenson County offer extensive outdoor recreation activities.

Sources:

U.S. Bureau of the Census, 2000 and 2014 Census, 1990 Census, Economic Census,  
Census of Agriculture  
Virginia Economic Development Partners  
Cumberland Plateau Planning District Commission  
Virginia Employment Commission

## **3.2 Dickenson County**

### *3.2.1 Location*

Dickenson County, Virginia is located in Southwestern Virginia on the border of Kentucky. Dickenson lies in the coal-bearing hills of the Appalachian Plateau. Though rich in natural resources with abundant coal, natural gas, timber and mineral assets, the economy of the region is transitioning from natural resources to technology.

Dickenson is bounded by Wise County to the southwest, Buchanan County to the northeast and Russell County to the southeast. Roanoke is approximately 184 miles east and Richmond, the state capital, is 255 miles east.

### *3.2.2 Population*

Dickenson County, like the other counties in the Cumberland Plateau Planning District, has seen alternating periods of population growth and decline related to a series of coal-related “booms and busts”. But since the 1990’s, the region has seen a steady decline in population. Dickenson County declined -3.00% from 2000-2010 and continues to decline although the rate has slowed.

The Virginia Employment Commission projects that Dickenson County will continue to see population decreases through 2040 but at rates considerably less than the 3.0% the county saw over the past decade (2000-2010). Between 2020 and 2030 the decline is projected to level off so that the population remains rather constant at 15,375.

The population centers of the county are the towns of Clinchco (pop. 365), Clintwood (1,448), and Haysi (408). During the last decade (2000-2010), the population of Clintwood lost -8.7% remained constant while Haysi gained 167.7% of its small population. Haysi's population increase was due mainly to the town being annexed.

Table 24  
Population - Dickenson County, Virginia  
1990-2014

Population  
Town of Clintwood, Clinchco & Haysi, Virginia

Census	Year	Population	% Annual Change	Clintwood		Clinchco		Haysi	
				Population	% Annual Change	Population	% Annual Change	Population	% Annual Change
Census	1990	17,620							
Estimate	1991	17,600	-0.11%						
	1992	17,700	0.57%						
	1993	17,600	-0.56%						
	1994	17,500	-0.57%						
	1995	17,400	-57.00%						
	1996	17,000	-2.30%						
	1997	16,900	-0.59%						
	1998	16,700	-1.18%						
	1999	16,600	-0.60%						
Census	2000	16,395	-1.23%	1,549		424		186	
Estimate	2001	16,240	-0.94%						
	2002	16,134	-0.65%						
	2003	16,080	-0.33%						
	2004	16,079	0.00%						
	2005	16,175	0.59%						
	2006	16,024	-0.93%						
	2007	16,033	0.56%						
	2008	16,176	0.89%						
	2009	16,087	-0.55%						
Census	2010	15,903	-1.14%	1,414		337		498	
Estimate	2011	15,765	-0.86%	1,594	12.72%	666	97.60%	380	-23.69%
	2012	15,668	-0.61%	1,620	1.63%	567	-14.86%	458	20.52%
	2013	15,449	-1.40%	1,565	-3.39%	472	-16.75%	418	-8.70%
	2014	15,308	-0.91%	1,448	-7.47%	365	-22.66%	408	-2.39%

Source: US Census Bureau & US Census Bureau American Community Survey Estimates

Table 25  
Population Projections - Dickenson County, Virginia  
1990-2040

Year	US Census Bureau	VEC Projections	% Annual Change By Decade	
1990	17,620			
2000	16,395		1990-2000	-6.95%
2010	15,903		2000-2010	-3.00%
2020		15,600	2010-2020	-1.90%
2030		15,375	2020-2030	-1.44%
2040		15,193	2030-2040	-1.18%

Source: Virginia Employment Commission

According to the 2014 Census Bureau Estimates, there were 15,308 people, 6,200 households, and 4,289 families residing in Dickenson County. This calculates to a population density 49.4/mi<sup>2</sup>. There are 7,548 housing units in the county and 17.9% are vacant.

In the county, the population is spread out with 22.38% under the age of 19, 5.65% from 20 to 24, 12.83% from 25 to 44, 14.73% from 45 to 64, and 8.477% who are 65 years of age or older. The median age is 43.5 years.



The racial makeup of the county is 99.% White, 0.4% Black or African American, and 0.6% from other races. There were 9,406 households, with the average household consisting of 2.41 persons and the average family size being 2.89 persons.

Table 26  
Population by Age - Buchanan County

Age	Dickenson County								
	2000			2010			2014 Estimates		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
<b>Total population</b>	16,395	8,017	8,378	15,903	7,950	7,953	15,308	7,771	7,537
<b>Under 5 years</b>	875	442	433	875	446	429	794	411	383
<b>5 to 9 years</b>	945	473	472	914	468	446	879	456	423
<b>10 to 14 years</b>	1,079	555	524	970	484	486	901	463	438
<b>15 to 19 years</b>	1,215	643	572	959	486	473	852	424	428
<b>20 to 24 years</b>	971	507	464	754	399	355	866	452	414
<b>25 to 29 years</b>	944	454	490	921	481	440	822	452	370
<b>30 to 34 years</b>	1,017	487	530	954	509	445	940	501	439
<b>35 to 39 years</b>	1,223	592	631	1,001	498	503	936	492	444
<b>40 to 44 years</b>	1,349	657	692	1,003	520	483	1,006	520	486
<b>45 to 49 years</b>	1,350	698	652	1,241	621	620	971	517	454
<b>50 to 54 years</b>	1,239	634	605	1,294	659	635	1,146	573	573
<b>55 to 59 years</b>	959	485	474	1,217	614	603	1,210	626	584
<b>60 to 64 years</b>	856	393	463	1,137	562	575	1,097	540	557
<b>65 to 69 years</b>	714	338	376	893	471	422	1,030	502	528
<b>70 to 74 years</b>	638	291	347	673	316	357	760	394	366
<b>75 to 79 years</b>	460	190	270	464	199	265	516	228	288
<b>80 to 84 years</b>	316	106	210	351	125	226	311	126	185
<b>85 and over</b>	245	72	173	282	92	190	271	94	177

Source: United States Census Bureau American Community Survey

Table 27  
Selected Racial Data By Population and Percentage

Jurisdiction	Population	White	Percent	Black or African American	Percent	Asian	Percent	Hispanic Latino	Percent
Dickenson County	15,308	15,078	98.5%	122	0.8%	15	0.1%	107	0.7%

Source : U.S. Census Bureau American Community Survey

The median income for a household in the county is \$33,106, and the median income for a family is \$42,308. Males have a median earnings of \$43,806 versus \$29,495 for females. The per capita income for the county is \$17,954 with 20.2% of the population and 15.5% of families living below the poverty line.

Table 28

HOUSEHOLD INCOME AND BENEFITS IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)

Income Group	Dickenson County Households	% of Households
Less than \$10,000	746	12.03%
\$10,000 to \$14,999	679	10.95%
\$15,000 to \$24,999	974	15.70%
\$25,000 to \$34,999	873	14.08%
\$35,000 to \$49,999	928	14.96%
\$50,000 to \$74,999	1,032	16.64%
\$75,000 to \$99,999	526	8.48%
\$100,000 to \$149,999	387	6.24%
\$150,000 to \$199,999	29	0.46%
\$200,000 or more	26	0.41%
Total	6,200	100.00%

Median Household Income Dollars	33,106
Per Capita Income Dollars	17,954
Poverty all families	15.50%
Poverty all people	20.20%

Source: United States Bureau American Community Survey Estimates

### 3.2.3 Geographic conditions

Encompassing a land area of 335 square miles, the County lies in the Appalachian Plateau with Pine (Cumberland) Mountain running along its Kentucky border. The southern slopes of the mountain are long and comparatively gentle, but the northern slopes are very steep and descend a vertical distance of nearly 2,000 feet. Elevations in general vary from 1,200 feet above sea level to 3,137 feet on the northwest border. The mountainous surface of the County is characterized by many small streams separated by sharply rising ridges, steep slopes, and narrow valleys. The principal streams are the Russell Fork, Pound, Cranesnest, and McClure Rivers.

All the rivers gather and flow out of the County through a remarkable chasm ripped through the northern end of Pine Mountain known as "The Breaks." In 1954, through a joint action of the legislatures of Virginia and Kentucky, the Breaks Interstate Park was created.

The topography of Dickenson County limits development somewhat to the low lying areas along streams and rivers. Although some plateaus are suitable for development, access to these sites is a limiting factor.

Dickenson County lies in the Cumberland Plateau Physiographic Province where formations are mostly sandstone and shale with mineable coal deposits. The Province, for the most part, contains weather-resistant sandstone, which accounts for the steep V-shaped mountains.

### *3.2.4 Climate*

Dickenson County lies in the warm temperate region. Latitude, mountainous topography, and prevailing winds exert considerable influence upon the climate.

The area receives approximately 47 inches of precipitation annually with snowfall averaging about 18 inches a year. The average maximum temperature is 72 degrees, and the average minimum temperature is 36 degrees.

Thunderstorms and cloudbursts, normally occurring in the summer months, produce heavy rainfall over sections of the county and runoff is significant. Prevailing winds are westerly at an average velocity of 8 miles an hour but can reach high speeds during storms.

### *3.2.5 Transportation*

#### **A. Highways**

There is no Interstate highway running through the County but there are four Virginia Primary Routes serving the area. VA 63/83 runs north/south bisecting the county and serves the towns or Nora, McClure, Clinchco, Haysi and Clintwood. VA 80 enters from the east and continues along this boundary in a north/south direction serving the communities of Birchleaf and Haysi and all the way up to the Breaks Interstate Park. VA 83 enters the county from the west and bisects the county as it runs east to west. It intersects with U.S. Route 460 in Vansant in Buchanan County. VA 72 runs north/south joining VA 83 at George's Fork. All four VA routes intersect with U.S. Routes providing access to eastern Tennessee, eastern Kentucky, West Virginia and eastern Virginia.

#### **B. Air**

The nearest airport is the Tri-Cities Regional Airport located 45.6 miles to the southeast in the Bristol/Johnson City, Tennessee area. It is served by five of the major airlines or their regional partners. Mercer County Airport is located 59.7 miles to the north in West Virginia and is served by U.S. Airways.

General aviation services can be found at Grundy Municipal Airport in Buchanan County.

#### **C. Rail**

Freight rail service is available in the county from CSX Transportation and Norfolk Southern.

#### **D. Water**

The nearest ports are located in Richmond (370 miles) and Norfolk (439 miles).

### 3.2.6 *Infrastructure / Utilities & Services*

#### **A. Electricity**

American Electric Power provides power to Dickenson County.

#### **B. Natural Gas**

Equitable Resources Exploration provides gas to the County.

#### **C. Water**

Water is handled by the following entities:

- Dickenson County Public Service Authority
- Town of Clintwood

#### **D. Sewage**

Sewage is handled by the following entities:

- Dickenson County Public Service Authority
- Town of Clintwood

### 3.2.7 *Economic Growth*

Throughout the 20<sup>th</sup> century, the economy of Dickenson County and the entire Cumberland Plateau Planning District has been primarily dependent on coal. With almost 35 percent of the local economy and 40 percent of wages dependent on the coal industry, the economy has been tied to the trends in the price and demand for coal. Job losses have been staggering and the manufacturing and wholesale/retail trade have not been able to absorb these losses. Unemployment rates in the coal region of Virginia generally run the highest of anywhere in the state. The weak economy has been the main cause of the population decline.

Industrial development outside the area of mining has been slow. Access to markets has been a major hindrance to development. The last twenty years have seen a dramatic change in the mining industry. Coal mining in the region is still strong, however, the increased mechanization of the industry has resulted in fewer job opportunities for residents. Dickenson County has led the Commonwealth with its high unemployment rate for the last few years.

Table 29  
Dickenson County Unemployment Rates 2000 - 2014

Year	Labor Force	Employed	Unemployed	Annual Unemployment Rate
2000	5,365	5,052	313	5.80%
2001	5,491	5,104	387	7.00%
2002	5,650	5,206	444	7.90%
2003	5,796	5,304	492	4.10%
2004	5,558	5,206	352	6.30%
2005	5,720	5,350	370	6.50%
2006	5,660	5,369	291	5.10%
2007	5,787	5,484	303	5.20%
2008	6,074	5,727	347	5.70%
2009	6,442	5,884	558	8.70%
2010	5,513	4,934	579	10.50%
2011	5,454	4,923	531	9.70%
2012	5,214	4,669	545	10.50%
2013	5,342	4,761	581	10.90%
2014	5,239	4,720	519	9.90%

Source: Virginia Employment Office

About half of the workforce is traveling out of the county to work each day and commuting an average of 35.8 minutes. Unemployment rates are still running very high in 2014. Mining employment paid well and workers have not been able to replace their lost jobs with comparable salaries. Even new industries are having a hard time as Travelocity announced plans (2004) to close its 3-year old operation in Dickenson County.

Table 30  
Dickenson Commuting Patterns

People who live and work in the area	1,676
In-Commuters	2,206
Out-Commuters	5,789
Net In-Commuters (In-Commuters minus Out-Commuters)	-3,583

Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics, 2

Table 31  
Major Employers - Dickenson County

Company	Product	Employees
Paramont Coal Company Virginia	Mining (except Oil and Gas)	500 to 999 employees
Dickenson County School Board	Educational Services	500 to 999 employees
Serco Inc.	Professional, Scientific, and Technical Services	100 to 249 employees
County of Dickenson	Executive, Legislative, and Other General Government Support	100 to 249 employees
Food City	Food and Beverage Stores	100 to 249 employees
Range Resources - Pine Mountain, Inc.	Oil and Gas Extraction	100 to 249 employees
Sw Virginia Regional Jail Auth	Justice, Public Order, and Safety Activities	100 to 249 employees
Heritage Hall	Nursing and Residential Care Facilities	50 to 99 employees
Dickerson Russell Coal Company	Mining (except Oil and Gas)	50 to 99 employees
Dickenson County Community	Ambulatory Health Care Services	20 to 49 employees

Source: Virginia Employment Commission

The population of Dickenson County is less prosperous than the population of Virginia. The poverty rate is more than two and a half times higher than the average for the state. The per capita income of residents of Dickenson County is only 53% of the per capita income of Virginians. The proportion of county residents over the age of 25 without a high school diploma is significantly higher than in Virginia.

Table 32  
County Versus State Data  
Dickenson County

Economic Indicators	Dickenson	Virginia
Population with Public Health Coverage	46.80%	24.20%
Poverty Rate	16.60%	8.00%
Per Capita Income	18,215	33,493
Population Aged 16+ in Labor Force	43.50%	66.70%
Population Aged 25+ w/o High School Diploma	27.60%	12.50%

Source: Unites States Census Bureau American Community Survey Estimati

Mining jobs are still a significant sector of the employment in Dickenson County. Mining jobs make up the largest segment of jobs with Education Services and Health Care and Social Services close behind. Taxable Sales for Dickenson County have been increasing most years over the past decade.

