Charleston, Kanawha County, West Virginia

2023 West Virginia Solid Waste Management Plan

Prepared by the West Virginia Solid Waste Management Board

Jim Justice, Governor
Mark D. Holstine, P.E., Executive Director

Solid Waste Management Board

BOARD OF DIRECTORS

Member	
Mallie Combs	Chair
Roger Bryant	Vice Chair
Tim Blankenship	Member
Howard Coffield	Member
Steve Pilato	Member

Ex Officio Members

Department of Health & Human Services

Jeffery Coben, Interim Secretary
Lee Orr

Department of Environmental Protection

Harold Ward
Yogesh Patel

STAFF	Email	Direct Phone	Extensions
Mark D. Holstine, PE	Mark.D.Holstine@wv.gov	304-414-1119	41119
Cathleen Salmons	Cathleen.Y.Salmons@wv.gov	304-414-1127	41127
Jayne Ann Arthur	Jayne.A.Arthur@wv.gov	304-414-1123	41123
Scott Norman	Scott.J.Norman@wv.gov	304-414-1120	41120
Paul F. Hayes	Paul.F.Hayes@wv.gov	304-414-1122	41122
Carol Ann Throckmorton	Carol.A.Throckmorton@wv.gov	304-414-1124	41124
Rosemary Kincaid	Rosamary.M.Kincaid@wv.gov	304-414-5021	45021

West Virginia Solid Waste Management Board

601 57th Street, SE
Charleston, WV 25304
SWMB Main Line: 304-926-0448
SWMB Employee Direct Phone Numbers Listed
DEP Main Line: 304-926-0499 + Extensions
Fax: 304-926-0472

Cover photo courtesy of Mark Davis, Charleston, West Virginia

Table of Contents

Executive Summary ES-1

Chapter 1: The West Virginia Solid Waste Management Plan
1.1 West Virginia State Solid Waste Management Plan 1-1
1.2 Mission Statement 1-2
1.3 State Priority Goals 1-2
1.4 Scope & Purpose 1-3
1.5 Summary of Agencies' Responsibilities 1-3

Chapter 2: The History and Legal Environment of Solid Waste Management in West Virginia
2.1 Introduction 2-1
2.2 1993-2022: West Virginia Legislative Changes 2-2
2.3 Federal Legislation and Interpretation 2-9
2.3.1 The Stamp Decision 2-9
2.3.2 Flow Control 2-9

Chapter 3: Efficiencies in Solid Waste Management: Demographics, Transportation and Population & Waste Projections
3.1 Demographics 3-1
3.2 Geographic and Transportation Factors Influencing Solid Waste Management in West Virginia 3-2
3.2.1 Navigable Waterways 3-3
3.2.2 Highways 3-4
3.2.3 Railways 3-5
3.3 Wasteshed Analysis 3-6
3.3.1 Wasteshed A 3-8
3.3.2 Wasteshed B 3-10
3.3.3 Wasteshed C 3-12
3.3.4 Wasteshed E 3-14
3.3.5 Wasteshed F 3-16
3.3.6 Wasteshed G 3-18
3.3.7 Wasteshed H 3-20
3.4 MSW Waste Characterization 3-22
End Notes for Chapter 3 3-24

Chapter 4: Solid Waste Facility Status
4.1 Public vs. Privately Owned Landfills 4-1
4.2 Solid Waste Facility Operations 4-2
4.2.1 Introduction 4-2
4.2.2 Acceptance of Non-Municipal Waste 4-2
4.2.3 Landfill Planning, Reporting and Record Keeping Requirements 4-4
4.2.4 Capacity Contracts 4-4
4.2.5 Performance Reviews 4-4
4.3 Landfill Status – Estimated Lifespan and Potential Impact on Solid Waste Management 4-5
4.4 Consolidation in the Solid Waste Industry 4-10
4.5 Imports and Exports of Solid Waste 4-10
4.6 Summary of Statewide Landfill Closure Plan 4-11

4.6.1 LCAP Facilities' Status 4-14
4.6.2 LCAP Summary 4-20
4.7 Transfer Stations 4-20
4.8 Material Recovery Facilities 4-24
4.9 Composting Facilities 4-24
4.10 Free Day 4-25
4.11 Waste Tire Monofills 4-26
4.12 Mixed Waste Processing – Resource Recovery Facilities 4-26
4.13 Discussion and Conclusions 4-27
End Notes for Chapter 4 4-28

Chapter 5: West Virginia's County and Regional Solid Waste Authorities
5.1 County and Regional Solid Waste Authority Responsibilities 5-1
5.2 Review of SWA Comprehensive and Siting Plans 5-2
5.3 Summary of County and Regional Plans 5-3
5.3.1 Wasteshed A 5-3
5.3.2 Wasteshed B 5-4
5.3.3 Wasteshed C 5-6
5.3.4 Wasteshed E 5-7
5.3.5 Wasteshed F 5-8
5.3.6 Wasteshed G 5-8
5.3.7 Wasteshed H 5-10
5.4 Solid Waste Management Board/Solid Waste Authority Coordination 5-11
5.5 Solid Waste Management Board Grants 5-12

Chapter 6: West Virginia's Recycling Plan
6.1 Introduction 6-1
6.1.1 State Recycling Goals 6-1
6.1.2 Recycling Planning 6-1
6.2 Recycling Problems Specific to West Virginia 6-2
6.2.1 Population Density 6-2
6.2.2 Marketing and Management Problems for Small Recycling Centers 6-3
6.2.3 Lack of Immediate Markets for Materials 6-3
6.2.4 Public vs. Private Recycling Centers 6-3
6.2.5 Lack of Incentives in the System 6-4
6.3 Market and Infrastructure Development 6-4
6.3.1 Material Markets 6-4
6.4 Recycling and Marketing Restricted or Difficult to Manage Materials 6-7
6.4.1 Electronic Waste 6-7
6.4.2 Household Hazardous Waste 6-8
6.5 Innovative Incentives and Strategies for Recycling 6-9
6.5.1 Effective Program Strategies 6-9
6.5.2 Regionalization 6-9
6.6 Outreach and Public Education 6-10
6.6.1 West Virginia Recycles 6-10
6.7 Roles and Responsibilities 6-10
6.7.1 County Responsibilities 6-10
6.7.2 Municipal Responsibilities 6-10
6.7.3 Solid Waste Management Board (SWMB) 6-11

6.7.4 Department of Environmental Protection (DEP) 6-11
6.7.5 Public Service Commission (PSC) 6-11
6.7.6 West Virginia University Extension Service 6-11
6.8 Funding 6-11

Chapter 7: Special Waste
7.1 Hazardous Waste 7-1
7.1.1 WV Hazardous Waste Rule, 33CSR20 7-1
7.2 Household Hazardous Waste (HHW) 7-1
7.2.1 Household Chemicals 7-1
7.2.2 Used Motor Oil 7-2
7.3 Municipal Sewage Sludge Disposal 7-3
7.4 Agricultural Wastes 7-4
7.5 Pollution Control Residuals 7-4
7.6 Mining Wastes 7-5
7.7 Industrial Wastes 7-6
7.8 White Goods (Household Appliances) 7-7
7.9 Bulky Goods Collection 7-7
7.10 Tires 7-8
7.11 Lead Acid Batteries 7-9
7.12 Yard Waste 7-9
7.13 Universal Wastes 7-10
7.14 Drilling Waste 7-11
End Notes for Chapter 7 7-12

Chapter 8: Solid Waste Disposal Fees
8.1 Assessment Fees 8-1
8.2 Allocation and Use of Assessment Fee Funds 8-4
8.2.1 Fee Distribution by Program 8-5
8.3 Miscellaneous Assessment Fees 8-7
8.3.1 County Solid Waste Assessment Fee 8-7
8.3.2 Groundwater Protection Act Fee – DEP 8-7
8.4 Litter Control Programs 8-7
8.4.1 Highway Litter Control Fund 8-7
8.4.2 Department of Environmental Protection 8-8
8.4.3 A. James Manchin Fund 8-8
End Notes for Chapter 8 8-10

Chapter 9: Economic Impact of Municipal Solid Waste Management in West Virginia
9.1 Executive Summary 9-1
9.2 Jobs 9-1
9.3 Direct Impact 9-2
9.4 Indirect Impact 9-4
9.5 Induced Impact 9-4
9.6 Waste and Scrap Exports 9-5
End Notes for Chapter 9 9-7

Appendices

Appendix A: Solid Waste Management Board Grants
FY 2023 SWMB Grants A-1
FY 2022 SWMB Grants A-3
FY 2021 SWMB Grants A-5

Appendix B: DEP-REAP Recycling Assistance Grant Overview
2022 DEP-REAP Recycling Assistance Grants B-1
2021 DEP-REAP Recycling Assistance Grants B-3

Appendix C: DEP-REAP Covered Electronic Devices (CED) Grant Overview
2023 DEP-REAP CED Grants C-1
2022 DEP-REAP CED Grants C-2
2021 DEP-REAP CED Grants C-3

Appendix D: Solid Waste Authority Recycling Survey/Analysis: CY 2021
Wasteshed A: Recycling Survey D-2
Wasteshed A: Recycling Analysis D-7
Wasteshed B: Recycling Survey D-9
Wasteshed B: Recycling Analysis D-16
Wasteshed C: Recycling Survey D-18
Wasteshed C: Recycling Analysis D-21
Wasteshed E: Recycling Survey D-23
Wasteshed E: Recycling Analysis D-27
Wasteshed F: Recycling Survey D-29
Wasteshed F: Recycling Analysis D-32
Wasteshed G: Recycling Survey D-34
Wasteshed G: Recycling Analysis D-38
Wasteshed H: Recycling Survey D-40
Wasteshed H: Recycling Analysis D-48
Solid Waste Authority CY 2021 Recycling Survey Summary D-50
Mandated Municipality Recycling Survey D-53
Mandated Municipality Recycling Summary D-59

Appendix E: Recycle Infrastructure and Market Development in Other States
West Virginia: Recycle Market Development E-1
Kentucky: Recycle Market Development E-2
Maryland: Recycle Market Development E-3
Ohio: Recycle Market Development E-5
Pennsylvania: Recycle Market Development E-6
Virginia: Recycle Market Development E-7
End Notes for Appendix E E-8

List of Figures

Figure 3-1	West Virginia Population Changes (1960-2010)	3-1
Figure 3-2	Proximity to Large Metropolitan Areas	3-2
Figure 3-3	Navigable Waterways	3-3
Figure 3-4	Interstates & US Highways	3-4
Figure 3-5	Principal Railroads	3-5
Figure 3-6	Population Projections 2020 through 2040 for Wasteshed A	3-9
Figure 3-7	Population Projections 2020 through 2040 for Wasteshed B	3-11
Figure 3-8	Population Projections 2020 through 2040 for Wasteshed C	3-13
Figure 3-9	Population Projections 2020 through 2040 for Wasteshed E	3-15
Figure 3-10	Population Projections 2020 through 2040 for Wasteshed F	3-17
Figure 3-11	Population Projections 2020 through 2040 for Wasteshed G	3-19
Figure 3-12	Population Projections 2020 through 2040 for Wasteshed H	3-21
Figure 3-13	Wasteshed H Composition – 1997 GAI Study	3-23
Figure 3-14	National Average Waste Stream Composition – 2018 US EPA Study	3-23
Figure 6-1	Glass Prices – Average Price Per Ton (January 2020 – July 2022)	6-5
Figure 6-2	Ferrous Metal Prices – Average Price Per Ton (January 2020 – July 2022)	6-5
Figure 6-3	Aluminum/Plastic Prices – Average Price Per Pound (January 2020 – July 2022)	6-6
Figure 6-4	Fiber Prices – Average Price Per Ton (January 2020 – July 2022)	6-7
Figure 8-1	Solid Waste Assessment Fees Distributed by Agency	8-4
Figure 8-2	Solid Waste Assessment Fees Distributed by Program	8-5
Figure 8-3	Solid Waste Assessment Distribution	8-7
Figure 9-1	CY 2021 Average Annual Income for Selected Occupational Sectors	9-2
Figure 9-2	Solid Waste Authority Recycling Tonnage by Wasteshed	9-4

List of Maps

Map 3-1	West Virginia Wasteshed Map	3-7
Map 4-1	Operational Landfills	4-6
Map 4-2	Non-Operational Landfills	4-14
Map 4-3	Operational Transfer Stations	4-22

List of Tables

Table 3-1	CY 2021 Waste Stream Composition for Wasteshed A	3-8
Table 3-2	Projected Monthly Municipal Solid Waste Tonnage for Wasteshed A	3-9
Table 3-3	CY 2021 Waste Stream Composition for Wasteshed B	3-10
Table 3-4	Projected Monthly Municipal Solid Waste Tonnage for Wasteshed B	3-11
Table 3-5	CY 2021 Waste Stream Composition for Wasteshed C	3-12
Table 3-6	Projected Monthly Municipal Solid Waste Tonnage for Wasteshed C	3-13
Table 3-7	CY 2021 Waste Stream Composition for Wasteshed E	3-14
Table 3-8	Projected Monthly Municipal Solid Waste Tonnage for Wasteshed E	3-15
Table 3-9	CY 2021 Waste Stream Composition for Wasteshed F	3-16
Table 3-10	Projected Monthly Municipal Solid Waste Tonnage for Wasteshed F	3-17
Table 3-11	CY 2021 Waste Stream Composition for Wasteshed G	3-18
Table 3-12	Projected Monthly Municipal Solid Waste Tonnage for Wasteshed G	3-19
Table 3-13	CY 2021 Waste Stream Composition for Wasteshed H	3-20
Table 3-14	Projected Monthly Municipal Solid Waste Tonnage for Wasteshed H	3-21
Table 3-15	GAI and EPA Study Comparisons for Waste Stream Composition	3-22
Table 4-1	Public & Private Landfills in West Virginia	4-1
Table 4-2	Non-Municipal Waste Accepted at West Virginia Landfills	4-3
Table 4-3	Operational Landfills	4-5
Table 4-4	Solid Waste Exported to Out-Of-State Landfills: CY 2011 – CY 2021	4-11
Table 4-5	Solid Waste Imported to West Virginia: CY 2011 – CY 2021	4-11
Table 4-6	Non-Operational Landfills	4-12
Table 4-7	Operational Transfer Stations	4-21
Table 4-8	Registered Commercial and Activity Composting Facilities	4-25
Table 4-9	CY 2021 Free Day Tonnage Received at West Virginia Landfills	4-25
Table 4-10	Operational Tire Monofills in West Virginia	4-26
Table 6-1	CY 2021 Top 5 Materials Collected and Revenue Makers for SWAs	6-7
Table 8-1	Dedication of Proceeds of the Solid Waste Assessment Fees (Revised July 1, 2021)	8-2
Table 8-2	Solid Waste Assessment Fee Distribution by Program (FY 2020 - 2022)	8-6
Table 9-1	Employment Data: CY 2021 West Virginia Municipal Solid Waste Employment Analysis	9-2
Table 9-2	NAICS 910, West Virginia Waste and Scrap Exports	9-6

Executive Summary

Prior to the mid-1970s, solid waste collection and disposal in West Virginia was largely uncontrolled. Waste management was accomplished by creating municipal dumps, with the idea of isolating pollution to a few large areas. In many instances, waste was being burned in open dumps. This method of solid waste "management" often resulted in the degradation of surface and groundwater that had a detrimental effect on domestic and industrial water supplies.

The purpose of developing this Plan is to:

1. Meet the requirements of W. Va. Code § 22C-3-7.
2. Comply with U.S. Environmental Protection Agency (USEPA) regulatory requirements for state plans found in 40 Code of Federal Regulations (CFR), Part 256, Subparts A-G.
3. Ensure that an adequate capacity of environmentally protective solid waste disposal facilities exists to meet the needs of the people of West Virginia.
4. Determine state actions required to meet any reduction and recycling goals, and other solid waste management policies.
5. Provide guidance to local solid waste authorities and municipalities in meeting state and local planning goals and solid waste management policies, through the implementation of integrated solid waste management programs. The planning horizon covered by this document extends to the year 2043. In accordance with the code, the plan is to be updated every two years.

Chapter 1, The West Virginia Solid Waste Management Plan
Chapter 1 discusses the history of solid waste management in West Virginia, West Virginia's goals and objectives in relation to the management of solid waste and the creation, application, and enforcement of the State's goals, objectives, rules, and laws. The individual responsibilities of the Solid Waste Management Board, Department of Environmental Protection, Division of Natural Resources, and Public Service Commission within the solid waste structure is explained.

Chapter 2, History and Legal Environment of Solid Waste Management in West Virginia
Chapter 2 discusses solid waste legislation enacted since the Resource Conservation and Recovery Act of 1976. We examine the effects legislation had on West Virginia's waste management systems. Also noted are changes resulting from judicial review and how that impacts the day to day operations of the solid waste industry in both the state and region.

Chapter 3, Efficiencies in Waste Management: **Demographics, Transportation & Population and Waste Projections**
Population and demographic changes, and transportation infrastructure are discussed in relation to waste management in West Virginia. Topics include waste management in relation to highways, railways, and waterways. West Virginia's proximity to significant population centers on the east coast and the likelihood of various entities targeting the state for disposal of out-of-state waste are also discussed.

Population and waste projections for West Virginia over the next twenty years are offered on a county, wasteshed, and statewide basis. These projections are intended to provide an effective planning tool for both local and state

planners to ensure that adequate landfill airspace exists to accommodate state and other waste needs over the next twenty years. Waste stream composition tables are included to provide local planners with information on the need regarding disposal of industrial, construction and demolition, and other types of special waste that go into the state's landfills.

Chapter 4, Solid Waste Facilities Status

As of November 2022, West Virginia had 16 Municipal Solid Waste (MSW) landfills, and 17 transfer stations in operation serving all areas of the state. In 2018, the Nicholas County Landfill was converted into a transfer station. For CY 2021, the state's 16 landfills processed a total of 1,927,153 tons of waste or a monthly average of 160,596 tons.

This amounts to approximately 49% of the total permitted capacity for these facilities. Of this amount, 64.6% were classified as municipal waste. The rest consists of various types of special waste.

The makeup of this special waste includes 6.9% industrial waste, 1.1% industrial sludge, 11.1% construction and demolition waste, 1.6% petroleum contaminated soil, 2.3% other special waste, and 7.6% as drilling waste. The balance was composed of various items such as bulky goods, waste tires, yard waste and other waste. The average tipping fees of the 16 operational facilities listed for municipal solid waste was $47.27 per ton in CY 2021.

In assessing disposal needs and projecting revenues that support solid waste management programs, it is imperative to identify the movement of solid waste into and out of the State. In 2021, the State exported 688,794 tons of waste, and imported 193,173 tons creating a positive export balance of 495,657 tons. That equates to a loss of $4,089,170 in assessment fees, adversely impacting most of the State's environmental programs.

The current status of facilities accepted into the state's Landfill Assistance Closure Program (LCAP) is presented in detail. All facilities; including operational and nonoperational landfills, and transfer stations are described in narrative form and mapped for the readers' convenience.

In CY 2021, West Virginia's 17 operational transfer stations collected and transferred 310,228 tons of waste, approximately 16% of the total volume going into the state's landfills.

The role of composting in solid waste management continues to be important. The City of Clarksburg is the state's only registered composting facility.

Chapter 5, West Virginia's County and Regional Solid Waste Authorities

The importance of the State's fifty local Solid Waste Authorities (SWAs) to the present and continued operation of West Virginia's municipal solid waste control system is discussed in detail. The authorities have complete responsibility for local solid waste planning. Each authority must have an approved Comprehensive Litter and Solid Waste Control Plan and a Commercial Solid Waste Facility Siting Plan on file with the Solid Waste Management Board. Both of these plans cover a 20-year planning horizon and must be updated every 5 years. The authority must approve the siting of all commercial solid waste facilities in their area of responsibility and provide an updated siting plan each time a siting change is made. Chapter 5 also provides a short abstract of each authority's most current comprehensive plan.

The SWAs were given the authority by the legislature to own and operate solid waste facilities. Six of the state's seventeen landfills and four of the state's seventeen transfer stations are owned by the Solid Waste Authorities. The authorities also own and manage many of the state's recycling collection programs.

The Solid Waste Authorities are the lead local agency in bringing State level resources to West Virginia's counties. These resources include, but are not limited to, SWMB grants, DEP-REAP Recycling grants, Make It Shine (highway, stream, countywide) cleanup efforts, and DEP-PPOD open dump removal.

Chapter 6, West Virginia's Recycling Plan

This document examines every facet of recycling in West Virginia, closely looking at the problems inherent to recycling in sparsely populated rural areas as well as more urbanized environments. It also evaluates the degree to which current recycling efforts have been successful. The predominant conclusion is that recycling in West Virginia will continue to be challenging, and changes in the system need to be considered.

Lacking a reliable reporting system, it is impossible to determine an actual "recycling rate" for the state.

West Virginia's Recycling Plan discusses the problems in the current system. The following subjects are examined in depth:

- Problems specific to recycling in West Virginia are detailed and options for change are discussed.
- New and innovative ideas and incentives to promote residential and commercial recycling are examined.
- Incentives to facilitate the building of recycling infrastructure, and to encourage manufacturers to use recycled feedstock in their processes are covered. Various options are described and discussed.
- Currently, there are no reporting requirements that effectively measure recycling in West Virginia. A system should be created which requires annual county level reporting to the State on recycling activities. Reports should include tonnages recycled, materials recycled, revenue earned, and jobs created. Information on recycling activities by residents, business, industry, and by government entities should be collected annually.
- Options to support the regionalization concept in recycling are discussed. Regionalization should be more thoroughly examined, and steps taken to design and implement a more effective and organized system should be explored.
- A waste characterization study for urban and rural areas was completed in 1997. The data from that study is outdated. The study should be repeated.
- The chapter provides a discussion of problems in collecting and recycling difficult or restricted waste with a focus on household hazardous waste.
- Funding problems are a significant issue in recycling and are a topic of this chapter.

Chapter 7, Special Waste

Chapter 7 discusses special and hazardous waste. Hazardous waste has been regulated since 1976 by the Federal Resource Conservation and Recovery Act (RCRA). The regulations that define and govern management of hazardous waste are codified in 40 CFR, Protection of the Environment.

W. Va. Code § 22-18 is the Hazardous Waste Management Act. The Secretary of the DEP has the responsibility for the promulgation of rules. The DEP, Division of Water and Waste Management (DWWM), is the enforcement agency in the regulation of hazardous waste.

Subjects covered under special waste include, household hazardous waste, sewage sludge, agricultural waste, pollution control residuals, mining waste, industrial waste, bulky goods, tires and drilling waste.

Chapter 8, Solid Waste Disposal Fees

West Virginia imposes an $8.25 assessment fee on each ton of waste going into the state's landfills. The funds collected by the assessment

fee go to the Division of Natural Resources, the Solid Waste Management Board, and the Department of Environmental Protection. These funds are used for some of the state's most important environmental programs. Chapter 8 discusses the distribution of these funds, the amount of funding going to each agency, the programs funded, and other miscellaneous fees associated with solid waste control.

Chapter 9, Economic Impact of Municipal Solid Waste Management in West Virginia

The proper management of municipal solid waste provides a significant and measurable boost to the state through job creation and contributes millions of dollars to the state's economy annually. For instance:

- West Virginia's landfills, waste haulers, and recycling centers paid out approximately 86 million in wages in 2021.
- These same organizations and businesses maintained an average of 1,662 jobs during the same period.
- Salaries and wages in waste management compare favorably to other relevant employment sectors with an average weekly salary of $978, compared to an average weekly salary of $614 in the retail sector.

Conclusions

Although West Virginia and the local SWAs have stepped up their solid waste management activities in recent years, there is still much to be done to meet the objectives of recent solid waste management legislation, and to effectively manage solid waste. The purpose of the WV Solid Waste Management Plan is to identify what actions still need to be taken and who should take them.

An integrated solid waste management system, which includes source reduction, reuse and recycling is essential to reduce waste and preserve landfill capacity. Continued reliance on landfills as the sole disposal method will not solve the solid waste management problems. West Virginia must comply with USEPA regulations (40 CFR, Part 256, Subparts A-G), which require that state's look at alternative methods including source reduction, reuse, recycling, and materials recovery.

Such a facility, Entsorga, a Class B Resource Recovery Facility, has been constructed in Berkeley County. This facility complies with USEPA regulations and is permitted to accept 500 tons per day and 9,999 tons per month.

If West Virginia and its local SWAs continue to make progress toward the goals contained in this Plan, the State will be successful in managing its solid waste in a manner that protects public health, the environment and reduces the waste stream destined for disposal.

Chapter 1: The West Virginia Solid Waste Management Plan

1.1 West Virginia State Solid Waste Management Plan

The purpose of developing the Solid Waste Management Plan is to:

1. Meet the requirements of W. Va. Code §22C-3-7.
2. Comply with US EPA regulatory requirements for state plans found in 40 CFR, Part 256, and Subparts A-G.
3. Ensure that adequate capacity of environmentally protective solid waste disposal facilities exist to meet the needs of the people of West Virginia.
4. Determine state actions required to meet the state's reduction and recycling goals, and other solid waste management policies.
5. Provide guidance to local solid waste authorities and municipalities in meeting the state goals and solid waste management policies through implementation of integrated solid waste management programs. The planning horizon covered by this document extends to the year 2043. The plan is to be updated every two years in accordance with W. Va. Code §22C-3-7.

The first step in developing a solid waste management plan for West Virginia is to determine the amount of solid waste generated in the state, and to project the amounts that will be generated based on current, as well as, projected population levels. Some differences in the solid waste stream and management alternatives can be attributed to geographic region and population densities. For the purposes of analysis, and since they already exist, all counties in the state are grouped and analyzed on the basis of wastesheds. Wastesheds are areas which have common solid waste management problems and are appropriate units for planning solid waste management. They were established in 1978.

This plan will also inventory existing solid waste management facilities plus assess their capacities and the likelihood of their continued operation into the twenty-year planning horizon. It will identify current wasteshed tonnage capacities and project the available wasteshed tonnage capacities. Also, it will compare these capacities with waste generation rates at the beginning and end of the planning horizon. The plan will also identify the size, location and ownership of landfills, then analyze these factors in determining whether they meet the solid waste management needs of the state.

If the only method of solid waste management being considered for West Virginia's future were landfilling, an estimate of the quantity of waste currently being disposed of and projected quantities for the future would be adequate for solid waste management planning. However, on the West Virginia hierarchy of solid waste management options, landfilling is the last alternative. Reduction, recycling, and reuse are preferred.

The state evaluates the current environment and investigates alternatives to landfilling. To do this it is necessary to have a detailed understanding of the characterization of waste quantities and composition during planning and implementation. The purpose of characterizing the composition of waste generated is to assist in the planning of programs and facilities in agreement with the hierarchy of solid waste management.

A general characterization is sufficient to identify strategies and opportunities for future waste management on a statewide level. However, it is valuable to assess quantity and composition data that is currently available in West Virginia

and devise a strategy to support more detailed planning efforts in the future.

The plan will examine existing practices of collection, reduction, recycling, reuse, composting, disposing of solid waste and managing special wastes using available data. Based on the tonnage of waste disposed and tonnage recycled, this assessment will characterize the current waste stream and make projections about the future waste stream.

The second step in the development of a state solid waste management plan involves the identification, discussion, and analysis of current state programs and legislation for solid waste management. This includes an evaluation of resources, program elements, and responsibilities. In addition to an identification of goals, this step will include a discussion of issues and actions required to meet those goals.

The planning recommendations presented in this document are oriented toward the achievement of strategic long-term goals. Many of these goals can be found in state enabling legislation. These recommendations may appear to conflict with more short term or tactical recommendations advanced by other operating agencies responsible for day-to-day management of solid waste. However, it is important to be aware that one can arrive at a single destination via several routes. Consideration and integration of several strategies will likely yield a better system for solid waste management.

1.2 Mission Statement

To provide guidance and direction to the state, county and municipal governments in:

- Protecting public health and welfare by establishing a comprehensive program of solid waste collection, processing, recycling, and disposal to be implemented by state and local governments in cooperation with the private sector.
- Assisting in the planning and implementation of effective recycling programs.
- Reducing our solid waste management problems by establishing programs and plans based on an integrated waste management hierarchy.

1.3 State Priority Goals

It is the responsibility of the state to provide adequate, concise, realistic, and environmentally appropriate rules for siting, design, construction, and operation of all solid waste management facilities. It is the responsibility of the solid waste authorities and municipalities, with the state's assistance and guidance, to determine which method of solid waste management is economically feasible, health conscious, and environmentally sound for their particular community. The primary objective of developing and implementing a comprehensive state plan should be to protect the public safety, health and welfare of its citizens by:

- Providing for the safe and sanitary disposal of solid waste from all residential, commercial, and industrial sources.
- Reducing the degradation of both ground and surface waters by eliminating open dumps, the promiscuous discarding of solid waste, and other deleterious methods of solid waste disposal.
- Eliminating the harborage and breeding places of insects and rodents that carry disease, or are otherwise injurious to the public health, safety, and welfare.

- Reducing the volume of recyclable materials entering the waste disposal stream.
- Increasing the property values and restoring the natural beauty of the state by removing unsightly litter and open dumps from roadsides, streams, and other public places.

To accomplish these objectives, goals must be identified based on policies created through legislation consistent with the hierarchy of decision making in an integrated solid waste management program.

1.4 Scope & Purpose

1. To reduce the amount, by weight, of solid waste disposed of at municipal solid waste disposal facilities through source reduction, recycling, reuse and composting on a statewide per capita basis.
2. To ensure that an adequate capacity of environmentally protective solid waste disposal facilities exist to meet the needs of the people of West Virginia.
3. To establish guidance, standards, rules and permitting requirements for reduction, recycling, reuse, and composting programs, and facilities that will promote these practices.
4. To develop and implement educational programs that increase the awareness and understanding of the need to effectively reduce and manage solid waste among state officials, solid waste professionals, local government decision makers, educators, business and industry personnel, the public, and students.
5. To develop solid waste reduction plans and increase the amount of materials recycled from state, county, municipal agencies, organizations, and colleges.
6. To institute requirements, procedures, and guidance that result in the implementation of local integrated solid waste management programs including appropriate management methods to deal with all components of the solid waste stream.
7. To establish technical assistance programs to increase recycling, reuse and composting by local governments, private industry, commercial businesses, and the general public.
8. To establish and locate adequate and sustainable markets for materials recovered from the solid waste stream and educate administrators of local programs about marketing materials.
9. To ensure adequate and stable funding for the state solid waste management programs.
10. To reduce littering and illegal dumping of solid waste in West Virginia.
11. To establish mandatory solid waste collection systems in West Virginia.

1.5 Summary of Agencies' Responsibilities

Department of Environmental Protection (DEP)
Within the DEP the following areas are involved in solid waste management: the Division of Water and Waste Management (DWWM), the Office of Environmental Remediation through the Landfill Closure Assistance Program (LCAP), the Rehabilitation Environmental Action Plan (REAP), operated through the Office of Environmental Advocate, and Environmental Enforcement (EE). EE enforces those regulations promulgated by the DWWM.

A single permit is required by W. Va. Code § 22-15, The Solid Waste Management Act, for operation of a solid waste facility. This permit must be issued in compliance with W. Va. Code § 22-11, The Water Pollution Control Act, and

consists of two parts: one requiring the review and approval of the DWWM and the other which incorporates the National Pollutant Discharge Elimination System (NPDES) requirements.

The DWWM is primarily responsible for the comprehensive permitting of solid waste facilities. When applications for permits are received, with the exception of Class F (industrial solid waste disposal) facilities. The DWWM reviews them for completeness, accuracy, checks for unfinished prerequisites, and investigates the background information of persons associated with the operations. Once a facility is permitted, the DWWM oversees construction and/or renovation in accordance with regulations, permits and laws. If the need arises, the DWWM makes recommendations for legislative and regulatory changes, and the DWWM prepares preliminary drafts of regulations for public review. The DWWM is responsible for the discharge portion of the permit.

The Office of Environmental Remediation operates the Landfill Closure Assistance Program (LCAP) which provides landfill closure assistance to permittees of landfills which were required to close pursuant to certain closure deadlines. Any additions to this program require legislative action.

The DWWM also serves as a data resource center. They accumulate various records and data such as monthly and yearly tonnage reports. Across the state, the DWWM is responsible for permitting (open and closed) sanitary landfills (Class A, B & C), for compliance with stormwater and leachate control. Initially, general permits were issued to those facilities without discharge.

The DWWM is responsible for completing site specific permits which enforce solid waste rules on lined ponds and sediment basin sizing. The DWWM issues WV/NPDES Water Pollution Control Permits for industrial and domestic wastewater discharges, and develops permit requirements for wastewater disposal systems for solid waste facilities. They currently permit industrial solid waste facilities in compliance with the requirements of W. Va. Code § 22-11, 22-12 and 22-15. A single Solid Waste/NPDES Water Pollution Control Permit is issued by DWWM for these facilities.

Environmental Enforcement (EE) is responsible for performing inspections and sampling to determine the compliance status of facilities permitted by the DWWM. They also provide compliance assistance to the regulated community through informal consultations with staff members, training classes, “how-to” manuals, referrals to federal, state, and private industry resources, and by conducting pre-closure inspections of industrial facilities.

EE utilizes criminal, civil and/or administrative enforcement procedures to compel compliance when necessary. They investigate citizen complaints related to point and non-point water pollution (non-coal), solid waste management, open dumps, and industrial and construction stormwater and groundwater concerns.

REAP is also involved in solid waste management through participation in the Make It Shine program, Adopt-A-Highway, Operation Wildflower, Recycling Assistance Grants, Litter Control Grants, Covered Electronic Device Grants, Annual Educational Conference on Litter Control and Solid Waste Management and West Virginia litter laws. The Pollution Prevention and Open Dump program (PPOD) promotes cleanups and prevention practices that help to eliminate open dumps.

Make It Shine is a comprehensive program involving state, local governments, business,

industry, and local community organizations working together to keep West Virginia clean through cleanups, recycling, education, law enforcement, and waste reduction. The program aspires to encourage West Virginians to make a personal commitment and take pride in our natural resources.

The Recycling Assistance Grants are funds generated by a recycling assessment fee levied and imposed upon the disposal of solid waste at all solid waste disposal facilities in this state. The majority of funds are disbursed in grants to assist municipalities and counties in the planning and implementation of recycling programs, public education programs, and recycling market procurement efforts.

Registration fees collected from electronic manufacturers are used to fund the Covered Electronic Grants Program. The structure of the fee is on a diminishing scale so the fund will remain static or begin shrinking in future grant cycles. Municipalities, county commissions, and county solid waste authorities are eligible to apply for these grants.

The Litter Control Grant is a matching fund that assists municipalities and county government agencies with community cleanup along with litter enforcement projects. Funding is provided for this grant through litter fines imposed on those who violate state litter laws.

The Association of West Virginia Solid Waste Authorities, REAP, the Solid Waste Management Board, and other sponsors host the annual Educational Conference on Litter Control and Solid Waste Management.

Division of Natural Resources (DNR)
Division of Natural Resources Police Officers are involved in solid waste management through enforcement of litter laws. A portion of the officer's salary is paid through solid waste assessment fees.

Public Service Commission (PSC)
The PSC can grant or deny a Certificate of Need (CON), which is a permit required for construction, operation, and expansion of a commercial solid waste facility. In considering whether to grant a Certificate of Need, the commission considers the following:

- The total tonnage of solid waste, regardless of geographic origin, that is likely to be delivered each month to the facility if the certificate is granted.
- The current capacity and lifespan of other solid waste facilities that are likely to compete with the applicant's facility.
- The lifespan of the proposed or existing facility.
- The cost of transporting solid waste from points of generation to the disposal facility.
- The impact of the proposed or existing facility on needs and criteria contained in the statewide solid waste management plan.
- Any other criteria which the commission regularly utilizes in making such determinations.

The PSC may deny a Certificate of Need based upon one or more of the following:

1. The proposed capacity is unreasonable in light of the total tonnage likely to be delivered each month to the facility if the certificate is granted.
2. The location of the facility is inconsistent with the statewide solid waste management plan.
3. The location of the facility is inconsistent with any applicable county or regional solid waste management plan.

4. The proposed facility is not reasonably cost effective considering alternative disposal sites.
5. The proposal, taken as a whole, is inconsistent with the needs and criteria contained in the statewide solid waste management plan.
6. The proposal, taken as a whole, is inconsistent with public convenience and necessity.

Additional responsibilities of the PSC include the establishment and enforcement of rates and fees charged by commercial solid waste facilities and private waste haulers.

Solid Waste Management Board (SWMB)
The SWMB is the coordinator between the Solid Waste Authorities (SWAs) and other state agencies in solid waste management.

The Board is composed of seven members. The Secretary of the Department of Health and Human Resources (DHHR), the Secretary of the DEP, or their designees, are members ex officio. The other five members are appointed by the Governor, by and with the advice and consent of the Senate; two appointees having three years of professional experience in solid waste management, civil engineering or regional planning and three appointees who are representatives of the general public.

One of the major duties of the SWMB staff includes providing technical assistance to the county and regional SWAs in the preparation, review, implementation, and update of their Comprehensive Litter and Solid Waste Control Plans, and Commercial Solid Waste Facility Siting Plans. Rules have been established in the development of those plans that are consistent with the legislation.

The SWMB operates a grant program solely for solid waste authorities. The program is funded by a portion of the solid waste assessment fee and can be used by SWAs to help them achieve their statutory responsibilities as cited in 54-3 Code of State Rules.

A Business and Financial Assistance Section was funded in the 1998 legislative session for the purpose of providing assistance to SWAs and other public entities that operate solid waste facilities. The SWMB was directed to monitor public facilities that have received loans, loan guarantees, or grants from the state in order to ensure proper use of funds, as well as the implementation of sound business practices in the operation of their facilities.

The objective is to build viable entities and eliminate the need for an eleventh-hour financial bailout to keep operations going. The Legislature established a pro-active program that detects small problems early and seeks solutions before they become larger. The program has been operational since January 1999.

In 2005, the legislature, through House Bill 3356, gave the SWMB the responsibility of developing performance measures to conduct performance reviews of solid waste authorities.

As a result of conducting a Performance Review in 2014, the SWMB found the Nicholas County Solid Waste Authority (NCSWA) severely impaired. The SWMB instituted a 90-day improvement period to correct the impairments. During this period, the issues could not be resolved. Conflicts between the NCSWA and its Executive Director resulted in all Board members resigning. On June 18, 2014, the SWMB voted to supersede the NCSWA and assume operation of the NCSWA and its solid waste landfill. SWMB staff were able to restructure the management of the authority, assist new board members in acclimating to their new positions, prepare an operations plan

that eventually resulted in the construction of a transfer station and proper closure of the landfill without an increase in tipping fees. The facility remains open as a transfer station with its waste being taken to the Raleigh County Solid Waste Authority landfill in Beckley, WV.

After conducting a Performance Review in 2019, the SWMB found the Tucker County Solid Waste Authority (TCSWA) severely impaired. The SWMB instituted a 90-day improvement period to correct the impairments. During this period, it was discovered by SWMB staff that funds had been misused and there was no operational plan or available finances to construct additional cells to place waste. On October 10, 2019, the SWMB voted to supersede the TCSWA. Working closely with the WVDEP and the WV Public Service Commission, SWMB staff were able to secure financing for construction of the next cell and prevent the operation from going bankrupt. The SWMB remains in operational control of the facility and is diligently working to rectify environmental deficiencies as well as stabilizing the financial operation. This facility receives waste from nine surrounding counties and is located between the cities of Thomas and Davis, WV

Through initiatives in research and development, the SWMB has prepared a comprehensive program for proper handling of yard waste and lead acid batteries. Additionally, a tire program has been completed, and a comprehensive program for the proper handling of covered electronic devices.

For the extensive state outlook, the SWMB has the responsibility of preparing an overall state plan for the proper management of solid waste which incorporates county and regional plans. The Board completed a study in 1997 entitled, “Solid Waste Characterization Study for Wasteshed F and Wasteshed H in West Virginia.” All of these documents can be viewed at www.state.wv.us/swmb/.

Chapter 2: The History and Legal Environment of Solid Waste Management in West Virginia

2.1 Introduction

To understand the present state of solid waste management in West Virginia it's important to understand the past. Prior to the mid-1970's, solid waste collection and disposal in West Virginia was largely uncontrolled. Municipal dumps were created to consolidate waste in one regional site. In many instances, waste was burned at these open dumps to reduce volume. This method of solid waste "management" frequently resulted in the degradation of surface and groundwater that served as sources of domestic and industrial water supplies. In addition, these open dumps provided breeding places for disease carrying insects, rodents, and other animals that are potentially injurious to the public health. The proliferation of these open dumps adversely impacted public and private property values and the natural beauty of the state.

In 1977 the state created the Resource Recovery-Solid Waste Disposal Authority, now the Solid Waste Management Board (SWMB), in response to the 1976 Resource Conservation and Recovery Act (RCRA) and accompanying regulations. The creation of this agency represented West Virginia's first attempt to establish a statewide solid waste management planning entity. Because the state's primary objective was to reduce the risks to public health by requiring adequate daily cover of the solid waste deposited in landfills, the Department of Health (DH) originally issued the permits to establish landfills. Liners were not required.

In the early 1980's, the U.S. Environmental Protection Agency (USEPA) revised the criteria for solid waste facilities that could receive household hazardous waste, or small quantity generator hazardous waste. Since municipal solid waste facilities could not guarantee household hazardous wastes were not present in the waste stream, they were required to install liners and leachate collection systems to prevent groundwater and/or surface water contamination.

A USEPA report in 1988 predicted that by 1991 45% of all U.S. landfills would be filled to capacity. The report recommended landfills have double liners and meet more stringent regulatory requirements. Increased planning, management, and recycling activities were also suggested. This led to current regulations, which required the preparation of a state solid waste management plan.

The WV State Legislature responded with several important pieces of legislation. Collectively, these laws did the following:

1. Authorized the creation of regional and/or county solid waste authorities.
2. Required the preparation of Comprehensive Litter and Solid Waste Control Plans and Commercial Solid Waste Facility Siting Plans by local authorities and an overall State Solid Waste Management Plan.
3. Established wastesheds and solid waste assessment fees.
4. Required commercial landfill operators to obtain certificates of site approval and need.
5. Established landfill closure deadlines and a closure assistance fund.
6. Authorized, encouraged and/or mandated the establishment of municipal and county recycling programs, goals, and procurement practices.

In November 1988, the Department of Natural Resources (DNR), now the Division of Natural Resources, promulgated emergency Solid Waste Management Rules (SWM Rules) for the management of solid waste disposal. These rules, as well as H.B. 3146, were enacted as a response to Subtitle D of the federal Resource Conservation and Recovery Act (RCRA). The new SWM Rules, 33 CSR 1, formerly Title 47 CSR 38, changed the development and operation of MSW landfills, requiring these facilities to have composite liners, leachate collection and treatment systems,

groundwater monitoring and analysis, and a post-closure care and monitoring period. In accordance with the SWM Rules, existing landfills with only a single liner or no liner at all were to close by November 1990. This was later extended to March 31, 1993 and again to December 31, 1994.

2.2 1993 – 2022 West Virginia Legislative Changes

In 1993, the Legislature passed several more important pieces of legislation designed to:

1. Regulate the disposal of sewage sludge (Senate Bill 288).
2. Extend the closure dates for unlined and single lined landfills to allow owners of these facilities additional time to install composite liners while assuring adequate disposal capacity (Senate Bill 289).
3. Extend the deadline for prohibiting the disposal of yard waste and lead acid batteries in landfills until June 1, 1994, and tires until June 1, 1995.
4. Prohibit the use of incineration technology for solid waste disposal except in pilot projects (House Bill 2445). This legislation also eliminated the distinction between in-shed and out-of-shed assessment fees.

During the 1994 legislative session, Senate Bill 1021 was enacted. This legislation:

1. Extended the closure dates of landfills to December 31, 1994 that had either started construction on a composite liner, had obtained financing for such construction, or had demonstrated good faith efforts to obtain such financing.
2. Extended the completion date for phasing in the implementation of mandated municipality curbside recycling programs from January 1, 1994 to July 1, 1995.
3. Extended the date on which yard waste was banned from disposal in landfills from June 1, 1994 to January 1, 1996.
4. Authorized the SWMB to request that the Secretary of the Department of Environmental Protection (DEP) place into escrow accounts, up to two million dollars to fund two years of debt service for publicly owned landfills and transfer stations in order for permittees to obtain loans.

During the 1995 legislative session:

1. Senate Bill 313 extended the closure deadline for three landfills until January 1, 1996.
2. Senate Bill 349 extended the effective date of the landfill ban on yard waste until January 1, 1997. The effective date of the tire ban was extended until June 1, 1996.

During the 1996 legislative session:

1. House Bill 4224 bundled the Bureau of Environment rules. Included were DEP rules (Solid Waste Management, Waste Tire Management, Sewage Sludge Management) and SWMB rules (Development of Comprehensive Litter and Solid Waste Control Plans).

During the 1997 legislative session:

1. House Bill 110 provided one million dollars for landfill assistance loans. The monies would be transferred from the Department of Environmental Protection's Solid Waste Reclamation and Environmental Response Fund to the Solid Waste Management Board.
2. House Bill 2333, the DEP rules bill, authorized additional language regarding reasonable and necessary exceptions in the yard waste rule.

During the 1998 legislative session:

1. Senate Bill 178 corrected language in previous solid waste laws that a federal judge declared unconstitutional because they unjustifiably discriminate against the importation and disposal of waste from other states.

2. Senate Bill 600 enabled landfills that were allowed to remain open until January 1, 1996, to be eligible for landfill closure assistance.
3. Senate Bill 601 provided that if persons responsible for collecting, hauling, or disposing of solid waste do not participate in the collection and payment of solid waste assessment fees, they would not be eligible to receive grants for recycling assistance under the provisions of W.Va. Code § 22-15A-19(h)(1).
4. Senate Bill 602 allowed the Secretary of the Department of Environmental Protection to transfer up to fifty cents per ton of solid waste disposed of in the state from the Landfill Closure Assistance Fund to the Solid Waste Enforcement Fund. The bill also reallocated twenty-five cents per ton that previously was used to assist counties and municipalities with wastewater treatment projects from the West Virginia Development Office to the Solid Waste Management Board Planning Fund to fund a Business and Financial Technical Assistance Program.
5. House Bill 2274 permitted the sale on the open market of products made from waste tires by prison inmates.
6. House Bill 2726 prohibited persons from dumping garbage or trash into dumpsters located on the property of another person if leased, owned, or otherwise maintained by another person.

During the 2000 legislative session:

1. Senate Bill 427 was passed to address the scrap tire issue. A newly created "Tire Refuse/Environmental Cleanup Fund", funded by a temporary tax of $5.00 that has been added to the fee for obtaining a certificate of title to a motor vehicle. This bill gave authority to the Division of Highways (DOH) to administer the fund and oversee the cleanup of tire piles, which were prioritized on a "waste tire remediation list." Illegal tire dumpers or property owners where illegal tire piles are dumped are liable for cleanup costs. Only those tires collected as part of a DOH cleanup project, a DEP "Pollution Prevention and Open Dump" program, or other state authorized program, and for which no markets are available, may be deposited in landfills. The DOH was also given the authority to establish a program for residents and businesses to bring waste tires to county DOH headquarters for a fee. Tire retailers must accept used tires in exchange for those sold. Also, under this bill, salvage yards are prohibited from accumulating more than 100 waste tires without a proper permit.
2. Senate Bill 448 amended W. Va. Code § 22C-4-3 relating to the terms served by Solid Waste Authority board members by staggering the member appointments. The bill provided for more continuity in experience on the boards.
3. Senate Bill 306 and Senate Bill 308 authorized the Division of Natural Resources (DNR) to promulgate rules relating to the recycling grant program and the litter control grant program, respectively.
4. House Bill 4192 authorized the DEP to promulgate rules on prevention and control of air pollution from combustion and refuse.
5. House Bill 4230 authorized the Department of Environmental Protection to promulgate rules on the prevention and control of emissions from solid waste landfills.
6. House Bill 4380 amended W. Va. Code § 11-13K-2 (relating to tax credits for agricultural equipment) and W. Va. Code §22-15a-21(4) (relating to the recycling program). The bill is intended to promote the beneficial use of poultry litter by (1) allowing a tax credit for its use as an agricultural fertilizer, and (2) requiring that the use of composted or deep stacked poultry litter products be given priority by all state agencies in their land maintenance and landscaping activities.

7. House Bill 4801 extended the deadline for submission of an application for landfill closure assistance from January 1, 1999 to December 31, 2000.

During the 2001 legislative session:

1. House Bill 2222, "The Litter Bill", amended the criminal provisions related to littering and the enforcement of penalties. It also created the misdemeanor offense of littering from a motor vehicle. Additional provisions of the bill include: 1) restructuring penalties based on amounts of trash thrown out rather than number of offenses, 2) picking up litter became a mandatory sentence for anyone convicted of littering, 3) assessing points against driver's license for littering from a car, 4) assessing convicted litterer a fine of not less than $100 or more than $1,000 for cleanup, investigation and, prosecution of the case, 5) directing money from civil penalties to a litter control fund for SWAs to be spent on litter prevention, cleanup, and enforcement, 6) clarifying that SWAs may expend any available funds to operate solid waste facilities, litter control programs, and recycling programs, 7) removing funds transferred from solid waste facilities operated by SWAs from the jurisdiction of the Public Service Commission, and 8) allowing county commissions to hire county litter control officers.
2. House Bill 2218 elevated the Bureau of Environment to the Department of the Environmental Protection to a cabinet level department within the executive branch of government.

During the 2002 legislative session:

1. Senate Bill 609 amended the Solid Waste Management Act as it relates to dealing with violations and penalties and created a criminal penalty for illegal waste tire piles. The bill states, any person convicted of accumulating, or disposing of one thousand or more tires is guilty of a felony, and upon conviction, shall be imprisoned for no less than one, and no more than five years and shall be required to clean up and properly dispose of the waste tires, or reimburse the state agencies for the costs incurred in cleaning up the waste tires. Further, any person convicted may be fined not more than fifty thousand dollars for each day of the violation.
2. House Bill 4163 was bundled and gave approval of revisions to the Solid Waste Management Board's rule, 54CSR5 Disbursement Of Grants To Solid Waste Authorities, along with several other DEP bills.

During the 2003 legislative session:

1. Senate Bill 649 amended the Waste Tire Remediation and A. James Manchin Fund to finance infrastructure projects relating to waste tire processing facilities which have a capital cost of not less than three hundred million dollars.

During the 2004 legislative session:

1. Senate Bill 444 required county litter control officers to enforce litter laws established pursuant to W.Va. Code §22-15A and Litter Control Programs.
2. House Bill 4027 created the environmental excellence program, creating incentives to exceed minimum environmental law requirements. It is a voluntary program, administered by the Department of Environmental Protection, allowing facilities which exceed minimum environmental standards to become eligible for benefits awarded to program participants.
3. House Bill 4455 allowed for the continuation of the A. James Manchin Fund, transferring the remaining balance of the funds to the state road fund and allowing the waste tire remediation program to continue until the first day of

July, two thousand six, unless terminated sooner.

During the 2005 legislative session:

1. Senate Bill 428 related to the Rehabilitation Environmental Action Plan (REAP) by addressing the improper management of commercial and residential solid waste. To ensure these issues are managed efficiently, this legislation consolidated litter control, open dump elimination and reclamation, waste tire cleanup and recycling programs into one program to be maintained by the Department of Environmental Protection. It also set forth penalties for wrongful disposal of litter and provides for litter control and recycling programs and education.
2. House Bill 3356 related to the powers and duties of the Solid Waste Management Board; providing for performance reviews of authorities and performance measures; required proposal of legislative rules for implementation of review process and system; circumstances under which the Solid Waste Management Board is authorized to intervene in and supersede the exercise of authority related to certain county or regional solid waste authorities that operate a solid waste facility; provided for the establishment of a uniform chart of accounts delineating common revenue and expense account naming conventions to be adopted by all county and regional solid waste authorities; and requiring audits of authorities.

During the 2006 legislative session:

1. House Bill 4453 related to law enforcement powers and duties of conservation officers (now referred to as Natural Resources Police Officers); provided for the statewide authority of conservation officers to enforce litter control laws; and related to the procurement and execution of related arrest and search warrants dealing with litter control.

During the 2007 legislative session:

1. Senate Bill 177 related to the creation of the Division of Energy and the position of executive director to coordinate governmental activities intended to develop an energy policy and development plan including innovative alternative and traditional sources of energy.
2. Senate Bill 490 related to the expiration of the Underground Storage Tank Insurance Fund and directed the Department of Environmental Protection to develop a plan to assist those persons who have claims pending against the fund.
3. Senate Bill 524 clarified that proof of lawful disposal of solid waste is required to be current. It also provided a penalty for failing to lawfully dispose of solid waste and for failing to have proof of lawful disposal.

During the 2008 legislative session:

1. Senate Bill 373 bundled rules including those authorizing the Solid Waste Management Board to promulgate legislative rules relating to performance measures and review standards for solid waste authorities operating commercial solid waste facilities.
2. Senate Bill 501 related to the transfer of the Stream Partners Fund from the Division of Natural Resources to the Department of Environmental Protection to ensure a sufficient level of funding.
3. Senate Bill 503 authorized the Secretary of the Department of Environmental Protection to require solid waste facility permit applicants and others connected with applicants and permittees to furnish fingerprints for the purpose of conducting state and federal criminal history checks.
4. Senate Bill 519 extended the sunset provision for the Hazardous Waste Management Fee Fund from June 30, 2008 to June 30, 2013.

5. Senate Bill 746 established a convenient and environmentally sound recovery program for the collection, recycling, and reuse of covered electronic devices. It maximized recovery of resources contained in discarded covered electronic devices and prevented improper disposal of materials in electronic devices in state landfills.
6. House Bill 4423 ensured that stainless steel kegs are not considered scrap metal unless received directly from a beer manufacturer or authorized representative.

During the 2009 legislative session:

1. Senate Bill 440 granted additional authority to county litter control officers, specifically to issue citations for failure to prove lawful disposal of trash and creating, contributing to or allowing an open dump.
2. Senate Bill 641 required the operator-driver of every solid waste motor carrier who deposits solid waste in a commercial landfill or transfer station to declare in writing, under oath, the county and state of origin of the solid waste being deposited at the commercial landfill or transfer station; and provided criminal penalties.
3. House Bill 3197 allowed municipalities to permit non-police officers to issue citations for littering.

During the 2010 legislative session:

1. Senate Bill 350 categorized recycled energy as a renewable energy resource.
2. Senate Bill 398 prohibited disposal of certain electronic devices such as computers, monitors, and television sets in landfills effective January 1, 2011.
3. Senate Bill 273 authorized the Department of Environmental Protection to promulgate a legislative rule relating to the Covered Electronic Devices Takeback Program.
4. Senate Bill 627 increased the civil and criminal penalties for the crime of littering and directed the Secretary of the Department of Environmental Protection to coordinate a statewide litter reporting program.

During the 2012 legislative session:

1. Senate Bill 76 requires new building construction projects of public agencies and projects receiving state funds to be designed and constructed in compliance with the ICC International Energy Conservation Code and the ANSI/ASHRAE/IESNA Standard 90.1-2007.
2. Senate Bill 528 relates to scrap metal; requiring scrap metal dealers to obtain business licenses, to register scales with the Division of Labor, provide a notice of recycling activity to the Department of Environmental Protection, and register with the Secretary of State. It also requires the Secretary of State to maintain a list of scrap metal dealers and make the list publicly available.
3. House Bill 4320 relates to the settlement of violations of the Hazardous Waste Management Act by consent agreements, as an alternative to instituting a civil action in the circuit courts of the state.
4. House Bill 4345 relates to the sale of company railroad scrap metal, requiring written authorization for sale, setting a minimum weight for railroad scrap metal sold and requiring purchasers to attempt to verify ownership.

During the 2013 legislative session:

1. House Bill 2747 defines “special”, “regular” and “emergency meetings”. It also requires state agencies to file meeting notices electronically with the Secretary of State instead of requiring publication in the State Register.

During the 2014 legislative session:

1. Senate Bill 133 authorized the Department of Environmental Protection to promulgate legislative rules relating to solid waste and

control of air pollution from combustion of solid waste.
2. Senate Bill 376 requires onsite employees at certain workplace construction projects to complete a ten-hour construction safety program approved by the Occupational Safety and Health Administration (OSHA).
3. Senate Bill 378 added garbage trucks and other sanitation vehicles to the definition of "authorized emergency vehicles" requiring drivers to slow to 15 miles per hour when passing.
4. Senate Bill 600 makes it easier for municipalities to demolish dilapidated structures by clarifying individuals responsible for compliance with municipal ordinances regarding registration, maintenance and regulation of dwellings unfit for human habitation, vacant building, and vacant properties.
5. Special Session House Bill 107 allows disposal of drill cuttings and associated drilling waste generated from well sites into commercial solid waste facilities, even if it results in the facility going over its maximum monthly permitted limits if the waste is placed in a dedicated cell. The facility may not refuse municipal waste until its monthly limit is reached.

During the 2015 legislative session:

1. Senate Bill 332 allowed the West Virginia Department of Revenue, Tax Division to retain 1% of any taxes or fees paid into special revenue accounts as an administrative fee in the "Tax Administration Services Fund". This includes the monthly assessment fees.
2. Senate Bill 352 allowed county or regional waste authorities in growth areas to designate common carriers of solid waste to grant an exemption from the requirement for a certificate of convenience and necessity; to establish criteria for the exemption; and to establish requirements for notice and a public hearing process.
3. House Bill 2283 authorized the Department of Environmental Protection to promulgate rules relating to Waste Management.
4. House Bill 2888 allowed the use of rotary drum composters to destroy or dispose of animal carcasses to prevent disease.

During the 2016 legislative session:

1. Senate Bill 601 simplified the procedure for issuing permits for solid waste facilities which accept only waste resulting from the exploration, development, production, storage and recovery of oil and gas. The bill makes the West Virginia Department of Environmental Protection the principal regulatory agency for such facilities.
2. House Bill 4540 repealed the prohibition on the disposal of certain electronic devices such as computers, monitors, and television sets in landfills.

During the 2017 legislative session:

1. House Bill 2303 increased the fines and community service hours for littering.

During the 2018 legislative session:

1. Senate Bill 479 assists in the audit and review of local governments. The bill establishes local government monitoring by the Auditor. The bill also clarifies the caps and fees associated with audits of local governments in this state.

During the 2019 legislative session:

1. Senate Bill 675 authorized the creation of an Adopt-A-Stream Program to be administered by agencies of the West Virginia Stream Partners Program.

During the 2020 legislative session**:**

1. Senate Bill 35 limited the civil penalty for persons convicted of littering to no less

than $200 nor more than $2,000. It amends §22-15A-4 of the West Virginia Code and became effective May 13, 2020.
2. Senate Bill 175 requires executive branch agencies to maintain a website with specific information; and to authorize county commissions and municipalities to maintain websites with specific information to be made available to the public at no charge and requires them to provide certain information to the Secretary of State and Office of Technology.
3. Senate Bill 225 empowers municipalities to enact Adopt-A-Street programs.
4. Senate Bill 311 provides immunity to the state and political subdivisions from legal actions for liability for injury to a person while the person is performing voluntary community service ordered by the municipal court or magistrate.
5. House Bill 4026 exempts motor vehicles operated under a contract with the WV DEP exclusively for cleanup and transportation of waste tires and solid waste generated from state authorized waste tire remediation or cleanup projects from those statutory Public Service Commission provisions.
6. House Bill 4042 requires agencies that have been exempt from some or all state purchasing requirements to adopt procedural rules establishing their own purchasing procedures.
7. House Bill 4587 modernizes the Public Service Commission's regulation of solid waste motor carriers and solid waste facilities. It authorizes indexing automatic rate increases for solid waste collection and hauling; authorizing multi-year contracts; setting procedures for the approval of rates; authorizing solid waste carriers to require pooling; and authorizing the Public Service Commission to promulgate rules.
8. House Bill 4797 authorizes municipalities to enact ordinances that allow the municipal court to place a structure, dwelling or building into receivership as an alternative to demolition.

During the 2021 legislative session:

1. Senate Bill 42 authorized a municipality to commence proceedings to compel a foreclosure to assist municipalities to be able to address “zombie” properties”.
2. Senate Bill 368 established the Reclamation of Abandoned and Dilapidated Properties Program.
3. Senate Bill 464 would provide a safe process for organic waste composting and require the West Virginia Department of Environmental Protection to promulgate rules.
4. Senate Bill 641 allows counties to use severance tax proceeds for litter clean up.
5. House Bill 2500 established statewide uniformity regulations for auxiliary containers (bag, cup, bottle, or other packaging, reusable or single use).
6. House Bill 2573. Provides for transparency and accountability of state grants.
7. House Bill 3129 clarifies how the Consumer Price Index rate percentage increase is calculated regarding solid waste motor carriers rate increases.
8. House Bill 3133 to add back to the code language setting forth the procedure for changing rates, etc. for motor carriers, and to acknowledge new statute §24A-5-2(a) and the amendment passed in 2020 to §24A-2-5 for transfer of certificates.

During the 2022 legislative session:

1. Senate Bill 281 authorized the Department of Environmental Protection to promulgate rules relating to Control of Air Pollution from Combustion of Solid Waste.
2. Senate Bill 552 relating to delinquent and dilapidated property and the process for the collection of delinquent real estate taxes and sales of tax liens and property. The bill modifies the method by which notice is provided regarding the payment of property taxes and certain obligations of the West Virginia Land Stewardship Corporation land bank program.

3. House Bill 4084 allows advanced recycling facilities and facilitate the conversion of plastics and other recovered materials through advanced recycling processes

2.3 Federal Legislation and Interpretation

2.3.1 The Stamp Decision

On September 28, 1995, U.S. District Court Judge Frederick P. Stamp issued a Memorandum Opinion and Order in the case of Valero Terrestrial Corp., et. al. v. Laidley Eli McCoy, et. al. The Order granted plaintiffs' motion for a preliminary injunction enjoining the state from, among other things, enforcing the tonnage caps on the amount of solid waste that can be handled at a solid waste facility per month.

On September 17, 1997, a final motion for declaratory judgment and permanent injunction was granted. West Virginia solid waste statutes were declared unconstitutional under the Dormant Commerce Clause and the defendants were enjoined from enforcing them.

During the 1998 legislative session, the Legislature passed, and the Governor signed into law S. B. 178, which corrected language in West Virginia solid waste laws that had been declared unconstitutional because they unjustifiably discriminated against the importation and disposal of waste from other states. Major provisions of the Solid Waste Management Act, as amended by S.B. 178, would keep the tonnage caps in place and allow the Secretary of DEP to determine the tonnage limit for each solid waste facility based on certain criteria.

The law governing the conversion of a Class B facility to a Class A facility was changed by S.B. 178 to require the county commission, rather than the local solid waste authority, to place a Class II Legal Advertisement in a qualified newspaper informing the public of their right to petition for a referendum.

2.3.2 Flow Control

In April 2006, Judge Mary E. Stanley of the US District Court for the Southern District of West Virginia issued a ruling impacting export of solid waste. Prior to Judge Stanley's ruling, all West Virginia waste haulers were required to have a valid Certificate of Convenience and Necessity from the Public Service Commission (PSC) for operations in the state. According to Judge Stanley, "West Virginia Code §24A-2-5 is invalid insofar as it requires solid waste haulers engaged in the interstate transportation of solid waste to obtain a certificate of convenience and necessity from the PSC."

This ruling enables haulers from out-of-state to enter the West Virginia solid waste hauling market without a Certificate of Convenience and Necessity, if they dispose of the waste at out-of-state disposal facilities. This ruling has impacted the solid waste market in areas adjacent to West Virginia borders, resulting in greater exports of solid waste by out-of-state haulers, and a resulting loss of market-share by local certificated haulers and disposal facilities.

This trend has had a negative impact on the collection of solid waste assessment fees and on the revenue of local disposal facilities and has consequently generated interest in implementing "flow control" in some areas to require local waste be disposed of at local facilities.

Before 2007, flow control was considered to be unconstitutional as interfering with interstate commerce. *See, C&A Carbone, Inc. v. Clarkstown,* 511 U.S. 383 (1994). However, in a 2007 ruling, the Supreme Court of the United States held that flow control could be used to advance state and local governmental solid waste management objectives, including the financing of publicly owned solid waste facilities. *United Haulers Ass'n Inc. v. Oneida-Herkimer Solid Waste Management Authority,* 550 U.S., 127 S. Ct. 1786, 167 L. Ed. 2d 665 (April 30, 2007) (hereafter "*United Haulers*").

The PSC has statutory authority to issue a flow control order at the request of a solid waste facility

or a county or regional solid waste authority, directing that "solid waste generated in the surrounding geographical area of a solid waste facility be processed or disposed of at a designated solid waste facility or facilities." W. Va. Code §24-2-1h.

Until the *United Haulers* decision, however, that authority could not effectively be exercised. *United Haulers* thus provides publicly owned facilities in West Virginia, and local solid waste authorities, with a new potential means to preserve or enhance their ability to contribute to state and local solid waste management objectives through flow control.

In October 2010, the Region VIII Solid Waste Authority filed a petition for flow control with the PSC, asking the PSC to direct all motor carriers of non-hazardous solid waste generated in the region to dispose of their waste at the region's transfer stations.

On February 22, 2011, the Tucker County Solid Waste Authority (TCSWA) filed a petition seeking an Order requiring all motor carriers that collected solid waste within Region VIII and Preston, Randolph and Tucker counties be disposed of at the Tucker County Solid Waste Authority landfill.

According to their Petition, "In recent years, increases in the transportation of solid waste to out-of-state disposal facilities had led to declines in the solid waste received by TCSWA and by Region VIII." Approximately 40% of the landfill's waste came from Region VIII making the landfill dependent on the continued viability of the Region VIII transfer stations.

On June 28, 2011, Region VIII withdrew its petition primarily based on PSC staff's opposition in pre-trial testimony. The case was dismissed without prejudice.

TCSWA's case was dismissed. The Order stated it was discriminatory, protectionist and detrimental to interstate commerce and that those grounds were dispositive regardless of any environmental evidence Tucker County might have presented at the evidentiary hearing. However the Order also stated. "The Commission's decision in this case does not preclude Tucker County from filing a new flow control proceeding for us to consider."

The Legislature has specified that the Public Service Commission consider various factors when deciding whether to issue a flow control order, including "the environmental impact of controlling the flow of solid waste, the efficient disposal of solid waste, financial feasibility of proposed or existing solid waste facilities, the county or regional solid waste control plan, the statewide solid waste control plan and the public convenience and necessity." W. Va. Code §24-2-1h(b). A flow control order consistent with these criteria would advance the State's solid waste management objectives.

There are continuing questions concerning the availability of service to low population density areas, unfair advantages for out-of-state haulers and industry valuation.

In assessing disposal needs and projected revenue to support solid waste management programs, it is imperative to identify the movement of solid waste into or out of the state. Towards this end, agencies and landfills in adjacent states were contacted to determine the quantity of solid waste they received from West Virginia (Table 4.4).

Additionally, West Virginia tonnage reports were reviewed to determine the quantity of waste received by West Virginia landfills from out-of-state (Table 4.5). Industrial waste/other waste from West Virginia that was deposited in out-of-state solid waste landfills is included in the totals since it could have been deposited in West Virginia commercial solid waste landfills.

Chapter 3: Efficiencies in Solid Waste Management: Demographics, Transportation & Population and Waste Projections

3.1 Demographics[1]

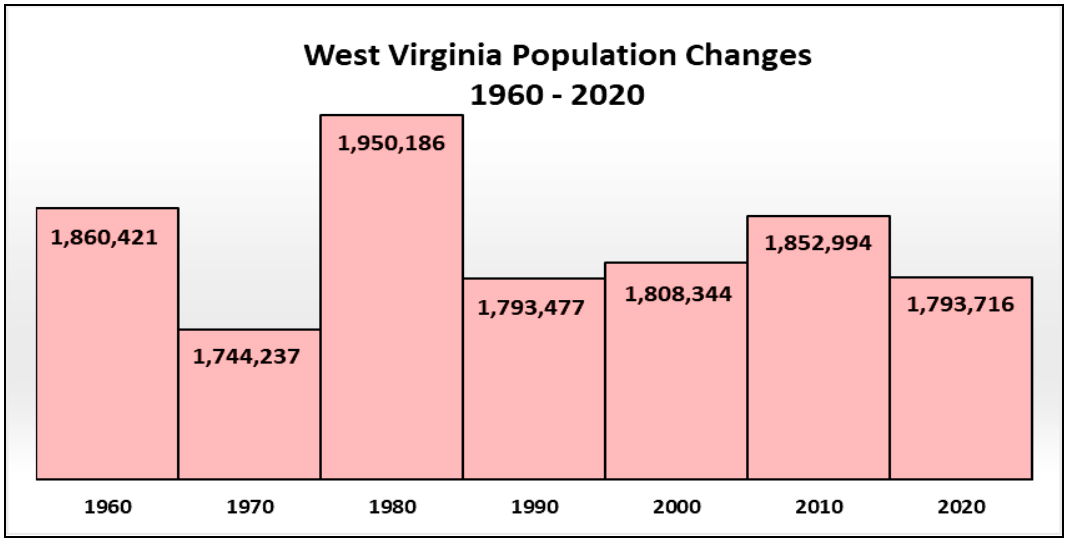
Perhaps more than any other factor, the demographics of an area, including geography, population, economic base, income, land use and transportation routes, determine both the waste that is generated and the options available to manage that waste. For example, a county with a low-density population and little industry will not only have a smaller waste stream, but it will be comprised primarily of residential waste, differing in composition from a more commercial and industrial waste stream in a highly urbanized area. Management options, such as markets for recyclables or the construction of disposal facilities, number and capacity of solid waste management facilities and land availability will also vary.

This chapter will discuss the demographics of West Virginia and its seven (7) wastesheds individually. The demographic data presented here and its impact on solid waste management in West Virginia will be discussed throughout this plan.

After an uninterrupted period of growth from 1870 through 1930, West Virginia's population level began to fluctuate. It increased by 104,000 during the 1940s, then declined by 145,000 in the 1950s, the population continued to fluctuate from the 1960s to the present. (See Figure 3-1 below.)

In the 1990s West Virginia's economic performance outpaced that of the previous decade but there was little impact on the growth in population. While the population of the nation as a whole grew by 13.1%, West Virginia's population increased by only 0.8%, an increase of 14,467. During that time the population of 25 of the state's 55 counties declined, four southern coalfield counties lost 11% to 22% of their populations.

Figure 3-1
West Virginia Population Changes (1960-2020)



While population loss was also acute in the northern panhandle and parts of central West Virginia the eastern panhandle counties of Jefferson, Berkeley, Morgan, Hardy and Hampshire along with Putnam experienced significant growth.

According to the US Census, between 2010 and 2020 West Virginia declined by 3.2%. The rest of the US grew at a rate of 7.4%. The state population is currently projected to decline by 4.9% between 2020 and 2040 according to the WVU Bureau of Business and Economic Research's figures.

While it appears the state's population will be stable over the next twenty years, most regions within the state are expected to experience various levels of decline. Wasteshed E, covering the eastern panhandle, is projected to be the only region to experience growth with an estimated 17.6% increase by 2040. The coalfield counties of Wasteshed H are projected to decline by 9.0%.

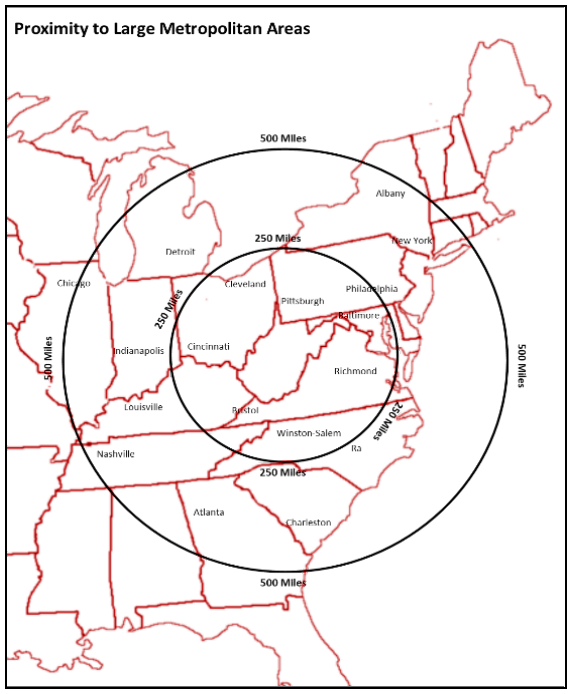
3.2 Geographic and Transportation Factors Influencing Solid Waste Management in West Virginia

West Virginia has a land and water area of 24,231.4 square miles, forty-first in the United States.[2] Its greatest distance from east to west is 260 miles and 327 miles from north to south. Most of the state consists of hills and valleys with some narrow river plains. The geographic center is located in the Elk River Public Hunting Area in Braxton County.

From its geographic center, West Virginia is within 500 miles of [3] New York City, most of western New York, all of Pennsylvania, New Jersey, Delaware, Washington D.C., Virginia, North Carolina, South Carolina, Ohio, Indiana and parts of Georgia (including Atlanta), Alabama, Tennessee, Kentucky, Wisconsin, Mississippi, Illinois (Chicago), and Michigan (Detroit).

The state's rural character and the fact that it is a central location to major population centers could make West Virginia a potential location for landfills.

Figure 3-2 Proximity to Large Metropolitan Areas

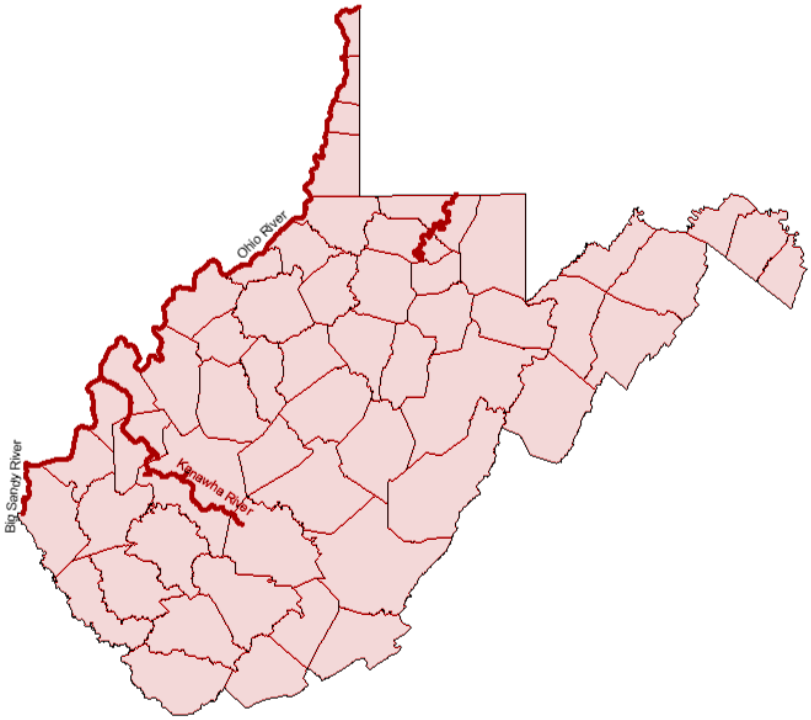


3.2.1 Navigable Waterways

West Virginia's rivers form a large portion of the state's borders and are responsible for its distinctive, irregular shape. The navigable portions of these rivers flow out of the state in all directions (Figure 3-3), thus providing little transportation between regions in the state. To be considered navigable, a river must maintain a depth of greater than nine feet at normal pool.

On the western side of the Eastern Continental Divide, all of West Virginia waters drain into the Ohio River, which forms the state's northwestern border. The Ohio, with a system of locks and dams, is navigable along its entire length from Chester in Hancock County to the Kentucky border. The Big Sandy forms the southwestern border of the state and is navigable for a distance of 8.4 miles upstream to Cyrus. The Kanawha River is navigable from its mouth to Deep Water, a small town just east of Montgomery, a distance of 90.6 miles. Some tributaries of the Kanawha are navigable for short distances. The Little Kanawha is navigable from its mouth at Parkersburg for 14.6 miles to Slate in Wood County. The Monongahela River is navigable its entire length from Pittsburgh where it helps form the Ohio, upstream to the vicinity of Fairmont in Marion County, a distance of 128.7 miles. The Tygart Valley River and the West Fork River, which form the Monongahela, are navigable for short distances.

Figure 3-3
Navigable Waterways



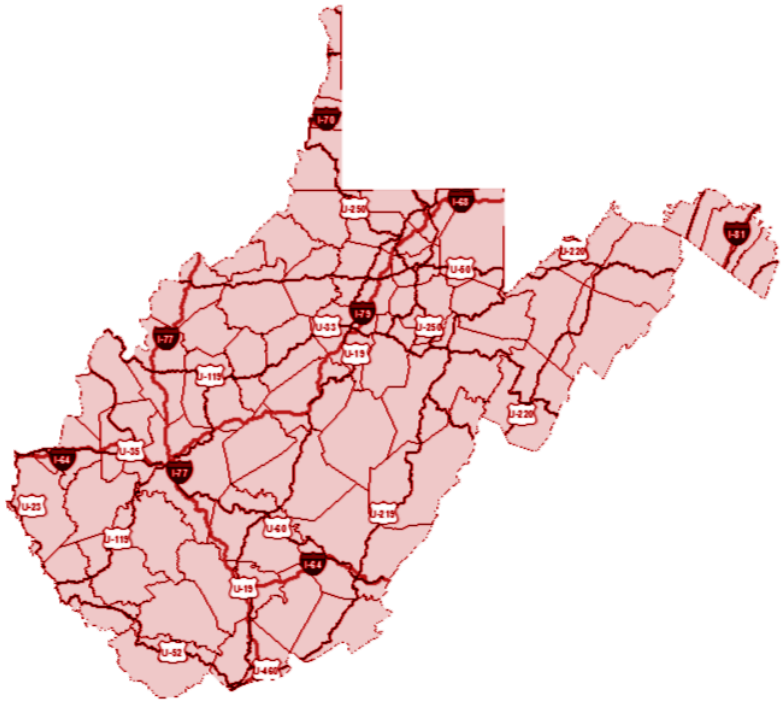
3.2.2 Highways

West Virginia is served by six (6) interstate highways. Interstate 81 cuts through Berkeley County in the Eastern Panhandle. Interstate 70 bisects Ohio County in the Northern Panhandle. Interstate 77 enters West Virginia at Bluefield and follows the West Virginia Turnpike north to Charleston, and then continues on to Parkersburg and into Ohio. Interstate 64 runs from Huntington east to Charleston where it follows the turnpike (and Interstate 77) south to Beckley. Interstate 64 leaves the turnpike (and Interstate 77) at Beckley and runs east to White Sulphur Springs and into Virginia. Interstate 79 begins in Charleston and runs northeast to Morgantown and into Pennsylvania. Interstate 68 begins in Morgantown and extends east into Maryland.

All interstates have a Gross Vehicle Limit (GVL) of 80,000 pounds. These interstates provide convenient access to the state's interior. Portions of US routes 50, 52, 119, 35, 60, 19, 33, 219 and 522, have a GVL of 80,000 pounds. West Virginia routes with a similar GVL are portions of 34, 2, 39, 57 and 9. Other routes have a similar GVL for short distances. Portions of the above routes, and other highways, have a GVL of 65,000 pounds. These gross weight limits apply to all state highways not identified as being part of the state's coal resource transportation system.

The mountainous terrain and narrow valleys makes for narrow, winding roads, difficult for large vehicles to travel. Some of these roads are not suitable for a typical garbage packer truck. Bridges are also important to garbage hauling. All of West Virginia's bridges have a gross vehicle weight limit. Inadequate bridges within the state's system require alternate routing; increasing mileage traveled thus increasing hauling costs.

Figure 3-4
Interstates & US Highways



3.2.3 Railways

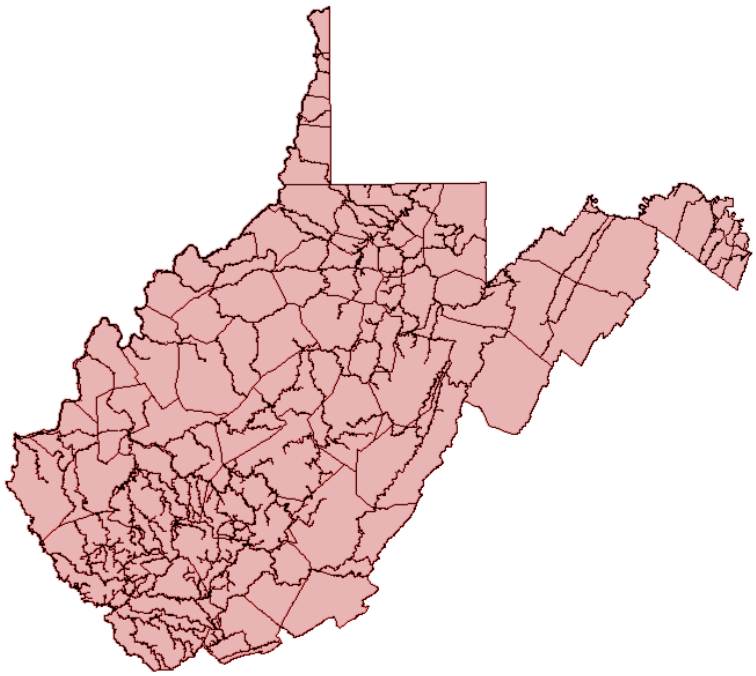
To date, railways have played a small part in solid waste management in the state. Copper Ridge Landfill in McDowell County, owned by the Solid Waste Authority and managed by a private individual under Copper Ridge Landfill, LLC, currently can accept waste via rail from outside of the state. Copper Ridge is a Class A facility permitted to accept up to 50,000 tons of waste per month.

The West Virginia rail system consists of two Class I railroads and 11 short line or regional railroads. The system contains 2,401 route miles of track. CSX Transportation is West Virginia's largest carrier with 1,113 route miles of track. Norfolk Southern is next in size with 801. Short lines and Regional railroads make up the remaining 487 route miles of track.

Regionals and Short Lines - Included in this category are: R. J. Corman Railroad, Appalachian and Ohio Railroad, Beech Mountain Railroad, Elk River Railroad, Kanawha River Railroad, Little Kanawha River Rail, South Branch Valley Railroad, Vaughan Railroad, West Virginia Central Railroad, Wheeling and Lake Erie Railway, Winchester and Western Railroad and Winifrede Railroad.

This discussion of transportation access into and throughout West Virginia serves to illustrate the state's potential susceptibility to increased quantities of solid waste.

Figure 3-5
Principal Railroads



3.3 Wasteshed Analysis

The “Resource Conservation and Recovery Act of 1976” (RCRA) represented many years of congressional hearings and reports on the roles and needs of federal/state/local government and industry in solid waste management. RCRA mandated the promulgation of guidelines used in identifying areas, which had common solid waste management problems, and were appropriate units for planning solid waste management services.

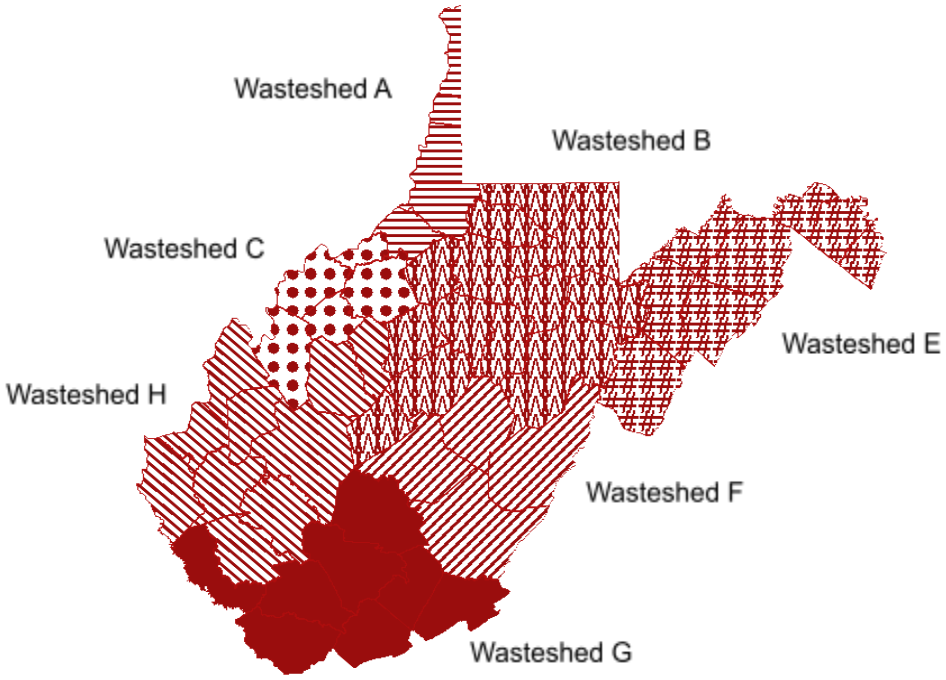
Federal and state financial assistance was conditioned on each state identifying regional boundaries, responsible agencies and the approval of state plans within six months of the establishment of the guidelines. To meet these conditions the West Virginia Resource Recovery - Solid Waste Disposal Authority, now the Solid Waste Management Board, divided the state into geographic regions, wastesheds, for solid waste management purposes. Each wasteshed has its own demographic characteristics and its own set of waste management needs. W. Va. Code §22C-3-9 defines how wastesheds are to be designated.

Solid waste planning includes the prediction of future needs. Sections 3.3.1 - 3.3.7 of this chapter provide tonnage projections based on population projections compiled by the West Virginia University Bureau of Business and Economic Research (BBER) and a waste characterization study conducted for the US EPA Tonnage projections in this section are computed using the 4.91 pounds per person, per day rate indicated by the US EPA’s 2018 study, discussed in Section 3.4 of this chapter, along with projected population rates from BBER. Population projections calculated by the BBER have been completed at the request of the WV Solid Waste Management Board and have not been published. It should be noted that all projections, both population and tonnage, are based on historical data. They do not factor in external concerns such as economic fluctuations, variations in the local business activity, changes in law or government regulation and many other things that tend to affect the local waste stream.

Data presented in the projected monthly municipal solid waste tables in Sections 3.3.1 through 3.3.7 constitute municipal solid waste only as defined by 33CSR1, Solid Waste Management Rule. The tables on waste stream composition detail all tonnages received by landfills for the last full year providing a summary of both municipal and non-municipal solid waste needs.

This section provides a wasteshed by wasteshed analysis of projected population rates and monthly municipal solid waste tonnage projections through the year 2040 along with a summary of non-municipal solid waste going into the states landfills for the year CY 2021.

Map 3-1
West Virginia Wasteshed Map



Wasteshed A
- Brooke
- Hancock
- Marshall
- Ohio
- Tyler
- Wetzel

Wasteshed B
- Barbour
- Braxton
- Clay
- Doddridge
- Gilmer
- Harrison
- Lewis
- Marion
- Monongalia
- Preston
- Randolph
- Taylor
- Tucker
- Upshur

Wasteshed C
- Jackson
- Pleasants
- Ritchie
- Wirt
- Wood

Wasteshed E
- Berkeley
- Grant
- Hampshire
- Hardy
- Jefferson
- Mineral
- Morgan
- Pendleton

Wasteshed F
- Greenbrier
- Nicholas
- Pocahontas
- Webster

Wasteshed G
- Fayette
- McDowell
- Mercer
- Mingo
- Monroe
- Raleigh
- Summers
- Wyoming

Wasteshed H
- Boone
- Cabell
- Calhoun
- Kanawha
- Lincoln
- Logan
- Mason
- Putnam
- Roane
- Wayne

3.3.1 Wasteshed A

Wasteshed A consists of Brooke, Hancock, Marshall, Ohio, Tyler and Wetzel counties, all located in the extreme northern part of the state. Wasteshed A currently has three approved solid waste facilities, the Wetzel County Landfill, the Short Creek Landfill and the Brooke County Landfill. For calendar year 2021, the three facilities processed a total of 538,708 tons of waste. This amounts to an average monthly waste intake of 44,892 tons. For the same period, 25% of Wasteshed A waste was from the states of Ohio and Pennsylvania.

Wasteshed A has access to several landfills in Ohio and Pennsylvania. For a detailed discussion of West Virginia landfills and waste imports and exports, see Chapter 4.

According to West Virginia University, Bureau of Business and Economic Research, population projections covering 2020 through 2040, all 6 counties in the wasteshed will decline in population. Brooke by 15%, Hancock County by 14.2%, Marshall by 11.9%, Ohio by 7.7%, Tyler by 18.1% and Wetzel by 21.4%. The 2020 US Census showed Wasteshed A's population was 147,425.

Heavy industry is often found in areas near major rivers where materials used in production and/or output from the facilities are shipped out at low cost. All Wasteshed A counties are bordered on the western side by the Ohio River, an area which produces a preponderance of industrial and special waste.

Table 3-1
CY 2021 Waste Stream Composition for Wasteshed A[4]

Municipal Solid Waste* (MSW)		Non-Municipal Waste (NMSW)*	
Residential Waste	44.3%	Industrial Waste	3.2%
Commercial Waste	5.2%	Construction Demolition	10.4%
Sewage Sludge**	2.6%	Petroleum Contaminated Soil	0.2%
Total MSW	**52.1%**	Industrial Sludge	0.1%
		Drilling Mud	25.6%
		Other Special Waste	8.4%
		Miscellaneous Waste	0.0%
		Total NMSW	**47.9%**

*Percentages may vary slightly due to rounding.
**According to 33CSR1, Solid Waste Management Rule, "Municipal Solid Waste means any household or commercial solid waste as defined in this rule and any sludge from a waste treatment plant or a water treatment plant."