Table 33  
Employment By Industry  
Dickenson County

Category	Percentage
Mining	25.15%
Education Services	14.02%
Health Care and Social Assistance	12.99%
Retail Trade	11.08%
Public Administration	7.77%
Construction	6.33%
Professional Scientific & Technical Svc	5.97%
Accomodation and Food Services	5.19%
Transportation and Warehousing	4.30%
Other Services	1.77%
Finance and Insurance	1.74%
Manufacturing	0.91%
Admin, Support, Waste Mtg. Remediation	0.69%
Utilities	0.44%
Agriculture, Forestry, Fishing & Hunting	0.38%
Wholesale Trade	0.38%
Manangement of Companies and Interprizes	0.22%
Information	Confidential
Arts, Entertainment, and Recreation	Confidential
Real Estate and Rental and Leasing	Confidential
Source: Virginia Employment Commission	

Table 34  
Taxable Sales  
2000-2014

Year	Dickenson
2000	\$48,398,260
2001	\$47,977,617
2002	\$49,531,310
2003	\$50,249,767
2004	\$52,914,791
2005	\$50,357,215
2006	\$57,182,687
2007	\$60,083,344
2008	\$63,232,095
2009	\$64,054,957
2010	\$65,984,411
2011	\$68,042,398
2012	\$66,417,728
2013	\$65,552,723
2014	\$69,962,263

Source: Virginia Department of Taxation

What is the outlook for transforming the economy of the counties in “coal country”? One strategy to attract new jobs has been the construction of shell buildings by the Cumberland Plateau Planning District Commission (PDC). Eight buildings have been constructed since 1987 and four have been sold, providing about 450 jobs to regional residents. Only one of these buildings, the Happy Valley Industrial Park is located in Dickenson County. It is a 40,000 sq ft. shell building and is being marketed through the PDC.

The more recent economic development strategy is to provide the region with an advanced communications infrastructure that can offer a competitive advantage in attracting and retaining industry. It also serves to educate and train or retrain the workforce, as the county attempts to transition to a technology based economy.

The Dickenson County Wireless Integrated Network “DCWIN” will provide wireless service to enhance local government services to citizens and enhance small business’ ability to compete in world markets, while additionally improving high-speed data transmission and high-speed Internet services to its citizenry. It is expected that DCWIN will serve as a catalyst to improve infrastructure within Dickenson County and the utilization of DCWIN will enhance economic development throughout the entire coalfield region. Dickenson County looks to the future and joining the technology corridor within the Commonwealth of Virginia.

The development of regional tourism is still an area of focus for improving the economy. The Breaks Recreation Area is recognized as having potential for further development. In addition, Health care provision could bring with it good paying jobs.



Dickenson County will have a section of the proposed Coalfield Expressway, currently under discussion. This route will be a wider, more direct route through the mountainous counties in Southwest Virginia into West Virginia, connecting with U.S. Route 460 and I-77.

### 3.2.8 Land Use

#### A. Residential

Due to the population decline and housing vacancy rate (about 12%), new housing starts are not expected to be significant in the near future. The county reported approximately 20-25 building permit requests a year from 1998-2002. Future growth in the form of subdivisions is not currently being planned. Sewer/water projects will be dependent on Community Development Block Grant or Appalachian Regional Commission funding.

#### B. Commercial

Most of the commercial activity is concentrated in and around Clintwood and Haysi. Clintwood has developed several sites, including their historical theater and the Ralph Stanley Museum, as a way to promote itself as a tourist destination. Festivals help bring tourist in during the summer and fall.

#### C. Industrial

Industrial Park development has been promoted by the Planning District Commission as one way to diversify the regional economy. In Dickenson County progress has been slow with most developed sites remaining vacant. Transportation routes and isolation are two big obstacles to future industrial growth. The planned expressway may change these conditions but the construction schedule remains unclear.

### DICKENSON COUNTY INDUSTRIAL PARKS

SITE SPECIFICATIONS - INDUSTRIAL PARKS – DICKENSON COUNTY					
Site Name	Location	Miles to Nearest Interstate	Miles to Nearest 4-lane Highway	Square Footage	Total Acreage
Dickenson Shell Building	State Route 707	I-81 - 60 mi	Rt.23 - 8 mi	40,000	11.95 acres
Haysi Manufacturing facility	Route 80 West	I-77 - 75 mi	Rt.460 - 20 mi	31,250	13.48 acres
Furniture World Building	T-1001	I-81 - 60 mi	Rt.23 - 10 mi	13,500	0.2 acres

Source: Virginia Economic Development Partners

#### D. Agricultural

Farmers in Dickenson County primarily raise beef cattle, and grow hay and burley tobacco. In 1997, the Census of Agriculture reported a total of just over 100 full time farms in the county. Most land in the county is unsuitable for growing crops.

#### E. Open Space/Recreation

About 93% of the county is forested, mainly covered with deciduous trees with a small amount of evergreen forest cover mixed in.

Breaks Interstate Park is located on the Virginia-Kentucky border with most of the 4,500 acres falling within Dickenson County. The park has numerous recreational facilities including a lodge, dining hall, amphitheater, camping and hiking.

The John W. Flannagan Dam and Reservoir is located five miles from Haysi on the Pound River, a tributary of the Russell Fork River. The 7,507-acre facility is operated by the U.S. Corp of Engineers and includes a 1,143-acre lake. Future activities are to include white-water rafting and kayaking.

### *3.2.9 Community Facilities/Activities*

Dickenson County maintains 2 elementary schools, 3 combined schools and 3 high schools. Vocational training can be found at all the high schools plus the Dickenson County Career Center.

The Dickenson County Medical Center, located in Clintwood, is a 50-bed acute care center.

County cultural activities include the Ralph Stanley Music Festival in Clintwood, held in May. A new Ralph Stanley museum will also be located in Clintwood.

#### Sources:

- U.S. Bureau of the Census, 2000 Census, 1990 Census, Economic Census, Census of Agriculture
- Virginia Economic Development Partners
- Cumberland Plateau Planning District Commission
- Virginia Employment Commission

## **3.3 Russell County**

### *3.3.1 Location*

Russell County, Virginia is located in the southwestern portion Virginia and is one of four counties in the Cumberland Plateau Planning District. The county shares a border with Dickenson County to the northwest and Buchanan County to the north. Tazewell County lies to the northeast, Washington County to the south and Scott County to the southwest.

Western Russell County rests on a high, open, relatively level plateau amid a circle of mountains. The high mountain pastures of Clinch River Valley are legendary. Clinch Mountain forms the southern border of the county and the northern section stretches into the coal-bearing hills of the Cumberland Plateau.

Russell County is 35 miles north of Bristol, 150 miles west of Roanoke and 290 miles west of Richmond. This 475 square mile community lies midway between the isolated coal producing counties of Virginia and the dynamic Tri-Cities metropolitan area of Bristol-Kingsport-Johnson City.

### 3.3.2 Population

There are several small towns in Russell County including Cleveland (pop. 296), Honaker (pop. 1626), and Lebanon (pop. 3,399), which serves as the seat of local government. The county lost population during the 1980's but was the only county in the planning district to gain population during the 1990's. Its location next to Washington County and its proximity to I-81 and the Tri-Cities area makes it the least isolated of the planning district's member counties.

Russell County seems to have dodged the significant population decreases observed in the rest of the coal-producing region of southwest Virginia. The local economy is not as dependent on coal as in Dickenson and Buchanan Counties and residents have more jobs opportunities available within commuting distance in the Tri-Cities area.

Table 35  
Population - Russell County, Virginia  
1990-2014

Population  
Town of Cleveland, Honaker & Lebanon, Virginia

Census	Year	Population	% Annual Change	Cleveland		Honaker		Lebanon	
				Population	% Annual Change	Population	% Annual Change	Population	% Annual Change
Census	1990	28,667							
Estimate	1991	28,800	0.46%						
	1992	28,900	0.35%						
	1993	29,300	1.38%						
	1994	29,400	0.34%						
	1995	29,300	-0.34%						
	1996	29,300	0.00%						
	1997	29,300	0.00%						
	1998	29,200	-0.34%						
	1999	29,200	0.00%						
Census	2000	30,308	3.80%	148		945		3273	
Estimate	2001	29,060	-4.11%						
	2002	28,825	-0.80%						
	2003	28,857	0.11%						
	2004	28,648	-0.72%						
	2005	28,596	-0.18%						
	2006	28,725	0.45%						
	2007	29,029	1.05%						
	2008	29,006	-0.07%						
	2009	29,250	0.84%						
Census	2010	28,897	-1.20%	202		1449		3424	
Estimate	2011	29,657	2.63%	307	51.98%	1873	29.26%	3442	0.52%
	2012	28,426	-4.10%	392	27.68%	1693	-9.61%	3430	-0.34%
	2013	28,274	-0.53%	341	-13.01%	1609	-4.96%	3422	-0.23%
	2014	28,023	-0.88%	296	-13.19%	1626	1.05%	3399	-0.67%

Source: US Census Bureau & US Census Bureau American Community Survey Estimates

Population projections from the Virginia Employment Commission show that Russell County will continue to see population growth through 2020 of about 0.53% a year. For the twenty years thereafter (2030-2040), the county is projected to see continued growth but at rates of approximately 0.81% annually.

Table 36  
Population Projections - Russell County, Virginia  
1990-2040

Year	US Census Bureau	VEC Projections	% Annual Change By Decade	
1990	28,667			
2000	30,308		1990-2000	5.72%
2010	28,897		2000-2010	-4.65%
2020		29,051	2010-2020	0.53%
2030		29,296	2020-2030	0.84%
2040		29,534	2030-2040	0.81%

Source: Virginia Employment Commission

According to the United States Census Bureau American Community Survey Estimates of 2014, there were 28,897 people, 11,037 households, and 7,386 families residing in the county. That calculates to a population density of 63.9/mi<sup>2</sup>. There are 13,439 housing units with a vacancy rate of 10.2%.

The racial makeup of the county is 98.5% White, 1.4% Black or African American, and 0.1% from other races. The average household consists of 2.54 persons and the average family size is 3.16 persons.

In the county, the population spread is not far from the Virginia average. The 2014 United States Census Bureau Estimates shows that 5.2% of the population is under 5 years old, 10.69 % is under the age of 19, and 8.37% of the population is 65 years of age or older. The median age is 43.6 years.

Table 37  
Selected Racial Data Estimates By Population and Percentage

Jurisdiction	Population	White	Percent	Black or African American	Percent	Other	Percent
Russell County	28,023	27,615	98.5%	384	1.4%	24	0.1%

Source : U.S. Census Bureau American Community Survey

Table 38

Population By Gender &amp; Age 2000 - 2010 Census and 2014 Estimates (as of July 1, 2014)

Age	Russell County								
	2000			2010			2014 Estimates		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
<b>Total population</b>	30,308	15,319	14,989	28,897	14,155	14,742	28,023	13,679	14,344
<b>Under 5 years</b>	1,584	779	805	1,549	779	770	1,462	729	733
<b>5 to 9 years</b>	1,746	864	882	1,588	799	789	1,518	765	753
<b>10 to 14 years</b>	1,837	907	930	1,678	827	851	1,556	759	797
<b>15 to 19 years</b>	1,942	1,021	921	1,754	908	846	1,490	743	747
<b>20 to 24 years</b>	1,837	1,027	810	1,529	788	741	1,613	854	759
<b>25 to 29 years</b>	2,271	1,281	990	1,561	821	740	1,536	761	775
<b>30 to 34 years</b>	2,138	1,155	983	1,681	864	817	1,577	818	759
<b>35 to 39 years</b>	2,486	1,341	1,145	1,923	938	985	1,627	819	808
<b>40 to 44 years</b>	2,443	1,252	1,191	1,945	964	981	1,852	913	939
<b>45 to 49 years</b>	2,467	1,263	1,204	2,206	1,078	1,128	1,916	936	980
<b>50 to 54 years</b>	2,172	1,143	1,029	2,493	1,225	1,268	2,180	1,069	1,111
<b>55 to 59 years</b>	1,912	897	1,015	2,246	1,098	1,148	2,302	1,114	1,188
<b>60 to 64 years</b>	1,428	697	731	2,004	1,002	1,002	2,120	1,051	1,069
<b>65 to 69 years</b>	1,196	512	684	1,574	737	837	1,809	891	918
<b>70 to 74 years</b>	1,105	522	583	1,198	536	662	1,326	596	730
<b>75 to 79 years</b>	824	364	460	920	383	537	967	412	555
<b>80 to 84 years</b>	469	169	300	562	233	329	644	251	393
<b>85 and over</b>	451	125	326	486	175	311	528	198	330

Source: United States Census Bureau American Community Survey

The median income for a household in the county is \$31,491, and the median income for a family is \$26,834. The per capita income for the county is \$14,863 with 16.3% of the population living below the poverty line. These figures are slightly higher than the averages in the rest of the planning district.

**Table 39**  
**HOUSEHOLD INCOME AND BENEFITS IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)**

Income Group	Russell County Households	% of Households
Less than \$10,000	1,173	10.60%
\$10,000 to \$14,999	1,192	10.80%
\$15,000 to \$24,999	1,678	15.20%
\$25,000 to \$34,999	1,508	13.70%
\$35,000 to \$49,999	1,377	12.50%
\$50,000 to \$74,999	1,914	17.30%
\$75,000 to \$99,999	1,137	10.30%
\$100,000 to \$149,999	769	7.00%
\$150,000 to \$199,999	223	2.00%
\$200,000 or more	66	0.60%
<b>Total</b>	<b>11,037</b>	<b>100.00%</b>

Median Household Income Dollars	<b>34,768</b>
Per Capita Income Dollars	<b>20,117</b>
Poverty all families	<b>15.00%</b>
Poverty all people	<b>18.70%</b>

Source: United States Bureau American Community Survey Estimates

### 3.3.3 *Geographic conditions*

The entire Russell coalfield is characterized by steep, mountainous topography. It lies in the southeastern edge of the physiographic province known as the Allegheny Plateau.

The highest point of the county is Big A Mountain (3,735 feet) on Sandy Ridge, which forms the divide between the Clinch River drainage on the southeast and the Big Sandy drainage on the northwest. The lowest point in the area is on the Clinch River at Boody (1,481 feet).

Russell County has fewer topographic constraints than Dickenson or Buchanan Counties but areas around Clinch, Garden and Big A Mountain have limited economic development potential.

The entire Russell coalfield drains into the Clinch River. The principal tributaries are Mill Creek, Swords Creek, Lewis Creek, Hart and Musick Forks of Dumps Creek and Lick Creek in

the western part of the county. There are numerous springs in the coalfield, many of which are located on the outcrops of fields and fed by water percolating along the joints of the coal.

All the drainage of the county is tributary to Big Sandy River through its three main branches: Russell Fork, Levisa Fork, and Tug Fork. Although most streams and creeks contain some water all year round, none has a very large flow. The topography of Buchanan County limits development somewhat to the low laying areas along streams and rivers.

Russell County straddles two distinct physiographic regions. The Valley and Ridge Province extends from east to west through the southern portion. This province is underlain by sedimentary rock strata that has been folded, tilted, and deformed. The chief rock types are limestone, shales, dolomites, and sandstone.

Cumberland Plateau Physiographic Province covers the northern portions of the county that lie north of the Cumberland escarpment. The region is underlain by sandstones, conglomerate sandstones, and shales, with numerous coal beds at varying elevations. The soil of the plateau is very thin so that much of the precipitation in this region penetrates into the ground to shallow depths. The dense vegetation prevents heavy eroding in high precipitation events.

#### *3.3.4 Climate*

Russell County lies in the warm temperate region. Latitude, mountainous topography, and prevailing winds exert considerable influence upon the climate.

The area receives an average annual rainfall of 43.1 inches and an average snowfall of 21 inches. The average maximum temperature is 72 degrees, and the average minimum temperature is 36 degrees for the Cumberland Plateau region. Russell County's average July temperature is 74 degrees and for January the average temperature is 35 degrees.

Thunderstorms and cloudbursts, normally occurring in the summer months, produce heavy rainfall over sections of the county and runoff is significant. Prevailing winds are westerly at an average velocity of 8 miles an hour but can reach high speeds during storms.

#### *3.3.5 Transportation*

##### **A. Highways**

Russell County is served by two U.S. Routes: U.S. Alternate Route 58 runs along the western and southern corners of the county from the common boundary line of Wise and Russell Counties to its junction with U.S. Route 19, which enters Russell from Washington County. U. S. Route 19 runs east/west along the southern portion of the county to the Tazewell/Russell County line.