Figure 3-6
Projected Population 2020 through 2040 for Wasteshed A

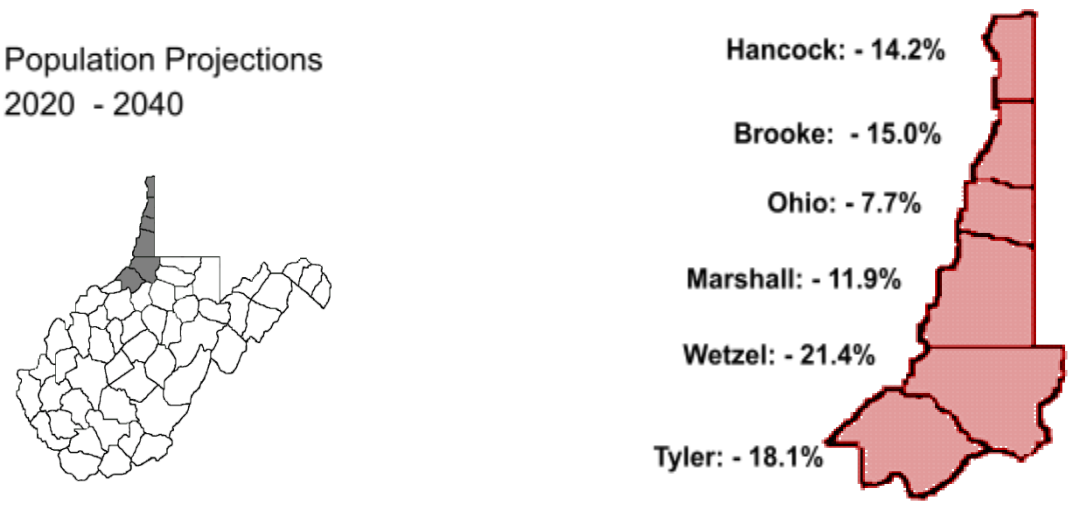


Table 3-2
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed A

	2020	2025	2030	2035	2040
Brooke	1,685	1,621	1,557	1,492	1,431
Hancock	2,173	2,090	2,017	1,936	1,864
Marshall	2,284	2,195	2,145	2,072	2,013
Ohio	3,168	3,099	3,049	2,981	2,923
Tyler	621	588	562	534	508
Wetzel	1,078	1,008	956	898	847
Totals	**11,009**	**10,601**	**10,286**	**9,913**	**9,586**

3.3.2 Wasteshed B

Wasteshed B consists of 14 counties in north and north central West Virginia. They are Barbour, Braxton, Clay, Doddridge, Gilmer, Harrison, Lewis, Marion, Monongalia, Preston, Randolph, Taylor, Tucker and Upshur counties. Wasteshed B has two approved solid waste landfills; the Tucker County Landfill and Meadowfill landfill in Harrison County. For CY 2021, the two landfills processed a total of 342,577 tons of waste averaging 28,548 tons per month.

There are five transfer stations located within the wasteshed: Buckhannon, Mountaineer, Philippi, Kingwood and Tygarts Valley. These transfer stations processed and shipped 154,810 tons of material during CY 2021 averaging 12,901 tons per month. .

Wasteshed B also has one waste tire monofill, Tire & Rubber, Inc., in Lewis County. Tire and Rubber also accepts C/D waste.

Overall, the population of Wasteshed B is expected to experience a modest decline of 3.4% through 2040. Only one county is expected to experience growth, Monongalia with a slight 6.8%. The counties with the largest anticipated loss are Braxton and Clay counties with 20.5% and 23.8% decrease, respectively. Wasteshed B's population, according to the 2020 US Census, was 405,591.

Table 3-3
CY 2021 Waste Stream Composition for Wasteshed B

Municipal Solid Waste* (MSW)		Non-Municipal Waste (NMSW)*	
Residential Waste	46.0%	Industrial Waste	7.2%
Commercial Waste	16.1%	Construction Demolition	17.4%
Sewage Sludge**	2.1%	Petroleum Contaminated Soil	5.2%
Total MSW	**64.2%**	Industrial Sludge	1.5%
		Drilling Mud	2.6%
		Other Special Waste	1.9%
		Miscellaneous Waste	0.0%
		Total NMSW	**35.8%**

*Percentages may vary slightly due to rounding.
**According to 33CSR1, Solid Waste Management Rule, "Municipal Solid Waste means any household or commercial solid waste as defined in this rule and any sludge from a waste treatment plant or a water treatment plant."

Figure 3-7
Population Projections 2020 through 2040 for Wasteshed B

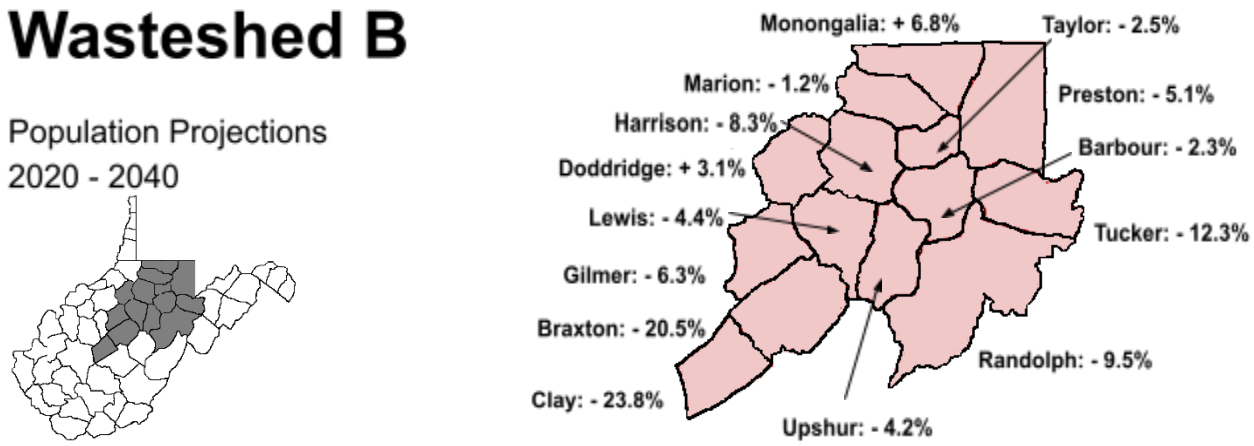


Table 3-4
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed B

	2020	2025	2030	2035	2040
Barbour	1,155	1,136	1,142	1,131	1,129
Braxton	929	860	827	777	739
Clay	601	555	525	489	458
Doddridge	583	563	571	564	565
Gilmer	553	535	534	524	518
Harrison	4,923	4,805	4,723	4,610	4,516
Lewis	1,272	1,276	1,251	1,236	1,216
Marion	4,197	4,172	4,106	4,047	3,986
Monongalia	7,902	8,074	8,195	8,317	8,442
Preston	2,555	2,547	2,500	2,465	2,426
Randolph	2,086	2,020	1,986	1,931	1,888
Taylor	1,247	1,243	1,235	1,225	1,216
Tucker	505	486	473	457	443
Upshur	1,778	1,754	1,743	1,720	1,703
Totals	**30,286**	**30,026**	**29,811**	**29,493**	**29,245**

3.3.3 Wasteshed C

Wasteshed C is located on the northwestern West Virginia/Ohio border and consists of five counties including Jackson, Pleasants, Ritchie, Wirt and Wood. Wasteshed C has one approved solid waste facility, the Northwestern Landfill, located near Parkersburg in Wood County. In CY 2021, Northwestern processed 200,757 tons of waste, averaging 16,730 tons a month.

Population of Wasteshed C is expected to experience a decline through 2040. Pleasants and Wirt Counties are expected to decline at a rate of 3.9% and 18.7%, respectively. Ritchie will lose 23.4%, Wood will lose 9.6% and Jackson will lose 8.6%. Wasteshed C's population, according to the 2020 US Census, was 133,378.

Wasteshed C is similar to Wasteshed A in that some counties border the Ohio River. Twenty-five percent of all waste processed by Wasteshed C commercial solid waste facilities was from other states.

Table 3-5
CY 2021 Waste Stream Composition for Wasteshed C

Municipal Solid Waste* (MSW)		Non-Municipal Waste (NMSW)*	
Residential Waste	38.1%	Industrial Waste	8.3%
Commercial Waste	27.6%	Construction Demolition	14.0%
Sewage Sludge**	2.5%	Petroleum Contaminated Soil	2.3%
Total MSW	**68.2%**	Industrial Sludge	6.8%
		Drilling Mud	0.1%
		Other Special Waste	0.3%
		Miscellaneous Waste	0.0%
		Total NMSW	**31.8%**

*Percentages may vary slightly due to rounding.
**According to 33CSR1, Solid Waste Management Rule, "Municipal Solid Waste means any household or commercial solid waste as defined in this rule and any sludge from a waste treatment plant or a water treatment plant."

Figure 3-8
Population Projections 2020 through 2040 for Wasteshed C

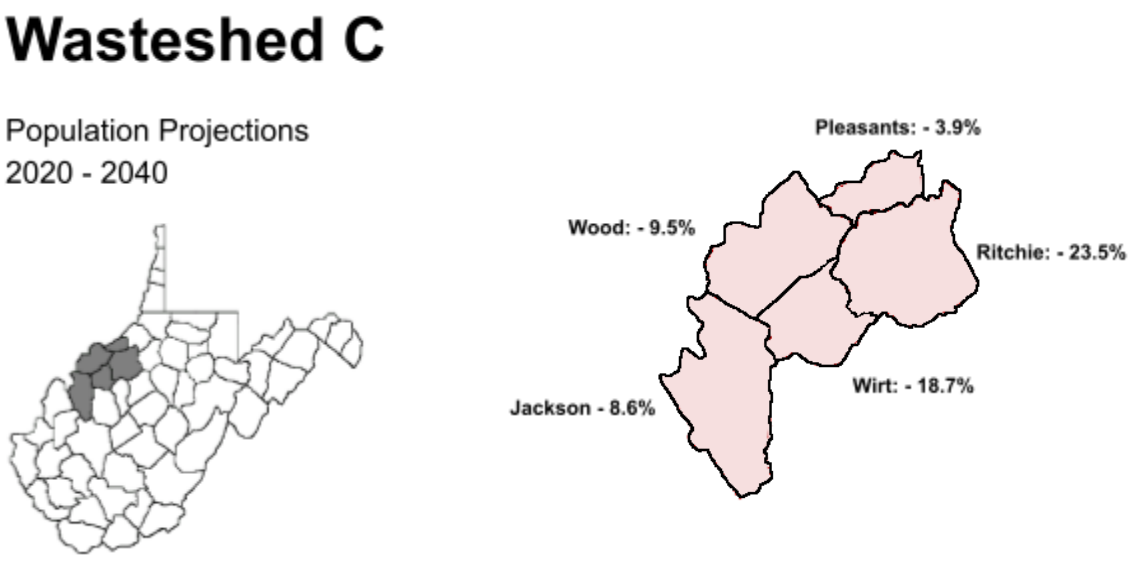


Table 3-6
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed C

	2020	2025	2030	2035	2040
Jackson	2,075	2,020	1,987	1,937	1,897
Pleasants	571	574	563	557	549
Ritchie	631	577	550	512	483
Wirt	388	362	349	330	315
Wood	6,295	6,137	6,000	5,838	5,694
Totals	**9,960**	**9,670**	**9,449**	**9,174**	**8,938**

3.3.4 Wasteshed E

Wasteshed E in the eastern panhandle includes Grant, Hampshire, Hardy, Mineral, Pendleton, Berkeley, Jefferson and Morgan County. They currently have one approved solid waste landfill, LCS Landfill near Martinsburg in Berkeley County, operated by Waste Management, and three transfer stations. The Jefferson County transfer station is also operated by Waste Management. Region VIII Solid Waste Authority operates transfer stations in Romney and Petersburg.

For CY 2021, the LCS Landfill processed 114,856 tons of waste or an average of 9,571 tons per month. The three transfer stations processed and shipped 78,909 tons or an average of 6,576 tons per month.

Wasteshed E has the most robust economy in the state. Most counties are expected to demonstrate a slight population decline from 2020 through 2040, with the exceptions of Berkeley and Jefferson counties who are expected to increase by 39.7% and 11.8%, respectively. Pendleton County is expected to decline by 25.7%, Hampshire 0.9%, Mineral by 6.3%, Grant by 9.8%, Hardy by 4.6% and Morgan by 5.3%. Wasteshed E's population, according to the 2020 US Census, was 278,289.

Most non-municipal solid waste in Wasteshed E, is construction and demolition waste from residential and light commercial buildings accommodating spillover population growth from the Washington, DC metropolitan area. Only 1% of waste deposited in LCS Landfill in 2020 came from out of state.

Table 3-7
CY 2020 Waste Stream Composition for Wasteshed E

Municipal Solid Waste* (MSW)		Non-Municipal Waste (NMSW)*	
Residential Waste	43.9%	Industrial Waste	9.9%
Commercial Waste	22.8%	Construction Demolition	15.7%
Sewage Sludge**	6.1%	Petroleum Contaminated Soil	1.0%
Total MSW	**72.8%**	Industrial Sludge	0.3%
		Drilling Mud	0.0%
		Other Special Waste	0.3%
		Miscellaneous Waste	0.0%
		Total NMSW	**27.2%**

*Percentages may vary slightly due to rounding.
**According to 33CSR1, Solid Waste Management Rule, "Municipal Solid Waste means any household or commercial solid waste as defined in this rule and any sludge from a waste treatment plant or a water treatment plant.

Figure 3-9
Population Projections 2020 through 2040 for Wasteshed E

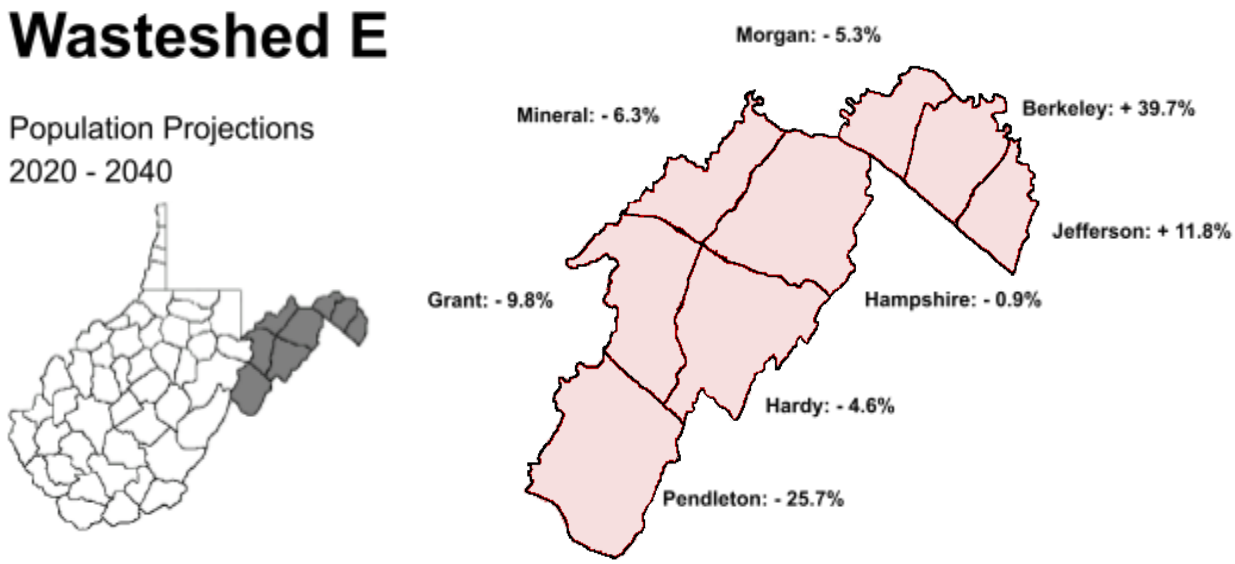


Table 3-8
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed E

	2020	2025	2030	2035	2040
Berkeley	9,116	10,197	10,864	11,823	12,732
Grant	820	800	780	759	739
Hampshire	1,724	1,712	1,719	1,710	1,710
Hardy	1,068	1,054	1,045	1,030	1,019
Jefferson	4,309	4,446	4,569	4,689	4,815
Mineral	2,012	1,975	1,950	1,914	1,884
Morgan	1,274	1,257	1,242	1,223	1,206
Pendleton	459	426	396	367	341
Totals	**20,782**	**21,867**	**22,565**	**23,515**	**24,446**

3.3.5 Wasteshed F

Wasteshed F is in the southeastern section of West Virginia and is primarily rural with no large population centers. Wasteshed F has three approved solid waste facilities, the Greenbrier County Landfill near Lewisburg, the Pocahontas County Landfill near Marlinton and the Nicholas County transfer station. Wasteshed F also has a waste tire monofill, WV Tire Disposal near Summersville.

For calendar year 2021, the Greenbrier SWA landfill processed a total of 43,762 tons of waste or an average monthly tonnage of 3,647 tons, all from Greenbrier and the surrounding West Virginia counties. Pocahontas SWA landfill processed 7,704 tons for the year or an average of 642 tons a month. None of the landfills in Wasteshed F processed any out of state waste. The Nicholas SWA transfer station processed 26,623 tons for the year or an average of 2,219 tons a month.

Population between the years 2020 and 2040 is expected to decline in Nicholas by 18.7%, Webster by 18.8%, Pocahontas by 18.3% and Greenbrier by 10.5%. Overall, Wasteshed F is expected to decline by 15.1%. Wasteshed F's population, according to the 2020 US Census, was 75,828.

Table 3-9
CY 2021 Waste Stream Composition for Wasteshed F

Municipal Solid Waste* (MSW)		Non-Municipal Waste (NMSW)*	
Residential Waste	14.5%	Industrial Waste	0.0%
Commercial Waste	75.2%	Construction Demolition	6.0%
Sewage Sludge**	2.3%	Petroleum Contaminated Soil	1.3%
Total MSW	**92.0%**	Industrial Sludge	0.0%
		Drilling Mud	0.0%
		Other Special Waste	0.7%
		Miscellaneous Waste	0.0%
		Total NMSW	**8.0%**

*Percentages may vary slightly due to rounding.
**According to 33CSR1, Solid Waste Management Rule, "Municipal Solid Waste means any household or commercial solid waste as defined in this rule and any sludge from a waste treatment plant or a water treatment plant."

Figure 3-10
Population Projections 2020 through 2040 for Wasteshed F

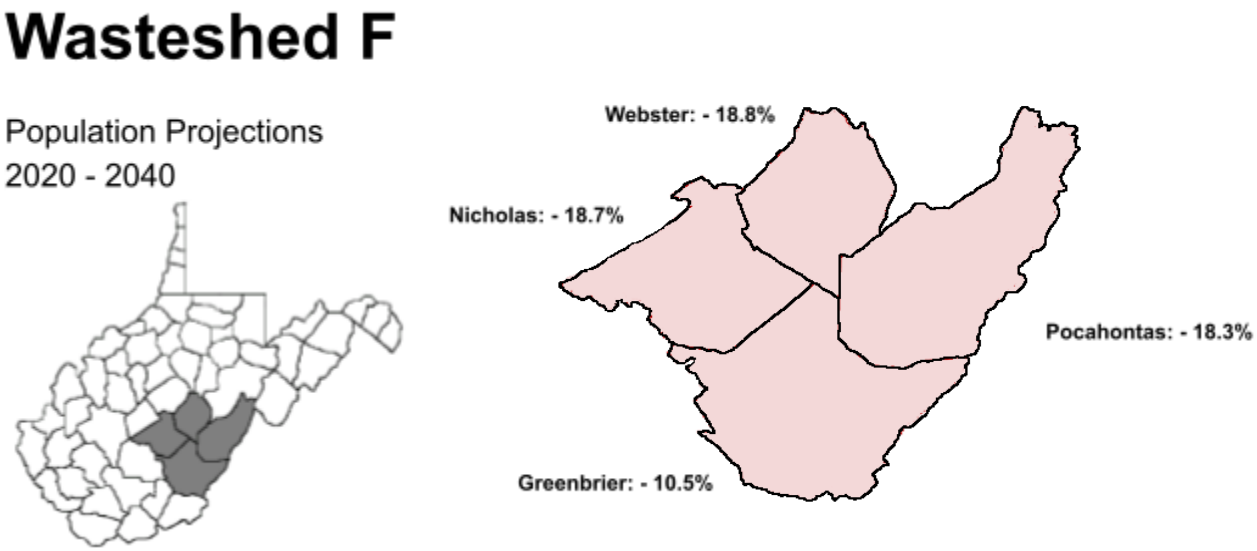


Table 3-10
Projected Monthly Municipal Solid Waste for Wasteshed F

	2020	2025	2030	2035	2040
Greenbrier	2,462	2,373	2,330	2,260	2,205
Nicholas	1,987	1,777	1,726	1,667	1,614
Pocahontas	588	554	531	504	480
Webster	626	596	565	536	508
Totals	**5,663**	**5,300**	**5,153**	**4,967**	**4,807**

3.3.6 Wasteshed G

Wasteshed G includes the counties of Fayette, McDowell, Mercer, Mingo, Monroe, Raleigh, Summers and Wyoming. The area has four approved solid waste landfills; the Raleigh County Landfill near Beckley, the HAM Landfill near Peterstown, Copper Ridge Landfill in McDowell County and the Mercer County Landfill near Princeton. Wasteshed G also has four operational transfer stations, all in Wyoming County.

The population of all Wasteshed G counties will decline with McDowell losing 28.9%, Mingo 20.8% and Wyoming 19.5%. In addition, Summers will lose 6.0%, Monroe 8.4%, Fayette 7.7%, Mercer 4.8% and Raleigh 4.9%. Overall, Wasteshed G will experience a population decline of 9.9%. Wasteshed G's population, according to the 2020 US Census, was 263,139 .

Wasteshed G landfills processed 309,363 tons of waste in CY 2020 including 4,642 tons of out of state waste. The four transfer stations processed and shipped 4,522 tons of waste for the same period.

Table 3-11
CY 2020 Waste Stream Composition for Wasteshed G

Municipal Solid Waste* (MSW)		Non-Municipal Waste (NMSW)*	
Residential Waste	47.2%	Industrial Waste	17.6%
Commercial Waste	20.6%	Construction Demolition	4.7%
Sewage Sludge**	4.0%	Petroleum Contaminated Soil	1.0%
Total MSW	**71.8%**	Industrial Sludge	0.3%
		Drilling Mud	0.0%
		Other Special Waste	4.5%
		Miscellaneous Waste	0.1%
		Total NMSW	**28.2%**

*Percentages may vary slightly due to rounding.
**According to 33CSR1, Solid Waste Management Rule, "Municipal Solid Waste means any household or commercial solid waste as defined in this rule and any sludge from a waste treatment plant or a water treatment plant."

Wasteshed G

Figure 3-11
Population Projections 2020 through 2040 for Wasteshed G

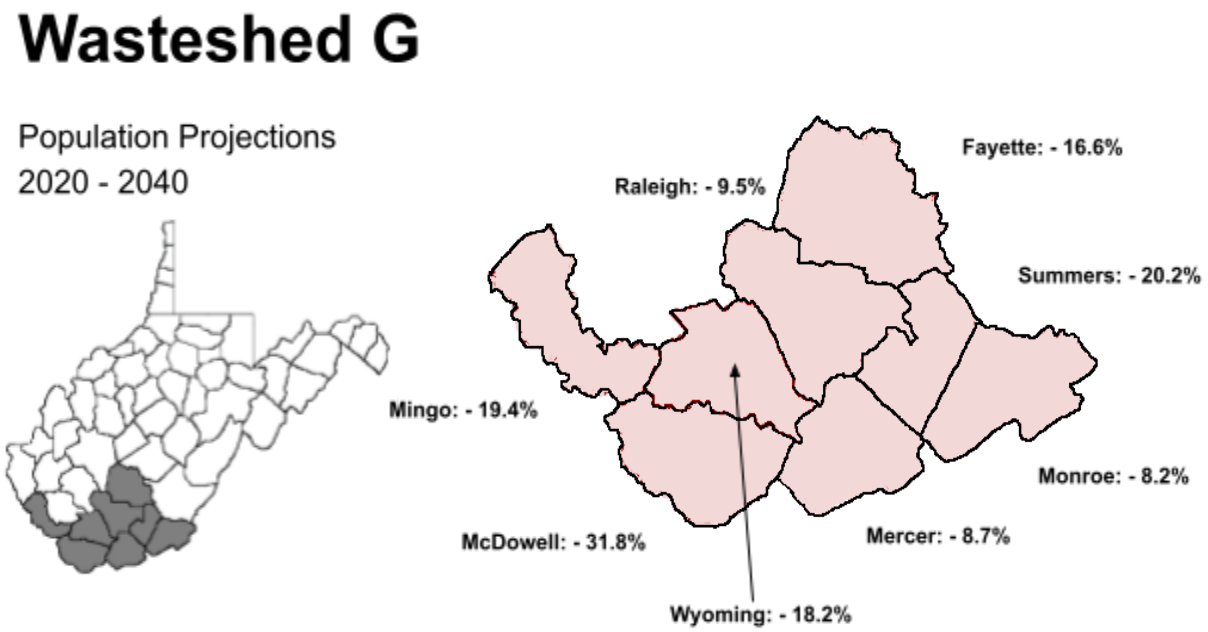


Table 3-12
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed G

	2020	2025	2030	2035	2040
Fayette	3,023	2,857	2,760	2,628	2,521
McDowell	1,427	1,293	1,180	1,070	974
Mercer	4,455	4,356	4,266	4,160	4,066
Mingo	1,760	1,657	1,581	1,493	1,418
Monroe	924	896	885	864	848
Raleigh	5,570	5,417	5,308	5,164	5,042
Summers	893	845	800	754	713
Wyoming	1,597	1,526	1,449	1,375	1,306
Totals	**19,649**	**18,847**	**18,229**	**17,508**	**16,888**

3.3.7 Wasteshed H

Wasteshed H includes Boone, Cabell, Calhoun, Kanawha, Lincoln, Logan, Mason, Putnam, Roane and Wayne counties. Wasteshed H currently has three approved solid waste facilities, the Charleston Landfill in Kanawha County, Disposal Services Landfill and Sycamore Landfill both in Putnam County. Wasteshed H also has four operational solid waste transfer stations located in Chesapeake and Marmet in Kanawha County, St. Albans in Putnam County, and a facility owned by Waste Management in Logan County. Wasteshed H's population, according to the 2020 US Census, was 492.066.

Overall, Wasteshed H is expected to have a population decline of 4.8% from 2020 through 2035. Cabell and Putnam counties are expected to grow at a rate of 1.7% and 0.7% respectively. All others will decline. The biggest losers will be Logan County with a loss of 17.7% Roane County at 12.5%, Boone at 11.6%, Lincoln County at 9.6%, Wayne at negative 7.6%, Kanawha at 5.4%, Calhoun at 5.3% and Mason at 1.4%.

The landfills in Wasteshed H processed a total of 369,425 tons of waste in 2021. Wasteshed H transfer stations processed and shipped a total of 45,364 tons of waste in the same period. Out of state waste was not a significant factor for this area.

Table 3-13
CY 2021 Waste Stream Composition for Wasteshed H

Municipal Solid Waste* (MSW)		Non-Municipal Waste (NMSW)*	
Residential Waste	44.2%	Industrial Waste	2.1%
Commercial Waste	37.3%	Construction Demolition	9.4%
Sewage Sludge**	3.8%	Petroleum Contaminated Soil	0.8%
Total MSW	**85.3%**	Industrial Sludge	0.3%
		Drilling Mud	0.0%
		Other Special Waste	2.1%
		Miscellaneous Waste	0.0%
		Total NMSW	**14.7%**

*Percentages may vary slightly due to rounding.
**According to 33CSR1, Solid Waste Management Rule, "Municipal Solid Waste means any household or commercial solid waste as defined in this rule and any sludge from a waste treatment plant or a water treatment plant."

Figure 3-12
Population Projections 2020 through 2040 for Wasteshed H

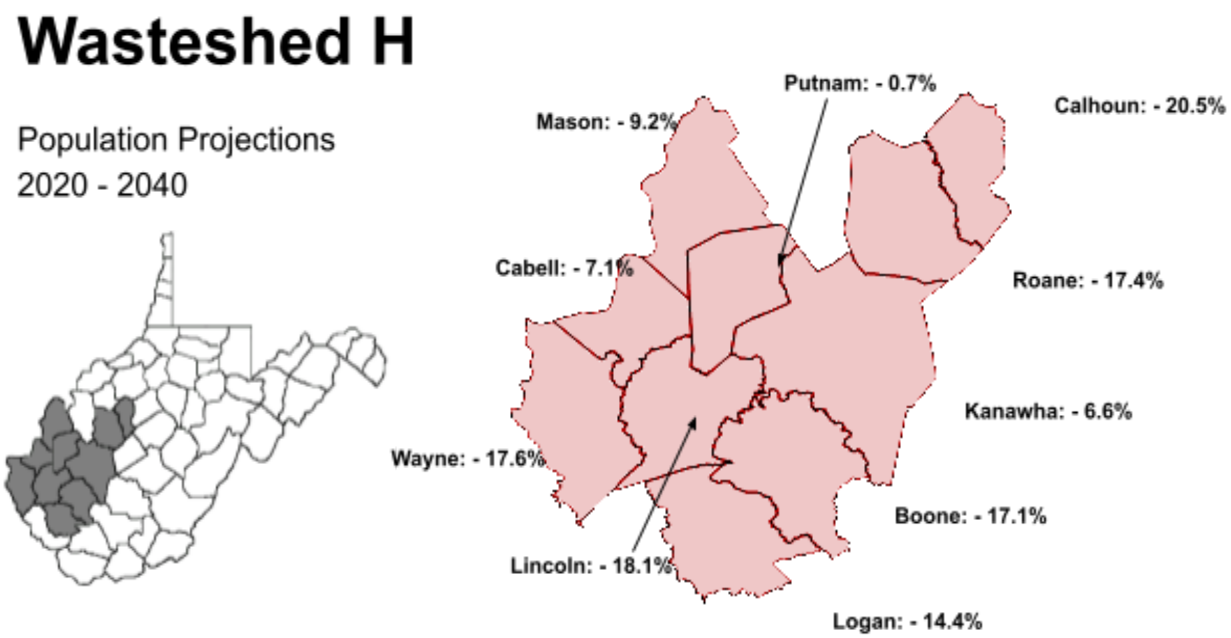


Table 3-14
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed H

	2020	2025	2030	2035	2040
Boone	1,606	1,545	1,473	1,420	1,350
Cabell	6,768	6,820	6,842	6,882	6,546
Calhoun	513	505	495	486	370
Kanawha	12,975	12,759	12,494	12,271	12,602
Lincoln	1,444	1,399	1,345	1,306	1,252
Logan	2,293	2,154	2,005	1,886	2,081
Mason	1,872	1,866	1,854	1,845	1,726
Putnam	3,955	3,971	3,959	3,981	4,258
Roane	962	922	878	842	865
Wayne	2,775	2,707	2,629	2,563	2,397
Totals	**35,163**	**34,648**	**33,974**	**33,482**	**33,447**

3.4 MSW Waste Characterization

The Solid Waste Management Board funded a study to obtain waste characterization data for the State of West Virginia's waste stream. The data is designed to be utilized by municipalities, county governments and communities as a planning tool for waste management, recycling and composting programs. The study was conducted by GAI Consultants of Charleston, WV and completed in March 1997.

The study determined that the per capita generation rate in Wasteshed F was approximately 3.7 pounds per person per day.[5] Wasteshed F has no major municipal populations. The study also found that the per capita generation rate in Wasteshed H was approximately 4.0 pounds per person per day.

Based on this data it was determined that the average per capita waste generation for West Virginia was 4 pounds per person per day. The study briefly discussed the portion of the waste stream that was considered recyclable but made no effort to determine a recycling rate for West Virginia.

The U.S. Environmental Protection Agency (EPA) usually conducts an annual waste characterization study. The EPA's 2018 EPA Waste Characterization Study, published December 2021, found that the average per capita disposal rate nationwide was 4.91 lbs. per person per day.[6] The EPA also found that 1.18 lbs., or 24%, of the 4.91 lbs. was removed from the waste stream for recycling. The following table and graphs examine the various components of the two studies.

Table 3-15
GAI and EPA Study Comparisons for Waste Stream Compositions

	1997 GAI Study – Wasteshed H Composition	2018 US EPA Study
Paper	45.4%	23.1%
Plastics	15.4%	12.2%
Glass	7.8%	4.2%
Metals	5.3%	8.8%
Food	8.2%	21.6%
Yard & Wood Waste	6.8%	18.3%
Textiles	2.8%	8.9%
Other	7.5%	2.9%

Figure 3-13
Wasteshed H Composition – 1997 GAI Study

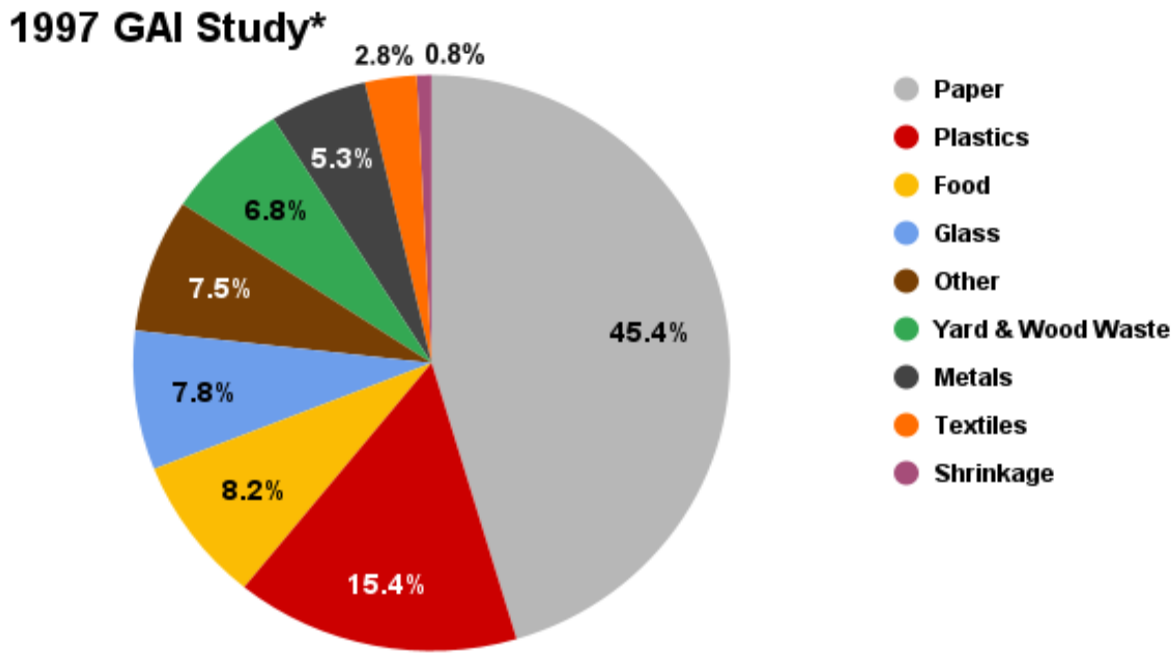
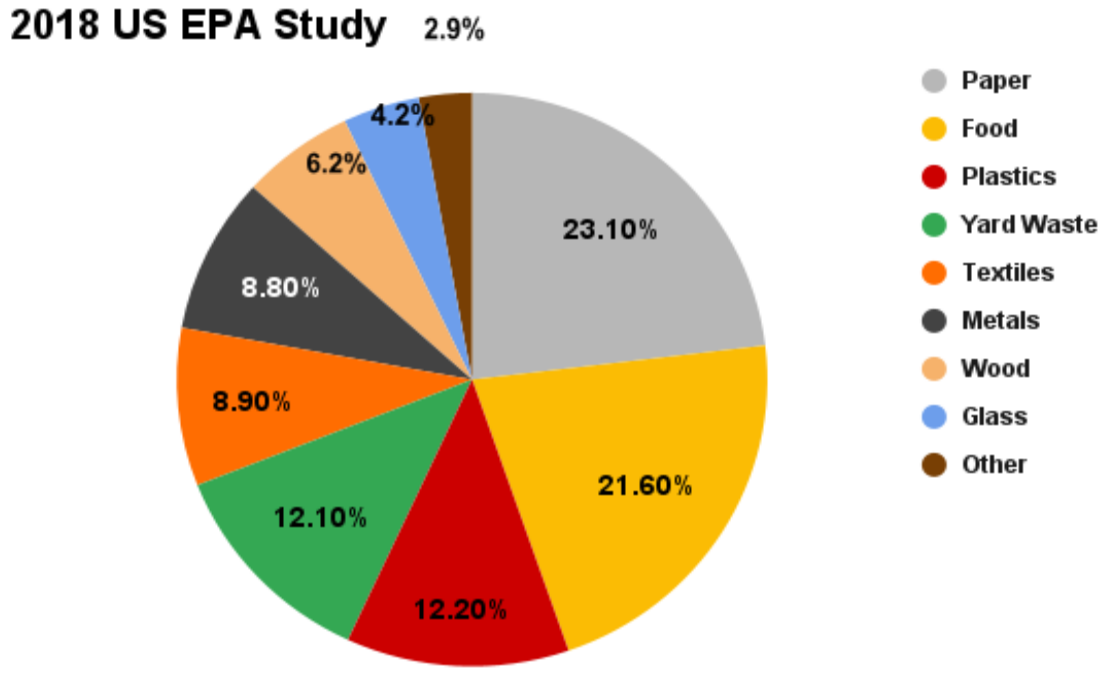


Figure 3-14
National Average Waste Stream Composition – 2018 US EPA Study



END NOTES FOR CHAPTER 3

1. West Virginia Population Projections by County 2015 – 2035 (unpublished), Christiadi, PhD, Bureau of Business and Economic Research, West Virginia University, January 2016.

2. Brown, Clark S., ed., *West Virginia Blue Book: Vol. 93, 2015-2016*, LCS Communication US, LLC Printing Company, Crawfordsville, IN, p.1050.

3. Population Estimates Program, U.S. Census Bureau, Washington, D.C.

4. Monthly landfill tonnage reports submitted to the WV Department of Environmental Protection, West Virginia Solid Waste Management Board, West Virginia Public Service Commission and applicable county or regional solid waste authorities by the state's public and private landfill operators as required by 33CSR1- 4.12.b. for CY 2021.

5. GAI Consultants, *Solid Waste Characterization Study for Wasteshed F and Wasteshed H in West Virginia* March 1997.

6. US EPA: *Advancing Sustainable Materials Management: 2018 Fact Sheet, published December 2020.*

Chapter 4: Solid Waste Facility Status

The following chapter details the status of municipal solid waste (MSW) facilities in West Virginia. Landfills, transfer stations, composting facilities, material recovery facilities (MRFs), and other solid waste facilities are discussed in detail. Currently, the state has 16 operational landfills, 17 operational transfer stations, 1 tire monofills, 1 commercial composting facility and 1 mixed waste processing/resource recovery facility.

4.1 Public vs. Privately Owned Landfills

Publicly and privately owned landfills are inherently very different. This section describes some of the most important differences between the two.

Public landfills are usually operated by local governmental entities. The primary purpose of a public landfill is to provide the least expensive long-term waste disposal service to the community it serves. Because of the importance of the long-term needs, public landfills tend to accept waste mainly from their community. Limiting the amount of waste, however, limits the available revenue for the landfill and is one reason why the tipping fee at a public landfill is usually higher than at a private landfill. Private landfills, on the other hand, are in business to make a profit and tend to serve higher population density areas.

The following tables demonstrate that public sector landfills are using 40% of their permitted monthly capacity while private sector facilities are using 57% of available permitted capacity. Overall, the state is using 51% of its total permitted monthly landfill capacity.

Table 4-1
Public & Private Landfills in West Virginia

PUBLIC FACILITIES* **TONNAGES**

WS	Class	Facility Name	**Approved Base Rate	^Total Tipping Fee	Permitted Monthly Tonnage	Total Annual Tonnage	Average Monthly Tonnage	% of Annual Permitted
B	B	Tucker County	$44.55	$53.30	9,999	59,513	4,959	50%
F	B	Greenbrier County	$38.00	$46.75	5,500	43,762	3,647	66%
	B	Pocahontas County	$64.00	$72.75	1,400	7,704	642	46%
G	A	†Copper Ridge	$33.75	$42.50	50,000	86,955	7,246	14%
	B	Mercer County	$38.00	$46.75	9,999	30,316	2,526	25%
	A	Raleigh County	$38.28	$47.03	16,638	150.955	12,580	76%
H	A	†Charleston	$40.00	$48.75	24,157	190,875	15,906	66%
Average/Totals			**$42.37**	**$51.12**	**117,693**	**570,080**	**6,787**	**40%**

*Information used was based on current permitted tonnage and tonnage accepted for CY 2021.
**Approved Base Rate is the amount per ton of municipal solid waste the landfill is approved to charge for waste. This rate is set by the WV Public Service Commission.
^Total Tipping Fee includes approved base rate plus state and local assessment fees.
†Both Copper Ridge and Charleston Landfills are publicly owned and privately managed.

PRIVATE FACILITIES* **TONNAGES**

WS	Class	Facility Name	**Approved Base Rate	^Total Tipping Fee	Permitted Monthly Tonnage	Total Annual Tonnage	Average Monthly Tonnage	% of Annual Permitted
A	A	Brooke/Valero	$39.46	$48.21	20,000	84,879	7,073	35%
	A	Short Creek	$22.75	$31.50	50,000	298,051	24,838	50%
	B	Wetzel	$30.90	$39.65	9,999	155,778	12,982	130%
B	A	Meadowfill	$36.60	$45.35	30,000	283,065	23,589	79%
C	A	Northwestern	$33.30	$42.05	30,000	200,757	16,730	56%
E	B	LCS	$41.55	$50.30	9,999	114,856	9,571	96%
G	B	HAM	$35.00	$43.75	9,999	41,138	3,428	34%
H	A	Disposal Services	$46.41	$55.16	20,000	96,230	8,019	40%
	A	Sycamore	$33.75	$42.50	20,000	82,321	6,860	34%
Average/Totals			**$35.52**	**$44.27**	**199,997**	**1,357,075**	**12,566**	**57%**

*Information used was based on current permitted tonnage and tonnage accepted for CY 2021.
**Approved Base Rate is the amount per ton of municipal solid waste the landfill is approved to charge for waste. This rate is set by the Public Service Commission.
^Total Tipping Fee includes base rate plus state and local assessment fees.

4.2 Solid Waste Facility Operations

4.2.1 Introduction

West Virginia's municipal solid waste landfill operating procedures are defined by Title 33, Series 1, Solid Waste Management Rule, which establishes requirements for the siting, financial assurance, installation, establishment, construction, design, groundwater monitoring, modification, operation, permitting, closure and post closure care of any solid waste facility that processes, recycles, composts, transfers or disposes of solid waste.

Title 33, Series 1 Rules requires training and certification of landfill managers. Landfills are required to maintain detailed records of daily operations as well as a complete and detailed operations plan.

4.2.2 Acceptance of Non-Municipal Waste

Landfills that accept municipal solid waste, defined by WV Code Rule §33CSR1 as residential and commercial solid waste and sludge from a waste treatment or a water supply treatment plant, may also accept agricultural waste, commercial waste, compost, construction waste, debris, demolition waste, industrial waste, non-municipal incinerator ash, putrescible waste, scrap metal, sludge, bulky goods and properly treated infectious waste if they have a permit modification or written permission from the Secretary of the DEP.

Waste that is not acceptable unless approved by the Secretary includes, free liquids, non-excluded hazardous waste as defined under 40 CFR §261.3, unstable sludges, unprepared pesticide containers, unprepared drums and untreated infectious waste. Table 4-2 covers a few of the more common types of non-municipal waste accepted at municipal landfills.

Table 4-2
Non-Municipal Waste Accepted at West Virginia Landfills

Facility	Refrigerated Appliances	Large Appliances	Electronic Waste*	Industrial Waste and/or Sludge	Asbestos	Petroleum Cont. Soil	C/D Waste	Drilling Mud	Yard Waste Brush
Brooke/Valero		X	X	X		X	X	X	X
Charleston	X	X	X	X		X	X		X
Copper Ridge		R	X	X		X	X		X
Disposal Services	X	X	X	X		X	X		X
Greenbrier	X	X	X			X	X		X
HAM	R	R	X	X	X	X	X		X
LCS		X	R	X		X	X		R
Meadowfill	R	R	X	X	X	X	X	X	X
Mercer Co.	R	R	R	X		X	X		X
Northwestern	R	R	X	X		X	X	X	X
Pocahontas Co.	R	R	R			X	X		
Raleigh Co.	R	R	X	X		X	X		R
Short Creek		X	X**	X		X	X	X	X
Sycamore	R	R	X	X			X		X
Tucker Co.	R	R	X			X	X		
Wetzel Co.		X	X	X		X	X	X	X

"X" indicates that the item is accepted. "R" indicates that the item is accepted and recycled.
*Effective July 1, 2016, the ban on disposal of covered electronic devices (electronic waste) in landfills was repealed with the stipulation that they may not be disposed of, if a county or regional solid waste authority determines there is a cost-effective recycling alternative for handling the devices as per W.Va. Code §22-15A-22(d). Yard waste and brush can only be deposited in the state's landfills by permit modification or by special permission from the Secretary of the Department of Environmental Protection.
**Residential customers only.