Virginia Primary Routes 63, 65, and 71 serve the western portion of the county. Primary Routes 67 and 80 serve the eastern portion of Russell County.

##### **B. Air**

The Tri-Cities Regional Airport lies 45 miles to the southeast in the Bristol/Johnson City, Tennessee area. It is served by five of the major airline or their regional partners. Mercer County Airport lies about 54 miles north and west in West Virginia.

General aviation services can be found at Grundy Municipal Airport or at the Tazewell County Airport.

**C. Rail**

Norfolk Southern and CSX Transportation provide freight rail service to Russell County.

**D. Water**

The nearest ports are located in Richmond (290 miles) and Norfolk (360 miles).

*3.3.5 Infrastructure / Utilities & Services*

**A. Electricity**

American Electric Power and Old Dominion Power Company provide power to the County.

**B. Natural Gas**

Virginia Natural Gas provides gas to the County.

**C. Water**

Water is provided by the following entities:

- Russell County Water and Sewer Authority
- Three Creek Apparel Waterworks
  - Town of Honaker
  - Town of Lebanon
  - Town of St. Paul

**D. Sewage**

Sewage is handled by the following entities:

- Town of Honaker
- Town of Lebanon
- Town of St. Paul



### 3.3.6 Economic Growth

Russell County's unemployment rate hit a high in 2009 at 10.52% due to the recession of 2008. The recession was a major worldwide economic downturn that began in 2008 and continued into 2010 and beyond. Since that high, the rate has remained around 8% for the past four or five years.

Table 40  
Russell County Unemployment Rates 2000 - 2014

Year	Labor Force	Employed	Unemployed	Annual Unemployment Rate
2000	11,865	11,248	617	5.20%
2001	11,903	11,139	764	6.40%
2002	12,140	11,369	771	6.40%
2003	12,281	11,519	762	6.20%
2004	11,521	10,840	681	5.90%
2005	11,955	11,265	690	5.80%
2006	11,812	11,099	713	6.00%
2007	11,772	11,165	607	5.20%
2008	11,877	11,194	683	5.80%
2009	12,397	11,095	1,302	10.50%
2010	12,081	10,844	1,237	10.20%
2011	11,949	10,816	1,133	9.50%
2012	11,799	10,780	1,019	8.60%
2013	11,631	10,644	987	8.50%
2014	11,307	10,406	901	8.00%

Source: Virginia Employment Commission

According to the 2014 Census, the worker retention rate was 60%, with 58.5% of the work force traveling out of the county to work. The median travel time to work was 31.2 minutes in the year 2014. Those traveling out the county are mostly commuting southeast to Abingdon, Bristol and beyond. Russell County also sees a significant in-migration of workers with about 36.6% of its workforce residing in surrounding counties.

Table 41  
Russell Commuting Patterns

People who live and work in the area	2,533
In-Commuters	4,144
Out-Commuters	6,619
Net In-Commuters (In-Commuters minus Out-Commuters)	-2,475

Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics, 2

Table 42  
Major Employers - Russell County

Company	Product	Employees
Russell County School Board	Educational Services	500 to 999 employees
Cingular Wireless Employee	Telecommunications	250 to 499 employees
Steel Fab	Fabricated Metal Product Manufacturing	250 to 499 employees
Wal Mart	General Merchandise Stores	100 to 249 employees
CGI Federal Inc	Professional, Scientific, and Technical Services	100 to 249 employees
Mountain States Health AI	Hospitals	100 to 249 employees
County of Russell	Executive, Legislative, and Other General Government Support	100 to 249 employees
Lebanon Apparel Corporation	Apparel Manufacturing	100 to 249 employees
Northrop Grumman Corporation	Computer and Electronic Product Manufacturing	100 to 249 employees
American Management Systems	Professional, Scientific, and Technical Services	100 to 249 employees

Source: Virginia Employment Commission

While the poverty rate in Russell County is significantly higher than the Virginia rate, the county appears to be in better economic health than the other counties in the Cumberland Plateau district. Proportionately fewer residents of Russell County are in the work force and a much smaller percentage has graduated from high school than Virginians in general.

Table 43  
County Versus State Data  
Russell County

Economic Indicators	Russell	Virginia
Population with Public Health Coverage	40.20%	24.20%
Poverty Rate	15.50%	8.00%
Per Capita Income	19,735	33,493
Population Aged 16+ in Labor Force	49.20%	66.70%
Population Aged 25+ w/o High School Diploma	25.30%	12.50%

Mining/Agricultural jobs are not as significant a sector of employment in Russell County (4.13%) as in Dickenson and Buchanan Counties. Health care & Social Services jobs make up the largest segment of jobs. The economy of Russell County seems to be more diversified than its neighboring counties with the manufacturing sector significantly higher. Wholesale and retail trade also employs a significant portion of the county's residents.

Taxable sales for the county went up dramatically between 2001 and 2002 with a 20% increase. Between 2001 and 2002, sales continued to increase as they jumped another 5.5%.

Table 44  
Taxable Sales  
2000-2014

Year	Russell
2000	\$107,862,419
2001	\$101,878,423
2002	\$122,525,574
2003	\$129,188,820
2004	\$138,753,368
2005	\$132,085,662
2006	\$149,040,720
2007	\$156,657,814
2008	\$161,030,985
2009	\$157,889,960
2010	\$158,276,136
2011	\$159,840,501
2012	\$160,139,687
2013	\$153,199,811
2014	\$159,893,054

Source: Virginia Department of Taxation

Table 45  
Employment By Industry  
Russell County

Category	Percentage
Health Care and Social Assistance	15.68%
Retail Trade	12.14%
Professional Scientific & Technical Svc	9.67%
Construction	8.30%
Accomodation and Food Services	7.24%
Public Administration	6.60%
Manufacturing	6.16%
Admin, Support, Waste Mtg. Remediation	5.21%
Mining	4.13%
Transportation and Warehousing	3.83%
Finance and Insurance	3.43%
Other Services	2.28%
Information	0.81%
Wholesale Trade	0.72%
Agriculture, Forestry, Fishing & Hunting	0.44%
Manangement of Companies and Interprizes	0.32%
Real Estate and Rental and Leasing	0.30%
Arts, Entertainment, and Recreation	0.21%
Education Services	Confidential
Utilities	Confidential

Source: Virginia Employment Commission

### 3.3.7 Land Use

#### A. Residential

Russell County has more buildable land than the counties to its west and north. The areas around the Clinch River and on the high plateaus have fairly flat lands. New construction of single-family homes is occurring in the town of Lebanon. The Cumberland Plateau Planning District Commission reports that Russell County, especially around Lebanon, is expected to grow because new jobs are being created in the area's industrial parks. Housing vacancy rates in Lebanon and Castlewood in the year 2000 were only 8.3% while that of Cleveland was 28.3%. It is anticipated that new subdivisions will be built in Lebanon and public services may need to be extended to new areas to provide public sewer and water. Building permits for the county have averaged about 70 per year over the last five years (1998-2002).

**B. Commercial**

Numerous shopping opportunities are available in Russell County, including four shopping centers and 345 retail and service-related businesses. The town of Lebanon serves as the commercial center for the county with over 150 retail establishments located in its downtown area. Additional shopping centers and malls in the Bristol metropolitan area are easily accessible for county residents.

Future commercial development in the county may occur in the Lebanon area in response to future population growth or tourism.

**C. Industrial**

The Cumberland Plateau PDC has constructed eight shell buildings throughout the region since 1987. Five have been sold, including two in the Russell County Industrial Park located in Lebanon. Teleflex Corporation, Inc. and Lear Corporation are both currently operating in these shell buildings. Grundy, Honaker and Clintwood are sites of three other PDC constructed shell buildings that are currently being marketed. Other sites with space available are listed in the following table:

**RUSSELL COUNTY INDUSTRIAL BUILDINGS**

<b>SITE SPECIFICATIONS - INDUSTRIAL BUILDINGS – RUSSELL COUNTY</b>					
<b>Site Name</b>	<b>Location</b>	<b>Miles to nearest Interstate</b>	<b>Miles to nearest 4-lane Highway</b>	<b>Square Footage</b>	<b>Total Acreage</b>
Russell County Authority Building	Route 1, Box 570	I-81 - 36 mi	U.S. Rt. 58 - 6 mi	29,302	0 acres
Custom Vents Building 1	U.S. Route 19 North	I-81 - 15 mi	U.S. Rt.19 - N/A	18,752	2.74 acres
Custom Vents Building 2	U.S. Route 19 North	I-81 - 15 mi	U.S. Rt.19 - N/A	9,056	2.74 acres
Three Creek Apparel Building	Rt. 683, Nicklesville	I-81 - 28 mi	U.S. Rt. 19 Bypass - 0.5 mi	23,700	5.0 acres
Leonard Properties Building	890 E. Main St.	I-81 - 20 mi	U.S. Rt. 58 - 7 mi	172,000	12.6 acres
Honaker Shell Building	Railroad Ave, Honaker	I-81 - 35 mi	U.S. Rt.19 - 5 mi	12,000	1.7 acres

Source: Virginia Economic Development Partners

The proposed new Coalfields Expressway will run to the north of the county but may benefit the county by allowing residents to travel north and west more conveniently. This may open up job opportunities for county residents and make markets in the north and central parts of the United States more accessible to Russell County industry. When the expressway construction begins, it is estimated that 1,400 construction jobs will boost the local regional economy over the expected 10-year lifespan of the road's construction. Local income will also be generated by the purchase of supplies, materials, and equipment from local businesses.

## **D. Agricultural**

Russell County's rolling landscape and high elevations make this area prime pasture, hay and burley tobacco country. It is also a good corn-growing area. Ample rains, productive soils and cool nights help grasses to thrive here. Because of this, Russell County farmers primarily raise beef cattle that graze off pastureland during the growing season and eat hay and corn at other times.

Many of those same farmers also raise burley tobacco. Russell County produced more than 3.12 million pounds of burley tobacco, according to the 1997 census. Russell is also home to smattering of other agricultural enterprises, including nursery stock operations, apple orchards as well as sheep, dairy, chicken and hog farms.

The amount of land used for farming declined slightly between 1992 and 1997 in Russell County decreasing 5%. Over the same period the average size of farms increased slightly from 146 acres (1992) to 149 acres (1997). The number of full time farms decreased 11% from 495 farms in 1992 to 442 farms in 1997. At that time, crops accounted for nearly 31% of the market value of agricultural products sold. Beef cattle and livestock sales made up the remaining 69% of the market.

## **E. Open Space/Recreation**

Although most (approximately 70%) of Russell County is covered in trees, about 30% is cleared land or natural meadows. The non-forested land can be found along Routes 58 and 19 and around the population centers of Lebanon, Castlewood and Honaker. Over 90 percent of the county is covered by hardwood forest growth and about 1% is evergreen forest.

### *3.3.8 Community Facilities/Activities:*

Russell County Medical Center, a 78-bed facility, offers comprehensive services.

Clinch Mountain Wildlife Area, located in the eastern part of the county, offers outdoor recreation activities. Canoe launch sites have been built on the Clinch River. The Jefferson National Forest and the Breaks Interstate Park in neighboring Dickenson County also offer extensive outdoor activities.

Public schools in the county include 9 elementary and 3 high schools. Vocational training is offered at the high schools as well as the Russell County Career and Vocational Center.

### Sources:

- U.S. Bureau of the Census, 2000 Census, 1990 Census, Economic Census, Census of Agriculture
- Virginia Economic Development Partners
- Cumberland Plateau Planning District Commission
- Virginia Employment Commission

### 3.4 Population Summary

The following table summarizes the population by year for the three Counties.

Table 46  
Population Summary  
1990-2040

Census	Year	Buchanan		Dickenson		Russell	
		Population	% Annual Change	Population	% Annual Change	Population	% Annual Change
Census	1990	31,333		17,620		28,667	
Estimate	1991	31,400	0.21%	17,600	-0.11%	28,800	0.46%
	1992	31,200	-0.64%	17,700	0.57%	28,900	0.35%
	1993	30,700	-1.60%	17,600	-0.56%	29,300	1.38%
	1994	30,300	-1.30%	17,500	-0.57%	29,400	0.34%
	1995	29,700	-1.98%	17,400	-57.00%	29,300	-0.34%
	1996	28,900	-2.69%	17,000	-2.30%	29,300	0.00%
	1997	28,400	-1.73%	16,900	-0.59%	29,300	0.00%
	1998	27,900	-1.76%	16,700	-1.18%	29,200	-0.34%
	1999	27,500	-1.43%	16,600	-0.60%	29,200	0.00%
Census	2000	26,978	-1.90%	16,395	-1.23%	30,308	3.80%
Estimate	2001	26,319	-2.44%	16,240	-0.94%	29,060	-4.11%
	2002	25,945	-1.42%	16,134	-0.65%	28,825	-0.80%
	2003	25,407	-2.07%	16,080	-0.33%	28,857	0.11%
	2004	24,950	-1.80%	16,079	0.00%	28,648	-0.72%
	2005	24,452	-2.00%	16,175	0.59%	28,596	-0.18%
	2006	23,992	-1.88%	16,024	-0.93%	28,725	0.45%
	2007	23,526	-1.94%	16,033	0.56%	29,029	1.05%
	2008	23,090	-1.85%	16,176	0.89%	29,006	-0.07%
	2009	22,860	-0.99%	16,087	-0.55%	29,250	0.84%
Census	2010	24,028	5.10%	15,903	-1.14%	28,897	-1.20%
Estimate	2011	24,006	-0.09%	15,762	-0.88%	29,014	-0.40%
	2012	23,990	-0.07%	15,747	-0.09%	28,890	-0.42%
	2013	23,867	-0.50%	15,660	-0.55%	28,311	-2.00%
	2014	23,754	-0.47%	15,741	-0.51%	28,636	1.14%
Estimate	2015	22,983	-3.24%	15,339	-2.55%	28,008	-2.19%
	2016	22,473	-2.21%	14,996	-2.23%	27,697	-1.11%
	2020	23,383	4.00%	15,600	4.23%	29,051	4.88%
	2030	23,263	-50.00%	15,375	-1.44%	29,296	0.84%
	2040	23,296	0.14%	15,193	-1.18%	29,534	0.81%

Source: US Census Bureau & US Census Bureau American Community Survey Estimates

#### **4.0 WASTE GENERATION AND COMPOSITION**

Waste tonnages are tracked at the individual transfer stations in the Counties. Annually the Authority completes the reporting to the DEQ for the facilities.

#### **4.1 Existing Conditions (2015)**

The Region at the three transfer stations tracks their waste in accordance with the categories outlined on 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

In addition, the Region also expands their tracking at the transfer stations and includes the following categories:

- Household Waste
- Commercial Waste
- Industrial Waste
- Construction Debris
- Mine Waste
- Yard Waste
- Flood Debris
- Roofing Materials
- Shingles
- Sawdust
- Wood Chips
- Pallets
- Sludge
- Other

The more specific data is then combined into the categories identified in the DEQ 50-25 form.

The Counties also 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 Antifreeze  
 Abandoned Automobiles Removed  
 Batteries

The Region does not receive any agricultural waste nor does it accept stumps or large land clearing debris at the transfer stations. Septage is not accepted at the transfer stations and is not tracked by the Region under the solid waste programs. Hence data is not available. Spill residues, if meeting the allowable limits of the regulations, would be recorded as “Other” on Form 50-25.

The following section discusses existing conditions in terms of Form 50-25 data.

Appendix 2 contains the DEQ Forms 50-25 for the three transfer stations for 2015. Based on this information, the Region received 43,461 tons of waste materials at the transfer stations in the following categories (all values represent tons):

**TABLE 47  
 DEQ FORM 50-25 SUMMARY  
 2015**

<b>Waste Type</b>	<b>BUCHANAN COUNTY</b>	<b>DICKENSON COUNTY</b>	<b>RUSSELL COUNTY</b>	<b>TOTAL</b>	<b>% OF TOTAL WASTE</b>
Municipal Solid Waste	12,742.38	7,330.37	13,891.17	33,963.54	78.2%
Construction/Demolition/Debris	327.63	243	683.71	1,231.51	2.83%
Industrial/Commercial Waste	2,867.02	2,335.26	1,969.92	7,172.20	16.5%
Vegetative/Yard Waste	27.09	.65	170.05	197.79	.45%
Sludge*	0	0	0	0	0%
Tires	137.51	120.40	111.60	369.51	.85%
White Goods	.77	0	43.26	44.03	.44%
Other Waste	323.69	19.96	116.44	323.69	.74%
<b>TOTAL</b>	<b>16,426.09</b>	<b>10,049.64</b>	<b>16,986.15</b>	<b>43,461.88</b>	<b>100.0%</b>
<b>% of Total Regional Waste</b>	<b>37.8%</b>	<b>23.1%</b>	<b>39.1%</b>	<b>100.0%</b>	

The table also indicates that Russell County receives the largest percentage of the regions waste (39.1%) and Dickenson County the smallest percentage (23.1%).

The aforementioned table evaluates the tonnage delivered as percent of the waste stream for each County as well as the total. Buchanan receives the most industrial/commercial waste, followed by Dickenson County, and Russell County the most municipal solid waste and Construction debris.

### 4.3 Historical Waste Generation (2010– 2015)

#### 4.2.1 Total Tonnage Recorded at Transfer Stations

Tables 48 through 50 summarize the data collected at the transfer stations from 2010 through 2015 for Buchanan and Dickenson Counties and for 2010 – 2015 for Russell County. The categories are not identical to those indicated on the DEQ 50-25 forms but are expanded and represent the data as collected across the scales at the transfer stations. These tables also indicate the percent annual change in various categories of waste and indicate a positive increase in household and commercial tonnage especially over the past several years even though the population has been declining. They also indicate that Buchanan County receives a significant percentage (50.79%) of mine waste, and Dickenson County’s waste is primarily household as collected by the County with limited amounts of other waste types.

**TABLE 48  
TRANSFER STATION REPORTING DATA  
BUCHANAN COUNTY  
2010 – 2015**

Waste Type	2010	2011	2012	2013	2014	2015	AVERAGE	% of TOTAL
Household Waste	13,374.07	13,565.02	13,551.90	13,006.11	12,781.03	12,742.38	13,170.08	.64%
Commercial Waste	2,125.43	3,459.87	4,408.16	2,119.38	2,136.72	1,050.25	255	.12%
Construction Debris	459.12	436.20	870.97	535.01	351.84	304.80	493	.02%
Mine Waste	3,223.74	4,860.40	4,666.17	4,902.08	3,070.47	1,816.77	3,756.60	.18%
White Goods	0	.22	.84	1.53	.87	.77	.70	.003%
Tires	467.99	400.58	479.35	225.74	241.12	137.51	325.38	.01%
Yard Waste	268.66	460.79	718.16	0	8.21	27.09	247.15	.011%
Flood Debris	0		25.87	45.81	55.25	238.47	60.9	0.003%
Shingles	0	60.33	18.75	46.48	69.74	22.83	36.35	0.002%
Recyclable								0.0%
Animal Carcass	41.05	3.28	2.54	2.08	13.51	9.74	12.03	.006%
Trash Clean-up	86.91	155.01	117.98	81.68	101.90	75.48	103.16	.005%
<b>TOTAL</b>	<b>20,046.97</b>	<b>23,401.70</b>	<b>24,860.69</b>	<b>20,965.90</b>	<b>18,830.66</b>	<b>16,426.09</b>	<b>20,755.33</b>	<b>100.0%</b>
% change total waste stream		16.74%	6.23%	-15.67%	-10.18%	-12.77%		
% change Household only		1.42%	-0.09%	-4.02%	-1.72%	-0.30%		
% change Commercial only		62.77%	27.43%	-51.92%	0.80%	-50.84%		
% change mine waste only		50.79%	-3.99%	5.05%	-37.37%	-40.84%		

**TABLE 49  
TRANSFER STATION REPORTING DATA  
DICKENSON COUNTY  
2010 – 2015**

<b>Waste Type</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>AVERAGE</b>	<b>% OF TOTAL</b>
Household Waste	8,209.33	8,189.02	7,782.99	7,476.60	7,224.21	7,330.37	7,702.03	.64%
Commercial Waste	2,250.77	434.25	303.64	389.51	939.37	944.11	876.94	.06%
Construction Debris	276.27	272.84	236.72	218.26	288.53	160.16	242.13	.02%
Mine Waste	1,039.90	3,106.17	4,258.32	5,421.48	3,475.86	1,391.15	3,115.48	.25%
Tires	161.11	164.44	192.14	158.46	125.60	120.40	153.69	.02%
Yard Waste	0.13	.32	2.68	.73	.08	.65	.76	.00062%
Flood Debris	0	0	0	0	0	3.49	.58	.00047%
Carcass	18.09	18.10	17.66	14.81	15.30	12.90	16.14	.0013%
Roofing Material	85.06	119.09	125.37	37.23	61.44	82.84	85.17	.0069%
Sludge	0							0%
Dump Cleanups		11.74	4.27	2.86	.38	3.57	3.80	.00031%
<b>TOTAL</b>	<b>12,040.66</b>	<b>12,315.97</b>	<b>12,923.79</b>	<b>13,719.94</b>	<b>12,130.77</b>	<b>10,049.64</b>	<b>12,196.79</b>	<b>100.0%</b>
% change total waste stream		2.28%	4.92%	6.16%	-11.58%	-17.15%		
% change Household only		-0.24%	-4.95%	-3.94%	-3.37%	1.46%		
% change mine waste only		198.94%	37.08%	27.31%	-35.89%	-59.97%		

**TABLE 50  
TRANSFER STATION REPORTING DATA  
RUSSELL COUNTY  
2010-2015**

<b>Waste Type</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>AVERAGE</b>	<b>% OF TOTAL</b>
Household Waste	17,047.34	16,871.33	16,238.92	15,548.79	14,701.12	13,891.17	15,716.44	.81%
Commercial Waste	2,961.37	2,128.60	2,193.45	1,522.67	1,671.81	1,862.35	2,056.70	.11%
Construction Debris	1,403.16	944.98	1,398.35	730.49	617.15	683.71	962.97	.05%
Mine Waste	143.03	305.17	462.00	374.31	.96	0.00	214.24	.01%
White Goods and Metal	53.92	37.79	26.18	18.97	8.00	43.26	31.35	.0015%
Tires	52.96	52.57	96.20	149.94	134.81	111.60	99.68	.005%
Industrial Waste	146.52	105.90	118.12	112.06	85.48	107.57	112.60	.006%
Recycle								0%
Yard Waste	44.48	535.41	778.65	476.75	149.66	170.05	359.16	.001%
Illegal Dump Cleanup	30.41	24.76	33.70	123.72	65.03	95.61	62.20	.0031%
Roofing Material	0	0	0	0	0	0	0	0%
Carcass	26.94	30.39	20.60	24.05	23.49	20.83	24.38	.0012%
<b>TOTAL</b>	<b>21,910.13</b>	<b>21,036.90</b>	<b>21,366.17</b>	<b>19,081.75</b>	<b>17,457.51</b>	<b>16,986.15</b>	<b>19,639.26</b>	<b>100.0%</b>
% change total waste stream		-3.98%	1.56%	-10.69%	-8.51%	-2.69%		
% change Household + commercial only		-5.04%	-2.98%	-7.38%	-4.08%	-3.78%		

The following table summarizes the regional totals for 2010 – 2015 and indicates the percent annual change:

**TABLE 51  
TRANSFER STATION REPORTING DATA  
REGIONAL SUMMARY**

<b>YEAR</b>	<b>BUCHANAN COUNTY</b>	<b>DICKENSON COUNTY</b>	<b>RUSSELL COUNTY</b>	<b>TOTAL REGIONAL TONNAGE</b>	<b>% ANNUAL CHANGE</b>
2010	20,046.97	12,040.66	21,910.13	53,997.76	
2011	23,401.70	12,315.97	21,036.90	56,754.57	5.10%
2012	24,860.69	12,923.79	21,366.17	59,150.65	4.22%
2013	20,965.90	13,719.94	19,081.75	53,767.59	-9.1%
2014	18,830.66	12,130.77	17,457.51	48,418.94	-9.94%
2015	16,426.09	10,049.64	16,986.15	43,461.88	-10.23%

*4.2.2 Pounds per person per day*

The population data from Section 3.1 can be coupled with the tonnage data reported above to consider the waste stream as average pounds per person per day. The following tables summarize the data for the total tonnage received at the transfer stations and regionally:

**TABLE 52  
EVALUATION OF WASTE TONNAGE  
AS POUNDS PER PERSON PER DAY  
BUCHANAN COUNTY**

<b>YEAR</b>	<b>POPULATION</b>	<b>TOTAL TONNAGE RECEIVED</b>	<b>POUNDS PER PERSON PER DAY</b>
2010	24,028	20,046.97	4.6
2011	23,888	23,401.70	5.4
2012	23,837	24,860.69	5.7
2013	23,555	20,965.90	4.9
2014	23,106	18,830.66	4.5
2015		16,426.09	
Average		20,755.33	

**TABLE 53**  
**EVALUATION OF WASTE TONNAGE**  
**AS POUNDS PER PERSON PER DAY**  
**DICKENSON COUNTY**

<b>YEAR</b>	<b>POPULATION</b>	<b>TOTAL TONNAGE RECEIVED</b>	<b>POUNDS PER PERSON PER DAY</b>
2010	15,903	12,040.66	4.1
2011	15,765	12,315.97	4.3
2012	15,668	12,923.79	4.5
2013	15,449	13,719.94	4.9
2014	15,308	12,130.77	4.3
2015		10,049.64	
Average			

**TABLE 54**  
**EVALUATION OF WASTE TONNAGE**  
**AS POUNDS PER PERSON PER DAY**  
**RUSSELL COUNTY**

<b>YEAR</b>	<b>POPULATION</b>	<b>TOTAL TONNAGE RECEIVED</b>	<b>POUNDS PER PERSON PER DAY</b>
2010	28,897	21,910.13	4.2
2011	29,657	21,036.90	3.9
2012	28,426	21,366.17	5.5
2013	28,274	19,081.75	3.7
2014	28,023	17,457.51	3.4
2015		16,986.15	
Average			

**TABLE 55  
EVALUATION OF WASTE TONNAGE  
AS POUNDS PER PERSON PER DAY  
REGIONAL TOTAL**

<b>YEAR</b>	<b>POPULATION</b>	<b>TOTAL TONNAGE RECEIVED</b>	<b>POUNDS PER PERSON PER DAY</b>	<b>% ANNUAL CHANGE</b>
2010	68,828	53,997.76	4.3	
2011	69,310	56,754.57	4.5	5.1%
2012	67,931	59,150.65	4.6	4.2%
2013	67,278	53,767.59	4.4	-9.1%
2014	66437	48,418.94	4.0	-9.9%
2015		43,461.88		-10.2%
Average				

To put these values in perspective, the national average for MSW generation as reported by the EPA for the year 2001 was 4.4 pounds per person per day, which is up from 2.7 pounds per person per day in 1960. MSW as defined by the EPA does not include CDD waste, sludge or industrial wastes which is included in the values listed above. Thus the Counties and the region are all averaged at or below the national value indicating a limited amount of commercial or industrial waste relative to the municipal solid waste component.

### **4.3 Projected Waste Generation Rates Relative to Disposal Needs**

It is important to consider the various ways in which the waste generation within the region may change to anticipate future needs relative to collection, disposal and recycling. As described in Section 3.0, the region is not expected to grow and is in fact projected to have a decrease in population ranging from -0.04% in the later years of the planning period to a maximum decrease of -0.4% during the earlier years of the planning period.

There is no one methodology for evaluating future waste generation rates as the rates can be impacted by many different factors including population changes, recycling participation and markets, the commercial or industrial sector, natural disasters etc. For rural areas, changes in the waste will track closely with the population trends. For urban or developing areas, changes in the waste are more difficult to predict. Certainly the population factor is one aspect, however the commercial waste must also be considered. The following section will consider various factors that could impact waste generation in region and will propose a final growth factor to be used in the study.

#### *4.3.1 Population Growth Rate*

As Section 2.1 discussed, the region has been losing population and population is projected to decrease at a rate of 0.4% per year from 2003 – 2010, at a rate of 0.2% from 2011 - 2020, and

finally at a rate of 0.04% from 2021 – 2024. The estimated population for the region for 2004 is 71,619 and the estimated population for 2024 is 68,780. Because of the decline in population, the residential waste tonnage would be expected to decrease proportionately. To be conservative in this report, the residential waste tonnage will be estimated based on the national average rate of change as discussed under Section 4.3.3 below.

#### 4.3.2 Commercial and industrial growth

The region is not anticipating significant growth in the commercial sector, over the planning period although efforts are being made to encourage economic development. Review of tables 56 through 58 indicates that the commercial tonnage is relatively flat over the period from 2010 to 2015. Commercial waste makes up a small component of the Buchanan and Dickenson County collections and, as would be expected, makes up a larger percentage of the Russell County waste stream. Quantifying growth in this sector is difficult as it can be unpredictable. For this report no distinction between the residential and commercial waste will be made, and so the national average rate of change will be used as discussed below.

#### 4.3.3 Annual change in MSW (residential/commercial) tonnages

The following table summarizes the data taken from the transfer station records for household and commercial waste delivered to the three transfer stations and provides a total for the region. The percent annual change was then calculated with this data.

**TABLE 56  
HOUSEHOLD AND COMMERCIAL WASTE  
RECEIVED AT THE TRANSFER STATIONS**

Waste Type	2010	2011	2012	2013	2014	2015
<b>Buchanan County</b>						
Household Waste	399	311	832	777	687	371
Commercial Waste	292	212	193	283	287	149
Govt. Household Waste	12,938	11,577	12,914	13,902	14,364	15,308
Govt. Commercial Waste	609	533	522	568	555	518
<b>SUBTOTAL</b>	<b>14,238</b>	<b>12,633</b>	<b>14,461</b>	<b>15,530</b>	<b>15,893</b>	<b>16,346</b>
% Annual Change		<b>-11.3%</b>	<b>14.5%</b>	<b>7.4%</b>	<b>2.3%</b>	<b>2.9%</b>
<b>Dickenson County</b>						
Household Waste	280	363	394	617	729	550
Commercial Waste	49	47	24	56	29	23
Govt. Household Waste	7,381	7,134	7,461	7,669	7,929	8,289
Govt. Commercial Waste	0	2	0	1	0	0
<b>SUBTOTAL</b>	<b>7,710</b>	<b>7,546</b>	<b>7,879</b>	<b>8,343</b>	<b>8,687</b>	<b>8,862</b>
% Annual Change		<b>-2.1%</b>	<b>4.4%</b>	<b>5.9%</b>	<b>4.1%</b>	<b>2.0%</b>
<b>Russell County</b>						
Household Waste		14,579	21,394	17,272	17,588	18,504
Commercial Waste		2,928	0	3,018	3,077	3,475
<b>SUBTOTAL</b>		<b>17,507</b>	<b>21,394</b>	<b>20,290</b>	<b>20,665</b>	<b>21,979</b>

<b>Waste Type</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
% Annual Change			<b>22.2%</b>	<b>-5.2%</b>	<b>1.8%</b>	<b>6.4%</b>
<b>Region</b>						
Buchanan County		12,633	14,461	15,530	15,893	16,346
Dickenson County		7,546	7,879	8,343	8,687	8,862
Russell County		17,507	21,394	20,290	20,665	21,979
<b>SUBTOTAL</b>		<b>37,686</b>	<b>43,734</b>	<b>44,163</b>	<b>45,245</b>	<b>47,187</b>
% Annual Change			<b>16.0%</b>	<b>1.0%</b>	<b>2.5%</b>	<b>4.3%</b>

Of interest is that the total residential and commercial tonnage for the region has been growing over the last three years. From 2010 to 2015 there was a 1.0% increase, from 2001 to 2002, a 2.5% increase and from 2002 to 2003 a 4.3% increase. All three Counties experienced a steady increase in tonnage during this three year period. However, it is not expected that this trend would continue given the projections for the declining population and the difficult economic environment of the region. Thus the national average will be used for this report as described in the paragraph below.