In addition to waste classified as Special Waste, some waste is classified as Fee Exempt Waste, making it exempted from all or part of the assessment fees. Examples of Fee Exempt Waste are:

- Waste disposed of on "Free Day". All solid waste facilities in West Virginia must provide one day a month when up to one pickup truck of residential waste may be disposed of free of charge.
- Special waste projects. Spring cleanups are included in this category; they require written exemption from the DEP.
- West Virginia Code makes several other allowances for exemptions.
    - §22-15-11(e)(1), an owner of a facility, if the facility is used exclusively to dispose of waste originally produced by such person in a regular business owned by that person, can deposit waste generated by that business without paying an assessment fee.
    - §22-15-11(e)(2), Reuse or recycling of any solid waste is exempt from the assessment fees.
    - §22-15-11(e)(3), the Secretary of the Department of Environmental Protection may grant an exemption to anyone not in the business of hauling or disposing of solid waste on designated days and times.
    - §22-15-11(e)(4), disposal by any by a mixed waste processing and resource recovery facility who disposes thirty percent or less of total waste recycled can

dispose of waste at any commercial facility without paying the assessment fee.

In CY 2021, of total waste collected at the state's landfills 64.6%, was municipal solid waste, 6.9% industrial waste, 1.1% industrial sludge, 3.2% sewage sludge, 11.1% C & D waste, 1.6% petroleum contaminated soil, 7.6% drilling waste and 2.3% was classified as other waste. The balance was composed of various items such as bulky goods, waste tires, yard waste and other things.

4.2.3 Landfill Planning, Reporting and Record Keeping Requirements

Landfill operators have multiple reporting, record keeping and planning requirements. They must maintain a detailed daily log describing the type, amount and source of all waste accepted, any waste handling problems, deviations from operations plans and corrective actions taken. Landfill operators are required to keep records of inspections and gas and leachate monitoring.

They also must maintain a detailed operations plan. Plans must contain an alternative location approved by the Secretary, list of equipment and backup equipment, list of local emergency response contacts, a list of engineering consultants available to the facility, a listing of all municipal, commercial and industrial customers, the waste type accepted and excluded from the facility. It must detail handling techniques for managing unusual waste, procedures for excluding hazardous waste, plans for drainage and erosion controls, fire protection plans, methods for disease vector, dust and odor control and procedures to prevent salvaging and other things as specified in Title 33, Series One, Solid Waste Management Rule.

Also required are the submissions of monthly tonnage reports detailing amounts, type and source of waste accepted. These reports go to the Secretary of the DEP, the Solid Waste Management Board, the Public Service Commission, and the local solid waste authority.

4.2.4 Capacity Contracts

When a solid waste facility agrees to take in a minimum, specific amount or percentage of tons of solid waste from any hauler of solid waste during a specific period of time they use capacity contracts. The PSC reviews and approves capacity contracts on a case-by-case basis. All parties to such contracts will have the burden of showing that a "put or pay" provision in a contract is justified.

4.2.5 Performance Reviews

During the 2005 legislative session, House Bill 3356 was passed, giving the Solid Waste Management Board the authority to establish standards of performance for solid waste facilities owned by SWAs and to develop a uniform chart of accounts to be adopted by all county and regional solid waste authorities.

Authority owned facilities are examined periodically using common standards designed to maintain optimal operational integrity. If a facility is identified as seriously impaired, the SWMB will intervene and provide the technical assistance necessary to improve their status. If impairments cannot be corrected, supersedure of the facility by the SWMB may follow. Rules governing these procedures can be found in Title 54, Series 6, Performance Measures and Review Standards for Solid Waste Authorities Operating Commercial Solid Waste Facilities.

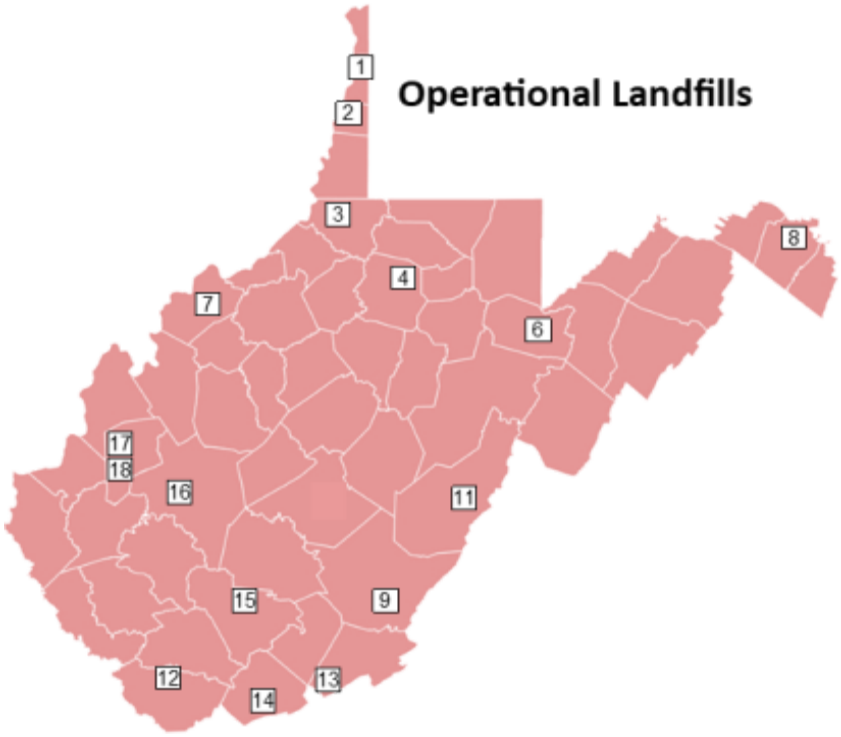
4.3 Landfill Status - Estimated Lifespan and Potential Impact on Solid Waste Management

On June 8, 1993, West Virginia had a total of 38 permitted MSW landfills in operation. As of November 1, 2022, there were 16 operational facilities. This section will examine each of the operational facilities in West Virginia, including the capacity of the state's operational facilities to manage current and future levels of waste output and the likelihood of them continuing to operate through the end of the 20-year planning period.

Table 4-3
Operational Landfills

WS	No.	Class	Facility Name	County	Status	Permit Limit Tons/Month
A	1	A	Brooke/Valero	Brooke	Permitted and Operational	20,000
	2	A	Short Creek	Ohio	Permitted and Operational	50,000
	3	B	Wetzel	Wetzel	Permitted and Operational	9,999
B	4	A	Meadowfill	Harrison	Permitted and Operational	30,000
	6	B	Tucker County	Tucker	Permitted and Operational	9,999
C	7	A	Northwestern	Wood	Permitted and Operational	30,000
E	8	B	LCS	Berkeley	Permitted and Operational	9,999
F	9	B	Greenbrier County	Greenbrier	Permitted and Operational	5,500
	11	B	Pocahontas County	Pocahontas	Permitted and Operational	1,400
G	12	A	Copper Ridge	McDowell	Permitted and Operational	50,000
	13	B	HAM	Monroe	Permitted and Operational	9,999
	14	B	Mercer County	Mercer	Permitted and Operational	9,999
	15	A	Raleigh County	Raleigh	Permitted and Operational	16,638
H	16	A	Charleston	Kanawha	Permitted and Operational	24,157
	17	A	Disposal Services	Putnam	Permitted and Operational	20,000
	18	A	Sycamore	Putnam	Permitted and Operational	20,000

Map 4-1
Operational Landfills



Brooke/Valero Landfill (1): The Brooke County Landfill is owned by Valero Terrestrial Company. It is a Class A facility, permitted to accept 20,000 tons per month. Brooke's average waste intake for CY 2021 was 7,073 tons per month, about 35% of its permitted capacity. They currently serve Brooke, Hancock, Marshall, and Ohio counties in West Virginia; Washington, Belmont, Harrison, and Jefferson counties in Ohio and Allegheny, Washington, Butler, and Beaver counties in Pennsylvania. Out-of-state waste averaged 2,432 tons per month in 2021. Their tipping fee is $48.21 per ton. *Did not respond to CY2021 Landfill Operator's Survey.*

Charleston, City of (16): The City of Charleston Landfill has a life expectancy of about 5 years. The facility is owned by the City of Charleston and managed by Waste Management, Inc. It is a Class A facility permitted to accept 24,157 tons of waste per month. The average monthly intake for 2021 was 15,906 or about 66% of its permitted capacity. In addition to Kanawha County, the facility serves parts of Boone, Clay, Fayette, Logan, Putnam and Roane counties. The facility's tipping fee is $48.75 per ton. Construction of their next cell will begin March 2023, be 2.2 acres and provide over 530,000 cubic yards of airspace. At the current rate of usage, the cell is expected to extend the facility's lifespan by 25 months. The Charleston Landfill is composed of 137.2 total acres with 49.7 currently permitted for waste.

Copper Ridge (12): This facility is owned by the McDowell County Solid Waste Authority and managed by a private individual under Copper Ridge Landfill, LLC. It is permitted to accept 50,000 tons of waste per month. The fifty thousand tonnage cap was approved by McDowell county voters in 1992 then approved by the WVDEP in 1998. The average monthly waste intake for 2021 was 7,246 tons or about

14% of permitted capacity. The facility mainly serves McDowell and Wyoming counties but can accept waste, via rail from outside of the state. The remaining life of the permitted area is an estimated 305 years, based on current tonnage. The tipping fee is $42.50 per ton. The facility has a total of 106 permitted acres with a total acreage of 3,000 acres.

Disposal Services Landfill (17): This facility is in Putnam County and owned by Waste Management, Inc. The Phase 1 area has an expected lifespan of 3.5 years. Phase 2, which is already permitted but not built, is projected to last 22 years. In 2021, Disposal Services' average waste intake per month was 8,019 tons or about 40% of its permitted 20,000 monthly limit. Disposal Services primarily serves Putnam, Kanawha and Logan counties and occasionally Boone, Cabell, Lincoln and Wayne. Their tipping fee is $55.16 per ton. Construction of the next cell is expected to begin in 2024, includes an estimated 6 acres and provide 351,000 cubic yards of airspace. This is expected to sustain the landfill for approximately 27 months.. Disposal Services includes 335.3 total acres with 84.7 currently permitted for waste.

Greenbrier County Landfill (9): This facility is owned and operated by the Greenbrier County Solid Waste Authority. Permitted at 5,500 tons per month, they averaged 3,647 tons or about 66% of capacity in 2021. The facility primarily serves Greenbrier, Summers and Monroe counties with occasional service to Fayette. Greenbrier has a life expectancy of at least 150 years. The facility's tipping fee is $46.75 per ton. Construction on the next cell is expected to begin in 2025. This cell will be 5 acres in size and allow for 360,000 cubic yards of space and have a life expectancy of 6 years. The facility has a dedicated construction and demolition cell. Greenbrier encompasses 180 total acres with 67 acres permitted for MSW.

HAM Sanitary Landfill (13): HAM is privately owned by Gordon M. Lusk, II and is located in Monroe County. The facility is permitted to accept 9,999 tons of waste per month in 2021, the monthly intake averaged 3,428 tons or about 34% of total permitted capacity. Approximately 11% of waste deposited in HAM originates out-of-state. The facility serves primarily Monroe and Summers Counties but also receives waste from various other southern counties in West Virginia, and a small portion from Virginia and North and South Carolina. HAM's tipping fee is $43.75 per ton and is one of only two facilities in the state permitted to accept asbestos waste. The HAM facility includes 200 acres including 180 acres permitted for municipal and other waste. *Did not respond to CY2021 Landfill Operator's Survey.*

LCS Landfill (8): Located in Berkeley County, near Hedgesville, the facility is owned by Waste Management of West Virginia, Inc. The landfill is a Class B facility permitted for 9,999 tons of waste per month. LCS accepted a monthly average of 9,571 tons of material a month in 2021 using 96% of its permitted capacity. LCS has a life expectancy of 44 years from the current permitted area. The facility serves primarily Jefferson, Berkeley and Morgan counties and occasionally Hampshire and Mineral in West Virginia, as well as various entities in VA, MD and PA. LCS's tipping fee is $50.30 per ton. Construction of the next cell will begin in 2023, will be 7.5 acres in size and will create 867,305 cubic yards of airspace. The estimated cost of construction for the next cell is $3.3 million. The facility currently has 468 acres of land with 67 acres permitted for solid waste.

Meadowfill Landfill (4): Located in Harrison County, Meadowfill, owned by Waste Management of West Virginia, is permitted to accept 30,000 tons of waste per month. The facility used approximately 79% of its permitted capacity in 2021. Meadowfill has a life

expectancy of 79 years. It is a large facility whose primary customers are from Harrison, Barbour, Braxton, Doddridge, Marion, Monongalia and Preston counties with smaller amounts flowing in from Tucker, Wetzel, Lewis, Gilmer, Hardy, Taylor, and other places in West Virginia, as well as from OH, PA, NY and VA. Their tipping fee is $45.35. Meadowfill is currently constructing a new cell. When completed, it will add 5.6 acres and 3.0 acres of overlay creating a combined total of 913,000 cubic yards of airspace providing an additional 31 months of life. It will also create .9 acres to accept Marcellus drilling mud, creating an additional 280,000 cubic yards of airspace. Meadowfill is also permitted to accept asbestos waste. The facility contains 347 total acres with 177.7 permitted for solid waste.

Mercer County Landfill (14): Owned and operated by the Mercer County Solid Waste Authority, this facility is permitted to accept 9,999 tons of waste per month. In 2021, Mercer averaged 2,526 tons a month, about 25% of its permitted capacity. Mercer provides services primarily for their home county. The tipping fee is $46.75 per ton. The primary out-of-state facility serving Mercer County is the Bristol, VA landfill whose tipping fee undercuts the Mercer facility by approximately half. Construction on the next cell began in 2022. The new cell will be approximately 3 acres in size and provide 550,000 cubic yards of airspace. The Mercer facility consists of 266 acres with 45 acres permitted for solid waste and has a life expectancy of 50 years for the current permitted area.

Northwestern Landfill (7): Located in Wood County, the facility is owned by Waste Management of West Virginia, Inc. Northwestern is permitted to accept 30,000 tons of waste per month. Their 2021 monthly average intake was 16,730, or 56% of permitted capacity. The facility primarily serves Wood, Wirt, Calhoun, Ritchie, Pleasants and Jackson counties in West Virginia and Washington County Ohio with smaller amounts of waste coming in from Doddridge, Tyler and other counties in both West Virginia and Ohio. This facility's tipping fee is $42.05 per ton. Their current cell is expected to be depleted in seventeen. Construction of the next cell is in progress. It will be 2.1 acres and have a volume of 968,000 cubic yards. This facility encompasses a total of 349 total acres with 133.2 permitted at this time. The lifespan of the facility is estimated at 42 years.

Pocahontas County Landfill (11): Owned by the Pocahontas County Solid Waste Authority, the facility is permitted to accept up to 1,400 tons per month. The actual 2021 monthly tonnage averaged 642 tons or about 46% of permitted capacity. Pocahontas has a dedicated construction and demolition (C&D) cell. The landfill has a projected lifespan of 5 years. The Pocahontas County Landfill serves only its home county. Their tipping fee is $72.75. Pocahontas has a permitted area of 23 acres and encompasses a total of 43.23 acres.

Raleigh County Landfill (15): Owned by the Raleigh County Solid Waste Authority, the facility is permitted to accept 16,638 tons of waste per month. Tonnage reports for 2021 indicate an average monthly intake of 12,580 tons per month, approximately 76% of permitted capacity. The facility has a life expectancy of approximately 79 years. Raleigh primarily serves Raleigh, Wyoming and Summers counties. The facility charges a tipping fee of $47.03 per ton. Construction of Raleigh's next cell is currently underway and will encompass 7.6 acres. The Authority owns 680 acres of land around the facility and has 88 acres permitted for solid waste.

Short Creek Landfill (2): Short Creek Landfill is located in Ohio County and owned by Republic Services, Inc. The facility is permitted

to accept 50,000 tons per month with a 2021 average monthly intake of 24,838 tons or about 50% of permitted capacity. Short Creek has a projected lifespan of about 29.5 years. The facility's primary customers come from Ohio, Brooke, Marshall and Hancock counties in West Virginia; Allegheny, Green and Washington counties in Pennsylvania and Carroll, Belmont and Jefferson counties in Ohio. Short Creek's tipping fee is $31.50 per ton. The facility adds $1.00 per ton for loads of drilling mud. *Did not respond to CY2021 Landfill Operator's Survey.*

Sycamore Landfill (18): Sycamore is located in Putnam County and owned by Republic Services, Inc. The facility is permitted to accept 20,000 tons per month with an average 2021 monthly waste intake of 6,860 tons or about 34% of permitted capacity. Sycamore's primary customers are in Putnam, Cabell, Wayne, Kanawha, Mason and Lincoln counties. This facility has a PSC approved tipping fee of $42.50. The landfill has 102 total acres with 53.6 permitted acres and a lifespan expectancy of 49 years. Construction of the next cell is expected to start in 2024, will be less than 2 acres and estimated to cost $1.7 million for construction. *Did not respond to CY2021 Landfill Operator's Survey.*

Tucker County Landfill (6): Owned by the Tucker County Solid Waste Authority, the facility is permitted to accept 9,999 tons of waste per month. Average monthly intake in 2021 was 4,959 or about 50% of permitted annual capacity. The facility has an expected lifespan of at least 50 years. Tucker is considered a critical facility in the state's solid waste system providing services for a large area in and around the eastern panhandle. Tucker's tipping fee $53.30 per ton of municipal waste. Construction of the next cell is expected to start in 2024 and will add approximately 1.4 acres and 282,700 cubic yards of space. The cell will have a lifespan of 30 months. The facility has a total acreage of 131.72 acres, all of which are permitted acres. During a regularly scheduled performance evaluation in mid-2019, the Solid Waste Management Board, by authority of W. Va. Code §22C-4-9a, identified the facility as seriously impaired. In September 2019, the decision was made for the Solid Waste Management Board to intervene as allowed by W.Va. Code §22C-3-26. At the time, the facility remains operational under the authority of the SWMB. Improvements are being made.

Wetzel County Landfill (3): The Wetzel facility is owned by Lackawanna Transport Company and permitted to accept up to 9,999 tons of waste per month. Their CY 2021 average monthly intake was 12,982 tons. The facility was allowed to exceed its monthly permitted capacity to accommodate "drilling mud" from horizontal drilling operations in the region. This was done under the authority of the WV Department of Environmental Protection and is a temporary accommodation for drilling waste. The bulk of the drilling mud comes from Wetzel County with significant amounts from Tyler, Marion and Marshall Counties in West Virginia, Monroe County, Ohio and Washington County, PA. Wetzel has an expected total lifespan of 25+ years. Wetzel County's tipping fee is $39.65 per ton. Construction of the facility's next cell is expected to be 4 acres and is projected to last 2 years. The facility has 238 permitted acres. *Did not respond to CY2021 Landfill Operator's Survey.*

Summary: For CY 2021 the state's 16 landfills processed a total of 1,927,153 tons of waste or a monthly average of 160,596 tons. This amounts to approximately 51% of the total permitted capacity for these facilities. Of this amount, 1,245,290 tons were classified as municipal waste, the other 681,862 tons as various types of special waste. The makeup of this special waste includes 6.5% industrial waste, 1.0% industrial sludge, 10.3%

construction and demolition waste, 1.5% petroleum contaminated soil, 2.2% other special waste, and 7.1% as drilling mud. The average tipping fees of the 16 operational facilities listed for municipal solid waste was $47.27 per ton during CY 2021.

Within the next four years eleven of the state's sixteen landfills either have under construction or intend to construct an estimated 47 acres of landfill air space at an estimated cost of over $18.2 million.

In 2021, LCS landfill used 127 tons of shredded tires as daily cover. Progressive management practices such as these tend to create a more efficient operating environment for these facilities.

DIGITAL VERSION: Click here for an interactive map of the state's operational landfills and other commercial solid waste facilities. (http://www.state.wv.us/swmb/facilities.htm)

4.4 Consolidation in the Solid Waste Industry

Beginning in the late 1990s and continuing through 2004, there was a lot of consolidation in the waste industry.

For 2010 through the present, the trend toward corporate ownership of solid waste facilities and service providers slowed. However, during 2011, the PSC granted Republic Services permission to purchase the Monongalia County transfer station from Suburban Sanitation along with two CONs held by Suburban. The facility is located near Morgantown.

A petition for transfer of ownership of the HAM Sanitary Landfill in Monroe County to Lusk Acquisition Company, LLC was approved by the WV PSC on 12/26/2013. Lusk Holdings in Mercer County includes Lusk Disposal, Empire Waste Systems and Empire Salvage & Recycling. The name of the facility has not changed.

4.5 Imports and Exports of Solid Waste

In 2021, the state exported 688,794 tons of waste while importing 193,173 tons creating a positive export balance of 495,657 tons. The consequence of not collecting the $8.25 tipping fee on these tons is a loss of approximately $4,089,170 in assessment fees.

The Southern Ohio Disposal case, discussed in Chapter 2, created a situation where out-of-state waste haulers collect garbage in West Virginia without obtaining a Certificate of Need (CON) from the PSC and dispose of waste in out-of-state facilities. This not only allows an additional drain on state and local funding but also creates an unfair competitive advantage for out-of-state garbage haulers. In the past, the ownership of one or more CON's has greatly increased the market value of garbage hauling businesses. The Southern Ohio Disposal case may also have had the effect of devaluing this entire business sector.

Table 4-4
Solid Waste Exported to Out-of-State Landfills[1]: CY 2011- CY 2021

Total Solid Waste Exported to Other States (tons)

	2011	2013	2015	2017	2019	2021
Kentucky	80,085	173,973	217,408	183,675	182,269	187,760
Maryland	13,810	29,464	35,790	36,148	38,729	40,895
Ohio	171,925	221,760	280,648	262,522	253,244	185,174
Pennsylvania	85,871	174,562	164,193	198,699	359,886	262,098
Virginia	27,188	14,121	8,948	2,904	5,237	12,867
Totals	**378,879**	**613,880**	**706,987**	**683,948**	**839,365**	**688,794**

Table 4-5
Solid Waste Imported to West Virginia: CY 2011- CY 2021

Total Solid Waste Imported (tons)

	2011	2013	2015	2017	2019	2021
Brooke/Valero	21,865	40,810	46,555	51,149	28,463	29,184
HAM	9,844	7,208	7,689	22,224	11,423	4,679
LCS	14,727	9,778	1,811	1,270	1,346	712
Meadowfill	6,470	1,584	4,538	1,036	3,236	1,092
Short Creek	77,067	65,871	53,150	45,568	40,796	39,395
Northwestern	46,861	110,220	60,649	54,655	57,951	49,281
Wetzel County	6,253	67,908	24,091	53,260	37,129	66,444
All Others	1,811	1,910	2,122	2,615	1,836	2,350
Totals	**184,898**	**305,289**	**200,605**	**231,777**	**182,180**	**193,137**

4.6 Summary of Statewide Landfill Closure Plan

Senate Bill 18, passed by the WV Legislature on October 18, 1991, established the solid waste Landfill Closure Assistance Program within the West Virginia Department of Environmental Protection (WVDEP). Its purpose was to assist permittees in the closure of facilities that could not operate in an environmentally sound manner.

Proper closure of these facilities would prevent leachate from contaminating ground and surface waters, minimize the migration of decomposition gasses, limit soil erosion and ensure the long-term integrity of closed landfills. The WVDEP Office of Environmental Remediation (DEP-OER) submitted a Statewide Closure Plan to the Governor and Legislature in December 1992. The plan was updated in 2000 and 2006. The primary points and conclusions from this plan are excerpted and summarized in this section.

Rather than have so many landfills left in an unreclaimed state for an indefinite period, the Legislature decided it would be in the best interest of the citizens of the state to provide a mechanism for the timely and orderly closure

and reclamation of these facilities. The rules governing proper closure of landfills became effective on November 4, 1988, and the legislation creating the Landfill Closure Assistance Program (LCAP) was enacted as a part of a larger solid waste reform bill in October 1991 as S.B. 18. The WVDEP received thirty-four (34) applications for closure assistance funding and determined that only twenty-eight (28) were eligible. In 2014, the WV Legislature added three (3) more Landfills to LCAP through the passage of House Bill 4339: Elkins/Randolph, Webster County and Pritchard Landfill. However, only Elkins/Randolph County and Webster County Landfills have submitted the required application for funding assistance to WVDEP. Prichard was accepted into the program but has yet to file a formal application.

In 2018, two landfills, Big Bear and ERO, were released from LCAP after WVDEP determined that those landfills no longer posed a risk to human health and the environment and after consultation with the property owners.

The Closure Assistance Program includes:

- Closure design, including analysis of the effect of the facility on groundwater and design measures necessary to protect and monitor groundwater.
- Construction of closure-related structures to provide leachate management, sediment and erosion control, gas management, groundwater monitoring, and final cover and capping to meet the Solid Waste Management Act, §22-15.
- Monitoring of surface and groundwater required by the Water Pollution Control Act, §22-11 and the Solid Waste Management Act, §22-15.
- Remedial actions to protect groundwater and surface water, other natural resources, and the health and safety of West Virginians to the extent that funds are available.
- Post closure monitoring and maintenance, which includes leachate management during the 30-year post closure monitoring period.

One landfill, the Monongalia County Sanitary Landfill, is owned and operated by the SWMB. The Board applied and was accepted for closure assistance, and the landfill is capped and in post closure at the time of this writing. The landfill ceased operation on September 30, 1993.

Overall, 28 facilities are in the Post Closure monitoring and maintenance phase, two in the Closure phase, and one in the Pre Closure design phase. More information on the LCAP Program is available at:
http://www.dep.wv.gov/dlr/LCAP/Pages/default.aspx

The following table lists those facilities that have been accepted into the LCAP program,[2] and two Non-LCAP facilities.

Table 4-6
Non-Operational Landfills

WS	No.	Facility Name	County	Status	LCAP Status
A	19	Moundsville	Marshall	Closed - LCAP	Post Closure
	20	Wheeling-North Park	Ohio	Closed - LCAP	Pre Closure
B	22	Buckhannon	Upshur	Closed - LCAP	Post Closure
	23	Central WV Refuse	Braxton	Closed - LCAP	Post Closure
	24	Clarksburg	Harrison	Closed - LCAP	Post Closure
	24b	Elkins/Randolph	Randolph	Closed - LCAP	Closure
	25	Kingwood	Preston	Closed - LCAP	Post Closure
	26	Marion County	Marion	Closed - LCAP	Post Closure

	27	Monongalia County	Monongalia	Closed - LCAP	Post Closure
	28	Morgantown	Monongalia	Closed - LCAP	Post Closure
	29	Preston (Rehe)	Preston	Closed - LCAP	Post Closure
	5	S&S Grading	Harrison	Closed - Non-Operational	Non - LCAP
C	30	Jackson County	Jackson	Closed - LCAP	Post Closure
E	31	Berkeley County	Berkeley	Closed - LCAP	Post Closure
	32	Capon Springs	Hampshire	Closed - LCAP	Post Closure
	33	Hampshire County	Hampshire	Closed - LCAP	Post Closure
	34	Jefferson County	Jefferson	Closed - LCAP	Post Closure
	35	Morgan County	Morgan	Closed - LCAP	Post Closure
	36	Petersburg	Grant	Closed - LCAP	Post Closure
F	37	Webster County	Webster	Closed - LCAP	Closure
	70	Nicholas County	Nicholas	Closed - Non-Operational	Non - LCAP
G	38	Fayette County	Fayette	Closed - LCAP	Post Closure
	39	Midwest Disposal	Summers	Closed - LCAP	Post Closure
	40	McDowell (Old)	McDowell	Closed - LCAP	Post Closure
	41	Mingo County	Mingo	Closed - LCAP	Post Closure
	42	Montgomery	Fayette	Closed - LCAP	Post Closure
	43	Wyoming County	Wyoming	Closed - LCAP	Post Closure
H	44	Don's Disposal	Kanawha	Closed - LCAP	Post Closure
	46	Fleming	Kanawha	Closed - LCAP	Post Closure
	47	Huntington	Cabell	Closed - Non LCAP	Non - LCAP
	48	Kanawha Western	Kanawha	Closed - LCAP	Post Closure
	49	Pine Creek - Omar	Logan	Closed - LCAP	Post Closure
	50	Prichard*	Wayne	Closed – LCAP	Post Closure
	51	South Charleston	Kanawha	Closed - LCAP	Post Closure

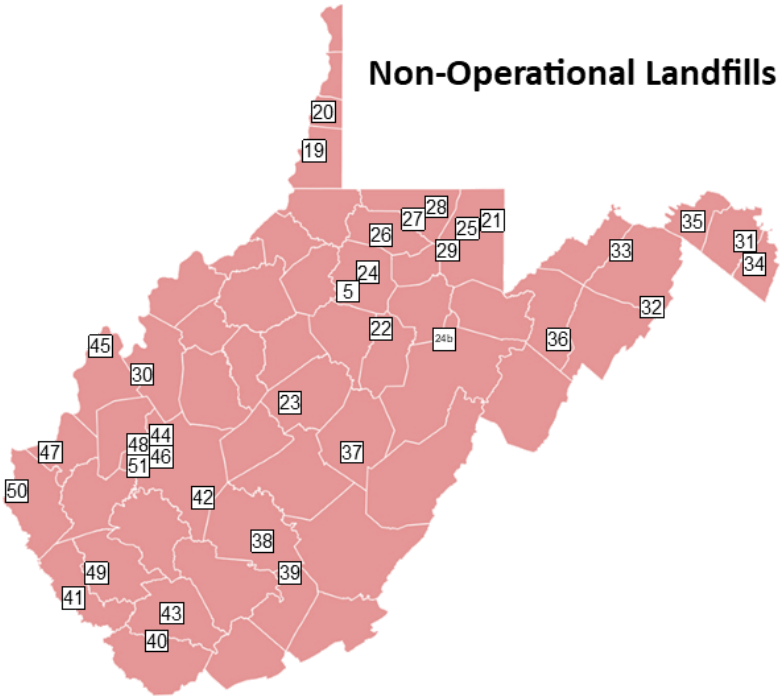
*Prichard Landfill is listed as Post Closure however, they have yet to file a formal application with the LCAP program. LCAP provides oversight of post closure monitoring with costs being funded by permit holders. This facility is not counted in LCAP post closure facilities.

Definition of Terms

Post Closure: Indicates that closure activities are complete, and the facility is in the 30-year post closure monitoring period.
Closure: Indicates that investigation, design and/or construction of closure activities are ongoing.
Pre Closure: Indicates the facility is awaiting closure activities and may be receiving interim.

4.6.1 LCAP Facilities Status

Map 4-2
Non-Operational Landfills



Berkeley County Landfill (31): Design work was completed in the fall of 1998 by GAI Consultants, Inc. The cap was completed in December of 2005, and the site is considered in post closure status with a thirty-year monitoring phase through 2035. Landfill site inspections, methane gas inspections, surface water inspections, & groundwater inspections are being completed under the LCAP program. Post closure costs were $24,353 for FY 2020 and $14,512 in FY 2021. The facility is located between Grapevine Road and Opequon Creek, approximately 1.5 miles east of Martinsburg. Closure costs were $5,072,012. The Berkeley County Solid Waste Authority is the permit holder for this facility.

Buckhannon Landfill (22): Located in Upshur County, the permit holder is the City of Buckhannon. The closure cap was completed on January 3, 2002, and the facility is in the post closure phase through 2032. Leachate is currently being collected through a perforated perimeter drain and piped to the City of Buckhannon Wastewater Treatment Plant. In FY 2020, LCAP paid out $8,055 and $8,744 in FY 2021. Leachate treatment costs were paid by the permit holder. Closure costs were $2,039,761.

Capon Springs Landfill (32): Capon is currently in post closure status. The final cap is in place. Closure was completed in 2012 and closure costs were $2,346,477. In FY 2020, post closure costs were $44,400 and $78,734 for FY 2021. The permit holder is Capon Springs & Farm, Inc. The facility is in Hampshire County, 1 mile north of Capon Springs.

Central WV Refuse Landfill (23): The design was completed by GAI Consultants, Inc. Construction began in the summer of 1999 and was completed in 2000. Leachate is being hauled out by truck. The facility is currently in

Post closure phase until at least 2030. Post closure costs for FY 2020 were $61,245 and $103,025 for FY 2021. The permit holder is Central WV Refuse, Inc. The facility is in Braxton County off WV Route 4 on Big Run; 4.5 miles west of Gassaway.

Clarksburg Landfill (24): Clarksburg landfill is currently in post closure status. Leachate is being controlled by the city sewer. City of Clarksburg is also monitoring water quality. In FY 2020, LCAP paid out $3,474,981 in closure costs and $7,487 in groundwater monitoring costs. The permit holder is the City of Clarksburg; the facility is in Harrison County, 1 mile north of WV Avenue, exit off U.S. 50, North 12th Street.

Don's Disposal Landfill (44): Project design was completed by Triad Engineering. Construction on the cap began in the fall of 2007. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under the LCAP program. Don's Disposal is currently in post closure status until at least 2037. Closure costs were $3,410,033. Post closure costs for FY 2020 were $30,658 and $34,435 for FY 2021. The facility is in Kanawha County and located near the headwaters of Craig's Branch, off State Route 24 (Rich Fork Rd.) approximately 1 mile north-northwest of the Eden Fork exit on I-77. The permit holder is Don's Resources, Inc.

Elkins/Randolph Landfill (24b):
Elkins/Randolph is in pre-closure awaiting closure activities. House Bill 4339 during the 2014 legislative session made the facility eligible for LCAP assistance. They later applied and were accepted into the program. Pre-closure costs for FY 2019 included engineering design fees, interim closure construction and sub-surface drilling for a total of $2,548,921. FY 2020 costs paid out were $669,517. The permit holder is the City of Elkins. Closure activities at the Elkins Landfill began on October 26, 2020 and are still on-going. The winning bid for the closure cap construction was $5,308,354. In FY 2021, costs paid out totaled $1,906,484. Of that, $1,407,029 was for closure construction, $339,213 was for leachate hauling, $150,150 was for leachate disposal and $10,092 was for groundwater and leachate sampling & analysis. Leachate hauling and disposal costs were down considerably in FY 2021 due to the closure construction activities.

Fayette County Landfill (38): Closure activities are complete, and this site is in post closure. Cap construction was completed in September 1999. The thirty-year monitoring phase will last through 2029. Closure costs were $1,376,737. Leachate is being trucked from the site as part of the LCAP program. Post closure costs for FY 2020 were $172,303 and $175,105 in FY 2021. The permit holder is the Fayette County Solid Waste Authority. The facility is located near Cunard, 2.5 miles off county road 9.

Fleming Landfill (46): The LCAP project design was completed by Potesta & Associates. Construction started in 2000 and was completed in July 2002. This site is currently in post closure through 2032. Closure costs were $2,893,410. Groundwater quality tests are being completed by LCAP. Leachate is being managed by a sanitary sewer plant. Post closure costs for FY 2020 were $34,471 and $48,823 for FY 2021. The facility is in Kanawha County off County Rt. 21/9, the permittee is Fleming Landfill, Inc.

Hampshire County Landfill (33): The design and the cap construction were completed in spring 2005. This site is currently in post closure through 2035. Closure costs were $1,917,576. Leachate is being managed by sanitary sewer. Landfill site inspections,

methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. Post closure costs for FY 2020 were $9,970 and $9,784 for FY 2021. The facility is located 2 miles north of WV Rt. 28. The permit holder is the Region VIII Solid Waste Authority.

Jackson County Landfill (30): Intermediate work, including stormwater diversion, was completed in 2008. Closure costs were $3,299,683. This site is currently in post closure with a thirty-year monitoring phase through 2038. The design was completed by Potesta. LCAP expended $185,040 in post closure costs for FY 2020 and $71,654 for FY 2021. The permit holder is the Jackson County Solid Waste Authority.

Jefferson County Landfill (34): The cap was completed in May 1997 and this site is currently in the post closure with a thirty-year monitoring phase through 2027. Leachate is being trucked from the site and groundwater monitoring is being performed under LCAP which spent $87,267 in post closure costs for FY 2020 and $105,093 for FY 2021. The permittee is the Jefferson County Solid Waste Authority and is located on Jefferson Orchard Road, Kearneysville, WV.

Kanawha Western Landfill (48): The design and cap construction were completed in April 1999. Closure costs were $2,956,161. Leachate is being routed into the sewer system. LCAP paid out $21,828 in post closure monitoring and maintenance costs in FY 2020 and $20,103 in FY 2021. This site is currently in post closure through at least 2029. The permit is held by the Kanawha County Solid Waste Authority and located north of Cross Lanes.

Kingwood Landfill (25): In FY 2019, LCAP spent $21,276 for monitoring and pre-closure expenses and $85,498 in FY 2020. During FY 2020, there were over $82,000 in extraordinary costs which included engineering costs and the addition of a power line. Closure cap construction began in July 2019 and was completed in October 2020; the final cost of the closure cap was $3,326,357. The final cost of the closure cap design was $792.495. Additional costs paid out during FY 2021 were $2,230 for groundwater sampling and $14,332 for leachate disposal during closure construction. The facility is in Preston County, 1.5 miles north of Kingwood. The permit holder is the City of Kingwood. During closure, an aboveground storage tank was installed and leachate is being trucked to the City of Kingwood Wastewater Treatment Plant.

Marion County Landfill (26): The construction of a new synthetic cap was completed in the fall of 2016. This site has moved into the post closure status with a thirty-year monitoring phase through 2046. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. Post closure costs were $248,393 for FY 2020 and $173,316 in FY 2021. The permittee is the Marion County Solid Waste Authority. The facility is located approximately 1 mile east of County Rt. 15, south of Farmington in the Lincoln District of Marion County.

McDowell County Landfill (40): The design and construction were completed in August 2003. Closure costs were $2,151,980. This site is currently in post closure through 2033. Post closure costs for FY 2020 were $255,048 and $261,638 in FY 2021. The permit holder is the McDowell County Solid Waste Authority. The facility is located on County Rt. 7 at Marytown, WV.

Midwest Disposal Landfill (39): The facility ceased operations in 2001 and a final cap was later put in place. In late 2005, the West Virginia

Public Service Commission released funds from Midwest Disposal to the LCAP program to facilitate the closure and post closure care of the facility. The facility entered the LCAP program in 2009 by an act of the WV Legislature - HB 3339 and is now in post closure monitoring and maintenance phase. LCAP expended $51,491 in post closure costs for FY 2020 and $59,070 for FY 2021. Midwest is located on Irish Mountain Road in Summers County.

Mingo County Landfill (41): Intermediate work, including stormwater diversion, has been completed. The cap was completed in November 2002. Closure costs were $1,201,824. This site is currently in post closure monitoring and maintenance phase for a thirty-year period through 2032. Leachate is being trucked from the site to the water treatment facility in Williamson, WV. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under the LCAP program with expenses for $621,060 in FY 2020 and $354,233 for FY 2021. The facility is located 2 miles northeast of the town of Williamson. The Mingo County Solid Waste Authority is the permittee.

Monongalia County Landfill (27): The design was completed by IT Corp. The construction by Kimberly Industries began in the fall of 1999. The cap was completed in January 2001. Closure costs were $3,147,997. LCAP is paying for the hauling of leachate which is currently going to Fairmont, WV. This site is in post closure monitoring and maintenance phase through at least 2031. Post closure costs for FY 2020 were $76,840 and $47,997 in FY 2021. The facility is located approximately 0.3 miles southeast of Route 19, 7.5 miles west of the junction of Route 19 and US 119 near Little Indian Creek. The permit holder is the WV Solid Waste Management Board.

Montgomery Landfill (42): The construction of the cap was completed in January 1998. This site is currently in post closure monitoring and maintenance phase through at least 2028. Leachate is being piped to the Montgomery Wastewater Treatment Facility. Post closure costs for FY 2020 were $99,750 and $105,749 in FY 2021. The City of Montgomery is the permit holder.

Morgan County Landfill (35): The closure cap was completed in 2012 and closure costs were $1,134,195. The Morgan County facility is currently in the post closure phase with a thirty-year monitoring phase through at least 2042. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. Those costs for FY 2020 were $131,931 and $154,397 for FY 2021. The facility is located at Wiggins Run on County Rt. 9/14, 1/2 mile south of the junction of County Rt. 9/14 and County Rt. 18. The permit holder is the Morgan County Solid Waste Authority.

Morgantown Landfill (28): The closure cap design and construction were completed in 1998. This site is currently in post closure through at least 2028. Recently, upper and lower liners were seamed to prevent the infiltration of water. Closure costs were $2,783,026. Leachate is collected via sewer with the cost being covered by the City of Morgantown. Groundwater monitoring is being performed by LCAP. Post closure costs for FY 2020 $14,982 for FY 2021 for $26,703. The permittee is the City of Morgantown; the facility is in Monongalia County adjacent to the municipal airport in Morgantown.

Moundsville Landfill (19): Intermediate work has been completed, including the diversion of stormwater. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspection are being completed

under the LCAP program. Program costs were $318,133 for FY 2020 and $276,872 for FY 2021. The facility went into post closure in the spring of 2012. Closure costs were $4,110,108. The landfill has a thirty-year monitoring period through 2042. The permit holder is the City of Moundsville. The location of the Moundsville Landfill is 4.2 miles from the intersection of Rt. 54 and State Secondary Rt. 17 in Moundsville.

Nicholas County Landfill (70): The Nicholas County landfill is owned and was operated by the Nicholas County Solid Waste Authority. In 2017, the NCSWA had filed for a rate increase from the PSC and was denied. Due to the increasing cost of constructing an additional cell, without the rate increase, the SWA was forced to seek approval to convert the landfill to a transfer station. The landfill ceased accepting waste on June 25, 2018. Construction of the transfer station was completed in November 2018. The NCSWA plans to retain the permit for the landfill, however it is now considered non-operational. Due to the recent closure, this facility is not included in the LCAP program, but is listed because it is non-operational.

Petersburg Landfill (36): The cap was completed in February 2003. This site is currently in post closure through at least 2033. A sewer line was installed to pump leachate to the local sewer plant. The design was completed in 1999 by Triad Engineering. Post closure costs through the LCAP Program were $23,409 for FY 2020 and $38,960 in FY 2021. The permittee is the Region VIII Solid Waste Authority, and the facility is in Grant County. Petersburg Landfill is 0.5 miles south of Petersburg on U.S. Rt. 220.

Pine Creek/Omar Landfill (49): The design work was completed by Marshall Miller & Associates in 1999 and the closure costs were $1,306,325. This site is currently in post closure with a thirty-year monitoring period through 2029. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. Post closure expenses for FY 2020 and FY 2021 were $231,755 and $166,429, respectively. The permit holder is Pine Creek Omar, Inc. and the facility is in Logan County 1 mile off Rt. 44, west of Omar.

Preston County (Rehe) Landfill (29): The cap and construction were completed in August 2003. This site is currently in post closure through 2033. The design work was completed by IT Corp. Closure costs were $2,484,388. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. The LCAP program expended $39,942 for FY 2020 for post closure expenditures and $27,253 in FY 2021. The permit holder is Hadre Enterprises, Inc. The facility is in Preston County approximately 1.5 miles southeast of Reedsville.

Prichard Landfill (50): During the 2014 legislative session House Bill 4339 made this facility eligible for LCAP assistance. Prichard Landfill has been accepted into the LCAP Program however, at the time of this writing, a formal application had yet to be received by the DEP. Prichard had previously been capped. This landfill is in the post closure phase. LCAP is providing oversight in monitoring post closure activities which are being funded by permit holder. This will limit the liability of state and local economic development authorities if the facility's permit is transferred. The facility is in Wayne County.

S & S Grading Landfill (5): S & S is located in Harrison County and owned by Waste Management, Inc. S & S Grading Landfill filed an application to request approval to close the facility with the PSC on 9/09/20. The WV PSC approved the Application for Authority to

Abandon Commercial Solid Waste Facility Service on December 15, 2020. Waste Management ceased operations on December 31, 2020. Although S&S is not included in the LCAP program, it is listed in this section because it is a non-operational facility.

South Charleston Landfill (51): The facility is currently in post closure status. Landfill closure cap was completed in late 2016 with the thirty-year monitoring phase to continue until at least 2046. The LCAP program expended $39,725 in FY 2020 for landfill site inspections, methane gas inspections, surface water inspections, groundwater inspections and maintenance costs and $9,629 in FY 2021. The permit holder is the City of South Charleston; the facility is located in Kanawha County.

Webster County Landfill (37): During the 2014 Legislative session House Bill 4339 made the facility eligible for LCAP assistance. They later applied and were accepted into the program. The contract for the closure cap construction was awarded in February 2021 and construction activity began in May 2021. The awarded bid for this project was $2,857,840. In FY 2023, In FY 2022, expenditure costs paid out were $67,048 for leachate hauling, $16,977 for leachate disposal, $5,470 for maintenance and $2,324 for sampling and analysis. The permit holder is the Webster Co. Solid Waste Authority.

Wheeling – North Park (20): Wheeling Landfill is currently in pre-closure status. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. The program paid out $246,383 for monitoring and maintenance costs in FY 2020 of which $232,993 were for engineering contract costs. The facility is in Ohio County, the permit holder is the City of Wheeling. The facility is 1.5 miles north of Wheeling on Mount Wood Road.

Wyoming County Landfill (43): This site is currently in post closure phase. The cap was completed in 2000 and closure costs were $1,427,522. The thirty-year monitoring period would extend through at least 2030. Leachate is currently being piped to the wastewater treatment plant. Groundwater and surface water monitoring is being completed under LCAP. Expenses for FY 2020 were $71,086. The permit holder is the Wyoming County Commission. The Wyoming County Landfill is located approximately 4 miles from Pineville, WV.

Other Non-Operational Facilities: During the 2014 regular legislative session, House Bill 4339 opened the DEPs Landfill Closure Assistance Program (LCAP) to the Webster County Landfill and Elkins/Randolph Landfill providing funds to allow for the proper capping of those facilities. The bill also made funding available for the post closure monitoring of the Prichard Landfill in Wayne County. This leaves only the City of Huntington Landfill left uncapped and unfunded. The reasons for the closure of these facilities is listed below:

- The **Prichard Landfill (50)** in Wayne County closed in 1996 due to its inability to compete with Kentucky facilities offering lower tipping fees. The facility has been capped and is in post closure monitoring, which is covered by the Permittee;
- The **Webster County Landfill's (37)** permit was revoked by the DEP in 2004. PSC denied the facility a CON the following year. The facility's problems were related to decreasing tonnage and income. The Webster County Landfill ceased operation in 2002;
- The **Elkins/Randolph Landfill (24b)** closed in the fall of 2011, unable to generate enough income to cover cost due to low tonnage. Closing cost for the facility were

estimated by Environmental Solutions, Inc at $6,080,310 in July 2022.

- The **City of Huntington's Landfill (47)** was ordered closed in 1994 by the DEP because it was unable to comply with state and federal regulations requiring multiple liners and a comprehensive leachate management system.

4.6.2 LCAP Summary

The closure cost mentioned for the above LCAP facilities were for expenses up to and including the final closure cap and includes cost associated with the 30-year post closure monitoring period[3]. The post closure period does not begin until the WVDEP Division of Water and Waste Management Solid Waste Permitting Unit considers the cap complete. The earliest any LCAP Landfill would complete the 30-year Post Closure Care Period is 2027.

Of the original 28 facilities in the LCAP program and the 3 other facilities that were later added, 28 are in post closure, one is in pre-closure design and the remaining two are in closure..

The two facilities in the closure are Elkins/Randolph and Webster County. The facility in pre-closure is Wheeling-North Park. All others are in post closure care.

WVDEP provides LCAP funding to assist Landfills with costs associated with closure construction activities, closure design, leachate hauling and disposal, groundwater sampling and analysis, leachate and stormwater sampling, mowing, maintenance, leachate line jetting and tank cleaning, vandalism repair and electric power. Of these associated costs, closure construction, closure design, leachate hauling, and leachate disposal are the highest costs incurred by LCAP each fiscal year.

In FY 2020, closure construction costs were $4,602,526; closure design costs were $609,555; leachate hauling costs were $2,242,530; and leachate disposal costs were $1,185,767. DIGITAL VERSION: Click here for an interactive map of the state's nonoperational landfills and tire monofills. (https://www.state.wv.us/swmb/facilities.htm)

4.7 Transfer Stations

As of November 2020, West Virginia has 17 municipal solid waste transfer stations. Most of these facilities are either in the eastern panhandle or the southwestern part of the state. Transfer stations allow garbage from packers and smaller trucks to be transferred to larger trucks in areas where a long haul to the nearest landfill is necessary. On average, one large vehicle can haul 4 times the load of one standard size garbage truck saving time, wear and tear on the trucks and fuel. Transfer stations are an essential part of the waste management system.

In CY 2021, West Virginia's 17 operational transfer stations collected and transferred 310,228 tons of waste, approximately 16% of the total volume going into the state's landfills. They process and transfer residential waste, non-hazardous commercial waste, bulky goods, construction and demolition waste and a few tires.

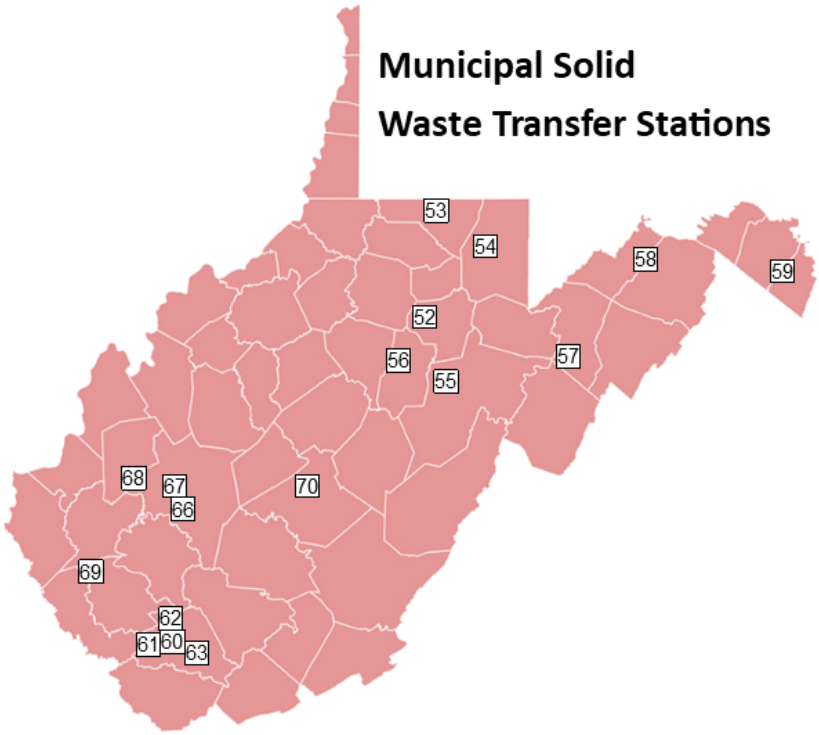
The following transfer stations are operational.

Table 4-7
Operational Transfer Stations

				Tipping Fees		
WS	**No.**	**County**	**Facility Name**	**Current Base Rate**	**State and Local Assessment Fee**	**Totals**
B	52	Barbour	Philippi, City of	$53.00 + Landfill Rate	$8.75	$98.35
	53	Monongalia	Mountaineer	$25.75 + Landfill Rate	$8.75	$67.00
	54	Preston	*Kingwood, City of	$54.60	$8.75	$63.35
	55	Randolph	Tygarts Valley Transfer	$33.58 + Landfill Rate	$8.75	$86.88
	56	Upshur	Buckhannon, City of	$36.50 + Landfill Rate	$8.75	$83.25
E	57	Grant	Region VIII SWA – Petersburg	$73.10	$8.75	$81.85
	58	Hampshire	Region VIII SWA - Hampshire	$74.10	$8.75	$82.85
	59	Jefferson	Jefferson County SWA	$70.25	$8.75	$79.00
F	70	Nicholas	**Nicholas County SWA	$65.78	$8.75	$74.53
G	60	Wyoming	Wyoming County - Pineville	$51.00	$8.75	$59.75
	61	Wyoming	Wyoming County – Baileysville (Bags Only)	$1.10		
	62	Wyoming	Wyoming County – Glen Fork/Jesse (Bags Only)	$1.10		
	63	Wyoming	Wyoming County – Tralee (Bags Only)	$1.10		
H	66	Kanawha	*Chesapeake, Town of	NO RATE		
	67	Kanawha	*Marmet, Town of	NO RATE		
	68	Kanawha	*St. Albans, City of	NO RATE		
	69	Logan	Waste Management – Peck's Mill	$30.20 + Landfill Rate	$10.27	$85.86

*Municipal use only transfer stations. No fee to residents.
**Started transloading waste on June 25, 2018 – landfill underwent a conversion to a transfer station during 2018.

Map 4-3
Operational Transfer Stations



Baileysville (61): The Baileysville Transfer Station is owned by the Wyoming County Commission. This is one of three satellite compactor stations in Wyoming County. The facility managed 688 tons of waste in CY 2021, an average of 57 tons per month. Waste collected is transferred by truck to the Raleigh County Landfill. The facility charges users $1.10 per bag and serves entities in Wyoming County with a limit of no more than six (6) bags per customer, per day.

Buckhannon (56): Owned by the City of Buckhannon, they processed an average of 1,515 tons per month in CY 2021 and 18,180 tons for the year. The PSC approved tipping fee is $83.25.

Chesapeake (66): Located in Kanawha County, the facility is owned by the City of Chesapeake and processed an average of 52 tons per month during CY 2021 and 627 tons for the year. There are no fees charged at this transfer station since it is utilized solely by the municipality.

Glen Fork/Jesse (62): Owned by the Wyoming County Commission, this location is one of three satellite compactor stations in Wyoming County. The station processed an average of 43 tons per month and 516 tons for the year CY 2021. The facility charges a user fee of $1.10 per bag with a limit of no more than six (6) bags per customer, per day. All waste goes to the Raleigh County Landfill. Glen Fork/Jesse serves the citizens and businesses of Wyoming County.

Hampshire County (58): Owned and operated by the Region VIII Solid Waste Authority, the station managed 11,668 tons of waste in CY 2021 averaging 972 tons per month. All waste was transferred to the Tucker County landfill. The tipping fee at this facility is $82.85 per ton.

Jefferson County (59): Owned by the Jefferson County Solid Waste Authority and operated by Waste Management of West Virginia, Inc., the facility processed 52,812 tons in CY 2021, an average of 4,401 tons per month. The facility charges a tipping of $79 per ton.

Kingwood (54): Owned by the City of Kingwood in Preston County, the transfer station processes an average of 942 tons per month. Total waste processed for CY 2021 was 11,300 tons. Kingwood's PSC approved tipping fee is $63.35 per ton. The facility primarily serves the areas around Albright, Kingwood, Masontown and Reedsville.

Marmet (67): Owned by the City of Marmet, the facility is located in Kanawha County and processed 859 tons of solid waste in CY 2021 averaging 72 tons per month. The facility serves the City of Marmet.

Mountaineer Transfer Station (53): The facility processed 98,104 tons of waste in CY 2021 averaging 8,175 tons per month. The facility's tipping fee is $25.75 per ton plus landfill and assessment fees. Mountaineer serves Harrison, Marion, Monongalia and Preston counties in West Virginia and Fayette, Green, Somerset, Taylor, and Washington counties in Pennsylvania. It is owned and operated by Allied Waste Services of North America, LLC.

Nicholas County (70): Owned by the Nicholas County Solid Waste Authority, the Nicholas County landfill was converted to a transfer station in 2018. The majority of waste received is from within Nicholas County with smaller tonnage coming from Webster County. The transfer station managed 26,623 tons of waste in CY 2021 averaging 2,219 tons a month. Current tipping rate is $74.53.

Petersburg (57): Owned by the Region VIII Solid Waste Authority, the Petersburg facility processed 14,429 tons of solid waste in CY 2021 averaging 1,202 tons per month. The tipping fee is $81.85 per ton. The facility serves the communities of Franklin, Moorefield and Petersburg and waste is transported to the Tucker County landfill.

Philippi (52): Owned by the City of Philippi, the facility processed 4,203 tons in CY 2021 averaging 350 tons per month. Philippi's tipping fee is $98.35 per ton. The facility is located in and serves Barbour County.

Pineville (60): Pineville transfer station is owned by the Wyoming County Commission. The transfer station transported 3,039 tons of waste in CY 2021 or an average of 253 tons per month. All waste collected by this facility is taken to the Raleigh County Landfill. Pineville's tipping fee is $67.92.

St. Albans (68): Owned by the City of St. Albans, this transfer station processed and transported 8,844 tons of waste in CY 2021. This is an average of 737 tons per month. The facility provides services for parts of Kanawha and Putnam counties.

Tralee (63): Owned by the Wyoming County Commission, this location is one of three satellite compactor stations in Wyoming County. The facility processed and transported 279 tons of waste in CY 2021 or an average of 23 tons per month. All waste collected goes to the Raleigh County Landfill. Tralee's tipping fee is $1.10 per bag with a limit of no more than six (6) bags per customer, per day.

Tygart Valley (55): The Tygart Valley Transfer Station is owned by Fred and Tim Hornick and processed 23,023 tons of waste in CY 2021 or about 1,919 tons per month. The tipping fee is $86.88 per ton. Tygart Valley serves Randolph County.

Waste Management of West Virginia (69): The facility is located at Pecks Mill in Logan County and processed 35,034 tons of waste in CY 2021 or an average of 2,919 tons per month. The transfer station is owned by Waste Management of West Virginia. The facility's tipping fee is $85.86 per ton. The facility serves Boone, Lincoln, Logan, Mingo, Wayne and Wyoming counties, all in West Virginia.

DIGITAL VERSION: Click here for an interactive map of the state's operational transfer stations and other commercial solid waste facilities. (https://www.state.wv.us/swmb/facilities.htm)

4.8 Material Recovery Facilities

Material Recovery Facilities (MRFs) are facilities at which wastes are separated, either mechanically or physically, and material is recovered for the purpose of recycling and reuse.

MRFs can be classified as clean or dirty. Those that are classified as clean, accept only source-separated material. These sources separated materials may be commingled but are separated from the remainder of the waste stream. Dirty MRFs, or mixed waste processing facilities, accept commingled waste that is not separated from the waste stream.
There are no permitted MRFs in West Virginia. Several commercial recycling facilities exist and to some extent, sort materials. However, none of these are classified, or permitted, as MRFs.

W.Va. Code § 22-15A-18(h) allows municipalities in the state with populations greater than 30,000 to use a MRF in lieu of curbside recycling. The four municipalities affected by this section of the Code are Charleston, Huntington, Parkersburg and Wheeling. The use of a MRF, in lieu of curbside recycling, for these four municipalities must be approved by both the SWMB and the PSC.

4.9 Composting Facilities

Yard waste, which traditionally includes grass clippings, leaves and brush, can be composted by the homeowner in backyards or by municipalities in a centralized composting operation. A waste quantification and characterization study conducted by the Solid Waste Management Board in 1997 indicated that yard waste makes up about 6.7% of the waste stream in West Virginia. The US EPA indicated in a 2018 study that yard trimmings make up approximately 12.1% of all municipal solid waste in the US.

W.Va. Code §22-15A-22(c) mandated that DEP promulgate rules for the handling of yard waste. Yard waste composting rules were enacted on March 16, 1994, as Title 33 CSR 3 (formerly Title 47 CSR 38E) of the Solid Waste Management Rules. These rules were revised/updated and became effective June 26, 2001.

Under these rules, the permitting of commercial yard waste composting operations must obtain a solid waste permit from the DEP, provided that first, the applicant fulfills the pre-siting requirements of subsection 3.4 of the West Virginia Solid Waste Management Rule, 33CSR1. Residential backyard composting activities and non-residential composting activities would be exempted from the requirement to obtain a permit. Non-residential composting activities must obtain a registration number from the DEP. A non-residential composting activity includes a yard waste

composting operation conducted by landscape contractors, nurseries or greenhouses to produce a soil amendment or soil conditioner.

Table 4-8 identifies the single commercial composting facilities operating in West Virginia[4]

Table 4-8
Registered Commercial Composting Facilities

Facility	Permit/Registration No.	City, County
City of Clarksburg	**SWF-5176**	**Clarksburg, Harrison County**

4.10 Free Day

W.Va. Code § 22-15-7 provides free solid waste disposal for all persons "not in the business of hauling or disposing of solid waste" on one day per month. People are allowed to dispose of "up to one pick-up truckload or its equivalent" in all solid waste facilities within their wasteshed one day per month.

All commercial and public solid waste facilities are required to have such a "Free Day".
In addition, all facilities must publish a yearly schedule of their monthly "Free Days". Non-residents must prove their home state allows "free days" in order to participate in WV. Transfer stations were exempted from the free day.

Table 4-9
CY 2021 Free Day Tonnage Received at West Virginia Landfills

Landfills	Total Free Day Tons	Total Tons	Free Day % of Total Tons
Brooke/Valero	61	84,879	0.07%
Charleston	123	190,875	0.06%
Copper Ridge	379	86,955	0.44%
Disposal Services	73	96,230	0.08%
Greenbrier	216	43,762	0.49%
HAM	90	41,137	0.22%
LSC	391	114,856	0.34%
Meadowfill	551	283,064	0.19%
Mercer	625	30,315	2.06%
Northwestern	315	200,757	0.16%
Pocahontas	2	7,704	0.03%
Raleigh	698	150,955	0.46%
Short Creek	75	298,051	0.03%
Sycamore	80	82,321	0.10%
Tucker	261	59,513	0.44%
Wetzel	113	155,778	0.07%
Totals	**4,053**	**1,927,152**	**0.21%**

4.11 Waste Tire Monofills

According to the Department of Environmental Protection's Title 33 Series 5, Waste Tire Management Rule, a Waste Tire Monofill is "an approved solid waste facility where waste tires, not mixed with any other waste, are placed for the purpose of long-term storage for eventual retrieval for marketing purposes." Three tire monofills have been permitted and built in West Virginia.

Preston Tire & Recycling, Inc., located near Kingwood in Preston County, was the smallest of the three, previously in operation. Operations ceased collecting tires in December 2020,

West Virginia Tire Disposal, Inc., was the largest of the three monofills. It was located near Summersville, WV, in Nicholas County. Tonnage reports indicated they stopped collecting tires in February 2020.

Only one of the three monofills are still in operation.

Tire & Rubber, Inc.: Tire & Rubber, located near Weston in Lewis County, is the only operational tire monofill in the State and is also permitted to accept Construction and Demolition waste. The facility managed an average of 2,291 tons a month in calendar year 2021 with overall tonnage for the year of 27,492. Tire & Rubber picks up tires in the surrounding counties and accepted 40% of their annual tonnage for CY 2021 from out of state. (http://tireandrubberinc.com)

Table 4-10
Operational Tire Monofills in West Virginia – CY 2021

WS	Facility Name	Tipping Fee	2021 Tons	Average Monthly Tons
B	Tire & Rubber, Inc.	Variable	27,492	2,291

4.12 Mixed Waste Processing – Resource Recovery Facilities

Entsorga West Virginia, located in Martinsburg, WV, was the nation's first high-energy biological treatment (HEBioT) mechanical biological treatment (MBT) system transforming MSW into an alternative fuel. Using Entsorga Italia's patented technology, this process employs mechanical and naturally occurring biological processes to produce a solid recovered fuel (SRF). There is no combustion of waste materials in this process.

A partnership between Apple Valley Waste, LLC, Entsorga USA and BioHi Tech Global, Entsorga West Virginia was permitted by the WV DEP as a Class B mixed waste processing – resource recovery facility. Entsorga began processing MSW in March of 2019.

The facility is approved to accept 9,999 tons of solid waste per month, 119,988 tons per year. According to monthly tonnage reports, in CY 2021, Entsorga West Virginia received 18,468 tons of waste for processing, or an average of 1,539 tons per month. Of this amount, 6,638 tons were imported from out-of-state.

4.13 Discussion and Conclusions

As of November 1, 2022, West Virginia had 16 operational MSW landfills and 17 transfer stations. Of the 16 landfills, seven are publicly owned, and nine are privately owned.

In CY 2021, the state's landfills were permitted to receive up to 3,932,268 tons of waste a year. Actual waste intake for CY 2021 was 1,927,153 tons or 51% of total permitted capacity. The state is generally well served by available landfill capacity. However, there are some problems in areas of rapid growth and those lacking adequate highways and service providers. The most recent challenge is the disposal of drilling waste or "drilling mud." This material exists in large quantities on a regional basis and affects a few local facilities. Steps have been taken on both the state and local levels to address this issue and are expected to provide adequate landfill air space for the region. The Solid Waste Management Board will continue to monitor this changing situation.

To have the most efficient waste management system possible it is necessary to both import and export a certain amount of waste. The state is currently exporting more waste than it is importing, largely due to lower tipping fees at out-of-state facilities and population pressures in the eastern panhandle. Over time, tipping fee increases in the surrounding states and the cost of fuel may alter this situation.

END NOTES FOR CHAPTER 4

1. Kentucky Department of Environmental Protection, Division of Waste Management, Solid Waste Branch Public Documents page, Waste Quantity Report 2021 (ran 4-05-2022): https://eec.ky.gov/Environmental-Protection/Waste/Pages/Solid-Waste-Facility-Reports.aspx

   Email from Tariq Masood, Project Manager, Maryland Department of the Environment, Land and Materials Administration, Resource Management Program, July 2022. tariq.masood@maryland.gov

   Email from Ernie Stall, Environmental Specialist 3, Ohio Environmental Protection Agency, Division of Materials and Waste Management, May 2022. ernest.stall@epa.ohio.gov

   Pennsylvania Department of Environmental Protection, Bureau of Waste Management, Solid Waste Disposal Information Reports for CY 2021: http://cedatareporting.pa.gov/reports/powerbi/Public/DEP/WM/PBI/Solid_Waste_Disposal_Information

   Virginia Department of Environmental Quality, Solid Waste Information and Assessment - 2022 Annual Solid Waste Report (CY 2021): https://www.deq.virginia.gov/land-waste/solid-hazardous-waste/solid-waste/solid-waste-information-assessment

2. Cathy Guynn, Program Manager, West Virginia Department of Environmental Protection, Landfill Closure Assistance Program (LCAP), Charleston, WV. catherine.n.guynn@wv.gov.

3.. Johnsley Cyrus, Environmental Resource Analyst, West Virginia Department of Environmental Protection, Division of Water and Waste Management, Permitting Unit, Charleston, WV. johnsley.cyrus@wv.gov. Valinda Neal, Environmental Resources Specialist I, West Virginia Department of Environmental Protection, Division of Water and Waste Management, Permitting Unit, Charleston, WV. valinda.k.neal@wv.gov.

Chapter 5: West Virginia's County and Regional Solid Waste Authorities

Solid waste management is a local responsibility. The state has 55 counties and 50 Solid Waste Authorities (SWA). Forty-eight of the counties have their own SWA, the other seven share one of two regional SWAs.

Of the state's 50 local solid waste authorities, 6 either own/operate one of the state's 16 landfills, 4 of 17 transfer stations, and either own/operate, or at least participate, in one of the over 37 recycling programs often providing services in rural areas where low population makes it cost prohibitive for private sector businesses. SWAs are also involved in open dump cleanup, stream cleanup, litter control, and other environmental projects.

The Solid Waste Management Board (SWMB) assists statewide efforts in solid waste management by funding SWA projects, assisting in the development and updating of SWA Comprehensive Litter and Solid Waste Control Plans, Commercial Solid Waste Facility Siting Plans and providing technical support. The Department of Environmental Protection (DEP) Rehabilitation Environmental Action Plan (REAP) administers funds to the SWA's and others for open dump cleanup, waste tire remediation, recycling, litter control, and electronics recycling.

5.1 County and Regional Solid Waste Authority Responsibilities

W. Va. Code § 22C-3 and 22C-4, the Legislature established a comprehensive program of solid waste collection, processing, recycling, and disposal. The Legislature intended to accomplish this goal by establishing county and regional solid waste authorities (SWAs) throughout the state. The authorities work with state and local governments in cooperation with the private sector.

On January 1, 1989, W. Va. Code § 22C-4-3 created county SWAs and established them as public agencies in every county. Counties could elect to form regional SWAs. Also, any county commission which, on July 1, 1988, held a valid permit for a commercial solid waste transfer station could elect to assume all duties and authorities vested in a county SWA. Boone County is still the only county commission acting as a solid waste authority.

SWAs are required to develop and implement Comprehensive Litter and Solid Waste Control Plans to help reduce the solid waste management problems in the state. W. Va. Code §22C-4-1 establishes an integrated waste management hierarchy on which to base these comprehensive plans. In order of preference, the hierarchy is as follows:

1) Source reduction.
2) Recycling, reuse, and materials recovery.
3) Landfilling.

W. Va. Code §22C-4-1 declared that a "proliferation" of solid waste facility proposals could have a "deleterious and debilitating impact upon the transportation network, property values, economic growth, environmental quality, other land uses and the public health and welfare in affected communities" and that the siting of such facilities was, "not being adequately addressed to protect the interests of counties and local communities." Therefore, each SWA was also required to submit a Commercial Solid Waste Facility Siting Plan to identify zones where the siting of certain solid waste facilities are authorized, prohibited, or tentatively prohibited.

Citizens and local governments often look to state environmental regulatory agencies to resolve local land use conflicts. Often these conflicts are more effectively resolved in a local governmental forum with citizens participating in the process. County and/or regional SWAs were established to be such a forum.

SWA management is vested in their Board of Directors. Board members receive no compensation for their service but are reimbursed for their actual expenses incurred in the discharge of their duties. They are appointed for terms of four years.

Each county SWA Board of Directors has five members, appointed as follows: one by the Secretary of the DEP, two by the county commission, one by the Board of Supervisors for the Conservation District in which the county is located, and one by the Chairman of the PSC.

Two or more counties can establish a regional SWA. The Board of the regional SWAs are appointed as follows: one by the Secretary of the DEP, two by the county commission of each participating county, one appointed by the Board of Supervisors for each Conservation District in which a county of the region is located, one by the Chairman of the PSC, and two municipal representatives from each county having one or more participating municipalities.

SWAs may exercise all powers necessary and appropriate to carry out the purposes and duties to achieve their responsibilities as defined in W. Va. Code §22C-4-8. The SWMB provides assistance to the county or regional SWAs, municipalities, and other interested parties in identifying and securing markets for recyclables.

Each SWA completed an initial Comprehensive Litter and Solid Waste Control Plan, and a Commercial Solid Waste Facility Siting Plan, and submitted these plans to the SWMB, as required by W. Va. Code §22C-4-8.

5.2 Review of SWA Comprehensive and Siting Plans

In accordance with Legislative Rules 54CSR3 and 54CSR4, each county and regional solid waste authority is responsible for completing a Comprehensive Litter and Solid Waste Control Plan and a Commercial Solid Waste Facility Siting Plan. The comprehensive plan must address 14 points.

1. An assessment of litter and solid waste problems in the county.
2. The establishment of solid waste collection and disposal services for all county residents at their residences.
3. An evaluation of the feasibility of requiring or encouraging the separation of solid waste to facilitate recycling and waste reduction measures.
4. The establishment of an appropriate mandatory garbage disposal program.
5. A recommendation for the siting of one or more properly permitted public or private solid waste facilities to serve the solid waste needs of the county or the region.
6. A timetable for the implementation of the comprehensive plan.
7. A program for the cleanup, reclamation, and stabilization of any open and unpermitted dumps.
8. Coordination of the plan with the related solid waste collection, and disposal service of municipalities, and if applicable, other counties.
9. A program to enlist the assistance of private industry and civic groups in volunteer cleanup efforts.
10. Innovative incentives to promote recycling.
11. A program to identify the disposal of out-of-county or out-of-region solid waste.
12. Coordination with the Division of Highways and other local, state, and federal agencies in the control and removal of litter, and the cleanup of open and unpermitted dumps.
13. Establishment of a program to encourage and utilize those individuals incarcerated in the county jail, and those adults and juveniles sentenced to probation for the purposes of litter pickup.

14. A provision for the safe and sanitary disposal of commercial and industrial solid waste produced within the county or region, excluding refuse from sources owned or operated by the state or federal governments.

The Commercial Solid Waste Facility Siting Plan must identify zones within each county where the siting of solid waste facilities is authorized, prohibited or tentatively prohibited. According to W. Va. Code §22C-4-24, the types of solid waste facilities to be included in the siting plan are:

1. Commercial solid waste facilities which may accept an aggregate of more than 10,000 tons of solid waste per month.
2. Commercial solid waste facilities which shall accept only less than an aggregate of 10,000 tons of solid waste per month.
3. Commercial solid waste transfer stations or commercial facilities for the processing or recycling of solid waste.

The county or regional SWA shall develop the siting plan based upon the consideration of the following criteria:

1. The efficient disposal of solid waste including all solid waste generated within the county or region.
2. Economic development.
3. Transportation facilities.
4. Property values.
5. Groundwater and surface waters.
6. Geological and hydrological conditions.
7. Aesthetic and environmental quality.
8. The present or potential land uses for residential, commercial, recreational, environmental conservation, or industrial purposes.
9. Historic and cultural resources.
10. The public health, welfare, and convenience.

The siting plan is developed based upon readily available information. Unless that information clearly establishes an area suitable for the location of a commercial solid waste facility, or not suitable for such a facility, the area is designated as tentatively prohibited.

5.3 Summary of County and Regional Plans

The following summaries of county and regional solid waste plans are based on the most recent plan submitted to the SWMB. Plans are updated every five years. Some information in the summary may not reflect recent changes in solid waste management within the county. Plan summaries are grouped according to wasteshed.

5.3.1 Wasteshed A

Brooke County is host to a Class A landfill, Brooke/Valero Landfill, which accepts the majority of the waste generated within the county. Two municipalities, Weirton and Follansbee, provide collection service for their residents with two private haulers, Republic Services of West Virginia, and Solid Waste Services of West Virginia, Inc. providing service to the remainder of the county. The SWA previously operated four drop-off locations within the county. In 2017, the Authority encountered challenges and was forced to return to the single drop-off site at the recycling center at Beach Bottom. The SWA has had a mandatory disposal program in effect since 1999 and continues to work with the Department of Environmental Protection on minimizing open dumps throughout the county.

Hancock County's close proximity to Ohio and Pennsylvania provides both opportunity and issues. Currently, solid waste generated within the county is deposited in either the Brooke County Landfill, or Short Creek Landfill located in Ohio County. Collection for most of the county is provided by three commercial solid waste haulers, Republic Services of West Virginia, Waste Management of West Virginia and N.C. Sanitation, Inc. The City of Weirton provides residential collection service to its residents and operates the only curbside recycling program within the county. The SWA offers all county

residents the opportunity to recycle at the Hancock County Recycle and Convenience Center, which opened in 2010. Authority members work within the county to identify and locate open dumps and assist in the enforcement of mandatory collection.

Marshall County's solid waste is currently deposited in a Class A facility in Ohio County, and a Class B facility in Wetzel County. The identification of open dump sites is an ongoing process. Current efforts will be reinforced by the placement of "No Dumping" signs at cleaned sites. Also, it has begun to compare customer lists provided by commercial haulers with tax data to identify non-subscribers, with the intent of requiring them to document proper disposal of solid waste. The SWA currently has six recycling trailers throughout the county.

Ohio County has one permitted Class A landfill, Short Creek Landfill, which accepts all waste generated within the county. The City of Wheeling provides collection service within the city limits, and the rest of the county is serviced by two waste haulers, Jack Jochum Truck Service and Republic Services. The Ohio County Solid Waste Authority public drop-off program was suspended as of September 2018. The City of Wheeling collects magazines, metals, and newspapers curbside. The Authority provides educational information to residents and businesses throughout the county.

Tyler County is committed to cleaning up open dumps throughout the county and continues to work with the DEP, DNR, and local law enforcement officials in enforcing the Mandatory Solid Waste Disposal Rules. For the past several years, Tyler County, in conjunction with Wetzel County, operated a curbside recycling collection program. However, due to increasing costs, the program has since been dropped.

Wetzel County is served by two commercial waste haulers. The towns of Hundred and Pine Grove provide the only two municipal services. The Wetzel County Landfill, a Class B facility permitted to accept 9,999 tons of waste per month, is where the majority of the county's waste is deposited. The Wetzel County Solid Waste Authority, in cooperation with the Department of Environmental Protection's Pollution Prevention Open Dump Program, has cleaned up 89 open dumps since 1993. The Authority provides both a weekly public recycling program and a school recycling program.

5.3.2 Wasteshed B

Barbour County, a rural county generating less than 1,000 tons a month, has a very high percentage of residents using proper solid waste collection and disposal service. Philippi and Stewart Sanitation currently offer curbside recycling in the county. There are drop-off locations in Philippi, and at the Barbour County SWA Recycling Center. Barbour County utilizes the Meadowfill Landfill in Harrison County for solid waste disposal. According to the DEP, from 1989 - 2020, 249 open dumps have been eliminated, 2,998 tons of material removed, and 220 acres reclaimed. The SWA continues to educate the public on mandatory disposal laws and the penalties for not complying.

Braxton County SWA operates a drop-off recycling center open 5 days a week to county residents. The Town of Sutton operates a curbside recycling program and there are currently recycling programs in place in two county elementary schools. With no permitted landfills within Braxton County, the majority of waste is deposited at S&S Landfill and Meadowfill in Harrison County. The Town of Sutton provides collection service to its residents, with the remainder of the county being serviced by Waste Management, Inc. The SWA works closely with the DEP on cleaning up illegal dumps. Since 1993, there have been over 323 dumps cleaned, removing 4,080 tons of material and reclaiming over 344 acres of land. The Authority will continue to encourage recycling and support and educate on the mandatory disposal laws. *(S&S Landfill ceased operations on December 31, 2020.)*

Clay County was very careful in preparing its commercial solid waste facility siting plan, especially to protect areas along the scenic Elk River. Clay County has had difficulty in developing a recycling program for their county because of its rural character. They continue to work with the school system to educate and encourage student recycling. The SWA is actively working with the DEP's PPOD program to clean up open dumps within the county. Since 1994, 416 open dumps have been eliminated.

Doddridge County is serviced by two commercial haulers, Waste Management, Inc. and N&N. Waste is hauled to S&S Grading and Meadowfill in Harrison County. With the cooperation of the DEP's PPOD Program there have been 218 open dumps removed from the county since 1998. Due to the rural nature and low population density, curbside recycling collection is not a viable option, however, the SWA plans to promote recycling at community events and generate newspaper articles to inform the public about recycling and its benefits. *(S&S Landfill ceased operations on December 31, 2020.)*

Harrison County is home of two landfills, S&S Landfill and Meadowfill Landfill. More than 968 illegal dumps have been cleaned up with the aid of DNR Police Officers, DEP Environmental Inspectors, the sheriff's department, 4-H clubs and other volunteers *(S&S Landfill ceased operations on December 31, 2020.)*

Lewis and **Gilmer** County haulers take approximately 1,045 tons of solid waste per month to two landfills in Harrison County. A private individual has opened a Class D landfill for construction/demolition debris, municipal solid waste, and tire collection. The Lewis/Gilmer Regional SWA is identifying households that do not subscribe to collection services and are not landfill customers. This information is forwarded to county and state law enforcement agencies. Most of the open dumps identified in the SWA's original comprehensive plan have been cleaned up. Large and small dumps are still scattered throughout the region. The dumps continue to be monitored while resources are being acquired for their cleanup. Lewis/Gilmer participates in North Central WV Recycling Cooperative (NCWVRC) to comply with its recycling ordinance. Drop-off recycling programs are established in Jane Lew, Weston, and Glenville.

Marion County currently has two recycling trailers that are transported to various locations throughout the county and used to collect recyclables from residents and are working towards operating a countywide drop-off program for continuous collections. The Authority is very active in supporting the state's mandatory disposal laws and works closely with the Division of Natural Resources and Department of Environmental Protection on cleaning up open dumps. To date, with the assistance of the DEP, 144 open dumps have been eliminated within the county. There are twelve solid waste haulers operating within the county with the majority of waste being disposed of at one of the two landfills in Harrison County. At this time, the Authority feels that every resident has access to service and that the current disposal needs are being met.

Monongalia County works with the county litter control officer to handle noncompliance with mandatory disposal requirements. There are five private haulers and two municipalities that provide collection service to the residents of the county. Waste generated in Monongalia County is disposed of at Short Creek Landfill in Ohio County. With the cooperation of the DEP's PPOD, there have been 1,549 dumps cleaned up since 1989. The authority terminated their recycling program in 2015. Recycling opportunities are provided through various private entities and the county commission. An aggressive public education program is operated by the SWA.

Preston County has four municipalities that offer solid waste collection for its residents, two permitted commercial solid waste haulers, and one transfer station, which is operated by the City of Kingwood, but open to all residents within

the county. Solid waste is deposited in either the Tucker County Landfill, or Meadowfill Landfill in Harrison County. Recycling opportunities are plentiful in Preston County. There are three known commercial recyclers. The city of Kingwood offers a curbside collection program, and various drop-off sites. The Authority operates a mobile drop-off service in eight towns within the county. With the assistance of the DEP's PPOD program, individuals from the Community Corrections Program, and various other volunteers, the SWA has cleaned up 885 open dumps since 1993. The PCSWA also supports and actively promotes the state's Mandatory Garbage Disposal laws.

Randolph County waste is disposed of at landfills in Harrison, Randolph, and Tucker counties. Residential and commercial collection is provided by the City of Elkins, and the Town of Mill Creek. Three private companies are certificated by the WV Public Service Commission to provide service throughout the remainder of the county with Tygarts Valley Sanitation being the largest. The Randolph County Landfill ceased operations in 2011.

The **Tucker** County Solid Waste Authority operates a Class B landfill within the county. Residents and commercial businesses are serviced by one private waste hauler, Sunrise Sanitation, and five municipalities: Parsons, Hendricks, Hambleton, Thomas, and Davis. Sunrise Sanitation operates three drop-off sites. The Authority assists in recycling education by providing information on proper recycling techniques and locations of drop-offs.

Taylor County adopted a countywide recycling ordinance in 1999 which established guidelines for recycling. There are two major recyclers located within Taylor County: RRHAMCO deals with non-residential recyclables and Refuse Control Systems who process residential recyclables. It is determined that approximately 65% of county residents recycle with approximately 78% of the businesses participating. Disposal needs are being met by the two landfills located within Harrison County, and residents are serviced by four solid waste haulers. Three private haulers: Allied Waste, Refuse Control Systems, and Waste Management, Inc.; The City of Grafton provides residential services within city limits. *(S&S Landfill ceased operations on December 31, 2020.)*

Upshur County's residents are provided waste hauling service by Mountain State Waste. The city of Buckhannon provides service to their residents. All waste is deposited into the Meadowfill Landfill in Harrison County. The City of Buckhannon operates a transfer station and a recycling center. Buckhannon also offers curbside recycling twice a month and Weston Transfer offers the service once a month in the Banks, Meade and Warren District of the county.

5.3.3 Wasteshed C

Jackson County Solid Waste Authority operates four drop-off trailers and a recycling center in Cottageville where they accept glass, plastic, newsprint, aluminum cans, and cardboard. The majority of the county's solid waste is transported to Northwestern Landfill in Wood County, and the remainder deposited at the Athens Hocking Landfill in Ohio. Two municipalities, Ripley and Ravenswood, provide services for their residents with Waste Management, Inc. providing services for the remainder of the county. The Authority supports the state's mandatory disposal laws and is also active in assisting the DEP's PPOD program with identifying and cleaning up open dumps throughout the county.

Pleasants County waste is deposited at landfills located in Wood and Wetzel Counties by one of the three certificated private haulers. Waste Management of WV, Inc., Solid Waste Services of West Virginia, Inc., and N&N Disposal, Inc. provide weekly collection for all residents and commercial customers. The Authority operates a recycling facility in St. Mary's, and is quite active in educating the public through informational publications, local media articles, and programs at the public schools.

The **Ritchie** County SWA is proposing to have the county commission pass an ordinance to implement mandatory disposal. The county produces approximately 567 tons of waste per month and is served by five commercial haulers. All waste is currently being disposed of at Northwestern Disposal Co., in Wood County. The Ritchie County Recycling Center operates a drop-off center in Ellenboro. Materials accepted are aluminum cans, nonferrous metals, newspaper, cardboard, plastic, office paper and batteries. The SWA also has an educational program that includes advertising in local papers and initiating informative and educational articles for publication.

Wirt County currently operates a drop-off recycling center in Elizabeth and works with schools and businesses to promote recycling. The SWA continues to work with the DEP's PPOD program to identify and list open dumps in the county so that they can be cleaned up. To date, there have been 102 open dumps cleaned up within the county. The SWA also publishes "Public Notices" to inform the residents of the county about mandatory garbage disposal. With only one waste hauler servicing Wirt County, and all waste being transported to Northwestern Landfill in Wood County, the Authority feels that every resident has access to service and the current needs are being met.

Wood County is home of Northwestern Landfill, a Class A landfill, owned by Waste Management, Inc. Solid waste collection is provided by nine commercial haulers, and one municipal program run by the City of Parkersburg. Parkersburg and Vienna offer curbside recycling programs to their customers. Since 1993, the Wood County Solid Waste Authority, in conjunction with the DEP, has cleaned up 167 open dumps. The Authority has also adopted rules for the proper disposal of solid waste and continues to help with enforcing the Mandatory Disposal laws.

5.3.4 Wasteshed E

Berkeley County is home to the LCS Landfill, a Class B facility owned by Waste Management which accepts the majority of the county's solid waste. In addition, a Class B Resource Recovery Facility, Entsorga, is permitted to accept 500 tons per day and 9,999 tons per month. The City of Martinsburg is the only municipality which provides waste collection to their residents. Most of the county is serviced by Apple Valley Waste. Panhandle Dumpsters, Republic Services and Waste Management also serve the county. Recyclable materials are collected at three drop-off locations. From 1989 to 2021, the Berkeley County Solid Waste Authority has worked with the DEP's PPOD program to complete over 15,000 projects.

Jefferson County operates a transfer station in Leetown, WV, which is the only collection point within the county to serve residents for waste and recyclables. Waste is either transferred to the LCS Landfill in Berkeley County, or one located in Pennsylvania. Jefferson County is serviced by two commercial waste haulers and one municipality. The Authority operates a recycling program at the transfer station in cooperation with the two commercial haulers, and three municipalities which collect plastic, glass, ferrous and non-ferrous metals, paper, cardboard, newspaper, and magazines.

Morgan County Solid Waste Authority operates a drop-off recycling program for its residents three days a week. They can recycle cardboard, paper, glass, bi-metals, and aluminum cans. Waste generated within the county is transported to the LCS Landfill in Berkeley County by either Morgan Sanitation, or the Town of Bath. Since 1993, the Morgan County Solid Waste Authority, along with the DEP's PPOD program has cleaned up 143 open dumps removing over 1,371 tons of material and 35,195 tires.

Region VIII Solid Waste Authority is made up of Grant, Hampshire, Hardy, Mineral, and Pendleton Counties. The Region VIII SWA operates two solid waste transfer stations where the majority of waste generated in the area is transported to the Mountain View Landfill in Frostburg, Maryland and to the Tucker County Landfill. The five county regions are serviced by seven commercial solid waste haulers. The Authority intends to identify all open dumps in the region and maintain them on a map in their office. Dumps will be rated and prioritized for cleanup. The SWA will continue to work with DEP's PPOD program to assist them in cleaning up these dumps. Drop-off collection centers are located at the transfer stations. Hampshire County initiated a recycling program for its residents based on the passage of a referendum on recycling in November of 2014.

5.3.5 Wasteshed F

Greenbrier County has three municipalities and three commercial haulers who provide solid waste collection services to both residential and commercial customers within the county. The Greenbrier County Solid Waste Authority operates the Greenbrier Sanitary Landfill, a Class B Commercial Solid Waste Facility in Lewisburg, which accepts all waste from within the county. The GCSWA also operates a large recycling center in Ronceverte where drop-off services are offered to county residents. This facility has recycled approximately 14,174 tons of material between 2010 and 2019. The Authority has cleaned up over 219 open dumps within Greenbrier County since 2004 with the assistance of the DEP and various other volunteers.

Nicholas County is served by the Nicholas County Transfer Station, owned and operated by the Nicholas County Solid Waste Authority. The county is serviced by three commercial solid waste haulers with the City of Richwood providing their own collection service to the residents within the municipality. The NCSWA works closely with the various state agencies in enforcing the Mandatory Disposal Laws and in identifying and cleaning up open dumps within the county.

Pocahontas County has a small, centrally located landfill that serves the entire county and is owned and operated by the Pocahontas County Solid Waste Authority. The Authority has instituted a mandatory solid waste disposal program which has been enacted through an assessment fee placed on all dwellings in the county. The fee gives the property owner the right to use the green boxes designated for solid waste disposal placed throughout the county. Recycling bins are available at all green box locations. With the use of the "green box" system, and through the two private waste haulers who service the county, the Authority is assured that each resident has access to disposal service. The SWA has increased awareness of the benefits of recycling through public school and education programs.