Nationally from 1990 to 2001 the MSW waste stream grew at a rate of 1.0% per year. MSW includes residential, commercial and institutional waste. For this region, a 1.0% growth in the MSW sector will be assumed with no growth assumed for the other waste categories.

#### 4.3.4 Annual change in total tonnage with population considered

Another way to consider the annual change in solid waste is to couple the population with the total tonnage delivered to the transfer stations as determined in the calculation for pounds per person per day. Table 52 in Section 4.2.2 contains this information and indicates regionally a change from 2010 to 2012 of a 5.3% increase and from 2013 to 2015, a 2.5% decrease.

The total tonnage includes all waste delivered to the transfer stations regardless of its handling. Total tonnage includes construction waste, industrial waste, white goods and other waste materials. The following table evaluates the regional population and regional tonnage for the commercial and residential sectors:

#### 4.3.5 Projected tonnages

As stated at the beginning of this section, there is no single methodology to use to predict the future changes in the region's waste stream. The region is facing a decline in population and is currently experiencing economically challenging times in most areas. Thus, as discussed above, the national average of 1.0% per year was used for projecting the residential and commercial tonnages while all other tonnages were assumed to remain constant.

Tables 57 through 60 provide the tonnage projections for the individual Counties and the region by year.





**TABLE 58**  
**ESTIMATED WASTE TONNAGE 2010-2040**  
**DICKENSON COUNTY**

Estimated rate of change 2010-2040 1.0%  
 Estimated rate of change for other waste materials 0%/year  
 Population growth factor variable/year

<b>YEAR</b>	<b>COMMERCIAL AND RESIDENTIAL TONNAGE</b>	<b>OTHER TONNAGE RECEIVED AT TRANSFER STATION</b>	<b>TOTAL TONNAGE ESTIMATED TO BE DELIVERED TO TRANSFER STATION</b>	<b>TONS PER DAY</b>	<b>POPULATION</b>	<b>POUNDS PER PERSON PER DAY</b>
<b>2010</b>	<b>9,501</b>	<b>1,744</b>	<b>11,245</b>	<b>43</b>	<b>15,903</b>	<b>3.9</b>
2011	9,596	1,744	11,340	44	15,675	4.0
2012	9,692	1,744	11,436	44	15,668	4.0
2013	9,789	1,744	11,533	44	15,449	4.1
2014	9,887	1,744	11,631	45	15,308	4.2
<b>2015</b>	<b>9,986</b>	<b>1,744</b>	<b>11,730</b>	<b>45</b>	<b>15,100</b>	<b>4.3</b>
2016	10,086	1,744	11,830	45	15,020	4.3
2017	10,187	1,744	11,931	46	14,940	4.4
2018	10,289	1,744	12,033	46	14,860	4.4
2019	10,391	1,744	12,135	47	14,780	4.5
<b>2020</b>	<b>10,495</b>	<b>1,744</b>	<b>12,239</b>	<b>47</b>	<b>14,700</b>	<b>4.6</b>
2021	10,600	1,744	12,344	47	14,700	4.6
2022	10,706	1,744	12,450	48	14,700	4.6
2023	10,813	1,744	12,557	48	14,700	4.7
2024	10,921	1,744	12,665	49	14,700	4.7
2030	11,158	1,744	12,902	50	15,375	4.6
2040	11,010	1,744	12,754	49	15,193	4.6

**TABLE 59**  
**ESTIMATED WASTE TONNAGE 2010-2040**  
**RUSSELL COUNTY**

Estimated rate of change 2010-2040 1.0%  
 Estimated rate of change for other waste materials 0%/year  
 Population growth factor variable/year

YEAR	COMMERCIAL AND RESIDENTIAL TONNAGE	OTHER TONNAGE RECEIVED AT TRANSFER STATION	TOTAL TONNAGE ESTIMATED TO BE DELIVERED TO TRANSFER STATION	TONS PER DAY	POPULATION	POUNDS PER PERSON PER DAY
<b>2010</b>	<b>23,564</b>	<b>2,233</b>	<b>25,797</b>	<b>99</b>	<b>28,897</b>	<b>4.9</b>
2011	23,800	2,233	26,033	100	29,657	4.8
2012	24,038	2,233	26,271	101	28,426	5.1
2013	24,278	2,233	26,511	102	28,274	5.1
2014	24,521	2,233	26,754	103	28,023	5.3
<b>2015</b>	<b>24,766</b>	<b>2,233</b>	<b>26,999</b>	<b>104</b>	<b>30,600</b>	<b>4.8</b>
2016	25,014	2,233	27,247	105	30,680	4.9
2017	25,264	2,233	27,497	106	30,760	4.9
2018	25,517	2,233	27,750	107	30,840	4.9
2019	25,772	2,233	28,005	108	30,920	5.0
<b>2020</b>	<b>26,030</b>	<b>2,233</b>	<b>28,263</b>	<b>109</b>	<b>31,000</b>	<b>5.0</b>
2021	26,290	2,233	28,523	110	31,080	5.0
2022	26,553	2,233	28,786	111	31,160	5.1
2023	26,819	2,233	29,052	112	31,240	5.1
2024	27,087	2,233	29,320	113	31,320	5.1
2030	24,716	2,233	26,949	104	29,296	5.0
2040	24,717	2,233	26,950	104	29,534	5.0

**TABLE 60**  
**ESTIMATED WASTE TONNAGE 2004-2024**  
**REGION**

Estimated rate of change 2004-2024 1.0%  
 Estimated rate of change for other waste materials 0%/year  
 Population growth factor variable/year

YEAR	COMMERCIAL AND RESIDENTIAL TONNAGE	OTHER TONNAGE RECEIVED AT TRANSFER STATIONS	TOTAL TONNAGE ESTIMATED TO BE DELIVERED TO TRANSFER STATIONS	TONS PER DAY	POPULATION	POUNDS PER PERSON PER DAY
2003	47,187	8,103	55,290	213	70,334	4.3
2004	47,659	8,103	55,762	214	69,677	4.4
<b>2005</b>	<b>48,135</b>	<b>8,103</b>	56,238	216	<b>69,223</b>	4.5
2006	48,617	8,103	56,720	218	68,741	4.5
2007	49,103	8,103	57,206	220	68,588	4.6
2008	49,594	8,103	57,697	222	68,272	4.6
2009	50,090	8,103	58,193	224	68,197	4.7
<b>2010</b>	<b>50,591</b>	<b>8,103</b>	58,694	226	<b>68,282</b>	4.7
2011	51,097	8,103	59,200	228	69,220	4.7
2012	51,608	8,103	59,711	230	67,931	44.8
2013	52,124	8,103	60,227	232	67,278	4.9
2014	52,645	8,103	60,748	234	66,437	5.0
<b>2015</b>	<b>53,171</b>	<b>8,103</b>	61,274	236	<b>69,500</b>	4.8
2016	53,703	8,103	61,806	238	69,380	4.9
2017	54,240	8,103	62,343	240	69,260	4.9
2018	54,783	8,103	62,886	242	69,140	5.0
2019	55,330	8,103	63,433	244	69,020	5.0
<b>2020</b>	<b>55,884</b>	<b>8,103</b>	63,987	246	<b>68,900</b>	5.1
2021	56,443	8,103	64,546	248	68,870	5.1
2022	57,007	8,103	65,110	250	68,840	5.2
2023	57,577	8,103	65,680	253	68,810	5.2
2024	58,153	8,103	66,256	255	68,780	5.3

#### 4.4 Waste Composition

The region does not receive significant quantities of unusual or special wastes or industrial wastes. Therefore its composition would be assumed to be similar to the national estimates discussed in Section 2.1.2. The following tables summarize the expected waste compositions by material type and by product type utilizing the percentages developed by EPA from the 2001 data for the region only:

**TABLE 61**  
**REGIONAL WASTE COMPOSITION**  
**BY MATERIAL TYPE**  
**AS SUMMARIZED IN EPA REPORT - 2014 DATA**

MATERIAL	% OF TOTAL WASTE STREAM (MSW)	PROJECTED TONNAGE HOUSEHOLD AND COMMERCIAL WASTE ONLY 2015*
Paper	35.7	16,846
Glass	5.5	2,595
Metals	7.9	3,728
Plastics	11.1	5,238
Rubber, leather, & textiles	7.1	3,350
Wood	5.7	2,690
Yard trimmings	12.2	5,757
Food scraps	11.4	5,379
Other	3.4	1,604
<b>TOTAL</b>	<b>100.0</b>	<b>47,187</b>

\*Tonnage from Table 45 for region of 47,187.

**TABLE 62**  
**REGIONAL WASTE COMPOSITION**  
**BY PRODUCT TYPE**

MATERIAL	% OF TOTAL WASTE STREAM (MSW)	PROJECTED TONNAGE HOUSEHOLD AND COMMERCIAL WASTE ONLY 2015*
Durable goods	16.4	7,739
Nondurable goods	26.4	12,457
Containers and packaging	32.0	15,100
Food scraps	11.4	5,379
Yard trimmings	12.2	5,757
Other wastes	1.6	755
<b>TOTAL</b>	<b>100.0</b>	<b>47,187</b>

\*Tonnage from Table 45.

## 5.0 EXISTING SOLID WASTE MANAGEMENT SYSTEM

The following section describes the major components of the region’s current solid waste management system in existence in 2003.

### 5.1 Collection

#### 5.1.1 Overview

The following table summarizes the information relative to collection as provided by the various localities:

**TABLE 63  
SUMMARY OF INFORMATION ON COLLECTIONS**

LOCALITY	DESCRIPTION
Buchanan County	<p><b>Equipment:</b> 13 trucks  <b>Personnel:</b> 23 collection workers; 1 full time litter control coordinator, 1 full time litter control coordinator,  <b>Collection:</b> Door to door from 9,485 residential and 1,383 business curbside customers.  <b>Residential:</b> one time per week  <b>Commercial:</b> one time per week, fixed or by request; 4cy or 6cy containers.  <b>Other collections:</b></p> <ul style="list-style-type: none"> <li>• Large items collected monthly by request</li> <li>• White good collection is performed by a local recycling business; refrigerant removal by private contractor; materials hauled away by private contractor twice per year</li> <li>• Tires are accepted at the transfer station. The CPRWMA provides services via WV Tire.</li> </ul> <p><b>Fees:</b></p> <ul style="list-style-type: none"> <li>• Households - \$3.00 per month split equally between electric and telephone bill each electric meter and each telephone line.</li> <li>• Commercial - \$6.00 per cubic yard (based on size of box)</li> <li>• Tires - \$70.00 per ton; sent off site for recycling</li> <li>• Fees do not meet the operations expenses. Operations supplemented from County’s general fund.</li> </ul> <p><b>Annual budget (FY 2015):</b> \$2,329,309.</p>
Grundy	<p><b>Equipment:</b> 2 trucks, 1 brush shredder  <b>Personnel:</b> 3 employees  <b>Collection:</b> Door to door from 216 residential and commercial customers.  <b>Residential:</b> 1 time per week  <b>Commercial:</b> 1-5 times per week  <b>Other collections:</b></p> <ul style="list-style-type: none"> <li>• Bulky item pickup monthly by request of residential or</li> </ul>

LOCALITY	DESCRIPTION
	<p>commercial customers.</p> <ul style="list-style-type: none"> <li>Leaves, brush, and Christmas trees collected by request. Town shreds and sells for mulch</li> </ul> <p><b>Fees:</b></p> <ul style="list-style-type: none"> <li>Residential - \$8.00 per month charged on utility bill</li> <li>Commercial – based on number of collections. Current billing range from \$48 - \$240 per month.</li> <li>Fees covers cost of operations. No additional funding is needed to supplement the system.</li> </ul> <p><b>Annual budget (FY 2015):</b> \$251,200</p>
Dickenson County	<p><b>Equipment:</b> 7 rear load packer trucks  <b>Personnel:</b> 15 employees; 2 litter control officers  <b>Collection:</b> Door to door from 6,352 residential and 891 commercial customers; 3 green box sites with one 6cy box per site on roads where packer trucks cannot service homes.  <b>Residential:</b> 1 time per week  <b>Commercial:</b> 1-2 times per week  <b>Other collections:</b></p> <ul style="list-style-type: none"> <li>No leaf, brush or general bulky item pickup.</li> <li>Temporary collection sites are established for Christmas tree collection. Trees are hauled to the lake for the Army Corp of Engineers to use as fish attractors.</li> <li>Tires - \$70.00 per ton; sent off site for recycling</li> </ul> <p><b>Fees:</b></p> <ul style="list-style-type: none"> <li>Residential - \$60 per ton at transfer station and Free curb side collection.</li> <li>Commercial - \$60 per ton at transfer station.</li> <li>Operations subsidized from general fund.</li> </ul> <p><b>Annual budget (FY 2015):</b> \$1,333,555</p>
Clintwood	<p><b>Equipment:</b> 2 trucks – 1 regular sized rear loader, 1 smaller truck.  <b>Personnel:</b> 4 employees  <b>Collection:</b> Door to door.  <b>Residential:</b> 1 time per week  <b>Commercial:</b> Collection frequency variable depending on agreement with town.</p> <p><b>Other collections:</b></p> <ul style="list-style-type: none"> <li>Bulky items, leaves, and brush are picked up on request. Pickup usually on Friday. No additional charge.</li> <li>Tires are transported by the Town to the transfer station.</li> </ul> <p><b>Fees:</b> Residential is \$7 per month and Commercial is \$10. 4 cy, 6 cy, 8 cy range is from \$32.00-\$300 per month.  <b>Annual budget (FY 2015):</b> \$76,460</p>
Haysi	No solid waste collection operations
Clinchco	No solid waste collection operations