Webster County has notified its residents of the mandatory garbage disposal law by public notice in the two county newspapers. Because of the geography of the county, curbside recycling is not the most efficient or effective manner to collect recyclables. The SWA will continue to promote placement of drop-off boxes for recyclables at the five county schools and at special events. The Webster County Landfill, owned by the Webster County Solid Waste Authority, is currently non-operational.

5.3.6 Wasteshed G

Fayette County is serviced by seven private waste haulers who dispose of the majority of the waste at the Raleigh County Landfill. With the population projections showing a slight decline over the next 20 years, the Fayette County Solid Waste Authority feels that the current waste needs are being met at this time and that all county residents have access to hauling services. The SWA continues to support the mandatory disposal rule by passing a "Mandatory Garbage Enforcement Regulation" in 2003. This document lists requirements, information on penalties and the processes for notifying residents of the law. The Authority

works closely with the DEP's PPOD Program and the Department of Highways on cleaning up open dumps. To date, there have been over 1,340 open dumps cleaned up within Fayette County.

McDowell County hosts one Class A landfill, Copper Ridge, which accepts the majority of solid waste coming from county residents. Ten of the county's municipalities provide collection service for over 6,426 residents, with the rest of the county being serviced by one of the six private waste haulers certificated for service. The McDowell County Solid Waste Authority works very closely with the county litter control officer, Department of Environmental Protection, and the City of Welch in cleaning up open dumps and identifying problem areas. The Authority actively notifies residents of the mandatory collection laws through "public notices" and has determined that an education program is the first step in working towards the goal of establishing more recycling markets within the county. Currently, there are only three commercial recyclers within McDowell County.

Mercer County Solid Waste Authority operates the only permitted landfill within the county, a Class B facility, and collects approximately 2,300 tons of solid waste per month. Solid waste collection is provided to the residents of the county by two private haulers and three municipalities. The Authority works successfully with DEP's PPOD Program. Since 1989, they have cleaned up over 1,301 open dumps, and removed over 4,491 tons of waste. It is estimated that 90 percent of the residents either subscribe to a waste hauling service or dispose of the waste legally at the landfill. The Authority plans to increase efforts to enforce the mandatory disposal laws with the development of a database over the next five years. The MCSWA accepts recyclable materials at the landfill and provides a drop-off bin at Concord College, Pipestem State Park, Honeycutt Stadium, Mercer Vocational School, and other area schools. The Authority provides public education through news releases, articles, and presentations to schools and civic groups.

In **Mingo** County, most of the county's waste is transported to the Sycamore Landfill in Putnam County via the Pecks Mill transfer station. The city of Williamson transports their waste to Pike County Kentucky. Mingo County is serviced by two private haulers, Waste Management of WV, Inc., and Morgan Sanitation. The Authority has worked closely with the DEP's PPOD program in cleaning up 341 dumps since 1993, removing 2,023 tons of waste. Mingo County has had a solid waste ordinance in place since 1987. Recycling facilities are limited in such a rural county. Big Frank Scrap Metals in Williamson accepts aluminum cans, scrap aluminum, brass steel and stainless steel. City Tire in Williamson accepts used oil, tires and batteries.

Monroe County is home to one Class B Commercial Solid Waste Facility, HAM Landfill, which accepts the majority of the county's municipal solid waste. The Monroe County Solid Waste Authority operates a recycling center and drop-off program at the HAM Landfill. There are three commercial solid waste haulers who service the county's residential and commercial customers: Union Disposal, Southern Sanitation, Inc., and Greenbrier Valley Solid Waste.

Raleigh County Solid Waste Authority owns and operates the Raleigh County Landfill, a Class A facility, which accepts most of the county's solid waste. The RCSWA also operates a buy-back recycling center at the landfill, drop-off locations throughout the county as well as the Last Chance Mercantile, a retail store where citizens can buy refurbished items that were previously being disposed of at the landfill. There are four commercial haulers and one municipality providing collection service to the county residents. Between 2015 and 2020 181 open dumps have been cleared, and over 183 tons of material and 1,979 tires have been removed from the environment. The Authority continues to educate its residents on the importance of recycling, mandatory disposal laws, and the penalties of illegal dumping.

Summers County is serviced by one waste hauler, Southern Sanitation, Inc. The waste collected within Summers County is being disposed of at one of three county landfills in adjoining counties. At this time, the Solid Waste Authority feels that the current needs are being met and that all residents have access to service. The SWA has adopted a plan to implement mandatory disposal regulations and intend on using local media to inform residents of the regulations. The Authority currently collects recyclables through a drop-off program and has a public education program which is designated to increase participation. The SWA plans to continue to work with the Department of Highways, school bus and hauling service drivers, and the DEP's PPOD program in identifying and cleaning up open dumps within the county.

Wyoming County Commission owns and operates four transfer stations within the county, allowing residents in some of the rural areas an alternative way to dispose of their solid waste. Residents living close to the Mullins and Pineville area are serviced by one of the three commercial haulers who are certificated to operate within the county. The SWA in conjunction with the DEP have cleaned up over 1,121 open dumps to date and continue to support and enforce the mandatory disposal laws with the use of the county litter control officer.

5.3.7 Wasteshed H

The **Boone** County Commission elected to serve as the Solid Waste Authority. There are currently no certificated solid waste facilities in the county. Solid waste is transported to the Charleston Landfill in Kanawha County. In addition, there are three municipalities that provide collection service to their residents and one commercial solid waste hauler servicing the remainder of the county. The cleanup of open dumps has been a continuous effort. To date, the county commission, with the assistance of the DEP's PPOD Program, has cleaned up 303 open dumps, removing 1,588 tons of waste. The Commission operates a drop-off center in Foster.

The city of Madison has implemented a drop-off recycling program. The commission publishes articles relating to solid waste and recycling issues in the local paper. Also, they have an active education program within the county's elementary schools to help promote recycling.

Cabell County has two municipalities who provide collection service to their residents, with the rest of the county being serviced by Republic Services. However, the majority of waste generated goes to out of state facilities. The Authority has cleared 465 open dumps since 1993, with the help of the DEP's PPOD Program. The Authority operates 2 public drop off locations in Huntington and Barboursville. Each site requires a fob for entry. They also operate a recycling trailer in Milton weekly.

Calhoun County is serviced by Waste Management. All county waste is deposited in the Northwestern Landfill in Wood County. The Calhoun County Solid Waste Authority operates the Cabot Recycling Center, which accepts various source separated recyclables by residents on a voluntary basis.

In **Kanawha** County, recyclables are collected using two principal methods, a permanent drop off site at Slack Street and curbside collection by certain municipalities including Charleston, South Charleston, St. Albans, Belle, Marmet and Chesapeake. The KCSWA's facility also houses a drop-off area for county residents to use. There are ten municipalities within the county that provide solid waste collection for its residents, as well as four private haulers who service the rest of the county residents and businesses. Kanawha County's disposal needs are being met by the Charleston Sanitary Landfill, a Class A Commercial Solid Waste Facility owned by the City of Charleston and operated by Waste Management. The Authority continually reviews an extensive list of illegal open dumps within the county for cleanup which is done in cooperation with DEP's PPOD

program and other local and county organizations.

Lincoln County SWA operates three drop-off locations in the county. The SWA works with the DEP's PPOD program to cleanup open dumps in the county. Since the program's inception, 411 illegal dumps have been cleaned up. In addition, 313 acres of land has been reclaimed and a total of 2,695 tons of material has been removed, the majority of which was recycled. The SWA has adopted a plan to support mandatory disposal and continues to promote and educate the public on the collection laws. Lincoln County is serviced by one certified hauler, Republic Services, which transports all waste to either the Charleston Landfill in Kanawha County, or Disposal Services and Sycamore Landfills in Putnam County.

Logan County has one permitted transfer station located in Peck's Mill. From the transfer station, all county waste is transferred to landfills in Putnam or Kanawha Counties. Four of the five municipalities provide collection service for their residents which leaves the remainder of the county serviced by Waste Management, Inc. The county, working with the DEP, has cleaned up 330 open dumps, removing 4,799 tons of material.

The **Mason** County Solid Waste Authority operates the county's drop-off recycling center. There are two municipalities and four commercial solid waste haulers who provide service for Mason County's residential and commercial customers. The majority of the disposal needs are being met by landfills in either Putnam or Harrison County.

Putnam County, one of the fastest growing counties in the state, is home to two landfills, Disposal Services and Sycamore Landfills. The county uses one of the two certificated private haulers. The Solid Waste Authority continues to work with the DEP in cleaning up open dumps and enforcing mandatory disposal laws. The Authority will continue to encourage and coordinate the development of an infrastructure that provides county residents with accessible/affordable recycling services.

The **Roane** County SWA operates a drop-off recycling facility outside the town of Spencer and has one collection trailer placed at the Walton Elementary-Middle School. Two haulers presently provide pickup service for county residents and businesses. Waste is disposed of at the Charleston Landfill in Kanawha County. The SWA intends to use public education and punitive measures to enforce mandatory disposal. There have been a total of 165 dumps cleaned up, which reclaimed 1,508 acres of land. Volunteer programs are in place to assist in the cleanup efforts.

Wayne County SWA provides curbside recycling for businesses located in the Town of Wayne, and a mobile drop-off program for residents in Lavalette, Fort Gay, and Wayne. Currently, there are two private haulers and four municipalities that provide solid waste collection services for their customers and residents. There are no Class A, B, C or D landfills located in Wayne County. Waste is deposited in either one of the two landfills in Putnam County, or by using one of the two landfills located just over the border in Kentucky. The Wayne County SWA works very closely with the DEP's PPOD program and the West Virginia Contractors Association in cleaning up open dumps. To date, there have been 1,382 dumps cleaned up in the county. The Authority has also implemented an alternative sentencing program in cooperation with local law enforcement to facilitate open dump cleanup and litter control.

5.4 Solid Waste Management Board/Solid Waste Authority Coordination

The SWMB is the coordinator between the SWAs and other state agencies involved in solid waste management. The Board is composed of seven members. The Secretary of the Department of Health and Human Resources (DHHR), and the Secretary of the DEP, or their designees, are members ex officio. The other five members are appointed by the Governor, by

and with the advice and consent of the Senate; two appointees having three years of professional experience in solid waste management, civil engineering, or regional planning, and three appointees representing the general public.

One of the major duties of the SWMB staff includes providing technical assistance to the county and regional SWAs in the preparation, review, implementation, and update of their Comprehensive Litter and Solid Waste Control Plans and Commercial Solid Waste Facility Siting Plans. If an authority fails to submit a plan, the SWMB staff must develop a plan for them. In addition to identifying and securing markets for recyclables for the SWAs, municipalities and other interested parties, the SWMB provides help educating the public on source reduction, recycling and reuse. The critical need in waste management is communication through marketing and public education to encourage people to recycle properly, and to realize that they are part of a larger continuous effort.

5.5 Solid Waste Management Board Grants

In accordance with W. Va. Code § 22C-4-30, an assessment fee of $1.25 per ton on solid waste disposed is collected at all solid waste disposal facilities in the state. This fee is deposited in a special revenue account, the "Solid Waste Planning Fund," to be allocated by the SWMB.

Fifty percent of the fee is divided equally among each county SWA. The other 50% is expended by the SWMB for (1) administration, technical assistance or other costs necessary to implement the purposes of Chapter 22C, Article 4 and (2) grants to the county or regional solid waste authorities. The grant rules are found in 54CSR5.

Chapter 6: West Virginia's Recycling Plan

6.1 Introduction

The original West Virginia Recycling Act, created in 1989, now the A. James Manchin Rehabilitation Environmental Action Plan §22-15A, emphasizes the importance of integrated waste management. This involves a combination of techniques and programs to manage municipal solid waste. Instead of immediately developing large, high-technology programs or setting unrealistic expectations about what portion of the waste stream can be recycled; decision-makers implement a series of smaller, complimentary programs. The goal of the system is to support the waste management hierarchy: source reduction, reuse, recycling, and landfilling.

6.1.1 State Recycling Goals

The West Virginia Recycling Act established disposal goals that would reduce the per capita disposal of solid waste 50% by January 1, 2010, of the amount of solid waste disposed of in 1991. These goals have not been met. As the evolution towards energy conservation continues across the nation and world, sustainability is becoming more and more important. Source reduction, reuse, and recycling are all key factors in sustainability. Encouraging an increase in recycling to improve our state's sustainability would require establishing reasonable recycling goals and reporting requirements.

Currently there are no reporting requirements for recyclers in West Virginia which makes calculating an accurate recycling rate for the state difficult. When recycling goals are established, they should be reasonable in scope. If percentage goals are used, the State should establish some way of measuring and reporting them statewide. In a recent survey of 6 states in the region, 5 require some type of recycling report from their local solid waste management districts, or counties, on an annual basis. Some also require annual recycling reports from state agencies, newspaper publishers, telephone directory publishers, cities and towns, and private firms. For more information on recycling in the surrounding states, see Appendix E of this document.

Other goals used by West Virginia's neighboring states include setting a two-tiered goal, one for residential waste, and another for commercial and industrial waste. Residential waste tends to be costlier to collect, therefore, when establishing such a goal it should be calculated at a smaller percentage than that for commercial and industrial waste.

Another way to measure recycling is by using an "access goal" or making recycling available to an identifiable percentage of residential, commercial, and industrial entities. Public education and awareness goals also measure recycling. Requiring each local solid waste authority to have a website listing local recycling opportunities and providing educational materials for its citizens and schools is a measurable goal.

6.1.2 Recycling Planning

The West Virginia Recycling Act authorized the establishment of county recycling programs through referendum. The Act requires the establishment of curbside, source separated municipal recycling programs in municipalities of 10,000 or more and required county and regional Solid Waste Authorities (SWAs) to prepare and adopt a comprehensive Recycling Plan as part of their Comprehensive Litter and Solid Waste Control Plan.

Per the Act, all State agencies, primary and secondary schools, as well as colleges and universities must establish recycling programs. In addition, State agencies, to the maximum extent possible, should purchase recycled products. The Act also prohibited yard waste, tires, and lead acid batteries from being deposited in landfills. It also directed the SWMB

to prepare a program for the proper handling of these materials. Copies of these documents are available on the Publications & Forms page at www.state.wv.us/swmb/.

Recycling is a fundamental part of any integrated waste management plan, and while it can't solve the State's solid waste management problems alone, it can divert a significant portion of the waste stream from disposal in landfills.

Recycling program development requires strategic planning. This involves understanding material markets, building local expertise, setting realistic goals, and fostering public participation, as well as public awareness and education. It is the goal of this plan to help provide direction to state and local agencies, and the 50 SWAs when spending public monies so that the collection, processing, transporting, and marketing of recyclables can be implemented as cost-effectively as possible.

This involves several things: a) analyzing alternatives that work best in urban v. rural areas, b) identification of existing facilities and associated equipment, c) an analysis of existing markets, including their location and the quantity, quality, and processing requirements, d) the potential development of new markets, e) an analysis of the possible effectiveness of regionalized processing centers, and f) making incentives available to facilitate the development of these markets.

The planning process in West Virginia is multi-level, occurring on both state and local levels. Locally, the state's SWAs are required to have a recycling plan on file with the SWMB as part of their Comprehensive Litter and Solid Waste Control Plan. Local recycling plans are required to set goals, designate three items that can be source separated and recycled, describe the existing and anticipated markets for recyclable materials, designate potential strategies for the collection and marketing of each material, estimate the likely program recovery rate, and establish the requirements for a recycling program appropriate for the county or region.

Plans are required to describe public education programs, outline the goals, identify target audiences and messages for those audiences. They must also identify methods to disseminate information and develop an effective media strategy. Summaries of each county's most current plan and the planning process itself are described in Chapter 5.

6.2 Recycling Problems Specific to West Virginia

6.2.1 Population Density

All waste management, including recycling, is volume dependent. Recycling centers must collect enough material for income to meet or exceed operational costs. Low population density areas have increased collection cost for all types of waste. This problem has accelerated significantly in recent years due to increases in operating cost.

West Virginia has a population density of 75 persons per square mile (2020 US Census). Surrounding states have population densities that are significantly higher; Kentucky, 111; Maryland, 498; Pennsylvania, 282; Ohio, 263, and Virginia, 202. For recyclers in West Virginia to make a profit or break-even, they must operate in a highly efficient manner. Costs must be controlled, and materials should be collected and marketed in bulk. This puts rural recycling programs at a disadvantage compared to their urban counterparts.

Population density has an impact on the collection of recyclable materials. The most productive recycling programs tend to be curbside programs where a municipality or waste hauler picks up recyclables on a regular schedule. Low population density or rural areas usually don't receive this type of service because of low volumes, labor, and fuel costs. Rural areas tend to offer drop-off services which

present other problems including access and contamination.

6.2.2 Marketing and Management Problems for Small Recycling Centers

Small recycling centers, both public and private, sometimes have trouble paying for everyday expenses like utilities, payroll, and fuel, because of irregular cash flow and/or limited resources. They often must market their materials to a middleman, local processing centers, scrap yards, or material brokers rather than end-users that pay more. Smaller facilities may have to hold materials until they have amassed truckload quantities. Light weight material like plastic, can be held up to a year or more.

Equipment can also be a problem for small recyclers. Smaller pieces of equipment, balers for instance, tend to have a long cycle time, and increasing labor cost. They also offer limited compaction and may not be able to produce a mill-ready bale. Larger machines can be cost prohibitive. Many smaller recyclers, both private and municipal, sell their inventory loose and/or commingled to any buyer available.

Recyclable materials are commodities. As such, they tend to have a low per unit value, and at some point, in the marketing channel are graded. Materials must be collected in volume to make recycling even marginally profitable. Providing a clean product is essential to maximum market value. Due to price fluctuation, larger recycling processors often hold materials while waiting for prices to rise. Smaller operations often don't have that option.

Another problem that small, and sometimes larger, recycling facilities have is the use of inmate labor. W.Va. Code §22C-4-22 directs the SWA's to utilize incarcerated individuals in their programs. Inmate labor from the regional jails and local day reporting centers is often unavailable daily, leaving facilities short on labor; a situation that causes donated materials to pile up at the center or at other places such as remote drop-off sites.

6.2.3 Lack of Immediate Markets for Materials

Another problem inherent to recycling in West Virginia is the lack of local markets for materials. This has a negative impact on both small and large recycling centers.

Regional markets are usually only practical for larger processing centers. Typically, once a market is found, an arrangement is made between buyer and seller, sometimes by contract and sometimes by verbal agreement. The buyer picks up the material from the seller deducting hauling expenses from the price paid for the material. Markets are sometimes found in the five surrounding states, and other times, materials must be shipped as far as three to six hundred miles.

There are many types of markets. Some choose to use material brokers, some use local or regional processing centers, some use the services of recycling cooperatives, and some market directly to mills. The Solid Waste Management Board helps recyclers find both in-state, and regional markets for materials.

Some of our smaller recycling centers find themselves giving materials to transporters free of charge to cover hauling costs. Others pay significant fees to transport materials to market.

6.2.4 Public vs. Private Recycling Centers

Public sector recyclers set up programs that best serve their communities. These programs often accept materials because there is community demand. Unfortunately, sometimes these materials have little or no market value, are expensive to collect and store, difficult to market, or have limited profitability. Private sector firms must make a profit on all, or most, of the materials they collect. These firms will sometimes come into an area and focus on collecting materials that have a high market value, can be collected at a low cost, or can be collected easily in bulk. This leaves low value materials in the waste stream and possibly destined for landfill disposal, or public sector

recycling programs that often end up taking what the private sector firms leave behind.

A recent trend in recycling is for large recyclers to implement single-stream recycling programs. These programs collect commingled materials, and ship to regional processing centers equipped with high-tech material sorting technology. This reduces collection cost.

In West Virginia the implementation of single-stream recycling has resulted in a reduction in income generated through recyclables and has ultimately hurt many small recycling programs.

On the other hand, there are several examples of public/private cooperation in the state. Several public recycling programs collect material and market them to locally owned private processing centers. Other public programs work in tandem with private recyclers providing education and awareness, while the private sector recycler provides recycling services. Other public programs solicit state grant funds to purchase recycling equipment which is then leased to private firms.

6.2.5 Lack of Incentives in the System

There are several ways to provide recycling incentives. Many states provide tax incentives. West Virginia provides a disposal tax waiver to commercial recyclers who dispose of 30% or less of total waste processed for recycling. Other states provide tax waivers on equipment purchases, property tax exemptions, income tax exemptions, employment tax exemptions, and investment tax credits, etc.

Not all incentives are tax related, nor are they all about rewards. Some states provide incentives that punish. Pennsylvania has civil and other penalties for not meeting local recycling goals. Virginia provides possible civil and permitting penalties for those that do not meet recycling goals. Maryland allows state and local authorities to prohibit the issuance of building permits for all new construction for failure to reach mandated recycling rates. Appendix E provides more information on incentives in neighboring states.

6.3 Market and Infrastructure Development

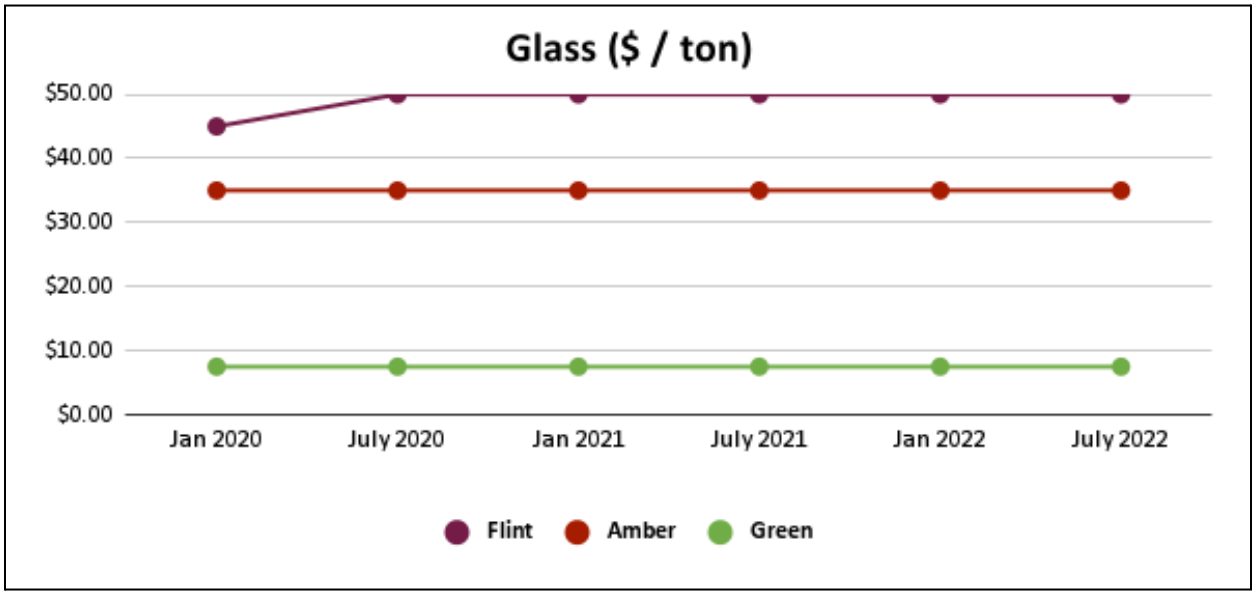
6.3.1 Material Markets

Markets for recyclable materials have traditionally been somewhat volatile. Markets tend to be cyclical.

Following are market summaries for the most recycled material.

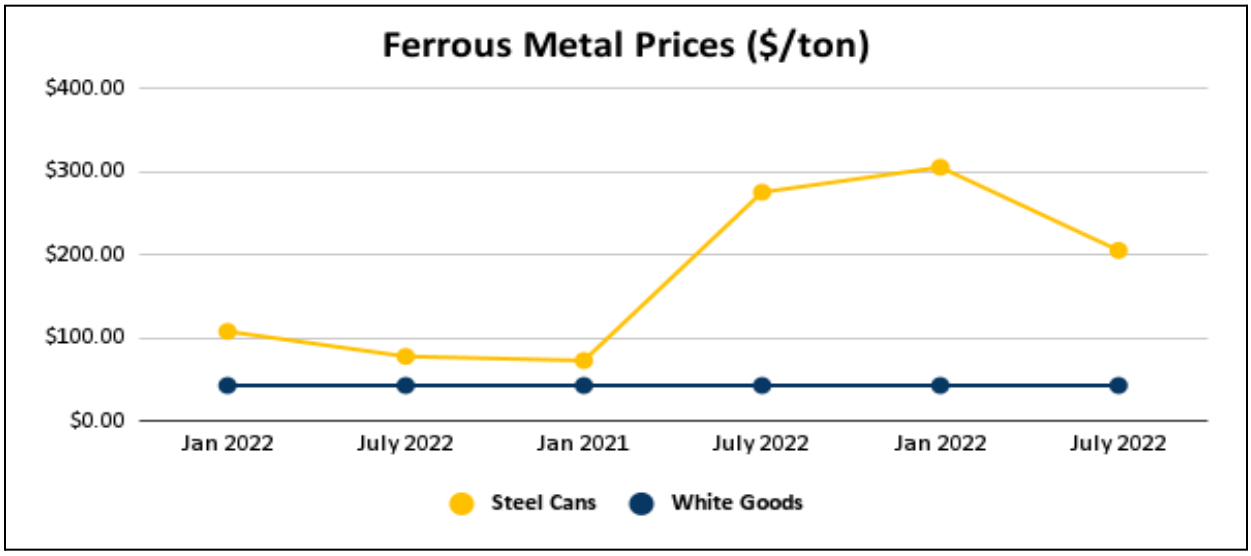
Glass: In CY 2021, West Virginia's Solid Waste Authorities (SWAs) and the 13 mandated municipalities with populations of over 10,000 collected nearly 400 tons of glass for recycling. The market value of glass has been low relative to other recyclables for a long time. Only container glass is considered recyclable, with clear glass, sometimes called flint, bringing the highest price, and brown (amber), or green glass much less. Low market value and significant transportation cost have forced many recyclers to discontinue glass recycling. As of January 2022, 6 of the above-mentioned programs were collecting glass. While there are no markets for recyclable container glass in West Virginia, limited markets exist in Pennsylvania, Kentucky and Ohio.

Figure 6-1
Glass Prices – Average Price Per Ton (January 2020 - July 2022)



Metals: Solid Waste Authorities (SWAs) and the 14 municipalities with populations over 10,000 recycled at least 1,846 tons of metals in CY 2021. Materials include aluminum and steel cans, scrap metal, non-ferrous metals and white goods. The most valuable materials are various non-ferrous metals such as aluminum and copper. The types of metal that end up at community recycling centers make up about 8.8% of the municipal waste stream. Most metals go to scrap yards. Most community recycling centers collect aluminum and steel cans and various types of non-ferrous metals. Some operate as buy-back centers while some accept the material on a donation basis. Metals are most often sold to local scrap yards that are equipped to handle large volumes of metals.

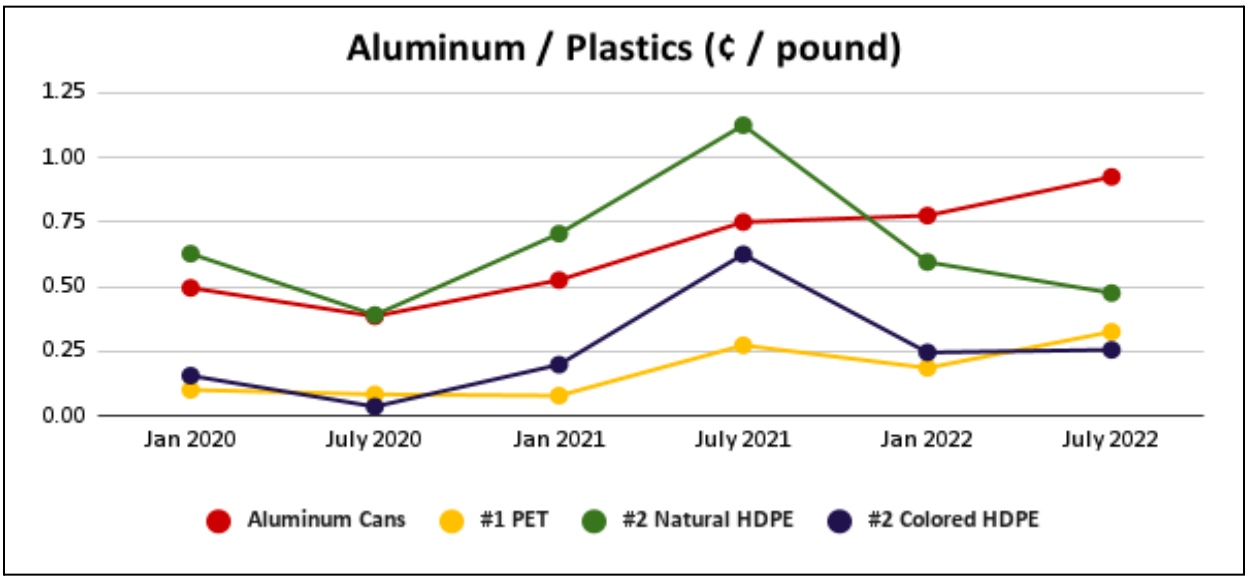
Figure 6-2
Ferrous Metal Prices - Average Price Per Ton (January 2020 - July 2022)



Plastics: West Virginia's SWAs and mandated municipalities collected 940 tons of plastics in CY 2021. Two-thirds of all metals collected was #1 PET and #2 HDPE with one-third being mixed plastics.

Markets utilized by WV recyclers include Clear Path, Four Seasons, Grief, Valley Converting, Envision and Mondo Polymers.

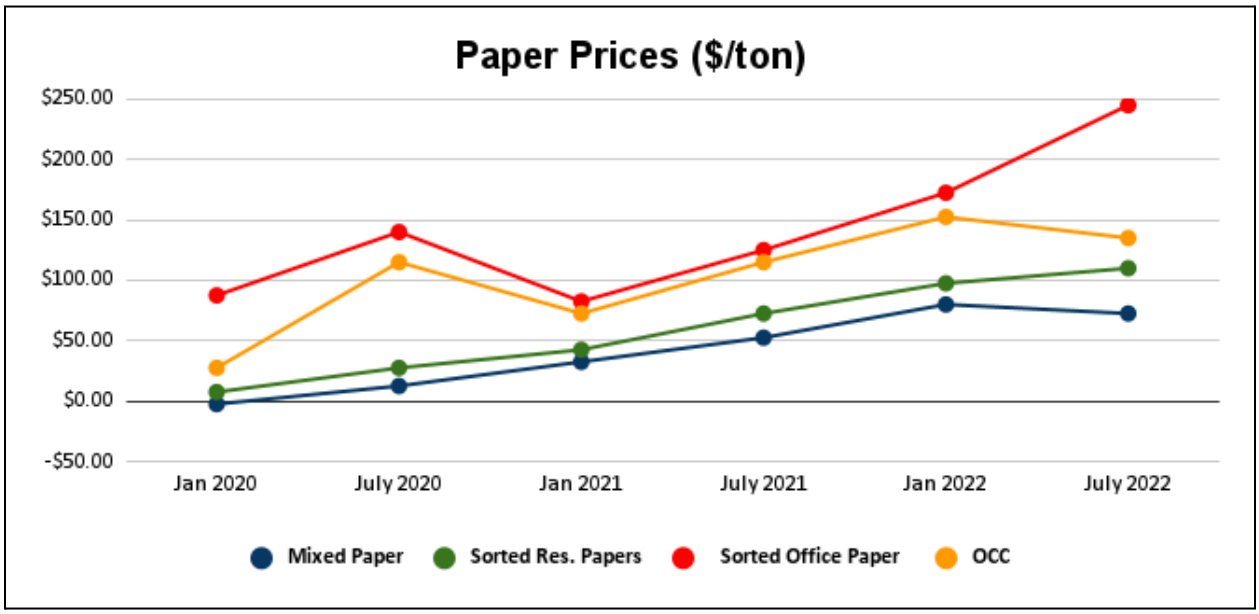
Figure 6-3
Aluminum/Plastic Prices - Average Price Per Pound (January 2020 - July 2022)



Papers: Paper includes newspapers, cardboard, office paper, magazines, and mixed paper. In CY 2022, Solid Waste Authorities (SWAs) and the 14 municipalities reported recycling 3,353 tons of paper and 3,891 tons of cardboard. Paper makes up over 25% of the waste stream and can be collected in bulk from commercial sources. West Virginia has two paper mills. ND Paper, in Fairmont, WV, is one of only three pulp mills in the World that produces air-dried pulp. They produce over 240,000 tons of pulp each year. Halltown Paperboard, owned by Ox Industries, Inc. and located in Halltown, WV is the oldest continuously operating industry in West Virginia. Halltown produces about 120 tons of paperboard each day.

Other markets in the Eastern U.S., utilized by West Virginia recyclers include Chambersburg Waste Paper, Southeast Paper Company, Valley Converting, Grief River Valley Paper and Shamrock Recyclers East.

Figure 6-4
Fiber Prices - Average Price Per Ton (January 2020 - July 2022)



In CY 2022, West Virginia Solid Waste Authorities recycled 17,427 tons of material and realized $1,253,335 in recycling revenues. The following table illustrates the top 5 materials recycled in terms of tonnage, and the top five materials in recycling revenue. For a complete analysis of SWA recycling programs, see Appendix D of this document.

Table 6-1
CY 2022 Top 5 Materials Collected and Revenue Generators for SWAs

Top 5 Materials Collected*	
Materials	**Tons**
Cardboard	3,145.69
Mixed Paper	1,996.01
Scrap Metals	882.46
Newspapers	723.31
Mixed Glass	400.01
Total	**7,147.48**

Top 5 Revenue Generators	
Materials	**Revenue**
Other Metals	396,927
Aluminum Cans	113,222
#1 PET	75,361
Other Paper	57,589
Newspapers	46,471
Total	**$689,570**

*From Appendix D information, #1 item – yard waste/brush, and #4 - other materials were excluded from the Top 5 Materials Collected chart. Yard waste, which isn't considered a recyclable commodity and other materials which included a mix of recyclable materials.

6.4 Recycling and Marketing Restricted or Difficult to Manage Materials

6.4.1 Electronic Waste

According to the US EPA, 3.1 million tons of consumer electronics were generated in 2015. They estimate that only 39.8% of e-waste was recycled. Electronic waste may contain one or more of the following: lead, mercury, cadmium,

beryllium, brominated flame retardants, or other hazardous substances.

Recycling electronic waste has been a challenge to West Virginia on both the state and local levels. In 2002, US EPA Region III, including West Virginia, Maryland, Pennsylvania, Delaware, Virginia, and Washington DC initiated a pilot project focusing on end-of-life electronics recycling. The e-Cycling program was designed to utilize a system of shared responsibility to address an important and growing environmental and social issue. The Solid Waste Management Board, working with local solid waste authorities, set up a series of 7 local collection events. By the end of the year, the program had collected 137 tons of e-waste. The program continued through 2003 and 2004 collecting 142 and 160 tons, respectively.

To further facilitate electronic recycling in West Virginia, the 2008 Legislature passed Senate Bill 746. The bill requires all manufacturers of computers, monitors, televisions, and video display devices with screens 4" or larger, to register with the WV Department of Environmental Protection. Manufacturers who market covered electronic devices in West Virginia are required to pay a registration fee, to set up a take-back program, (either through a mail-in program, a collection events program or a collection center), and to pay a yearly fee. All fees, fines and penalties were deposited in the "Covered Electronic Devices Takeback Fund," administered by the Secretary of the WV DEP, and are used for recycling grants for counties and municipalities.

In the 2009 - 2010 legislative sessions, Senate Bill 398 was passed banning electronics from West Virginia landfills, effective January 1, 2011. The Solid Waste Management Board was directed to design a comprehensive program for the proper handling of electronic devices. The plan was completed and submitted to the legislature on January 1, 2011.

In the 2016 legislative session Senate Bill 4540, repealing the landfill ban on electronics was passed.

6.4.2 Household Hazardous Waste

Household Hazardous Waste (HHW) has one or more of the following characteristics: toxicity, corrosiveness, ignitability and/or reactiveness. HHW can be, but is not limited to pesticides, battery acid, bleach, gasoline, paint thinner, glue, nail polish remover, fertilizer, pool cleaning chemicals, lighter fluid, oil-based paint, and many other things. These chemicals are not allowed in West Virginia's landfills.

The primary tool for managing HHW is for one or more public sector entities, usually the Solid Waste Authorities, to hold a one-day collection event. To do this, a qualified contractor must be found to package and process collected materials. These events are costly. The Solid Waste Management Board grant program will fund these programs, in part, for the local solid waste authorities.

Over the last decade, cost for these single day events have averaged $27,700, from $15,000 to $35,500 per event. Typical intakes at HHW events include paints, resins, caulks, antifreeze, flammable liquids, dry cell batteries, lead acid batteries, aerosols, oil, asbestos, RCRA exempt acids, pesticides, fluorescent lights, mercury, and other, sometimes unidentifiable materials. The events take in large volumes of material.

Some entities have a continuous collection of limited types of material. Many programs offer Freon extraction as part of a white goods (appliance) collection program. Other public sector recycling programs collect compact fluorescent lights (CFLs), various types of batteries, oil, and other materials. Some recycling centers charge a small fee for these services.

Household hazardous waste is a problem yet to be adequately addressed in West Virginia.

6.5 Innovative Incentives and Strategies for Recycling

6.5.1 Effective Program Strategies

Public sector recycling programs sometimes operate in areas where recycling may not be profitable. These programs often depend on grant funding, or other assistance to maintain financial stability. Programs like this must use innovative business strategies if they are to continue to exist. A wide variety of innovative strategies are employed in West Virginia, as no two programs are the same. Several programs have developed long term cooperative relationships with their county commissions. By sharing responsibility for litter control, stream and highway cleanup, recycling, open dump cleanup and other environmental programs, all can benefit. Organizations like the local solid waste authorities usually have the resources and experience to manage these programs but are somewhat lacking in funding. County commissions often have the funding but lack the experience. In this situation, shared responsibility gets the job done.

Other public sector programs develop relationships with private sector businesses. Some solid waste authorities provide educational and public awareness services in cooperation with private businesses that provide recycling services. Other programs have developed long term relationships with private sector processing, and marketing services to facilitate local markets for small recycling collection programs.

Many public programs drive innovation by working together. Several of the state's solid waste authorities own and operate recycling processing centers. These processing centers clean up, bale, and market materials for smaller programs, and deduct appropriate fees for their services from the sale price. Another innovation is managing public sector recycling programs like private sector businesses. Programs of this type don't collect materials they can't make money on. If the public asks for a service which can't be provided on a profitable basis, they provide the service for a fee.

Marketing cooperatives are another option. They help local recyclers by combining materials from different programs to create truck-load quantities that bring top dollar at the region's best markets. They charge a fee for their services.

6.5.2 Regionalization

Informal discussions have occurred within state and local governments for some time about regionalization in recycling. The concept of regionalization in recycling involves creating several large material processing centers strategically placed so the state's smaller recycling centers and municipal collection programs have access to local markets for the materials they collect.

At the time of publication, in-state markets are available, but the state is not adequately covered. The processors that provide services regionally are scattered, each serving one or more counties. In most cases, these facilities provide processing, and marketing for one or more materials, and may not be assisting every recycling center located in the counties they serve.

The Greenbrier SWA Recycling Center, Jackson County SWA, Pleasants County SWA, and Raleigh SWA Recycling Center are all publicly owned and provide regional service for smaller recycling centers. West Virginia Cashin' Recycling, JR Recycling, Ashley's, and other private sector firms provide markets for one or more materials. Appendix D of this document provides listings of markets used by Solid Waste Authorities and Municipalities in the state.

Several of the smaller recycling programs not covered by regional centers have their own processing facilities. Many of these programs don't collect a sufficient volume to command premium prices. These facilities generally finance equipment purchases, and sometimes

operating costs from the SWMB and REAP grant programs.

6.6 Outreach and Public Education

Public education and awareness are a crucial part of any recycling program. Unfortunately, a shortage of funds due to ever increasing prices for essential expenses such as fuel, insurance, material transportation, and other things has curtailed the amount of state and local funding going into recycling education. For FY 2023, about 5.7%,of the SWMBs grant funding went into public education.

On the local level, recycling is promoted by the Solid Waste Authorities. Many of the authorities go into schools, and work directly with students. The authorities also disseminate information about local recycling opportunities within the community.

On the state level, the Solid Waste Management Board (SWMB), and DEP REAP grant programs provide funding for public education when available.

6.6.1 West Virginia Recycles

The SWMB, DEP REAP, and several other state, local and private organizations joined together to form the Recycling Coalition of West Virginia, a fully chartered 501.c.3 nonprofit corporation. The coalition's purpose is to promote recycling statewide.

In November, the coalition sponsors West Virginia Recycles. This statewide event promotes recycling by holding contests and sponsoring events such as the annual Re-Fashion Show.

The coalition solicits contributions from both public and private sources and grant programs to finance its activities. In addition to the events, the coalition sponsors a website www.wvrecycles.org, which focuses on recycling education, promotion and public awareness.

6.7 Roles and Responsibilities

6.7.1 County Responsibilities

A comprehensive recycling program for solid waste may be established in any county of West Virginia by action of a county commission.

Comprehensive recycling programs for a county may also be established by referendum. The process involves filing a petition with the commission bearing the signatures of registered voters in the county equal to, but not less than, 5% of the number of votes cast within the county for governor in the preceding gubernatorial election. Most recently this process resulted in a recycling program in Hampshire County.

If the comprehensive program is established by petition and referendum, it may only be rescinded by the same procedures that established the program. If a majority of legal votes are for termination of the previously established recycling program, the county commission shall, upon certification of the results, rescind the program by ordinance.

6.7.2 Municipal Responsibilities

To help accomplish recycling goals, the Legislature mandated municipalities with a population of 10,000 or more to establish and commence implementation of a source

separation and curbside collection program for recyclable materials. There are currently thirteen mandated municipalities in West Virginia: 1) Beckley; 2) Charleston; 3) Clarksburg; 4) Fairmont; 5) Huntington; 6) Martinsburg; 7) Morgantown; 8) Parkersburg; 9) St. Albans; 10) South Charleston; 11) Vienna; 12) Weirton; and 13) Wheeling. Many other smaller municipalities have either a drop-off or curbside recycling programs.

6.7.3 Solid Waste Management Board (SWMB)

Along with aiding the SWAs, municipalities, and other interested parties in identifying and securing markets for recyclables, the SWMB must provide assistance in public education for source reduction, recycling, and reuse.

The SWMB has prepared comprehensive programs for the proper handling of yard waste, lead-acid batteries, tires, and covered electronic waste.

Approximately $10.8 million has been awarded by the SWMB in recycling grants to local SWAs since 1991. Grant descriptions can be found in Appendix A of this document. Grants have been awarded for recycling education programs, equipment purchases, facility construction, and operating expenses.

6.7.4 Department of Environmental Protection (DEP)

The DEP's Division of Water and Waste Management (DWWM), and Division of Land Restoration are involved in solid waste management. Rules promulgated by the DWWM are enforced by the Environmental Enforcement unit. If a permit is required for a recycling facility wishing to charge a tipping fee, the facility is then subject to the DEP rules regarding commercial solid waste facilities.

The Division of Land Restoration's Rehabilitation Environmental Action Plan (REAP) has an effective and streamlined system that serves the environmental remediation programs. REAP consists of the Pollution Prevention and Open Dump Program (PPOD), the WV Make It Shine Program, Adopt-A-Highway Program, Operation Wildflower Program, and the state's Recycling Program. The REAP Recycling Assistance grant program distributes approximately $1.5 million per year to government, nonprofit and private sector entities.

In 2008, the WV Covered Electronic Devices Manufacturer Registration, and Takeback Program was established because of SB 746. The goal of this bill was to establish a registration process for manufacturers of Covered Electronic Devices or CEDs. The initial and subsequent registration fees are used to fund the CED grant program, managed by REAP. This grant program assists municipalities and county governments in establishing ongoing electronic collection programs or single day collection events.

6.7.5 Public Service Commission (PSC)

The PSC can grant, or deny a Certificate of Need, which is a permit required for construction, operation, and expansion of a commercial solid waste facility. They become involved in recycling if a Certificate of Need is required for a recycling facility wishing to charge a tipping fee. The facility is then subject to PSC rules regarding commercial solid waste facilities. They also regulate municipal waste haulers.

6.7.6 West Virginia University Extension Service

The WVU Extension Service, through offices at the county and state program levels, provides objective information on solid waste issues particularly relating to waste utilization such as

land application of sewage, sludge and other organic material, backyard composting, mulching, recycling, resource reduction, environmental shopping, etc.

6.8 Funding

Although West Virginia encourages private sector development in recycling, the state places a large part of the responsibility for municipal solid waste management and consequently the development of recycling programs on local SWAs. For the most part, the SWA's cover their operating cost with a monthly allotment drawn

from the state's landfill assessment fee. The average monthly SWA assessment check for FY 2020 was $2,158. SWAs that have a solid waste disposal facility in their county are permitted to impose an additional $0.50 per ton assessment on every ton of waste deposited in their county. They retain the money to operate programs within the county.

In 2021 the Legislature passed SB 368 reducing the Landfill Closure Assistance Program assessment fee from $3.50 to $3.30 per ton beginning July 1, 2021, $3.10 per ton beginning July 1, 2022, $2.90 per ton beginning July 1, 2023, $2.70 per ton beginning July 1, 2024, and $2.50 per ton beginning July 1, 2025. A new fee funds in equal amounts the reduction to the assessment fees. This fee is distributed to county and regional solid waste authorities with 25 percent going equally to all Solid Waste Authorities and 75 percent is distributed based on a per capita population.

SWAs are eligible for additional funding through grant programs administered by the Solid Waste Management Board, and the DEP-REAP Recycling Program. Both programs are open to the SWAs, and the REAP program is open to other government entities, as well as the public. The two programs combined usually release approximately $1.8 million each year.

Funding for both grant programs comes from the landfill assessment fees. Using tonnage-based landfill assessment fees to finance recycling/environmental programs tends to be problematic because it does not provide an incentive to reduce waste at its source.

For complete information on recycling grants from the SWMB and the DEP REAP programs, see Appendices A and B.

Chapter 7: Special Waste

7.1 Hazardous Waste

Hazardous wastes have been regulated since 1976 by the Resource Conservation and Recovery Act (RCRA). RCRA is divided into 10 subtitles, A through J. The most significant, Subtitle C, establishes the national hazardous waste management program, and the basic structure of the RCRA program. The regulations that define and govern management of hazardous wastes are codified in Parts 260 through 279 of Title 40 of the Code of Federal Regulations (40 CFR), "Protection of the Environment."

The main objectives to RCRA's enactment were:

1. To make land disposal of waste safer.
2. To force the employment of new technologies for landfill disposal.
3. To reduce the amount of waste produced.
4. To encourage recycling and resource recovery.
5. To maintain state responsibility for solid waste.[1]

In 40CFR261, subpart D, USEPA has listed specific hazardous wastes that meet certain criteria. If a waste is not listed as hazardous, it is still regulated by RCRA, if it exhibits one of four characteristics: ignitability, corrosivity, reactivity, or toxicity.[2]

The prohibitive cost of hazardous waste transportation and disposal has been an incentive in source reduction efforts. In addition, the RCRA hazardous waste reduction program has resulted in industrial source reduction through process modifications that produce less waste.

7.1.1 WV Hazardous Waste Rule, 33CSR20

W. Va. Code §22-18 is the Hazardous Waste Management Act. The WV Department of Environmental Protection (DEP) was designated as the lead agency for West Virginia hazardous waste management and the regulation of hazardous waste (W.Va. Code §22-18-4). The "Hazardous Waste Management System Rule", 33CSR20, established and adopted a program of regulation for the generation, treatment, storage, and disposal of hazardous waste, to the extent necessary, for the protection of the public health and safety of the environment.

7.2 Household Hazardous Waste (HHW)

The US EPA criteria for hazardous waste applies to paints, thermometers, flammables, used motor oil, carcinogenic chemicals, cleaning supplies, and other household use chemicals. However, because Congress did not intend to cover household items in the rigid waste control mechanism of RCRA[3] hazardous wastes that are generated in a home are generally accepted in non-hazardous municipal solid waste landfills. Under RCRA this is known as the *household exclusion*, 40CFR261.4(b).

7.2.1 Household Chemicals

Aerosol sprays, ammonia, batteries, bleach, cosmetics, detergents, disinfectants, solvents, cleaners and medicines are all household hazardous waste (HHW). Even minute amounts of many household chemicals can seriously harm or kill children and pets. HHW in the solid waste stream can pose health risks to sanitation workers, and hazards to the environment. Improper disposal can contaminate the air we breathe, the food we eat and the water we drink.

Proper disposal of HHW is an important management objective for state and local governments. Management must take place at the local level and can be extremely effective when utilizing the following tools:

1. Public education programs.
2. Telephone hotlines.
3. Exchange programs.
4. Collection programs.
5. Webpage and Social media program information.

Educational programs for school age children, civic groups, and the public should be given a high priority. A hotline could be shared with another agency, such as the Health Department or the WVU Extension Service.

Collection and exchange programs are important options, but not long-term solutions and can be cost prohibitive. The purchase of environmentally safe products should be promoted. Manufacturers and retailers should be encouraged to work cooperatively to eliminate HHW products from the market as safer products become available.

Various state agencies offer brochures, audio/video materials, and other educational materials for the public which describe problems, disposal methods, and alternative products.

Recycling HHW and completely using existing stocks of household products should be encouraged. Choosing less toxic alternatives is the best solution. For example, use soaps instead of detergents, leave vinegar in an open dish instead of using air freshener, and use cedar chips for mothballs.

Handling, recycling and disposing of HHW.

DRAIN DISPOSAL – Some products can be poured down the drain and flushed with water. If you have a septic tank, additional caution should be exercised when dumping these items down the drain.

SANITARY LANDFILL – Some materials that cannot be poured down the drain can be safely disposed of in a sanitary landfill. Be certain the material is properly contained before it is put out for collection or carried to the landfill. If you have questions regarding a specific waste, contact your waste hauler.

HAZARDOUS WASTES DISPOSAL – Some hazardous wastes should be saved for a community wide collection day or given to a licensed hazardous wastes contractor. (Even the empty containers should be taken to a licensed contractor.)

RECYCLABLE MATERIAL - If there is a recycling program in your area, take the materials there. Often the best disposal option is to use up the product according to the directions on the label.

DEP's Division of Water and Waste Management-Emergency Response handles disposal on an as needed basis for residents. For more information on West Virginia's efforts to recycle, or otherwise remove HHW from the waste stream, see Chapter 6, Section 4, Recycling and Marketing Restricted or Difficult to Manage Materials.

7.2.2 Used Motor Oil

While hazardous waste characteristics may apply to used oil, EPA decided not to list used oil that is destined for recycling as a hazardous waste. Instead, they established management standards for its collection and recycling. USEPA estimates that in the United States alone, 200 million gallons of used motor oil are improperly disposed of by being dumped on the ground, tossed in the trash (ending up in landfills), and poured down storm sewers and drains.[4] These improper disposal methods can have devastating effects on the environment. For example, a gallon of used oil from a single oil change can contaminate one million gallons of water. One pint of used oil can create an acre wide slick. Improperly disposed oil can reduce the productivity of soils and have toxic effects on aquatic life, even in small concentrations.

Improperly disposed oil not only poses a serious threat to the environment, but it also constitutes an unnecessary waste of a renewable resource. Used oil that is properly recycled can be:

1. Re-refined into high quality motor oil.
2. Used in the production of industrial lubricants, transform and quench oils.
3. Used in rust prevention efforts and synthetic rubber production.
4. Processed and burned as fuel.

In addition, less energy is required to produce a gallon of re-refined base stock than a base stock from crude oil.[5]

Obstacles in developing a used oil recycling program include lack of public awareness, contamination of oil to be recycled, and liability. The public is generally unfamiliar with the effects of improperly disposing of used oil, the magnitude of environmental degradation caused by mismanagement, and the benefits of used oil recovery and recycling. To increase awareness, an educational campaign is needed to promote proper disposal and recycling. Education could also prevent the contamination of used oil at collection sites by instructing people not to mix solvents, or other household and automobile fluids with oil to be recycled.

Drop-off collection centers have been established at some gasoline stations and auto parts stores where one can dispose of up to five quarts of used motor oil free of charge. Some counties have numerous sites.

7.3 Municipal Sewage Sludge Disposal

The disposal of municipal sewage sludge (MSS) generated within WV is regulated by the DEP. Disposal is regulated in two ways; through the issuance of National Pollutant Discharge Elimination System (NPDES) permits, and by defining wastes that can be disposed of in solid waste facilities under Section 4.13.h. of the DEP's Title 33 Series 1 rules. The issuance of NPDES permits is the responsibility of the Division of Water and Waste Management (DWWM) of the DEP and is the primary method of regulating MSS disposal.

When a wastewater treatment facility applies for an NPDES permit, a certain method of MSS disposal is chosen. Individual treatment facilities are free to choose from a total of four permissible disposal options. The four options include landfilling, land application, marketing of the sludge, or a catch-all "other" option. This "other" option is a broad category encompassing disposal methods not falling under the other three categories. Regardless of the method chosen, disposal must be approved by the DWWM Director prior to receiving an NPDES permit.

In 1993, Senate Bill 288 provided the necessary authority for DEP to develop and implement a comprehensive program for the regulation and management of sewage sludge. The DEP was authorized to file emergency rules dealing with municipal sewage sludge management. The rules manage all sewage sludge produced at a wastewater treatment plant and shipped to a commercial solid waste facility.

33CSR2, requires:

1. Tests on the sludge for heavy metals, pathogens, toxins and vectors.
2. Reports on the source and amount of sludge generated or imported.
3. Access to the processing facility for DEP inspection and monitoring.
4. Posting of bonds for environmental remediation.
5. The development of reports on municipal sewer sludge volumes and activities.[6]

The DEP is authorized to require permits for all facilities and activities which generate, process or dispose of sewage sludge by whatever means, including, but not limited to, land

application, composting, mixed waste composting, incineration or any other method of handling sewage sludge within the state.

Water treatment facilities fall under DEP's regulatory control similar to wastewater treatment facilities. The regulation of these facilities is part of the comprehensive program for managing sludge. Septic tank pumping and package plants are permitted by DEP as part of their comprehensive sludge management program.

Landfilling of municipal sludge has been a disposal method for many years. According to DEP-DWWM monthly landfill tonnage reports, sewage sludge deposited in landfills in CY 2021 amounted to 61,063 tons. This is about 3.2% of the total waste going into WV's landfills and includes out of state waste.

Sludge composting has occurred at the Wetzel County Landfill, according to the PSC. Composting was incorporated into the two landfill's operating permits issued on November 25, 1992. In 2006, the PSC was directed to issue a Cease and Desist Order to the commercial composting facility.

Philippi operated a sewage sludge composting facility until 2000. The facility was regulated by the DEP-DWWM and was permitted under minor modifications to their Public-Owned Treatment Works (POTW) Permit.

7.4 Agricultural Wastes

Agricultural waste has been disposed of mainly through land application. Poultry producers face challenges in utilizing litter (waste). The industry is seeking ways to better capture the potential value of the litter as a fertilizer source, as a stock material for compost production, or as a feed for cattle. Other methods of disposal may have to be developed to avoid potential ground and surface water contamination.

The state legislature passed House Bill 4380 in 2000 to promote the beneficial use of poultry litter by (1) allowing a tax credit for its use as an agricultural fertilizer, and (2) requiring that the use of composted or deep stacked poultry litter products be given priority by all state agencies in their land maintenance and landscaping activities.

Agricultural waste problems can be caused by "farm dumps" and the disposal of chemicals, such as pesticides, herbicides, fertilizers and insecticides, used on the farm. Most of these old farm dumps are small and require a minimum effort to reclaim. Some farm dumps require pulling out the bigger solid waste items, hand picking and bagging the smaller household items and properly revegetating the area. Other farm dumps require covering the site with two feet of soil material and revegetating. These sites are inspected by a DEP Environmental Inspector or a DNR Natural Resources Police Officer.

According to DEP Solid Waste Rule, under 33CSR1, Section 2.60.a. "Animal Carcasses, Body Parts, Bedding and Related Waste" means contaminated animal carcasses, body parts, and the bedding of animals that are known to have been exposed to infectious agents during research, the production of biologicals, or the testing of pharmaceuticals, or for any other reason.

The primary animal remains disposed of in landfills are livestock and poultry. The emergence of the aquaculture industry will be accompanied by an increase in the amount of fish carcasses and waste that must be disposed of or composted.

7.5 Pollution Control Residuals

In order to comply with USEPA guidelines, one of the wastes the plan shall consider is pollution control residuals.

The operation of thermal systems in power plants, foundries, etc., produces several impacts on the environment including gaseous and particulate emissions, solid residues and liquid effluents. The proper design of control systems for these emissions is a critical part of the design of a thermal processing system. End products of the thermal process include hot combustion gasses composed primarily of nitrogen, carbon dioxide, water vapor (flue gas) and noncombustible residue (ash). Energy can be recovered by heat exchange from the hot combustion gases.[7]

The handling of air pollution control residuals is regulated by the DEP Division of Air Quality (DAQ), while the disposal of the residuals is regulated by the DEP Division of Water and Waste Management. The DAQ requires control equipment to minimize emissions to meet the Federal Clean Air Act.[8]

The major producers of air pollution control residuals are electric power generation plants, coal producers, foundries, chemical plants and cement kilns. Any facility that uses coal as a fuel produces ash. The ash is either classified as fly ash or bottom ash. Fly ash is the lighter of the two and exits the combustion chamber in the flue gas stream. Fly ash is generally collected by electrostatic precipitators or bag-houses. The bottom ash is heavier than fly ash and falls to the bottom of the combustion-chamber, where it is collected and removed.[9]

According to DAQ officials, all state coal producers and cement kilns have their own landfills or refuse piles. Some chemical plants have their own landfills. The cost of on-site ash disposal is roughly equivalent to that of a municipal solid waste landfill.

Some residuals can be reused to keep disposal costs down. The dust from cement or asphalt production is used again in-house. Refuse from coal mining is returned to mine areas as a backfill. The sludge from scrubbers at chemical and/or manufacturing facilities are used on-site or shipped to hazardous waste sites by the chemical company or a contracted handler/hauler. Most hazardous wastes from pollution control residuals are sent to out-of-state facilities. The small amount of ash generated from medical incinerators and veterinarians is considered a hazardous waste and is also transported out-of-state.[10]

American Electric Power's Kammer-Mitchell coal fired power plant in Marshall County uses a process for removing sulfur from coal residuals that produces a byproduct called calcium sulfate. Calcium sulfate is suitable for use as synthetic gypsum. Thanks to efforts from several state agencies including the West Virginia Department of Commerce, a CertainTeed wallboard plant was constructed next door to Kammer-Mitchell and produces its LEED certified ProRoc brand gypsum board, used in residential and commercial interior walls, from synthetic gypsum.

7.6 Mining Wastes

West Virginia is the second leading producer of coal in the U.S. Two types of mining exist within the state: underground and surface mines. Although the ways of extracting the coal differ greatly, the waste or "refuse" generated is the same. In both cases, only the seam of coal is removed. However, this seam contains unusable refuse along with the coal. The refuse is transferred to a preparation plant, where the usable coal is screened out. The rest of the refuse is disposed of on site in a coal refuse pile, also known as a gob pile.

The DEP's Division of Mining and Reclamation (DMR) promulgates the rules on refuse piles such as diversions, underdrains, and compaction requirements. The refuse is compacted on-site in order to maximize space and to compress water from the pile. Drains are installed for water that might infiltrate the pile and if necessary, the water is treated. For

refuse with high water content and no means to extract it, large impoundments are needed to filter the refuse down through the pond. After a variable length of time, the impoundment is drained and the compacted refuse remains. The DMR has stringent regulations for impoundments as well as dry refuse piles.

The mining operation sends the usable coal to the power plants. Ash is generated by the power plant when coal is burned. The power plant is responsible for separating the coal from the ash and for disposing of the unused portion. The power plant stockpiles it on-site with alternating layers of three feet of ash and six inches of dirt.

In addition to the wastes generated through the mining process, waste is produced through the mining offices and discarded machinery. Office waste is picked up and transported to a sanitary landfill and the discarded machinery may accumulate on-site during the operation, but is not permitted to remain afterward.

The goals of the DMR as stated in the rules on mine refuse include the following:

1. Minimize adverse effects of leachate and surface-water runoff on surface and ground water quality and quantity.
2. Ensure mass stability and prevent mass movement during and after all phases of construction.
3. Ensure that the final disposal facility is suitable for reclamation and revegetation compatible with the natural surroundings and the approved post-mining land use.
4. Not create a public hazard.
5. Prevent combustion.[11]

7.7 Industrial Wastes

The management and disposal of industrial solid waste is authorized pursuant to W.Va. Code §22-15. According to DEP Solid Waste Rules, 33CSR1 Section 2.58, an industrial solid waste means any solid waste generated by manufacturing, or industrial processes that is not a hazardous waste regulated under subtitle “C” of RCRA. Such wastes may include, but are not limited to, waste resulting from factories, processing plants, refineries, fertilizer/ agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals, manufacturing/ foundries; organic chemicals; slaughter houses, mills, tanneries, electric power generating plants, mines, or mineral processing operations; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay and concrete products textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

Some exceptions would be lunchroom or cafeteria wastes, office wastes, etc. Only those wastes generated as a by-product of an industrial process meet the intention of the definition. Waste resulting from physical, chemical or thermal processes in an industrial setting are examples of industrial waste. Industrial waste is either disposed of at on-site landfills or transported to other solid waste facilities.

The major producers of industrial wastes are mining operations (coal refuse) and coal fired electricity generators (fly ash and bottom ash). The handling of industrial waste varies depending on the type of waste. The majority of industrial wastes are disposed of in landfills.

According to DEP Rule 33CSR1 Section 2.59, an industrial solid waste landfill means any solid waste disposal facility which is owned, operated, or leased by an industrial establishment for the land disposal of industrial solid waste created by that person or such person and other persons on a cost-sharing or non-profit basis. The term “industrial solid waste landfill” does not include

land application units, surface impoundments, or injection wells. Industrial wastes are regulated by DEP-DWWM.

Various types of industrial waste can, by special permit, be disposed of in municipal solid waste landfills. A total of 10,032.80 tons of industrial waste was disposed of in West Virginia MSW landfills in CY2021. That is 3,205.02 less than CY2020. This, however, is only a portion of the industrial waste generated in West Virginia in one year as most industrial waste goes to Class F industrial disposal facilities. For a complete discussion of special waste in the state's municipal landfills, see Chapter 4, of this document.

Some industrial wastes which contain contaminants at levels greater than regulatory levels for hazardous waste are exempted from regulation under RCRA Subtitle C requirements and may be landfilled. For exemptions and exceptions, refer to 40CFR1 Part 261 of the USEPA Regulations.

7.8 White Goods (Household Appliances)

The term "household appliances" - often called "white goods" - usually includes large items such as refrigerators, freezers, clothes washers, dryers, dishwashers, ranges, water heaters, microwave ovens, dehumidifiers, trash compactors, and air conditioners. There are many problems in the collection and recycling of white goods. The major factor is transportation to a recycler or landfill.

Environmental legislation requires 80% to 90% of all PCB's, CFC or HCFC coolant be recovered with certified equipment by a certified technician.

A provision in the EPA - Stratospheric Ozone Protection - Final Rule Summary (EPA-430-F-93-010) dated June 1993, under the section "Mandatory Technician Certification," states: "Persons removing refrigerant from small appliances and motor vehicle air conditioners for purposes of disposal do not have to be certified."

In another section of this summary, "Safe Disposal Requirements," it states, "technician certification is not required for individuals removing refrigerant from appliances in the waste stream." There is still a requirement that the equipment must be certified that it has been tested by an EPA approved testing organization.

This is part of the 1990 reauthorization of the Clean Air Act which is designed to protect the atmosphere. SWAs should contract with authorized organizations to provide this service at a free or reduced cost.

7.9 Bulky Goods Collection

The term "bulky goods" refers to those items of residential solid waste which are too large and/or otherwise inappropriate to be placed into suitable waterproof containers. It includes such items as furniture, large appliances, electronics and other household-generated materials which cannot reasonably be collected during regularly scheduled weekly waste collections.

In accordance with 150CSR9, the Public Service Commission requires all common carriers of solid waste in West Virginia to establish a regularly scheduled monthly bulky goods collection service to be made available to all residential households in the carrier's territory, effective January 1, 1999.

To recover additional costs associated with the implementation of bulky goods collection service, any such carrier can apply to the PSC for approval of surcharges to be applied to both regular residential customers and all others in the territory that request bulky goods service. A carrier may propose a surcharge of one dollar per residential customer per month and not file the information required by Rule 42 of the Commission's tariff rule.

Proposed surcharges in excess of one dollar must include Rule 42 information. The carrier will be required to submit periodic reports detailing revenues collected from implementation of the service paid by subscribers and non-subscribers, respectively.

In addition, tons of materials collected, disposed of and cost incurred to provide this service, (e.g. additional labor, fuel, landfill, equipment costs) must also be reported. In Chapter 4, Table 4-2 indicates bulky goods that are accepted at solid waste landfills around the state.

7.10 Tires

Waste tire disposal has become a significant problem in the state due, in part, to regulatory controls. In accordance with W.Va. Code §22-15a, waste tires were banned from municipal solid waste landfills effective June 1, 1996. In addition, state and federal air quality regulations prohibit the open burning of waste tires.

Together, these regulations contributed to an increase in the number of waste tire piles, or "open tire dumps", around the state. A 1998 report, completed by the SWMB and DEP-DWWM, revealed there were approximately six million waste tires in seventeen of the largest piles which range in size from as few as 5,500 tires, to as many as 2 million.[12] Waste tires are bulky, do not decompose and endanger the public health and well-being as they become breeding grounds for rats and mosquitoes. The tire piles also constitute significant fire and pollution hazards.

In 2000, the WV Legislature passed Senate Bill 427 to address the concerns over waste tire piles. The legislation prohibits salvage yards from accumulating more than 100 waste tires without a proper permit.

It also created the "A. James Manchin Fund" which is funded by a temporary tax of $5.00 on the issuance of motor vehicle titles. The Division of Highways has the authority to administer the fund and oversee the remediation of the waste tire piles. Only tires collected as part of a DOH cleanup project or a DEP "Pollution Prevention and Open Dump" program, and for which no markets are available, may be deposited in solid waste facilities.

In 2002, the WV Legislature passed Senate Bill 609 making it a felony to accumulate or dispose of 1000 or more tires illegally. A person convicted of this crime is subject to one to five years in jail and fines of up to $50,000 per day.

The convicted person will also be required to properly clean the site or reimburse the state for cleanup costs.

Waste tires can legally be disposed of in waste tire monofills. Waste tire monofills are approved solid waste facilities in which waste tires are not mixed with any other waste for the purpose of eventual retrieval for marketing. Currently, there is one waste tire monofill in West Virginia.

Recycling is another method of disposal. However, the use of recycled rubber is contingent upon the establishment of a collection and marketing system which will assure that waste tires are collected, transported, and processed for use by industry.

New and established recycling technology should be identified and encouraged to create more market demand for recycled tire products. The involvement of private sector business to implement these processes should also be encouraged. Additional information may be found in the SWMB publication, *Proposal for Scrap Tire Collection and Disposal.* A link to this publication can be found on the Solid Waste Management Board's website. (http://www.state.wv.us/swmb/)

In August 2003, the Public Service Commission (PSC) approved changes to 150CSR9,

addressing the problem of residential tire disposal.

The definition of “Bulky Goods” was rewritten to include “waste tires off the rim, having a radius of no more than 16.5 inches, from automobiles, pickup trucks, motorcycles, all-terrain vehicles and from farm tractors.”

The changes also require carriers to pick up a maximum of eight tires per year from each residential customer. To cover the costs associated with the service, an additional 50 cents per month will be charged to regular customers for hauling service, and 50 cents per tire plus landfill disposal costs for non-subscribers.[13]

During the 2005 legislative session, W. Va. Code §22-15A-9 established that the Commissioner of the Division of Highways shall work with and may use monies in the Fund to contract with the Secretary of the DEP to accomplish the remediation of waste tire piles. The Fund consists of the proceeds from the sale of waste tires, fees collected by the Division of Motor Vehicles, and any other funding source available for waste tire remediation. Any unused balance remaining in the Fund at the end of the fiscal year is transferred to the State Road Fund.

In addition, W. Va. Code §22-15A-10 gave the Secretary the authority to establish a tire disposal program within the DEP to provide a cost effective and efficient method to accept passenger car and light truck waste tires at locations designated by the DEP. The Secretary may pay a fee for each tire and may also establish a limit on the number of tires an individual or business may be paid for during any calendar month.

In response to SB 427, the DOH promulgated an emergency rule entitled “Waste Tire Remediation/ Environmental Clean Up” which became effective August 25, 2000. The new rule, 157CSR8, intends to eliminate the present danger resulting from discarded and abandoned waste tires, eliminate visual pollution resulting from the tires, and provide for the public health, safety, and welfare.

Under this rule, the DOH identified waste tire piles, used a ranking system to prioritize their cleanup. This rule also designated liability for the cleanup costs to any person who has illegally disposed of waste tires and any person who has waste tire piles on their property. Additional guidelines for rights of entry, remediation monitoring, hauling, notices, liens and records are established under this rule which can be found in 157CSR8.

7.11 Lead Acid Batteries

Landfill disposal of lead acid batteries has been banned since June 1, 1994. Most lead acid batteries are collected at local automotive service or repair garages. Some of these are collected through local household hazardous-waste collection programs operated by local governments. Overall, the collection and recycling efforts for lead acid based batteries tends to be successful because collection and recycling programs operated by automotive garages and repair centers serve as a centralized collection point with little inconvenience to the consumer. According to the US EPA, approximately 96% of all lead acid batteries are recycled. Ultimately, the primary motivation for the recovery of automotive batteries is the profit from the sale of lead.

Additional information may be found in the SWMB publication, *Program for Handling Lead Acid Batteries in West Virginia*. A link to this publication can be found on the Solid Waste Management Board’s website.
http://www.state.wv.us/swmb/)

7.12 Yard Waste

Yard waste is defined as grass clippings, weeds, leaves, brush, garden waste, shrub or tree

prunings, and other living or dead plant tissues. US EPA estimates that approximately 13.2% of the total U.S. waste stream is composed of yard waste.[14] Since these organic materials are relatively clean and biodegradable, disposal in landfills is unnecessary and wastes space. For these reasons, yard waste has been banned from landfills in West Virginia since January 1, 1997.

Composting of yard waste is an attractive disposal option for many communities who wish to recycle plant nutrients, save landfill space, and comply with WV laws prohibiting landfill disposal. The City of Clarksburg is the state's only registered composting facility. Rules governing the permitting, design and construction, and closure plans of composting facilities can be found in 33CSR3.

Additional information may be found in the SWMB publication, *Program for Handling Yard Waste in West Virginia*. A link to this publication can be found on the Solid Waste Management Board's website.
(http://www.state.wv.us/swmb/)

7.13 Universal Wastes

In 1995, US EPA promulgated the "Universal Waste Rule " as an amendment to the Resource Conservation and Recovery Act (RCRA) governing hazardous waste. While universal wastes are hazardous wastes, the Universal Waste Rule was designed to reduce the amount of RCRA hazardous waste disposed of in municipal waste landfills, encourage recycling and proper management of some common hazardous wastes, and reduce the regulatory burden on businesses currently managing these materials as hazardous waste.

The rule extends the amount of time that businesses can accumulate these materials on-site, allows for common carriers to transport them, and no longer requires businesses to obtain a hazardous waste manifest to accompany the wastes during off-site shipment.

"Universal wastes" include the following general categories:

- Batteries, such as nickel-cadmium and small sealed lead-acid batteries, which are found in many household and business items, including electronic equipment, mobile telephones, portable computers and emergency backup lighting.
- Agricultural pesticides that have been recalled or banned from use, are obsolete, have become damaged or are no longer needed due to changes in cropping patterns or other factors. They are often stored for long periods of time in sheds or barns.
- Lamps, (effective January 6, 2000), that typically contain mercury and sometimes lead, such as fluorescent, high intensity discharge, neon, mercury vapor, high-pressure sodium and metal halide lamps, if they are characteristically hazardous.
- Thermostats, which can contain as much as 3 grams of liquid mercury and are located in almost any building, including commercial, industrial, agricultural, community and household buildings. On August 5, 2005, thermostats were added to a new category of universal waste called spent mercury containing equipment (MCE). Other such MCE's are thermometers, switches, barometers and manometers. Basically MCE's were to include all mercury containing devices.
- The EPA issued a ruling in July of 2006 (effective date, January 29, 2007), which excludes CRTs and glass removed from CRTs from the RCRA definition of solid waste if certain conditions are met.

States that are authorized to implement the RCRA program are strongly encouraged to adopt this rule. Because the Universal Waste Rule is less stringent than the current requirements under RCRA, state adoption is optional. West Virginia has adopted the Universal Waste Rule (33CSR20.13).

7.14 Drilling Waste

The recent rise in natural gas drilling in the state has presented the challenge of disposing of the waste resulting from that drilling. By definition drill cuttings and associated drilling wastes means the broken bits of solid material and drilling mud removed from a borehole drilled by rotary, percussion or auger methods.

On March 14, 2014, the legislature passed House Bill 107 requiring the WVDEP to promulgate emergency and legislative rules for the handling and disposal of drill cuttings and associated drilling mud. The rules were to also establish limits for unique toxins associated with the waste.

In July 2014, the Secretary of State approved DEP's emergency rule, 33CSR1. The emergency rule established procedures for acceptance, handling and disposal of drilling waste and amended the requirements regarding the materials that can be used in the protective cover zone of the leachate collection system and the types of solid waste that can be placed in the first eight feet of waste on the protective cover. [15]

Solid waste facilities accepting drilling waste must submit and obtain approval from both the DEP and the DHHR Radiological Health Program of a Radiation Monitoring Plan that outlines the facility's procedures for managing the waste in accordance with 33CSR1.5.6.d.6.

HB 107 required an investigation and report by the WVDEP on specified issues associated with the disposal of the waste and establishing an additional solid waste fee.

END NOTES FOR SECTION 7

1. Percival, Robert V., Miller, Alan S., Schroeder, Christopher H., and Leape, James P. *Environmental Regulation: Law, Science and Policy*, second edition. Aspen Law and Business, 1996. p. 209-213.

2. *Title 40, Code of Federal Regulations, Chapter 1, Subchapter I, Part 260*, Identification and Listing of Hazardous Waste.

3. O'Reilly, James T., State and Local Government Solid Waste Management, Clark, Boardman Callaghan, p. 3-39.

4. *Collecting Used Oil for Recycling/Reuse: Tips for Consumers Who Change Their Own Motor Oil and Oil Filters,* U.S. Environmental Protection Agency, EPA 530-F-94-008.

5. *Title 47 Series 10*, National Pollutant Discharge Elimination System (NPDES) program, West Virginia Department of Environmental Protection.

6. *Title 33 Series 2*, Sewage Sludge Management.

7. Tchobanoglous, George, Theisen, Hilary, and Vigil, Samuel, *Integrated Solid Waste Management*, McGraw-Hill, Inc.

8. Personal Communication with Paul Radar, DEP Division of Air Quality.

9. *Fly Ash Grouts for Remediation of Acid Mine Drainage at Reclaimed Surface Mines*. Thesis by Kevin L. Harshberger, School of Civil Engineering, WVU, p. 24.

10. Personal Communication with Paul Radar, DEP Division of Air Quality.

11. DEP Division of Mining and Reclamation, 38CSR2.

12. *Proposal for Scrap Tire Collection and Disposal*, West Virginia Solid Waste Management Board.

13. Personal Communication with Bill Flenner for information used in January 2004 "Under the Dome" published by the Solid Waste Management Board.

14. Advancing Sustainable Materials Management: 2017 Fact Sheet. USEPA November 2019.

15. Memo from Scott G. Mandirola, Director, Division of Water and Waste Management, July 17, 2014.

Chapter 8: Solid Waste Disposal Fees

8.1 Assessment Fees

The state has imposed assessment fees on the disposal of solid waste as a mechanism to fund solid waste management programs. These fees are collected on a rate per ton basis by the solid waste disposal facility and remitted monthly to the Department of Tax and Revenue. The Auditor's Office and the Department of Tax and Revenue have developed a system which deposits the dollars directly into the appropriate funds.

The $8.25 assessment fee is distributed among three separate agencies, Department of Environmental Protection (DEP), Division of Natural Resources (DNR) and the Solid Waste Management Board (SWMB).

The Solid Waste Assessment Fee (DEP) - provides funding for the Solid Waste Reclamation and Environmental Response Fund, Solid Waste Enforcement Fund and the Solid Waste Management Board Reserve Fund, for bond reserve.

Solid Waste Assessment Interim Fee – (SWMB Solid Waste Planning Fund) provides funding for grants and monthly operations for the 50 local solid waste authorities (SWAs) and SWMB administration costs.

The Recycling Assessment Fee funds the DEP's REAP Recycling Assistance Program, Solid Waste Reclamation and Environmental Response Fund, Hazardous Waste Emergency Response Fund, a portion of DNR's Police Officer's salaries, and local solid waste authority assistance. Closure Cost Assessment Fee (DEP), is primarily used for expenses associated with proper landfill closure.

"Commercial Recyclers" may receive a special exemption, resulting in a $2.00 Recycling Fee. To receive the exemption Commercial Recyclers must have DEP certification that 70% of the waste received at the disposal facility is recycled. The remaining 30% being disposed of at a landfill will be assessed $2.00 per ton.

This section describes the fees the state collects and distributes to environmental agencies and programs. Table 8-1 represents the distribution of fees effective since July 1, 2021.

TABLE 8-1
Dedication Of Proceeds Of The Solid Waste Assessment Fees (Revised July 1, 2021)

Rates Per Ton

$2.75 (by FY 2026)* **1. SOLID WASTE ASSESSMENT FEE - DEP**

W. Va. Code § 22-15-11
Effective 1-1-88, Revised 7-9-93, Revised 7-1-98*, Revised 7-1-2021

A. $0.25 per ton for Solid Waste Reclamation and Environmental Response Fund.

B. First $1,000,000 for Solid Waste Enforcement Fund.

C. Next $50,000 to $500,000 to Solid Waste Management Board Reserve Fund - For Bond Reserve.

D. Remaining funds shall be allocated to the above three accounts to maintain reasonable balances.

E. Effective July 1, 2021, an additional solid waste assessment fee shall be levied and imposed in the amount of 20 cents per ton, 40 cents per ton on July 1, 2022, 60 cents per ton beginning July 1, 2023, 80 cents per ton beginning July 1, 2024, and $1.00 per ton beginning July 1, 2025, thereafter or like ratio on any part of a ton of solid waste. This fee is to be distributed:

1. 25% distributed equally to each county or regional solid waste authority; and

2. 75% distributed on a per capita basis to each county or regional solid waste authority based on the most recent population projections from the United States Census Bureau.

*SB 368 was passed during the 2021 West Virginia legislative session and enacted on July 1, 2021, which removes $1 from the Closure Cost Assessment Fee over a five year period and transfers those funds to the county and regional solid waste authorities.

$1.00 **2. SOLID WASTE ASSESSMENT INTERIM FEE - SWMB Solid Waste Planning Fund**

W. Va. Code § 22C-4-30
Effective 7-1-89, Revised 7-9-93, Revised 7-1-98*

A. $0.50 per ton is distributed equally among all 50 local solid waste authorities monthly.

B. $0.50 per ton divided equally for grants to local solid waste authorities and administration and technical assistance costs of the SWMB.

*The language of W.Va. Code § 22-15-11 did not change, however, portions of Senate Bill 602, incorporated into W. Va. Code § 22-16-4(h)(1), provided that the DEP may transfer up to fifty-cents per ton from the Closure Cost Assessment Fee into the Solid Waste Enforcement Fund.

$2.00 **3. RECYCLING ASSESSMENT FEE**

W. Va. Code §21-15A-19(h)(1)**
Effective 1-1-92, Revised 7-9-93, Revised 7-1-98, Revised 7-1-05

A. $1.00 per ton to DEP's REAP Recycling Program for grants to assist with recycling projects for local governments, municipalities, county commissions and private businesses.

B. $0.25 per ton to DNR for personal services and benefit expenses of full-time salaried conservation officers (now referred to as Natural Resources Police Officers).

C. $0.25 per ton to the Solid Waste Planning Fund. Fifty percent (50%) to be distributed to the local SWAs and the remaining fifty percent (50%) to provide the local SWAs with the Business and Financial Assistance Program. Prior to July 1, 1998, this $0.25 per ton went to WVDO, to assist counties and municipalities with wastewater treatment projects.

D. $0.25 per ton to DEP's Solid Waste Reclamation Fund and Environmental Response Fund (PPOD). Same fund as 1A on page 8-2.

E. $0.25 per ton to DEP's Hazardous Waste Emergency Response Fund.

**Senate Bill 428 was passed and enacted on July 1, 2005, which removed the Environmental Resources Section from the Division of Natural Resources to create the Rehabilitation and Environmental Action Plan under the Department of Environmental Protection. With this transfer, W. Va. Code § 20-11 was repealed and language was amended and moved to W. Va. Code § 22-15A-19.

$2.50 (by FY 2026) **4. CLOSURE COST ASSESSMENT FEE - DEP**

W. Va. Code § 22-16-4
Effective 1-1-92, Revised 7-9-93, Revised 7-1-98, Revised 7-1-2021

A. All money for the Closure Cost Assistance Fund for proper landfill closure.

B. $0.50 per ton on collections on or after July 1, 1998, may be transferred to the Solid Waste Enforcement Fund per W. Va. Code § 22-16-4.

C. For any landfills taking in more than 30,000 tons per month, 50% of the fees collected in excess of the 30,000 TPM shall be remitted to the county commission in the county where the landfill is located. Not currently applicable.

*SB 368 was passed during the 2021 West Virginia legislative session and enacted on July 1, 2021, which removes $1 from the Closure Cost Assessment Fee over a five year period and transfers those funds to the county and regional solid waste authorities.

$8.25 TOTAL REQUIRED FEES PER TON

W.Va. Code §7-5-22 allows local solid waste authorities to impose a $0.50 per ton assessment fee on waste deposited in commercial solid waste facilities in their respective counties, in addition to the $8.25 per ton fee dedicated to environmental programs. Section 8.3.1 of this plan gives more details on the optional County Solid Waste Assessment Fee.

Effective January 1, 2016, Senate Bill 332, impacting W.Va. Code §11-10-27, allows the West Virginia Department of Revenue, Tax Division to retain 1% of any taxes and fees paid into these special revenue accounts as an administrative fee. As a result, 1% of the total amount of assessment fees collected monthly is now being retained by the Tax Division in the "Tax Administration Services Fund."

8.2 Allocation and Use of Assessment Fee Funds

The following graphs labeled Figure 8-1 and Figure 8-2 depict the allocation and use of funds by Agency and Program. The graphs reflect the change in rates, as a result of redistribution of funds mandated in Senate Bill 602, which was subsequently incorporated into W. Va. Code § 22-15A-19, and the rates were effective as of July 1, 1998.

Figure 8-1
Solid Waste Assessment Fees Distributed by Agency

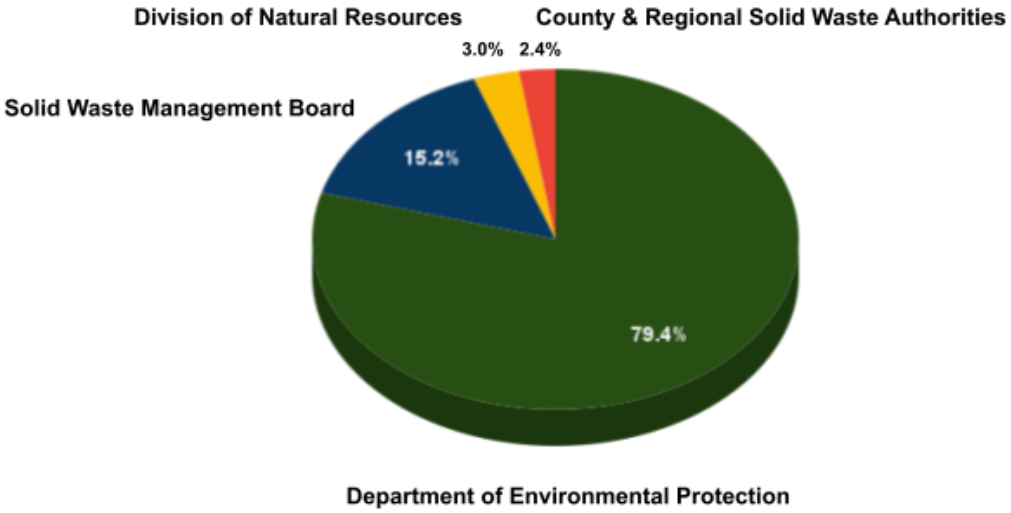
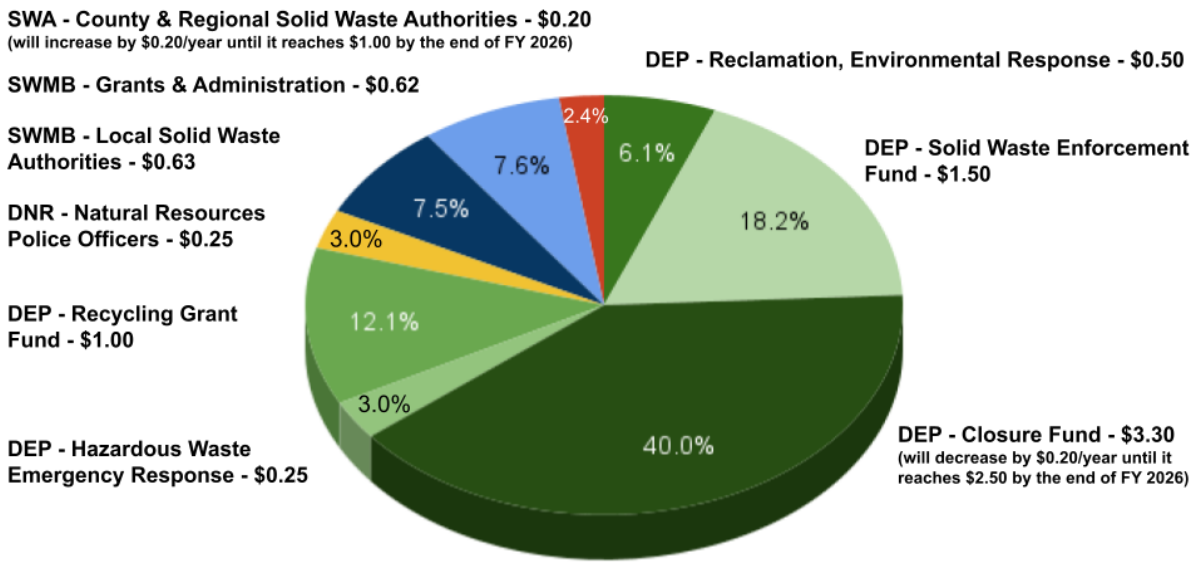


Figure 8-2
Solid Waste Assessment Fees Distributed by Program



8.2.1 Fee Distribution by Program

Table 8-2 reflects the actual dollars generated and distributed by Agency and Program for FY 2021 through FY 2022. Program amounts reflect actual dollars received by the agencies during the fiscal year noted. There is a two-month delay from the time the landfill collects the tonnage fees to the time the agency receives the funds. For example, landfills collect fees on tonnage disposed during the month of July. By August 15, they will report tons collected and remit fees collected to the Department of Tax and Revenue. By September 15, the Tax Department has the fees tallied, and the funds can be transferred to the various agencies and programs.