LOCALITY	DESCRIPTION
Russell County	<p><b>Equipment:</b> System is county managed and staffed with hauling privatized.</p> <p><b>Personnel:</b> 6 personnel to staff the sites</p> <p><b>Collection:</b> 10 convenient sites around County serviced by County staff. Most of the sites have 1-3 boxes or compactors and use 40 – 50 cy open top roll-off boxes. The County owns the sites. Collections is contracted out 10 sites and the County provides staff. The sites are staffed 40 hours per week.</p> <p><b>Residential:</b> 10 Convenient Centers Drop off.</p> <p><b>Commercial:</b> Town of Lebanon and Private Company's.</p> <p><b>Other collections:</b></p> <ul style="list-style-type: none"> <li>• Brush or leaf collection is a drop off at Transfer Station.</li> <li>• White goods can be taken to the transfer station. Once collected, the material is managed by the County.</li> <li>• Tires - \$83.50 per ton; sent off site for recycling</li> </ul> <p><b>Fees:</b> \$60.00 per ton for commercial and construction.</p> <p><b>Annual budget (FY 2015):</b> \$900,000.</p>
Lebanon	<p><b>Equipment:</b> 2 rear load packer trucks and 2 roll-off trucks</p> <p><b>Personnel:</b> 4 employees plus public works director. 1 driver for the roll-off truck; 3 person crew for the packer truck.</p> <p><b>Collection:</b> Door to door from 1,794 residential and commercial customers. Private collection is not allowed within City limits.</p> <p><b>Residential:</b> 1 time per week</p> <p><b>Commercial:</b> 1 time per week (minimum), can request greater frequency for collection; Town provides containers.</p> <p><b>Other collections:</b></p> <ul style="list-style-type: none"> <li>• Bulky item collection: By request each Friday</li> <li>• Leaves and grass: By request as needed.</li> </ul> <p><b>Fees:</b></p> <ul style="list-style-type: none"> <li>• Residential - \$7.20 per month on utility bill</li> <li>• Commercial – <ul style="list-style-type: none"> <li>○ Curbside - \$14.20 per week.</li> <li>○ 6 cy box - \$25 per load</li> <li>○ 8 cy box - \$25 per load</li> <li>○ 40 cy box - \$100 per load</li> <li>○ Compactor - \$150.00 per load</li> </ul> </li> </ul> <p><b>Annual budget (FY 2015):</b> \$285,499.</p>
Cleveland	<p><b>Equipment:</b> 1 rear loader packer truck</p> <p><b>Personnel:</b> 3</p> <p><b>Collection:</b> Door-to-door</p> <p><b>Residential:</b> Weekly</p> <p><b>Commercial:</b> Weekly</p> <p><b>Other collections:</b></p> <ul style="list-style-type: none"> <li>• Bulky item collection: Once per year in May.</li> </ul> <p>Leaves and grass: None.</p> <p><b>Fees:</b></p>



LOCALITY	DESCRIPTION
	<ul style="list-style-type: none"> <li>Residential: – \$12/month</li> <li>Commercial: – \$18/month</li> </ul> <b>Annual budget (FY 2015): \$16,940</b>
Honaker	<b>Equipment:</b> 1 rear loader packer truck <b>Personnel:</b> 3 <b>Collection:</b> Door-to-door <b>Residential:</b> 1/week <b>Commercial:</b> 1/week <b>Other collections:</b> <ul style="list-style-type: none"> <li>Bulky item collection: By request as needed</li> <li>Leaves and grass: None</li> </ul> <b>Fees:</b> <ul style="list-style-type: none"> <li>Residential – \$15.00/month</li> <li>Commercial – \$20-200 per/month</li> </ul> <b>Annual budget (FY 2015): \$95,500</b>

5.1.2 *Russell County Collection sites*

Russell County is the only one of the localities which uses drop off collection sites for handling garbage collection. There are 14 sites. The following table summarizes the tonnage collected from each site for the years 2010 – 2016:

**TABLE 64  
RUSSELL COUNTY COLLECTION SITES  
TONNAGE  
2000 – 2003**

Site	2000	2001	2002	2003	AVERAGE	AVERAGE AS % OF TOTAL
Lebanon	1,160	1,132	1,054	1,153	1,125	8.9%
Belfast	1,158	1,322	1,632	1,220	1,333	10.5%
Blackford	1,385	1,408	1,522	1,325	1,410	11.1%
Swordscreek	840	1,139	990	843	953	7.5%
Pjncreek	884	1,081	1,058	921	986	7.8%
Flatrock	627	781	807	712	732	5.8%
Finney	288	350	304	277	305	2.4%
Daw Road	161	199	211	233	201	1.6%
Carbo	719	717	740	635	703	5.5%
Hamlin	962	1,158	1,134	955	1,052	8.3%
Radio Station (Castlewood)	1,395	1,560	1,536	1,410	1,475	11.6%
71 (604) Grassy Creek	406	394	335	293	357	2.8%
Mocassin	305	312	299	264	295	2.3%
71 Site	1,585	1,764	1,887	1,803	1,760	13.9%
<b>TOTAL</b>	<b>11,875</b>	<b>13,317</b>	<b>13,509</b>	<b>12,044</b>	<b>12,686</b>	<b>100.0%</b>

Figure 2 illustrates the location of these sites.

## 5.2 Transfer Operations

### 5.2.1 Summary of transfer station information

The following table summarizes the information on the transfer operations. Most of the waste generated within the three County region is delivered to one of the transfer stations. Some waste may be taken directly to one of the private landfills, but this waste is not tracked. As noted below, the Authority owns the buildings, holds the permits, is in charge of operations and maintenance and holds the contracts with the hauling company and the disposal facility.

**TABLE 65  
SUMMARY OF INFORMATION ON TRANSFER STATIONS**

LOCATION	DESCRIPTION
Buchanan County	<ul style="list-style-type: none"> <li>• PBR # 106</li> <li>• Opened March 1996</li> <li>• 5,000 square feet</li> <li>• Scales – B Tek 10’x70’</li> <li>• Original Cost \$609,000</li> <li>• Operated by the County</li> <li>• Tonnage transferred 2015 – 16,426 tons</li> </ul>
Dickenson County	<ul style="list-style-type: none"> <li>• PBR #049</li> <li>• Opened December 1993</li> <li>• 5,000 square feet</li> <li>• Scales – B Tek 10’x70’</li> <li>• Original Cost - \$640,689</li> <li>• Operated by the County</li> <li>• Tonnage transferred 2015 – 10,049 tons</li> </ul>
Russell County	<ul style="list-style-type: none"> <li>• PBR #001</li> <li>• Opened April 1994</li> <li>• 7,500 square feet</li> <li>• Scales – B Tek 10’x70’</li> <li>• Original Cost - \$625,000</li> <li>• Operated by a private contractor</li> <li>• Tonnage transferred 2015 – 16,986 tons</li> </ul>
General Information	<ul style="list-style-type: none"> <li>• Hauling contract with Advanced Disposal, Inc. The contract expires on October 26, 2018.</li> <li>• Permits are held by Authority who owns the buildings, equipment and property and holds long-term leases with VDOT in Dickenson and Russell Counties on the properties.</li> <li>• As of January 1, 2016, the Authority has no outstanding bond debt.</li> <li>• As permit holder, the Authority is responsible for permit compliance.</li> </ul>

LOCATION	DESCRIPTION
	<ul style="list-style-type: none"> <li>As owner of the buildings, the Authority is responsible for all maintenance and repairs.</li> </ul>

### 5.2.2 Contractual Relationships

The following table summarizes the contractual relationships between the Authority, Contractor and Counties:

**TABLE 66  
CONTRACTUAL RELATIONSHIPS**

CONTRACT NAME	PARTIES	PURPOSE
Solid Waste Disposal Agreement	Advanced Disposal Inc.	Establishes contract for disposal at Advanced Disposal Landfill and sets fees for disposal. Current contract expires October 26, 2018.
Solid Waste Transportation Agreement	Authority and Advanced Disposal, Inc.	Establishes contract for transportation and sets fees for hauling. Current contract expires October 26, 2018.
User Agreement for Solid Waste Disposal	Authority and each county individually	Establishes contract for use of transfer stations, obligations of users, tipping fees, etc. No specific expiration date. Members can leave Authority when all debt is paid off.
Manpower Service Agreement	Authority and each county individually	Establishes contract for County operation of transfer stations for Authority. Contract renewed annually.
Administrative contract	Cumberland Plateau PDC and Authority	Establishes an agreement for the PDC to administer the Authority's program. Contract renewed annually.

### 5.2.3 Tipping Charges and Fees at transfer station

Each County holds a user agreement with the Authority and the Authority only has three customers, the three Counties. The Authority sets the tipping charges as follows (taken from the agreement with Russell County): *“The tipping fee shall be calculated by determining the total of (a) the disposal fee charged by any landfill operator with whom the Authority may contract for the ultimate disposal of any Solid Waste delivered under the contract; (b) the transportation costs incurred in the transport of the waste from the transfer station to the landfill; (c) the*

*amount of principal premium, if any, and interest or any other amounts due, or to become due, with respect to any indebtedness of the Authority or required to avoid a default with respect to such indebtedness, and (d) all expenses of the Authority relating to the operation and maintenance of the disposal system, including any reserves. This amount is divided by the tonnage projected to be received to derive the cost per ton to be charge for use of the disposal system.”*

The current tipping charges established by the Authority may be summarized as follows:

**TABLE 67  
SUMMARY OF AUTHORITY’S TIPPING CHARGES**

<b>LOCALITY</b>	<b>FEE</b>	<b>COMMENT</b>
Buchanan County	\$34.06/ton	+ Monthly charge of \$17,000
Dickenson County	\$34.05/ton	+ Monthly charge of \$17,000
Russell County	\$31.96/ton	+ Monthly charge of \$17,000

\*Monthly charge covers operations and debt service.

Each County is invoiced on a monthly basis by the Authority for the tonnage delivered to the transfer station. Each County can then chose to charge transfer station users.

The following table summarizes the current tipping fees established by the Counties as of October 2013 at the three transfer stations:

**TABLE 68  
SUMMARY OF TIPPING FEES AT TRANSFER STATIONS**

<b>LOCALITY/WASTE TYPE</b>	<b>FEE</b>	<b>COMMENTS</b>
<b>BUCHANAN COUNTY</b>		
Household waste	\$30/ton	Household billed \$7.00 per month on utility bill.
Commercial waste	\$60/ton	
Tires	\$70/ton	
<b>DICKENSON COUNTY</b>		
Household waste	\$60/ton	
Commercial Waste	\$60/ton	
Construction demolition debris	\$60/ton	
Tires	\$60/ton	
Sludge	\$40/ton	
<b>RUSSELL COUNTY</b>		
Household waste	No charge	
Commercial waste	\$60/ton	
Industrial waste	\$60/ton	
Shingles	\$60/ton	
Tires	\$83.50/ton	

Contract fees as negotiated by the Authority with the hauling and disposal company may be summarized as follows. The contracts expire on October 26, 2018:

**TABLE 69  
SUMMARY OF AUTHORITY AGREEMENTS**

CONTRACT	NEGOTIATED FEE	COMMENTS
<b>TRANSPORTATION AGREEMENT</b>		
Buchanan County	\$17.18/ton	CPI for agreement shall not exceed 3% and will not be considered until 12/03.
Dickenson County	\$17.17/ton	Same as above
Russell County	\$15.08/ton	Same as above
<b>DISPOSAL AGREEMENT</b>		
Disposal price	\$16.07/ton	3% CPI each year (not to exceed \$17.74 in 2018).
State fee	\$ 0.10/ton	
Total disposal price	\$16.07/ton	

Under the disposal agreement, the current federal, state and local fees/taxes of \$0.95/ton shall not exceed a total of \$3.00/ton. Should fees/taxes exceed \$3.00/ton, the Authority reserved the right to renegotiate the fee schedule.

*5.2.4 Materials permitted for acceptance at transfer stations*

In accordance with the Virginia Solid Waste Management Regulations, the following materials may be accepted at the transfer stations subject to permit specific limitations:

- a. Agricultural waste
- b. 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.
- c. Commercial waste
- d. Compost
- e. Construction waste
- f. Debris
- g. Demolition waste
- h. Discarded material
- i. Garbage
- j. Household waste
- k. Industrial waste meeting all criteria contained in DEQ Regulations
- l. Inert waste

- m. Institutional waste except anatomical waste from health care facilities or infectious waste as specified in Waste Management Board's Infectious Wastes Regulations.
- n. Municipal solid waste
- o. 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.
- p. Refuse
- q. Residential waste
- r. Rubbish
- s. Scrap metal
- t. Sludge
- u. Trash
- v. White goods
- w. Non-regulated hazardous wastes by specific approval only
- x. Specific wastes as approved by the Director

#### 5.2.5 *Materials not accepted at the transfer stations*

The following wastes **are prohibited** at the transfer stations:

1. Under the DEQ regulations (taken from 9VAC 20-80-250.C.16):

- a. Free liquids
- 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
- e. Unstabilized sewage sludge 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. Waste oil that has not been adequately adsorbed in the course of a site cleanup
- i. Contaminated soil unless approved by the Director

## 5.3 Disposal

### 5.3.1 Landfill

Currently the Cumberland Plateau Regional Waste Management Authority is under contract with Advanced Disposal, Inc. for disposal at the Advanced Disposal Landfill located in Sullivan County Tennessee. The landfill is located approximately 5 miles south of Bristol. Distances from the transfer stations to the landfill range from 120 miles one way for Buchanan County, to 95 miles one way for Dickenson County, to 68 miles one way for Russell County.

The following list summarizes information on the landfill:

- Permitted by Tennessee Department of Environment and Conservation (TDEC)
- Permit number SNL 820-000-0282 Ext. Class 1
- Subtitle D liner and cap system
- Total acreage – 655 acres
- Disposal acreage – 255 acres (not all permitted at this time)
- Remaining life expectancy – 78 years @ 675 tpd from 1/1/12. Estimated closure date 2094.

### 5.3.2 Previously operated landfills

Appendix 3 includes a table summarizing the status of previously operated landfills in the region and location maps for the most recently closed landfills. The information was provided by the Southwest Regional Office of the Department of Environmental Quality. All landfills owned and operated by the Counties have been closed.

One industrial landfill is open in the Russell County. It is operated by American Electric Power (AEP) and is the disposal site for coal combustion by-products produced by the Clinch River Power Plant. Information on this facility is summarized in the following table and was obtained from AEP:

**TABLE 70**  
**AEP INDUSTRIAL LANDFILL**

ITEM	DESCRIPTION
Permit Number	223
Date Permitted	1974
Materials placed in landfill	Coal combustion by-products: flyash, bottom ash; limited amounts of special waste by permit (contaminated soil, filter media from waste treatment plant, boiler refractory, etc.
Liner system	Subbase of insitu soil, layer of select fill, flexible membrane liner (FML), covered with double sided geocomposite material, leachate collection zone, covered by aggregate drainage layer, buttresses in specified bench areas.
Cap system	Flyash infiltration layer on top of waste, 40 mil FML, covered by layer of topsoil and vegetation.
Leachate collection and handling	Two leachate collection ponds. Discharges are pumped back to the plant for disposal through the waste water treatment system.
Environmental monitoring programs	Daily, monthly, quarterly and annual inspections; groundwater monitoring wells sampled semi-annually.

Information on remaining life, closure date or annual tonnage was not available.

5.3.2.A *Previously operated landfills continued. Please see Possum Hollow Landfill attachment.*

### 5.3.3 *Household hazardous waste collection*

Periodically the Authority assists Counties with the collection of household hazardous waste. In the future, the Counties have expressed interest in developing a comprehensive household hazardous waste program that would be run at specific times of the year. The Counties would like to pay for this program out of their general fund instead of raising tipping fees at the transfer stations to cover the expenses.

### 5.3.4 *Central Archive*

Records of all closed and active solid waste disposal sites within the region are maintained at the offices of the County Administrators within the Region. The Authority did not take over management of the landfills when it became the regional coordinator for disposal services for the Region. The Counties retain responsibility for all closure and post closure activities at the landfills and for documenting and addressing any open dumps. The Authority however maintains information on the transfer stations and recycling. The addresses for these archives are listed below:



Cumberland Plateau Regional Waste Management Authority  
224 Clydesway Road  
Lebanon, Virginia 24266  
276-889-1778

Buchanan County  
PO Box 950  
Main Street, 4<sup>th</sup> Floor  
Grundy, VA 24614  
276-935-6501

Dickenson County  
PO Box 1098  
Mainstreet Courthouse  
Clintwood, VA 24228  
276-926-1676

Russell County  
PO 1208  
121 E. Main Street  
Lebanon, VA 24266  
276-889-8000

The files kept in these locations constitute the central archive and operating record for all permitted landfills within the Counties. New landfills, closure and post closure care documentation is kept at the Counties. Transfer station and recycling information is kept at the Authority. All correspondence to and all correspondence from DEQ is kept in the files of the appropriate entity.

In addition, the Solid Waste Management Plan prepared by the Authority for the Region will serve as a central archive and summary of solid waste collection, disposal, recycling and treatment activities within the Region. The plan will be revised as appropriate as activities change and the revised plan will be submitted to DEQ for review and approval.

## **5.4 Recycling**

Recycling programs in the region are implemented on an individual basis by locality. The data is reported regionally. A recycling Action Plan (RAP) has been submitted to VA DEQ and approved.

### *5.4.1 Description of programs*

The following table summarizes the existing programs within each County.

**TABLE 71  
SUMMARY OF RECYCLING PROGRAMS IN THE REGION**

LOCALITY	DESCRIPTION
Buchanan County	<ul style="list-style-type: none"> <li>• Limited recycling program in County.</li> <li>• White goods are collected at the transfer station and recycled</li> <li>• There is one private collection site at the Anchorage Shopping Center. Information on this center was not available.</li> <li>• There is a private scrap yard in the County which accepts batteries, aluminum, and scrap metal. The company pays for the materials they accept. Detailed information on this facility was not available.</li> <li>• The Town of Grundy collects and mulches their brush.</li> <li>• Some tracking of commercial and industrial recycling.</li> </ul>
Dickenson County	<ul style="list-style-type: none"> <li>• Limited recycling program in County.</li> <li>• Private contractor recycles aluminum, scrap metal, white goods, and abandoned vehicles.</li> <li>• Some tracking of commercial and industrial recycling.</li> </ul>
Russell County	<ul style="list-style-type: none"> <li>• 7-8 drop off sites are located throughout the County.</li> <li>• The drop off program is privatized.</li> <li>• The program accepts plastics, newspaper, cardboard, and aluminum.</li> <li>• The materials are transported to a recycler in Kingsport, TN.</li> <li>• Sites are staffed and contamination is limited.</li> <li>• Used oil is collected at the transfer station and is pumped and hauled away by Necessary Oil.</li> <li>• Scrap metal is collected at the transfer station.</li> <li>• Aggressively tracks commercial and industrial recycling.</li> </ul>
Authority	<ul style="list-style-type: none"> <li>• Hired a recycling coordinator 08/01/04.</li> </ul>

5.4.2 *Recycling rates*

The following table provides information on the recycling rates for the Counties for 2010 and 2015. Appendix 4 contains the DEQ reporting form for 2015 for the region.

**TABLE 72**

MATERIAL	BUCHANAN COUNTY		DICKENSON COUNTY		RUSSELL COUNTY		TOTAL	
	2010	2015	2010	2015	2010	2015	2010	2015
<b>Total Principle RM</b>								
Paper	408.64	677	263.39	170	915.35	740	1,587.38	1,587
Metal	4,846.36	6,799	4,414.42	3,240	5,713.5	5,200	14,974.28	15,239
Plastic	42.99	16	9.24	10	58.73	26	110.96	52
Glass	.015		.25		.26		.26	0
Commingled							-	0
Yard Waste (composted or mulched)							-	0
Waste Wood (chipped or mulched)	.01	5	40	100	180.02		220.03	105
Textiles	92		23.69	40	0		115.69	40
<b>SUBTOTAL</b>	<b>5,390.015</b>	<b>7,497</b>	<b>4,750.99</b>	<b>3,560</b>	<b>6,867.86</b>	<b>5,966</b>	<b>17,008.6</b>	<b>17,023</b>
<b>Total Supplemental RM</b>							-	
Waste Tires	66.82	49	299.22	100	190.04	215	556.08	364
Used Oil	82.91	108	2,480.65	220	701.53	580	3265.09	908
Used Oil Filters	3,100	2	8.11	0	8.11	6	111.11	8
Used Antifreeze	10.55	1	2.21	10	24.51	2	37.27	13
Auto Bodies	925	230	250	20	881	20	2,056.73	270
Batteries	200	143	877	60	37.11	28	1,002.22	231
Sludge (composted)							-	
Other (E-Waste)	11.66	2	20	1	17.31	12	48.97	15
Ash								
<b>SUBTOTAL</b>	<b>4,396.94</b>	<b>535</b>	<b>3,937.19</b>	<b>311</b>	<b>1859.61</b>	<b>863</b>	<b>7,077.47</b>	<b>1,809</b>
<b>Total PRM and SRM</b>	<b>9,786.955</b>	<b>8,032</b>	<b>8,688.18</b>	<b>3,871</b>	<b>8,727.47</b>	<b>6,829</b>	<b>24,086.07</b>	<b>18,832</b>
<b>Recycling rate as reported to DEQ - Reported as region only</b>								<b>30.2%</b>

5.4.3 *Composition of materials recycled*

The following table summarizes the recycling tonnage for 2014 for the region by percent of total products.

**TABLE 73  
RECYCLING DATA BY % MATERIAL  
(ADJUSTED BY DEQ)**

MATERIAL	TOTAL REGIONAL TONNAGE		
	2014	% TOTAL	
<b>Total Principle RM</b>			
Paper	1,703.76	0.8%	
Metal	15,720.92	76.0%	
Plastic	61.97	.29%	
Glass	0	0.00%	
Commingled			
Yard Waste (composted or mulched)	173	.83%	
Waste Wood (chipped or mulched)	5	.024%	
Textiles	100	.48%	
Waste Tires	516.35	.0249%	
Used Oil	1,428.57	.069%	
Used Oil Filters	9.8	.047%	
Used Antifreeze	13.57	.065%	
Auto Bodies	264	.012%	
Batteries	525.22	.025%	
Sludge (composted)			
Electronics	23.88	.115%	
<b>SUBTOTAL</b>	<b>20,672.19</b>		
<b>Total</b>	<b>20,672.19</b>		

As review of this data indicates the percentages of the materials have shifted dramatically when fly ash and other industrial recycling is eliminated from consideration.

5.4.4 *Volunteer Programs*

There is some voluntary recycling within the region. In particular, Keep Buchanan County Beautiful is active in educational and promotional programs for recycling and litter control. The litter control personnel in both Russell County and Dickenson County also assist with volunteer programs as interest is expressed by volunteer organizations.

#### *5.4.5 Recycling Markets*

Appendix 5 includes a list of recycling markets that would be available to the region. Only scrap metal is marketed directly by the Counties. All other recycling is privatized.

#### *5.4.6 Projected recycling rates*

The region's overall rate of recycling for 2013 was 33.1% and for 2014 was 30.0% after review by DEQ. The following table projects the recycling rate over the planning period if nothing changes in the recycling program and the waste tonnages increase as discussed in Section 4.3. The table also indicates the amount of additional recyclable material which must be captured to meet the 25% mandate. The Authority hired a recycling coordinator as of August 1, 2004 to help improve the recycling rates and educational programs.

### **5.5 Public Education**

Public education relative to recycling in the region is handled primarily through either volunteer organizations or the litter control departments of each County. The litter control departments try to visit public schools at least once a year and to have a presence at the County Fair. The Russell County Environmental Council works diligently to promote such programs as recycling, litter control, beautification and water quality. Dickenson County hosts a county-wide clean up program each spring. Adopt a Highway, Adopt a Stream and Adopt a School programs are active in the region. Appendix 6 contains information on public education in the region.

### **5.6 Public/Private Partnership**

The region seeks to support all activities relative to reuse, reduction and recycling. Russell County's recycling program is privatized with local company. The Authority holds private contracts with the waste haulers and the private landfill. Each County handles their own contracts for scrap metal recycling.

## 6.0 BUDGET

The following table summarizes the operating budgets and revenues for the localities of the region for FY 2015:

**TABLE 74A  
SUMMARY OF OPERATION BUDGETS AND REVENUES  
FY 2015**

LOCALITY	COLLECTIONS (Information provided by Counties)	RECYCLING	TRANSFER AND DISPOSAL (Estimated from table below)	POST CLOSURE CARE LANDFILLS (Estimated)	TOTAL	ESTIMATED REVENUES (Provided by Counties)	DEFICIT FROM GENERAL FUND
<b>Buchanan County</b>	\$ 2,329,309	\$ -	\$898,621	\$0	\$ 2,329,309	\$285,000	\$ (2,329,309)
<b>Dickenson County</b>	\$ 1,333,555	\$ -	\$592,273	\$0	\$ 1,333,555	\$35,000	\$ (1,333,555)
<b>Russell County</b>	\$ 900,000	\$ 0	\$933,002	\$15,000	\$ 900,000	\$38,000	\$ (900,000)
<b>TOTAL-County only</b>	\$ 4,562,864	\$ 0	\$ 2,423,895	\$ 15,000	\$ 4,562,964	\$ 358,000	\$ (4,562,864)

As can be seen from this table, approximately 93% of the operating expenses of the region are addressed through the general funds of the local governments.

The following table evaluates the operating costs for FY 2015 as costs per ton delivered to the transfer station and as cost per person:

## 7.0 WASTE MANAGEMENT HEIRARACHY

Under 9 VAC 20-130-30, the following policy is set forth:

*“It is the policy of the Virginia Waste Management Board to require each region designated pursuant to 9 VAC 20-130-180 through 9 VAC 20-130-220, as well as each city, county and town not part of such a region, to develop comprehensive and integrated solid waste management plans that, at a minimum, consider and address all components of the following hierarchy:*

1. *Source reduction*
2. *Reuse*
3. *Recycling*
4. *Resource recovery (waste to energy)*
5. *Incineration*
6. *Landfilling”*

Section 9 VAC 20-130-150.6, also addresses this requirement by stating:

*“The local government or regional solid waste management plan shall include data and analyses of the following type for each jurisdiction. Each item below shall be in a separate section and labeled as to content:*

*6. A description of programs for solid waste reduction, reuse, recycling, resource recovery, incineration, storage, treatment, disposal and litter control.”*

The following section provides the information as available as required by the regulations.

## **7.1 Source reduction**

Source reduction refers to any change in the design, manufacture, purchase, or use of materials or products (including packaging) to reduce their amount or toxicity before they become municipal solid waste. Source reduction can help reduce waste disposal and handling costs, conserve resources, and reduce pollution. 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. An example of this is 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 increase at the region's transfer stations and the outside facilities, the commercial sector will become more sensitive to the expenses involved in their disposal programs, and will begin to consider source reduction more closely.

The most effective source reduction activity that can occur at the local level is public education.

It should be noted that the counties within the region seek information annually from their commercial sector relative to recycling activities. This exercise in and of itself can serve as an educational tool as the businesses and industries compile the data and consider the expense of their disposal programs. It is also an opportunity for the businesses or industries to report any major changes in their waste disposal programs, including source reduction.

In summary, the region is currently engaged themselves or entities within the region are currently engaged in the following source reduction efforts:

- Yard waste mulching programs
- White good recycling
- Environmental education programs for citizens relative to the need for source reduction

The following activities are proposed under this plan as interest and funding are available:

- Expansion of yard waste mulching programs
- Enhanced educational programs for the commercial and industrial sector

## **7.2 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

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’s businesses and industries. The region does not currently focus its educational programs on the commercial sector and does not currently collect specific information on reuse by the commercial sector.

Currently there are multiple reuse centers available to the public in the region including the following:

**TABLE 75  
SUMMARY OF REFUSE FACILTIES IN REGION**

<b>LOCALITY</b>	<b>NAME OF STORE</b>	<b>MATERIALS ACCEPTED</b>
Buchanan County	Bins-Counts Community Center, Stratton, VA	Clothing, appliances, and housewares
	Outreach Community Center Clinchco, VA	Clothing, appliances, and housewares
	Thangs Clintwood, VA	Clothing, appliances, and housewares
Dickenson County	The Attic Grundy, VA	Clothing, appliances, and housewares
	Helping Hand Whitewood, VA	Clothing
	Gift of Love Oakwood, VA	Clothing
Russell County	Christian Center Lebanon and Honaker, VA	Clothing and appliances

The following activities are proposed under this plan relative to reuse, as interest and funding are available:

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

### **7.3 Recycling**

Recycling is 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. Section 5.4 outlined the recycling activities in the region.

The following activities are proposed under this plan as interest is expressed and as funding becomes available:



- Authority as of August 1, 2004 hired a regional recycling coordinator to work with the Counties, Towns and the commercial sector. Coordinator is responsible for pursuing markets, assisting with the establishment of collection programs, developing educational programs, and expanding the overall interest in recycling in the region.
- Authority to consider assisting directly with the recycling programs but coordinator will need to research markets and develop a specific plan for the Authority to act on.
- Authority to consider establishment of a periodic electronic waste collection program.
- Authority to consider establishment of a periodic household hazardous waste collection program.
- The Authority will continue to encourage its localities to increase programs offered and public participation in annual environmental events.
- The Authority will continue to encourage the localities to increase the percentage of residents that are educated about proper disposal and recycling practices within the region.
- Secure additional competitive state grants to fund additional environmental education programs.

#### **7.4 Resource recovery and incineration**

Resource recovery refers to a system that provides for collection, separation, recycling and recovery of energy from solid wastes, including disposal of non-recoverable waste residues. Incineration means the controlled combustion of solid waste for disposal. According to the EPA burning MSW can generate energy while reducing the amount of waste by up to 90 percent in volume and 75% in weight. The two activities are similar and are therefore combined for this discussion.

At this time, the region does not generate enough waste to make resource recovery or incineration feasible.

#### **7.5 Landfilling**

Landfilling at an out of region facility is the primary disposal mechanism for the region. Sections 5.2 and 5.3 outlined the region's transfer and disposal activities in detail.

### **8.0 GOALS AND OBJECTIVES OF PROGRAM**

The following section outlines the goals and objectives for the region's solid waste management program. Some of the program activities will remain under the supervision of the local governments. Other program activities will remain or become regional as described below. The Authority oversees all regional activities.

## 8.1 Collections

Collection will remain in the hands of the local governments as indicated below.

**TABLE 76  
COLLECTION SYSTEM  
GOALS AND ACTION ITEMS**

<b>ITEM NUMBER</b>	<b>GOAL</b>	<b>ACTION ITEM</b>	<b>SCHEDULE</b>	<b>ESTIMATED COST (2015 dollars)</b>
C-1	Continue to provide cost effective collection systems for the citizens of the region	Buchanan County to continue with its door to door pick up program. Towns to continue with their existing programs	No change proposed	Not applicable.
		Dickenson County to continue with its door to door pick up program. Towns to continue with their existing programs.	No change proposed	Not applicable
		Russell County to continue with its drop off collection sites. Towns to continue with their existing programs.	No change proposed	Not applicable`
C-2	Evaluate the potential for privatizing the collection system of the region	Authority to evaluate privatization through inquiries of the private haulers. May develop a request for proposals if preliminary discussions indicate a potential savings in the collection programs.	2016-2018	No specific budget proposed at this time.
C-3	Increase door to door service to citizens in more densely populated areas.	The Town of Lebanon may consider ways to provide service to Russell County residents who live outside Town limits in a reasonably densely populated area.	2016-2017	No specific budget proposed at this time.

## 8.2 Transfer

During the planning period, the Counties will continue to transfer their waste to a disposal facility outside of the region and the Authority will continue to oversee the hauling contracts, to provide funding for the transfer operations and to provide maintenance as needed. Towards the end of the planning period, the transfer stations will be 30 years old. Depending on the maintenance provided at the facilities, the buildings might be at the end of their useful life and require replacement or significant renovation. If replacement is required, the Authority in conjunction with the Counties may seek new, more central locations. As noted in previous sections, the waste stream is not anticipated to increase significantly over the planning period and hence the facilities should continue to be appropriately sized for the anticipated waste stream.

**TABLE 77  
TRANSFER STATION SYSTEM  
GOALS AND ACTION ITEMS**

<b>ITEM NUMBER</b>	<b>GOAL</b>	<b>ACTION ITEM</b>	<b>SCHEDULE</b>	<b>ESTIMATED COST (2015 dollars)</b>
T-1	Continue to provide for adequate hauling from the transfer stations at a cost competitive price.	The Authority will continue to oversee the hauling contracts and to provide funding for the operations of the transfer stations. The current contract with Advanced Disposal, Inc. expires in October 26, 2018 at which time the Authority will have either renegotiated the contract or selected a new contractor.	January 2018	No cost associated with this action.
T-2	Provide for the care and maintenance of the transfer facilities.	The Authority will continue to oversee the repair and maintenance of the facilities. Maintenance items already identified include floor slab repair and door repair.	As soon as funding becomes available and the need becomes significant.	
T-3	Provide accurate weigh scales at the facilities.	Depending on maintenance and care of scales, scales at the three facilities may need to be replaced or	Annually consider condition of scales. If deterioration	Cost to replace scales assuming that foundation is still intact

ITEM NUMBER	GOAL	ACTION ITEM	SCHEDULE	ESTIMATED COST (2015 dollars)
		significantly overhauled towards the end of the planning period.	is noted, replace or repair as necessary.	estimated at \$40,000-80,000 per scale.
T-4	Consider providing additional recycling activities at facilities.	The Authority may consider developing or expanding recycling programs at the transfer stations. Their efforts will be a function of the interest of the localities of the region.	No schedule established for this effort. Will depend on interest of localities.	No cost established for this effort at this time.
T-5	Improve efficiency	Relocation of stations as stations wear out. Authority may consider relocation of stations to more central area.	No schedule established for this effort.	No cost established for this effort at this time.

### 8.3 Disposal

Disposal will continue through 2018 at the Advanced Disposal Inc. landfill located in Sullivan County Tennessee. Prior to the end of 2018, the Authority will initiate contract renewal. Throughout the planning period, the Authority will need to evaluate the remaining disposal capacity in which ever facility they are contracted with and to consider alternatives as necessary.

**TABLE 78  
DISPOSAL SYSTEM  
GOALS AND ACTION ITEMS**

ITEM NUMBER	GOAL	ACTION ITEM	SCHEDULE	ESTIMATED COST (2015 dollars)
D-1	Provide consistent disposal facilities for the Region.	The current contract held by the Authority with Advanced Disposal expires on October 26, 2018. Prior to expiration, the Authority will begin contract negotiations to assure continued and consistent disposal.	January 2018	There is no cost associated with renewal.
D-2	Assure that sufficient	Annually the Authority	Annually	There is no

ITEM NUMBER	GOAL	ACTION ITEM	SCHEDULE	ESTIMATED COST (2015 dollars)
	disposal capacity is available for the region at an economical cost.	will evaluate the remaining disposal capacity at the landfill currently in use and, should it be found that sufficient long term capacity does not exist, seek alternative disposal facilities.		cost associated with this action.
		The Authority will assure the region that any contracts written with the disposal facility will allow termination for lack of capacity.	Evaluate during contract negotiations.	There is no cost associated with this action.
D-3	Assure that post closure is effectively handled at the previously operated landfills within the region.	Each locality will continue to handle the post closure care of their landfills. The Authority may in the future, consider regionalization of the environmental monitoring at the facilities if interest is expressed by the localities.	No specific schedule.	No cost associated with this action.

#### 8.4 Recycling

As indicated above the recycling rate for the region, if the industrial recycling is excluded, fails to meet the mandated 25% as set by the DEQ. To improve the recycling opportunities and to encourage commercial and industrial recycling, the region considered the establishment of a recycling coordinator position within the Authority as indicated below. As of August 1, 2004, the Authority has hired a full time recycling coordinator. This individual is be tasked with evaluating markets, providing proposals to the local governments for the development or expansion of recycling programs, and for educating the public and commercial sector in the importance of recycling.

**TABLE 79  
RECYCLING SYSTEM  
GOALS AND ACTION ITEMS**

<b>ITEM NUMBER</b>	<b>GOAL</b>	<b>ACTION ITEM</b>	<b>SCHEDULE</b>	<b>ESTIMATED COSTS (2015 dollars)</b>
R-1	Provide professional oversight of the recycling program	The Authority is considering the establishment of a recycling coordinator position if funding is forth coming from the region. This individual will be tasked with the development of programs and public education.	Coordinator hired 08/01/04.	Funding for position comes directly from local governments.
R-2	Expand the existing recycling programs.	The recycling coordinator will evaluate the existing programs to seek ways to expand or improve the programs in a cost effective manner.	Dependent on the findings of the recycling coordinator.	As funding and interest indicate.
R-3	Develop program for electronic waste recycling.	The Authority will consider pursuing E-Waste recycling with or without the funding of a recycling coordinator position. Will probably be established as a once per year program with citizens charged to deliver their E-waste.	Dependent on interest and funding and ability of Authority to advertise the program effectively.	No cost established for this program. Dependent on funding by local governments.
R-4	Develop an annual collection program for household hazardous waste.	The Authority will consider the best way to annually provide for the collection of household hazardous waste as delivered by the citizens to the transfer stations.	Dependent on interest and funding.	No cost established for this program at this time. Funding will probably be sought from the individual

ITEM NUMBER	GOAL	ACTION ITEM	SCHEDULE	ESTIMATED COSTS (2015 dollars)
				localities outside of tipping fees.
R-5	Seek ways to educate the public and commercial sector relative recycling, waste reduction and reuse.	One of the primary goals of the recycling coordinator is that of public education.	In progress by new coordinator.	No costs established for this program at this time. Coordinator will seek grants for funding education.

### 8.5 Litter Prevention and Control

The region has a commitment to seek ways to improve the litter prevention and control programs in the region and to reduce the amount of litter and illegal dumps in the Counties.

**TABLE 80  
LITTER PREVENTION AND CONTROL  
GOALS AND ACTION ITEMS**

ITEM NUMBER	GOAL	ACTION ITEM	SCHEDULE	ESTIMATED COSTS (2015 dollars)
L-1	Provide oversight of regional litter prevention and control programs.	The Authority is considering the establishment of a recycling coordinator position if funding is forthcoming from the region. In addition to the recycling programs, this individual will be tasked with the coordination of regional litter prevention and control programs.	As funding is available.	Funding for position to come directly from local governments or to be subsidized from litter control grants from state to local governments in region.
L-2	Assist local governments with education	Recycling/litter control coordinator will work directly with	As funding is available.	No specific project planned at this time.

<b>ITEM NUMBER</b>	<b>GOAL</b>	<b>ACTION ITEM</b>	<b>SCHEDULE</b>	<b>ESTIMATED COSTS (2015 dollars)</b>
	programs.	governments to assist with the development of educational programs.		
L-3	Encourage the organization of grassroots environmental organizations who will assist with litter prevention and control.	Recycling/litter control coordinator will work with citizens to develop the organizations.	As funding is available.	No specific project planned at this time.
L-4	Seek out alternative funding sources for litter prevention and control.	Recycling/litter control coordinator will work with the Authority to seek funding.	As funding is available.	No specific project planned at this time.
L-5	Continue to support and expand the Adopt a Highway, Assign a Highway and Adopt a Stream programs active in the region	Recycling/litter control coordinator will work with the citizens to promote these programs and will assist in the organization of additional programs.	As funding is available.	No specific project planned at this time.
L-6	Minimize illegal dumping	The Counties will continue to provide bulk collection days to discourage illegal dumping.	As funding is available.	No specific project planned at this time.
L-7	Encourage cleanup of illegal dumps.	The Counties will continue to map illegal dumps and to seek additional funding for clean up as well as to improve enforcement actions.	As funding is available.	No specific project planned at this time.



## **9.0 IMPLEMENTATION SCHEDULE**

The implementation schedule for the region's integrated waste management program has been summarized under separate sections above.

## 10.0 FUNDING AND FINANCING

The following tables summarize the estimated expenditures for the Authority over the planning period. It does not include collections or recycling which would fall to the individual local governments at this time. Funding for the Authority's program will come from tipping fees and monthly charges billed to the Counties. Funding for the collections and recycling will come from user fees included with utility bills, commercial fees, and/or the general fund of the local government. Program development must be sensitive to the economic environment of the region which is difficult at this time. Local governments do not have the funds available to them to embark on many new programs. Should the tax base improve or the commercial/industrial sectors grow, then the local governments will have a greater ability to embrace new programs.

**TABLE 81**  
**PROJECTED MISCELLANEOUS EXPENDITURES**  
**BY AUTHORITY**  
**(Equipment, building repairs etc.)**  
**2004 – 2024**

Inflation rate 2.00%

YEAR	RUBBER TIRE LOADER (Buchanan County)	RUBBER TIRE LOADER (Dickenson County)	RUBBER TIRE LOADER (Russell County)	FLOOR REPAIRS (Stagger after 2008)	NEW SCALE HOUSES	SCALE REPLACEMENT	TOTAL
Replacement costs (2004)	\$150,000	\$150,000	\$150,000	\$100,000	\$20,000	\$40,000	
Replacement period	7 Years	7 years	7 years	15 years	Upgrade one time in 2009	20 years	
Current age of equipment	1 year	Needs replacement soon	2 years	1993, 1994 and 1996	1993, 1994, and 1996	1993, 1994, and 1996	
2004							\$0
2005		\$153,000					\$153,000
2006							\$0
2007							\$0
2008			\$162,365	\$108,243			\$162,365
2009	\$165,612			\$110,408	\$66,245		\$165,612
2010							\$0
2011				\$114,869			\$0
2012		\$175,749					\$175,749
2013						\$47,804	\$0
2014						\$48,760	\$0
2015			\$186,506				\$186,506
2016	\$190,236					\$50,730	\$190,236
2017							\$0
2018							\$0

YEAR	RUBBER TIRE LOADER (Buchanan County)	RUBBER TIRE LOADER (Dickenson County)	RUBBER TIRE LOADER (Russell County)	FLOOR REPAIRS (Stagger after 2008)	NEW SCALE HOUSES	SCALE REPLACEMENT	TOTAL
2019		\$201,880					\$201,880
2020							\$0
2021							\$0
2022			\$214,237				\$214,237
2023	\$218,522			\$145,681			\$218,522
2024				\$148,595			\$0

**TABLE 82  
PROJECTED EXPENDITURES FOR AUTHORITY  
TRANSFER AND DISPOSAL  
2004 – 2024**

YEAR	TRANSFER STATION OPERATIONS	DEBT SERVICE	MISCELLANEOUS EXPENDITURES	HAULING	DISPOSAL	TOTAL	TONNAGE	COST PER TON
<b>Description</b>	3 transfer stations at \$75,000 per year	From schedule provided by Authority	See Table 71. Includes new loaders, floor repairs, new scales and scale house	2003 Estimated	2003 Estimated			
2004	\$225,000	\$434,089	\$0	\$509,000	\$1,134,000	\$2,302,089	55,762	\$41.28
<b>2005</b>	<b>\$229,500</b>	<b>\$431,011</b>	<b>\$153,000</b>	<b>\$519,180</b>	<b>\$1,156,680</b>	<b>\$2,489,371</b>	<b>56,238</b>	<b>\$44.26</b>
2006	\$234,090	\$436,331	\$0	\$529,564	\$1,179,814	\$2,379,798	56,720	\$41.96
2007	\$238,772	\$429,629	\$0	\$540,155	\$1,203,410	\$2,411,966	57,206	\$42.16
2008	\$243,547	\$426,617	\$162,365	\$550,958	\$1,227,478	\$2,610,965	57,697	\$45.25
2009	\$248,418		\$165,612	\$561,977	\$1,252,028	\$2,228,035	58,193	\$38.29
<b>2010</b>	<b>\$253,387</b>		<b>\$0</b>	<b>\$573,217</b>	<b>\$1,277,068</b>	<b>\$2,103,671</b>	<b>58,694</b>	<b>\$35.84</b>
2011	\$258,454		\$0	\$584,681	\$1,302,610	\$2,145,745	59,200	\$36.25
2012	\$263,623		\$175,749	\$596,375	\$1,328,662	\$2,364,409	59,711	\$39.60
2013	\$268,896		\$0	\$608,302	\$1,355,235	\$2,232,433	60,227	\$37.07
2014	\$274,274		\$0	\$620,468	\$1,382,340	\$2,277,082	60,748	\$37.48
<b>2015</b>	<b>\$279,759</b>		<b>\$186,506</b>	<b>\$632,878</b>	<b>\$1,409,986</b>	<b>\$2,509,129</b>	<b>61,274</b>	<b>\$40.95</b>
2016	\$285,354		\$190,236	\$645,535	\$1,438,186	\$2,559,312	61,806	\$41.41
2017	\$291,061		\$0	\$658,446	\$1,466,950	\$2,416,457	62,343	\$38.76
2018	\$296,883		\$0	\$671,615	\$1,496,289	\$2,464,786	62,886	\$39.19
2019	\$302,820		\$201,880	\$685,047	\$1,526,215	\$2,715,962	63,433	\$42.82
<b>2020</b>	<b>\$308,877</b>		<b>\$0</b>	<b>\$698,748</b>	<b>\$1,556,739</b>	<b>\$2,564,364</b>	<b>63,987</b>	<b>\$40.08</b>
2021	\$315,054		\$0	\$712,723	\$1,587,874	\$2,615,651	64,546	\$40.52
2022	\$321,355		\$214,237	\$726,977	\$1,619,631	\$2,882,201	65,110	\$44.27
2023	\$327,783		\$218,522	\$741,517	\$1,652,024	\$2,939,845	65,680	\$44.76
2024	\$334,338		\$0	\$756,347	\$1,685,064	\$2,775,750	66,256	\$41.89

## **11.0 PUBLIC PARTICIPATION**

In the preparation of this plan, the Authority held several meetings with its members and members of the various local governments included in the region. In addition, the Authority met with numerous local groups to gauge the needs of the member counties.

The Authority passes a resolution adopting the plan on March 31, 2016. A copy of this resolution and other resolutions are included in Appendix 10.

## 12.0 RECORD KEEPING

In addition to the daily record keeping, the Region documents its solid waste activities in several ways:

- Annual reports to the Cumberland Plateau Regional Waste Management Authority prepared by the Executive Director of the Authority
- Annual reports to the Board of Supervisors of the member Counties based on information provided by the Authority
- Periodic updates to the Authority and Boards by the Executive Director
- Annual submittal by March 31 of each year of the Waste Information and Assessment Report (Form 50-25) to DEQ
- Annual submittal by April 30 of each year of the Recycling Rate Report (Form 50-30) to DEQ
- Annual submittal usually by December of each year of the update to the financial assurance forms to DEQ

All these reports, updates and DEQ submittals as well as all background and permitting information are kept in the central archive (files) of the Cumberland Plateau Regional Waste Management Authority located at 950 Clydesway Road, Lebanon, Virginia, 24266. The Director of DEQ or other DEQ representatives receive copies of appropriate information relative to the Region's solid waste management program through the following sources:

- Direct submittal to DEQ of Forms 50-25 and 50-30 on an annual basis
- Permit applications
- Permit amendment applications
- Updates to the solid waste management plan
- General correspondence which may be required from time to time

*Appendix 1*

---

*Regional Documentation*

## *Appendix 2*

---

*DEQ Forms 50-25*

## *Appendix 3*

---

### *Summary of Previously Permitted Landfills and Location Maps*



## *Appendix 4*

---

### *DEQ Recycling Reporting Form*

*Appendix 5*

---

*Recycling Markets*

## *Appendix 6*

---

### *Sampling of Public Education Materials*

## *Appendix 7*

---

### *Questionnaire and Responses*

# *Appendix 8*

---

## *Authority Meetings: Agendas and Minutes*

*Appendix 9*  
*Resolutions*

---

*Appendix 10*

---

*Resolutions*

## *Appendix 11*

---

*Copy of Advertisement for Recycling Coordinator*