Table 8-2
Solid Waste Assessment Fee Distribution by Program (FY 2021-2022)

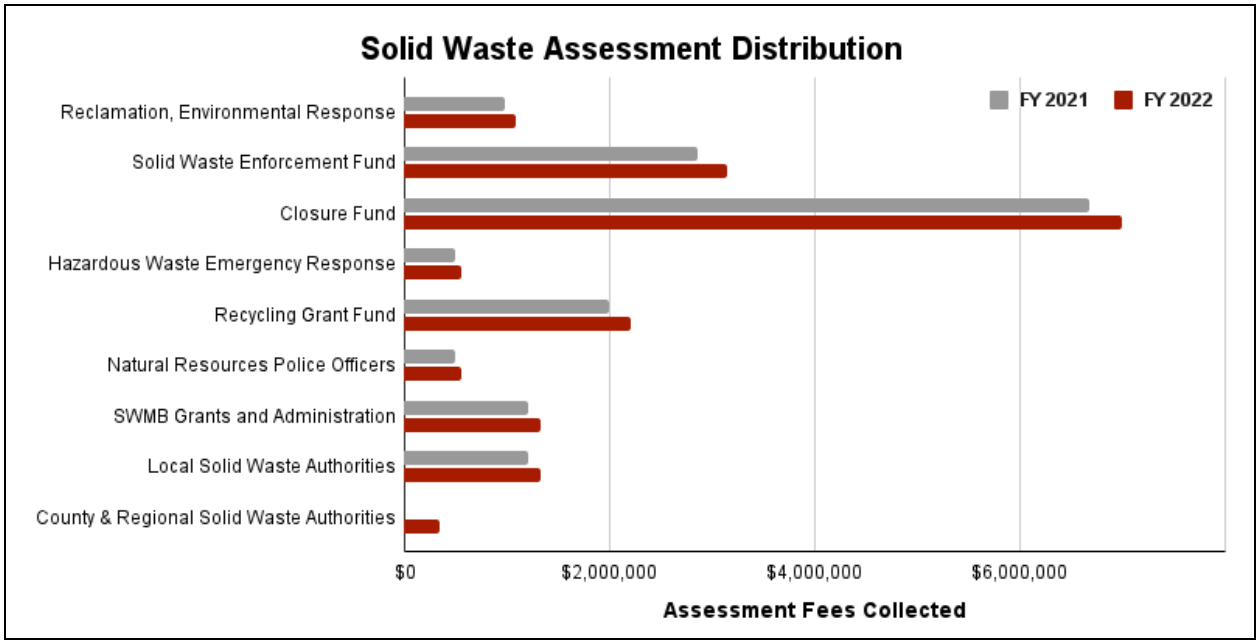
FY 2021 – 2022 Assessment Fee Distribution by Program				
	Fee Per Ton	*FY 2021	Fee Per Ton	*FY 2022
Department of Environmental Protection				
Reclamation, Environmental Response	$0.50	$976,107	$0.50	$1,077,738
Solid Waste Enforcement Fund	$1.50	$2,863,277	$1.50	$3,149,186
Closure Fund	$3.50	$6,681,017	$3.30	$7,000,266
Hazardous Waste Emergency Response	$0.25	$498,892	$0.25	$552,874
Recycling Grant Fund	$1.00	$1,995,568	$1.00	$2,211,493
	$6.75	**$13,014,861**	**$6.55**	**$13,991,557**
Division of Natural Resources				
Natural Resources Police Officers	$0.25	$498,892	$0.25	$552,874
	$0.25	**$498,892**	**$0.25**	**$552,874**
Solid Waste Management Board				
SWMB Grants and Administration	$0.62	$1,203,872	$0.62	$1,326,162
Local Solid Waste Authorities	$0.63	$1,203,878	$0.63	$1,326,169
	$1.25	**$2,407,750**	**$1.25**	**$2,652,331**
Local Solid Waste Authorities				
County & Regional Solid Waste Authorities			$0.20	$347,852
			$0.20	**$347,852**
Totals	**$8.25**	**$15,921,503**	**$8.25**	**$17,544,614**

Source: Office of State Auditor, Solid Waste Tax Special Fund Distribution, Validated Receipts, Monthly Reports, FYs 2021-2022.

*Dollar amounts may vary from actual payments due to rounding.

**Total amount does not include the 1% “Administrative Fee” the Tax Division now collects for the “Tax Administration Services Fund”.

Figure 8-3
Solid Waste Assessment Distribution



8.3 Miscellaneous Assessment Fees

8.3.1 County Solid Waste Assessment Fee

W.Va. Code § 7-5-22 allows local Solid Waste Authorities to assess solid waste disposal facilities operating within their county $0.50/ton on all solid waste accepted by that facility. These fees are remitted monthly directly to the local SWAs. Fees collected are to be applied to the costs of administration and expenses incurred from refuse cleanup, litter control programs, or any other solid waste programs deemed necessary to fulfill its statutory responsibilities. Only those counties with disposal facilities can collect this fee.

8.3.2 Groundwater Protection Act Fee – DEP

The Groundwater Protection Fee has been invoiced by the DEP's Division of Water and Waste Management in accordance with W.Va. Code §22-12-9 since July 1992. Facilities assess fees based on reported tonnages. However, fees may also be assessed from other facilities and/or activities that have the potential to pollute groundwater. These fees are used for administration, certification, enforcement, inspection, monitoring, planning and research of groundwater protection.

8.4 Litter Control Programs

8.4.1 Highway Litter Control Fund[1]

The Division of Motor Vehicles collects a $1.00 fee per each certificate of registration, new and renewals. The fee is then transferred to the Highway Litter Control Fund in accordance with W.Va. Code §17A-10-15 to be used for litter control maintenance of the highways. Fees collected in FY 2021 and FY 2022 were $1,878,798 and $1,593,219 respectively. Annual expenditures in FY 2021 and FY 2022 were $1,012,274 and $716,606. These programs are typically funded as "Litter Control" within the Division of Highways.

Transfer to Department of Environmental Protection (DEP) – The Division of Highways transfers approximately $500,000 annually to the Department of Environmental Protection to be used for administrative costs, educational materials, and promotional materials for the West Virginia Adopt-A-Highway Program, Wildflower Program, and the District Coordinators' Educational Program.

Litter Pickup and Disposal – The purpose of this program is to pick up litter from roadways, medians, and rights-of-way to improve appearance, prevent ditch and head wall blockages, fire hazards, and eliminate safety and health hazards. Litter pickup is performed by the Division of Highways staff. Expenditures in FY 2021 totaled $157,964 and expenditures in FY 2022 totaled $34,078.

Litter Disposal/Support (Non-DOH Forces) – This program covers all the administrative support expenses and the actual disposal of collected litter for other programs/groups such as:

- Governor's Summer Youth Program.
- Department of Corrections Work Release.
- Community Workers Employment Programs.

Activities are performed upon notification or as required by the Division in any of these programs. Disposal site fees for non-DOH collected litter are charged to this program. Expenditures totaled $12,025 in FY 2021 and expenditures totaled $4,145 in FY 2022.

8.4.2 Department of Environmental Protection

The Litter Control Grant Program and the Litter Control Fund, originally established under W.Va. Code § 20-7-25 and W.Va. Code § 20-7-26, was transferred from the DNR to the DEP in July 2005 in Senate Bill 428. With the creation of W. Va. Code § 22-15A-3 and W.Va. Code § 22-15A-4 the duties of overseeing these programs were transferred to the Secretary of the Department of Environmental Protection.

All money collected from civil penalties imposed on those found guilty of a litter violation are split evenly between the Litter Control Fund and the county or regional solid waste authority in which the violation occurred. At least 30% of monies collected in the Litter Control Fund must be awarded in the form of Litter Control Grants. This grant program is available to counties and municipalities for the initiation and administration of litter control programs. Litter Control Grants awarded from litter control fines for FY 2021-2022 were $48,367 and $87,106, respectively.[2]

In October 2007, Governor Joe Manchin III signed an Executive Order creating a permanent work crew cleanup program to help keep West Virginia's roads and waterways clean. Under this program, the Regional Jail and Correctional Facility Authority, Division of Corrections, Division of Highways, and the Department of Environmental Protection can enter into interagency agreements authorizing inmate participation in work crews to assist in cleanup efforts and litter eradication within the state.

8.4.3 A. James Manchin Fund

Effective July 1, 2000, the Division of Highways began receiving $5.00 for each application for certificate of title and renewals. This fee is transferred to the A. James Manchin Fund, established by the Division of Highways in accordance with W.Va. Code §17A-10-16. Those funds are to be used for the remediation of waste tire piles in the state.

This fee will continue until the Secretary of the Department of Environmental Protection certifies

to the Governor and the Legislature that they have completed the remediation of all waste tire piles that were determined by the Commissioner to exist on the first day of June two thousand six. As of June 30, 2022, the program had collected $65,365,597 and expended $29,576,055 to eliminate tire piles, conducted yearly tire collection programs, and transferred $34,535,713 to the State Road Fund, as allowed by statute.[3]

END NOTES FOR CHAPTER 8

1. Emails from Evan Dewy, Budget Director, WV Department of Transportation, Budget Division, September 2022. Evan.M.Dewey@wv.gov.

2. Email from Niki Davis, Programs Supervisor, WV Department of Environmental Protection, REAP Office, September 2022. Niki.N.Davis@wv.gov.

3. Ibid.

Chapter 9: Economic Impact of Municipal Solid Waste Management in West Virginia

9.1 Executive Summary

Workforce West Virginia and the U.S. Census Bureau have compiled statistics showing some of the economic benefits West Virginia realizes from solid waste management activities:

- Solid waste collectors, recycling centers, and landfills in West Virginia paid an estimated $86 million dollars in wages and salaries in 2021.
- These businesses maintained an average of 1,662 jobs with average weekly wage of $978; compared to an average weekly salary in the retail trades of $614.
- In 2021, the state's public and private waste management infrastructure consisted of 16 landfills, 1 tire monofill, 17 transfer stations, 1 commercial composting facilities and 1 mixed waste processing - resource recovery facility, all fully operational and approved through the West Virginia Department of Environmental Protection.
- The states' 50 local solid waste authorities own, operate, and/or sponsor recycling programs in at least 33 counties. These programs recycled 17,427 tons of material and brought in over $1,253,335 dollars in recycling revenue during CY 2021.
- According to the US Department of Commerce, the state's recycling and scrap industry exported $23,270,054 worth of recyclable materials in 2021.[1]

9.2 Jobs[2]

In 2021 West Virginia landfills employed approximately 341 people, paying an average weekly wage of $1,017 with an annual wage and salary payout for the sector of $18,029,745. Positions include equipment operators, laborers, engineers, managers, mechanics, bookkeepers, accountants, clerical, office workers, scale operators, and others.

The state's waste haulers employed an average of 1,206 people with an annual payroll of $62,775,094 in 2021. The average weekly wage per employee was $1,001. Most employees have positions as drivers or laborers, however, also included are clerical, office workers, mechanics, accountants, bookkeepers, and managers.

West Virginia's recycling centers had an average of 115 employees in 2021, making an average weekly wage of $915. Wages paid in this industry totaled $5,468,993. Employees of recycling centers include material collectors and processors, drivers, clerical and office workers, managers, and recycling coordinators.

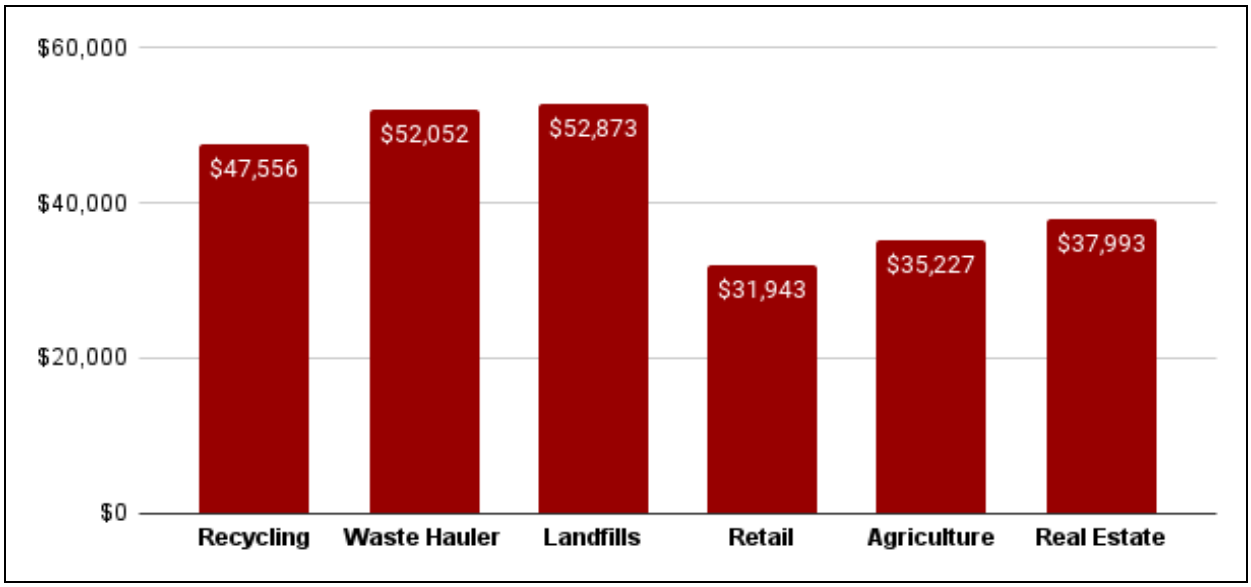
While wages and salaries in waste management are not comparable with some occupational sectors, such as mining and manufacturing, they do compare favorably in other areas as demonstrated in Figure 9-1.

Table 9-1
Employment Data: CY 2021 West Virginia Municipal Solid Waste Employment Analysis

	Number of Firms*	Average Number of Employees*	Average Weekly Wage*	Average Annual Wage	Total Annual Wages Paid*
Recycling Centers	14	115	$915	$47,556	$5,468,993
Waste Haulers	88	1,206	$1,001	$52,052	$62,775,094
Landfills	18	341	$1,017	$52,873	$18,029,745

*Information provided by WorkForce West Virginia, Research, Information and Analysis Division. Numbers may be different from actual numbers stated elsewhere in this plan.

Figure 9-1
CY 2021 Average Annual Wages for Selected Occupational Sectors



9.3 Direct Impact

Municipal solid waste management in West Virginia has a measurable direct impact on the state. The state's recycling centers, transfer stations, waste haulers and landfills paid out an excess of $86 million in salaries and wages, in 2021, employing an average of 1,662 individuals. Annual revenue generated by these operations is significant. Based on monthly landfill tonnage reports, with an average landfill tipping fee of $47.27 in CY 2021, West Virginia's landfills processed 1,927,153 tons of taxable waste, and generated $17,365,495 in revenues from tipping fees for the state as well as $1,279,780 which went to the local SWAs in the counties receiving the waste.

This revenue from tipping fees is used to fund many of West Virginia's environmental programs including:

1) The solid waste landfill closure assistance program (LCAP).
2) The hazardous waste emergency response program.
3) The environmental reclamation program.
4) REAP and SWMB grant programs.
5) Monthly assessment fees for the state's 50 local solid waste authorities.
6) Partial funding of West Virginia's Natural Resources Police Officers' salaries.

A breakdown of expenditures can be found in Chapter 8 of this document.

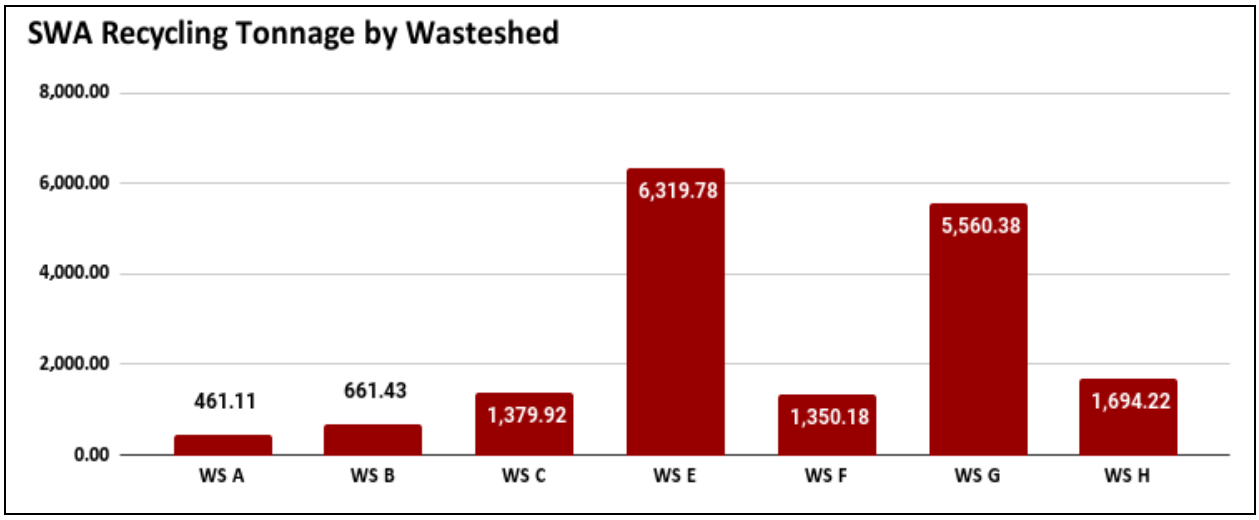
The Department of Environmental Protection's (DEP) Landfill Closure Assistance Program (LCAP) is an example of a state level waste management program. Assessment fees made $7,000,266 available for closure activities for the program in FY 2022. LCAP is currently working on 28 landfill closures most of which are in the post closure monitoring phase. *For more information on LCAP, see Chapter 4 of this document.*

Between CY 2019 and CY 2021, employment in waste management only increased by 1%. The average weekly wage has increased by about 10%.

Recycling is an essential component of an integrated waste management system. In West Virginia, the state's 50 local Solid Waste Authorities (SWAs) play an important role in waste management through recycling programs. All SWAs participate in recycling by providing recycling services or recycling education. Many fill a void by providing recycling to areas with low population density not considered profitable for private sector recyclers.

The role a SWA chooses to play in recycling varies based on needs and available resources. Twenty-nine authorities presently own and operate materials processing centers, serving as recycling drop-off centers and/or regional processing centers for both public and private sector recyclers in multiple counties. Seven authority's own collection equipment, and operate collection programs; however, they do not process materials. Still others participate in whatever way their situations and resources allow; sponsoring public and private sector programs or through public education efforts.

Figure 9-2
CY 2021 Solid Waste Authority Recycling Tonnage by Wasteshed



Solid waste authority recycling programs collected approximately 17,427 tons of material in CY 2021. With an average landfill tipping fee of $47.27 per ton (for CY 2021), this represents a savings of $823,774 in tipping fees.

Authorities received $1,253,335 in revenues for the sale of recyclables in CY 2021, up from $678,920 in CY 2019. These funds are usually put back into programs to cover operational costs. Total landfill savings and income for authority recycling programs amounts to an estimated $2 million.

9.4 Indirect Impact

Solid waste facilities also have an indirect impact on the state's economy through the purchase of goods and services in their immediate communities.

Landfills spend significant amounts of money on equipment, construction, consulting and engineering services, fuel, equipment maintenance, groundwater monitoring, and other professional services. Eleven of the state's landfills report current construction or plans for building over 47 acres of new landfill cells. Estimated construction costs are expected to be well over $18.2 million.

Waste haulers make significant contributions to the state's economy through equipment purchases, maintenance expenses, and fuel purchases. A new rear loader packer truck (garbage truck) can cost more than $250,000. Even a small rural waste hauling business must purchase and maintain containers, dumpsters and other equipment to create and sustain a commercially successful business.

Recycling centers, material processing centers, material collectors, and manufacturers received over $2.1 million from state grant programs in CY 2021. These funds were put back into local communities by way of capital improvements, purchasing of recycling equipment and vehicles, services and employment.

9.5 Induced Impact

When workers in direct and indirect industries purchase goods and services for consumption, they in turn stimulate another layer of the economy, thus creating an induced impact.

Induced impacts occur when workers spend

their earnings on goods and services in the local area or region. Purchases can include household items such as food and clothing, as well as services like insurance, financial services, and healthcare. In turn, these local businesses return revenues back to the local economy in the form of payroll, inventory and other business expenditures.

As these funds circulate, they continue to generate additional levels of economic activity including business expansion and job creation. These benefits are often referred to as spill-over effects.

9.6 Waste and Scrap Exports

Exports are one of West Virginia's most important economic drivers. The export of recyclable materials and scrap have been and remain an important part of state exports.

Scrap exports are made up of a wide variety of recyclable materials, the top two being metals and paper. Scrap also includes plastics, glass, textiles, and electronics and just about anything else that is recyclable.

Several critical global trends have influenced export markets for recyclables in recent years including higher energy costs, economic growth overseas, high commodities demand and better recovery technologies. These elements are working together to ensure future markets for West Virginia's surplus recyclable materials.

According to the US Department of Commerce, in CY 2021 West Virginia exported over $23.2 million in scrap and other recyclable materials worldwide. In the past, our principal international trading partner was China. Currently that seems to have changed to Malaysia or France. Since 2018, China has held steady as West Virginia's third highest receiver of exported scrap goods. This change in partners is likely a result of China's National Sword policy which took effect in January 2018 when the Chinese Government vowed to monitor and more stringently review recyclable waste imports.

The following table details West Virginia's recyclable materials and scrap exports over the last 5 years:

Table 9-2
NAICS 910, West Virginia Waste and Scrap Exports

-	2017	2018	2019	2020	2021
World	**22,774,006**	**23,418,023**	**17,484,671**	**14,417,464**	**23,270,054**
Malaysia	175,698	1,534,604	1,170,915	1,389,088	6,194,529
France	4,970,539	10,393,767	8,955,913	6,175,104	4,007,318
China	11,533,330	3,651,555	1,508,476	1,229,919	3,208,403
India	167,633	747,790	986,532	368,000	2,494,405
Hong Kong	330,885	40,000	448,749	339,170	1,775,232
Russian Federation	0	0	0	548,921	1,085,276
United Kingdom	240,863	107,560	1,073,740	1,015,598	874,350
Canada	1,035,093	691,866	424,122	843,909	861,673
Australia	391,602	237,379	1,690,454	1,153,664	626,871
Poland	0	0	0	0	503,002
Germany	251,763	0	5,955	0	464,064
Belgium	0	222,974	195,940	101,805	374,659
Vietnam	0	82,867	0	0	229,000
Greece	0	0	0	364,000	171,000
Japan	411,072	45,319	0	7,361	118,450
Pakistan	47,222	92,912	0	128,000	72,000
Cayman Island	0	0	0	61,076	43,326
United Arab Emirates	36,200	0	0	0	41,000
Indonesia	0	0	100,400	16,644	37,550
Dominican Republic	0	27,228	0	0	29,682
Mexico	518,296	2,087,178	0	0	29,347
Netherlands	2,440,145	471,836	123,646	0	28,917
Trinidad and Tobago	5,916	0	0	0	0
Thailand	0	253,284	0	388,203	0
Taiwan	0	2,564,919	720,283	0	0
South Korea	160,749	140,091	58,866	287,002	0
Italy	0	21,265	20,680	0	0
British Indian Ocean Territory	57,000	0	0	0	0
Afghanistan	0	3,629	0	0	0

Source: International Trade Administration, US Department of Commerce

End Notes for Section 9

1. US Department of Commerce, International Trade Administration, 2020 and 2021 NAICS Waste and Scrap Exports from West Virginia Report. https://www.trade.gov/data-visualization/tradestats-express-state-trade-product

2. WorkForce West Virginia, Research, Information and Analysis Division, Joseph Jarvis, Director, June. 2022.

Appendix A: Solid Waste Management Board Grant Overview

Under the authority of WV Code §22C-4-30, the Solid Waste Management Board administers a grant program funded through a fee assessed on every ton of solid waste disposed of in the State's landfills. Fifty percent of the $1 per ton assessed goes towards providing these grant dollars to county and regional solid waste authorities to support and assist in carrying out the purposes of their statutory responsibilities.

For additional information on this grant program or grant recipients, please contact the Solid Waste Management Board by calling 304-926-0448 or visit the website at: www.state.wv.us/swmb.

The following tables list the grant recipients for the three most current cycles.

FY 2023 SWMB GRANTS

SWA	Amount	Purpose
Barbour	$14,040	Insurance, fuel, utilities, maintenance/repairs, bobcat hooks and an air compressor.
Berkeley	$15,000	Transportation fees and a backyard composting seminar.
Boone	$14,600	Fuel, maintenance/repairs, and hand dollies.
Brooke	$9,642	Fuel, wages, maintenance/repairs, baling wire, accounting software, educational conference, equipment and a financial examination.
Calhoun	$15,025	Insurance, baling wire, wages and equipment.
Clay	$14,500	Compactor trucks and landfill fees for county cleanup.
Doddridge	$9,023	Office equipment and supplies, wages, portable generator, tools and two-way radios.
Greenbrier	$13,000	Assist with purchase of a roll-off truck.
Hancock	$14,050	Wages, household hazardous waste transportation and processing, recycling transportation and processing and educational conference.
Jackson	$12.500	Fuel, wages and vehicle & equipment maintenance/repairs.
Kanawha	$13,500	Fuel, equipment maintenance and repairs and office equipment.
Lincoln	$14,950	Insurance, hauling and educational conference.
Mason	$13,999	Wage, steel trailer and educational conference.
Mercer	$13,000	Assist with the purchase of a tractor.

Monongalia	$12,700	Wages, utilities, educational conference and a financial exam.
Morgan	$14,975	Hauling fees, educational conference and wages.
Nicholas	$13,000	Leachate treatment and environmental monitoring.
Pleasants	$13,950	Insurance, wages and educational conference.
Pocahontas	$14,000	Dumpsters and CPA services.
Preston	$5,647	Recycling bins, operational supplies and educational conference.
Putnam	$10,850	Financial exams and educational conference.
Raleigh	$9,450	Purchase of a backup generator.
Region VIII	$13,000	Property repairs.
Ritchie	$13,000	Purchase of a pickup truck.
Roane	$12,225	Wages, recycling bins, insurance, office supplies, advertising and educational conference.
Taylor	$8,377	Insurance, hauling, educational conference and office supplies.
Tucker	$13,000	Treatment of leachate.
Upshur	$11,000	Insurance, office supplies, paper shredding event, field trips, advertising/direct mail, Make it Shine event and educational conference.
Wayne	$13,500	Wages, insurance and a financial exam.
Wetzel	$13,315	Purchase a storage building, tires, wages, fuel, insurance, educational conference and accounting services.
Wirt	$8,400	Fuel, insurance, financial exam and educational conference.
Wyoming	$12,782	Wages, mobile radios, accessories and installation fees.
32 Recipients	**$400,000**	

FY 2022 SWMB GRANTS

SWA	Amount	Purpose
Barbour	$10,000	Wages and insurance.
Berkeley	$10,000	Transportation fees for recyclables.
Braxton	$9,150	Utilities, fuel, insurance, office equipment and supplies.
Brooke	$9,200	Baler and truck maintenance/repairs, educational conference expenses, accounting software, financial exam and porta-pot rental.
Cabell	$10,600	Wages, utility trailer, steel canopy/shelter, and assistance on costs associated with Milton site service.
Calhoun	$14,100	Utilities, insurance, baling wire and building improvements.
Clay	$11,000	Compactor trucks and landfill fees for county cleanup.
Hancock	$10,400	Wages, household hazardous waste transportation/ processing and educational conference expenses.
Jackson	$10,000	Vehicle and equipment maintenance/repairs and fuel.
Kanawha	$10,000	Fuel and insurance.
Lincoln	$13,000	Insurance and hauling fees for countywide cleanup.
Logan	$10,000	Assist in the purchase of a TrashVac collection system.
Mason	$10,800	Wages, insurance and educational conference expenses.
McDowell	$6,750	Financial examinations.
Mercer	$10,000	Inspection and maintenance of leachate tank.
Monongalia	$9,900	Wages, promotional materials and educational conference expenses.
Morgan	$10,400	Hauling fees and educational conference expenses.
Nicholas	$10,000	Leachate treatment and environmental monitoring.
Pleasants	$10,000	Insurance, equipment maintenance and repairs and a financial exam.
Pocahontas	$10,000	Utilities for the landfill.
Putnam	$10,000	Financial examinations.

Raleigh	$10,000	Purchase a tire balancer and a MIG welder.
Region VIII	$10,000	Repair and paving of access road to transfer station.
Ritchie	$25,000	Electrical upgrade to new building.
Roane	$12,200	Wages, insurance, office supplies, financial exam and educational conference.
Taylor	$11,800	Property improvements, insurance and educational conference expenses.
Tucker	$10,000	Treatment of leachate.
Upshur	$10,500	Insurance, office supplies, paper shredding event, field trips, advertising/direct mail campaign, a Make It Shine event and educational conference expenses.
Wayne	$10,000	Wages and insurance.
Wetzel	$11,000	Purchase a trailer, educational conference and financial exam.
Wirt	$9,200	Fuel, insurance, financial exam and educational conference expenses.
Wyoming	$15,000	Assist with the purchase of a dump bed and accessories.
32 Recipients	**$350,000**	

FY 2021 SWMB GRANTS

SWA	Amount	Purpose
Barbour	$11,000	Wages, baling wire and insurance
Berkeley	$11,800	Hauling fees, maintenance/repairs and equipment.
Boone	$10,000	Maintenance/repairs for trucks and dumpsters.
Braxton	$10,000	Wages, insurance and rent.
Brooke	$8,358	Bobcat battery, recycling truck fuel tank, maintenance/repairs on a baler, truck repairs, bailing wire, accounting software, financial exam and insurance.
Calhoun	$12,990	Wages, insurance and maintenance/repairs on a truck.
Doddridge	$15,000	Litter control truck.
Greenbrier	$10,000	Roof improvements.
Hancock	$9,400	Wages, household hazardous waste and recyclables transportation and processing.
Harrison	$10,000	Household hazardous waste event.
Jackson	$10,000	Maintenance/repairs for vehicle and equipment and operating supplies.
Kanawha	$10,000	Maintenance/repairs for vehicle and equipment and insurance.
Lincoln	$13,000	Wages, insurance, hauling fees for recyclables and financial examination.
Logan	$14,795	To purchase a blade, trailer and a bucket and hydraulic thumb for their excavator.
Marion	$8,000	Wages, maintenance/repairs, tires and a computer.
Mason	$11,000	Wages and insurance.
McDowell	$5,000	Litter control officer wages.
Mercer	$10,000	Computer and software.
Monongalia	$9,577	Wages, office supplies, rent and telephone/internet expenses.
Monroe	$9,800	Insurance, financial examination, and maintenance/repairs for truck.
Morgan	$14,000	Hauling fees and wages.

Nicholas	$10,000	Leachate treatment and monitoring.
Ohio	$10,160	Household hazardous waste collection event and wages.
Pleasants	$12,002	Insurance, utilities and recycling bins.
Pocahontas	$9,000	Tarps, spray nozzles and a computer.
Preston	$9,133	Tires, winch and winch mount, chainsaw, stream stations, big bottle recyclers, utility trailer and UTV roof, doors, hitch, switch kit and cover.
Putnam	$7,000	Office supplies and demolition fees.
Raleigh	$10,000	A wind fence.
Region VIII	$10,000	Stabilizing a wall and other repairs to the transfer station.
Ritchie	$13,300	Purchase a box trailer and licensing, maintenance/repairs to forklift and truck, phase converter, utilities and office supplies.
Roane	$8,943	Insurance, office supplies and advertising.
Taylor	$15,000	Property improvements.
Tucker	$10,000	Treatment of leachate.
Upshur	$9,100	Insurance, office supplies, paper shredding event, field trips, advertising/direct mail and a Make It Shine event.
Wayne	$9,536	Tires, wages, office supplies, vehicle GPS and a financial examination.
Wetzel	$9,321	Utilities, insurance, a computer and accessories, installation of security system and account services.
Wood	$10,000	Electric pallet jacks and a chain link fence,
37 Recipients	**$386,215**	

Appendix B: DEP-REAP Recycling Assistance Grant Overview

Administered by the WVDEP Rehabilitation Environmental Action Plan (REAP), the Recycling Assistance Grant Program is funded by a $1 fee assessed on every ton of solid waste disposed of in West Virginia landfills. The funds are available to any county, municipality, public, or private entity in West Virginia interested in planning and implementing recycling programs, recycling education programs or in need of assistance in recycling markets.

For additional information on this grant program or grant recipients, please contact the WVDEP REAP program by calling 304-926-0499 or visit their website at:
www.dep.wv.gov/environmental-advocate/reap/Pages/default.aspx.

The following tables list the grant recipients for the three most current cycles.

CY 2022 DEP-REAP Recycling Assistance Grant

Entity	Amount	Purpose
Calhoun Co SWA	$137,725.70	Wages, a pickup truck, facility repairs, trailer, paper shredder, battery and glass recycling, preventive equipment maintenance, electric pallet jack and operation supplies.
Fayette Co SWA	$20,000.00	Recycling feasibility study for the county.
Greenbrier Co SWA	$150,000.00	Forklift, roof repair and recycling trailers for the countywide recycling program.
Hancock Co SWA	$47,700.00	Wages, transportation costs, recycling of paint, aerosols and fluorescent bulbs, bulk mailer and grapple attachment.
Mason Co SWA	$70,387.00	Wages, pickup truck, vehicle and equipment maintenance and insurance, office supplies, operational supplies and utilities.
Pleasants Co SWA	$101,895.00	Wages, vehicle and equipment fuel, equipment expenses, utilities, operational supplies, vehicle repairs, van, facility roof repairs and advertising for county program.
Pocahontas Co SWA	$41,700.00	Wages, transportation costs, equipment maintenance, operational supplies, skid steer bucket, cage trailers, educational pamphlets and advertising.
Ritchie Co SWA	$150,000.00	Assist with construction of a new recycling facility for county program.
Roane Co SWA	$118,100.00	Wages, vehicle and equipment maintenance, utilities, operational supplies, equipment fuel, box truck liftgate, trailers, glass and fluorescent bulb recycling, concrete installation, forklift, surveillance system and lighting for recycling building.
Upshur Co SWA	$3,860.00	Assist with funding two paper shredding events, banners and office expenses.

Wetzel Co SWA	$47,530.00	Wages, paper and electronics shredding events, safety/traffic control supplies, vehicle fuel, gravel for lot and facility repairs.
Hampshire Co Commission	$101,987.00	Pickup truck, trailer, equipment maintenance, fuel and wages.
Mercer Co Commission	$62,242.00	Wages, pickup truck, vehicle fuel and maintenance, advertising and recycling bags for county program.
Roane Co Commission	$97,000.00	Purchase of a box truck, vehicle insurance and accessories for county recycling program.
Belle, Town of	$21,400.00	Roll-off container, transportation costs, recycling bins and bags.
Morgantown, City of	$52,400.00	Wages, conference expenses, outreach and advertising, recycling events, composting bins, monitoring of recycling bins and recycling supplies.
Stonewood, City of	$59,580.00	Purchase 96-gallon recycling carts for city program.
Wheeling Park Commission	$74,380.00	Purchase of two roll-off containers, curbside bins, wages, backhoe attachment, recycling containers, concrete installation, signage and supplies for Oglebay Park's new recycling and composting initiative.
Marshall University	$57,842.52	Assist with the purchase of a box truck, glass crusher and sifter, indoor recycling and composting bins, travel and conference expenses and compost supplies for the university recycling program.
Shepherd University	$36,720.00	Water bottle filling stations and educational signage for university program.
D & D Recycling	$17,739.00	Dump trailer, computer hardware and software for the program.
Greenworks Recycling	$75,000.00	Concrete installation, gravel and two utility buildings.
Infinite Electronics Recycling, LLC	$71,400.00	Wages, operational supplies, vehicle insurance and fuel, forklift, racking, worktables, utilities, R2 Certification, printing, truck signage and advertising.
KnightHorst Shredding, LLC	$15,000.00	Assist with purchase of a cargo van liftgate and baling wire.
Metal Center Recycling	$59,198.00	Two forklifts for the recycling operation.
Sunrise Sanitation Services, Inc.	$75,000.00	Assist with purchase of a tri-axle recycling truck.
West Virginia Cashin Recyclables	$73,956.00	Assist with purchase of a scrap metal processing system.
27 Recipients	**$1,839,742.00**	

CY 2021 DEP-REAP Recycling Assistance Grants

Entity	Amount	Purpose
Berkeley Co SWA	$149,500.00	Loading dock repairs, tractor replacement, purchase 2 road trailers and install shale at one recycling center location.
Brooke Co SWA	$52,288.88	Wages, addition of a restroom at recycling center, fuel, recycling totes, maintenance expense, phone, stretch wrap machine and supplies, storage container and propane.
Cabell Co SWA	$45,565.33	Wages, insurance, fuel, containers, tires, office supplies, educational materials, utilities, website updates and fobs and security cameras for the Huntington recycling site.
Jackson Co SWA	$143,520.00	Laborer wages, fuel, maintenance/repairs, utilities, purchase collection containers, collection trailers, pickup truck and operational expenses for the county's recycling operation.
Kanawha Co SWA	$85,000.00	Recycling assistant wages and purchase a new skid steer.
Lincoln Co SWA	$42,920.28	Wages, purchase a recycling container, hauling fees for recyclables, advertising, lettering for bin and office supplies.
Mercer Co SWA	$150,000.00	Purchase a storage building, recycling trailers, pickup truck, tire derimmer, waste oil burner and wages for the county's recycling program.
Morgan Co SWA	$23,010.00	Coordinator and laborer wages, porta potty rental for recycling drop-off location, educational brochure and center rent for a year.
Ohio Co SWA	$43,545.00	Purchase 3 – 25-yard trailers to assist with the new county recycling drop-off program.
Raleigh Co SWA	$140,000.00	Building maintenance, utilities, wages, vehicle maintenance/repairs and fuel.
Wayne Co SWA	$45,908.16	Wages, portable yard ramp, fuel, utilities and maintenance/repairs.
Wayne Co Commission	$13,400.00	Install LED lighting upgrades to the Wayne Co SWA Recycling building.
City of Kingwood	$71,440.10	Purchase a forklift, tires, electric tarp system, wages, maintenance/repairs on building, fuel, office supplies and utilities.
City of Moundsville	$41,215.78	Building upgrades for new recycling program, wages, office supplies, transportation costs, educational conference and advertising for program.
City of Parkersburg	$145,265.00	Replace an automatic baling system, purchase a forklift, storage containers and tires for an additional forklift.
City of Weston	$12,721.60	Concrete, fencing and excavation of new permanent drop-off site for city's residents.

Goodwill Industries of KYOWVA Area	$70,917.32	Wages, educational conference travel, repairs to recycling center dock doors, utilities, fuel, purchase baling wire, shrink wrap, pallet jacks, roll-away ramp, gaylord boxes, hand truck, and tires for box truck and forklift.
Recycling Coalition of WV	$49,500.00	Costs associated with print and delivery of a WV Recycles Day educational newspaper insert and advertising of statewide activities.
Ambassador Ministries	$75,000.00	Purchase a box truck for collections, wages and fuel.
PACE Enterprises of WV	$74,740.00	Wages, operational supplies and vehicle expenses.
Polymer Alliance Services	$74,987.58	Purchase loading dock restraint locks and rain shrouds.
Ravenseye Recycling	$57,250.00	Purchase a recycling van, bins for residential and commercial collections, outbuilding for storage, advertising and vehicle expenses.
Whisner Tire Recycling	$75,000.00	Assist with the purchase of a crumb rubber tire grinder.
23 Recipients	**$1,682,695.03**	

Appendix C: DEP-REAP Covered Electronic Devices (CED) Grant Overview

Established in 2008 under the WVDEP Rehabilitation Environmental Action Plan (REAP), the Covered Electronics Devices (CED) Grant Program requires that manufacturers register their brands with the State of West Virginia. Fees collected from this program allow counties and municipalities to apply for CED grants to conduct electronic collection events and support ongoing collection programs.

For additional information on this grant program or grant recipients, please contact the WVDEP REAP program by calling 304-926-0499 or visit their website at: www.dep.wv.gov/environmental-advocate/reap/Pages/default.aspx.

The following tables list the grant recipients for the three most current cycles.

FY 2023 DEP-REAP CED Grants

Entity	Amount	Purpose
Berkeley County Solid Waste Authority	$8,000	To fund transportation costs for the County's ongoing CED collection program.
Brooke County Solid Waste Authority	$8,000	To fund labor wages, advertising, and contractor fees for the County's ongoing CED collection program.
Cabell County Solid Waste Authority	$5,600	To fund labor wages and recycling fees to hold multiple CED collection events.
Hancock County Solid Waste Authority	$6,000	To fund labor wages and packaging materials for the County's ongoing CED collection program.
Kanawha County Commission	$8,000	To fund contractor fees and advertising for up to six CED collection events.
Mingo County Commission	$9,000	To fund contractor fees to hold a CED collection event.
Monongalia County Solid Waste Authority	$8,000	To fund contractor fees and advertising to hold a CED collection event.
Morgan County Solid Waste Authority	$4,500	To fund contractor fees and advertising to hold a CED collection event and an educational pamphlet.
City of Morgantown	$4,000	To fund contractor fees and advertising to hold a CED collection event.
Pleasants County Solid Waste Authority	$9,000	To fund contractor fees and a legal advertisement to hold a CED collection event.
Preston County Solid Waste Authority	$7,500	To fund contractor fees and advertising to hold a CED collection event.
Putnam County Solid Waste Authority	$8,000	To fund contractor fees and advertising to hold a CED collection event.
Randolph County Commission	$9,000	To fund contractor fees and advertising to hold a CED collection event.
Roane County Solid Waste Authority	$6,500	To fund labor wages, contractor fees, and advertising for the County's ongoing collection program.
Recipients	**$101,100**	

FY 2022 DEP-REAP CED Grants

Entity	Amount	Purpose
Barboursville, Village of	$6,500	E-cycling services and advertising for two collection events.
Berkeley County SWA	$12,000	Transportation costs and shipping supplies for the County's ongoing collection program.
Brooke County SWA	$9,500	E-cycling services, wages, camera expenses and advertising for collection events.
Cabell County SWA	$5,750	Wages, advertising, and traffic control equipment for county collection events.
Calhoun County SWA	$9,500	E-cycling services, wages and advertising for a collection event.
Fayetteville, Town of	$5,448	E-cycling services and wages for two collection events.
Kanawha Co Commission	$6,100	E-cycling services and advertising for six collection events.
Lincoln County SWA	$9,500	E-Cycling services and advertising for a collection event.
Mingo Co Commission	$9,500	E-cycling services for a collection event.
Monongalia County SWA	$8,500	E-Cycling services and advertising for a collection event.
Morgan County SWA	$6,680	E-cycling services, advertising and educational pamphlets for two collection events.
Morgantown, City of	$7,919	E-Cycling services and advertising for three collection events.
Pleasants County SWA	$9,500	E-Cycling services and advertising for a collection event.
Preston County SWA	$9,500	E-cycling services, advertising, and educational materials for a collection event.
Ritchie County SWA	$9,500	E-Cycling services and advertising for a collection event.
Roane County SWA	$5,425	E-cycling services, wages, and advertising for the County's ongoing collection program and collection events.
White Hall, Town of	$1,165	E-Cycling services and wages for a collection event.
17 Recipients	**$131,987**	

FY 2021 DEP-REAP CED Grants

Entity	Amount	Purpose
Berkeley Co SWA	$14,700	To fund transportation costs and stretch wrap for an ongoing program.
Brooke Co SWA	$13,250	To fund E-cycling contract services, labor, advertising, line for security camera, costs for one collection event, and an ongoing program.
Cabell Co SWA	$12,580	To fund E-cycling collection events with advertising and labor.
Hancock Co SWA	$6,000	Fund labor and packaging materials for an ongoing program.
Kanawha Co Commission	$8,600	Fund E-cycling collection events and community outreach.
Pleasants Co SWA	$10,000	To fund E-cycling contract services and advertising for one collection event.
Preston Co SWA	$9,000	Fund E-cycling contract services and advertising for one collection event.
Ritchie Co SWA	$9,000	To fund E-cycling contract services, labor, legal ad, educational materials, advertising costs for one collection event, and an ongoing program.
Roane Co SWA	$4,435	Fund advertising, recycling fees, wages, and promotional materials for an ongoing program.
9 Recipients	**$87,565**	

Appendix D: Recycling Survey/Analysis: CY 2021

Following are the results of CY 2021–surveys of the states 50 Solid Waste Authorities (SWAs) and 13 mandated municipalities[1]. As per W.Va. Code §22-15A-18 (b) cities with populations over 10,000 are mandated to provide curbside recycling to their citizens.

In West Virginia there are no reporting requirements for public or private recycling programs. All reporting is voluntary and sometimes fragmented. Many municipal and SWA collection programs are outsourced to private sector contractors. Where records or surveys were not available other sources were used to compile this information including, Solid Waste Management Board grant applicants, WV DEP REAP Recycling Assistance Grant applications, REAP CED Grant Final Reports, REAP CED Manufacturer Annual Reports and information from the 2021 West Virginia Solid Waste Management Plan. (dep.wv.gov/environmental-advocate/reap/grantprograms/Pages/default.aspx)

The number of drop-off and curbside collection programs was obtained from the Solid Waste Authority CY 2021 Recycling Surveys. Drop-off programs include community recycling centers, municipal programs, remote drop-off sites and drop-off centers.

Listings also include collection sites at local schools. It does not include manufacturer sponsored programs or other types of mail-in programs.

Most of the tonnage numbers are for Solid Waste Authority or municipal collection programs. Tonnages were also listed in cases where Solid Waste Authorities work closely with private or public sector programs. In addition to tonnage and other information, the SWA's were asked to estimate the percentage of total recycling they provide in their areas of responsibility.

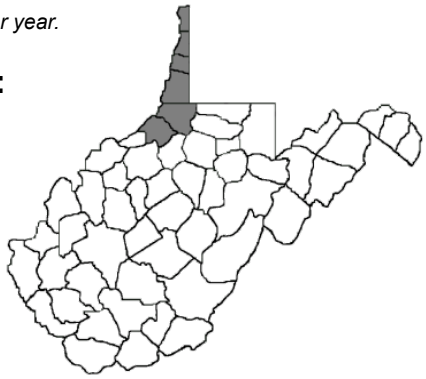
All recycling revenues listed are earned by the entities they are listed under. It is hoped that by providing a tool to easily identify programs with revenue problems, assistance can be rendered by municipal, county and state entities.

WASTESHED A: RECYCLING SURVEY

Gray areas on charts indicate items were not accepted, or reported, for the specified calendar year.

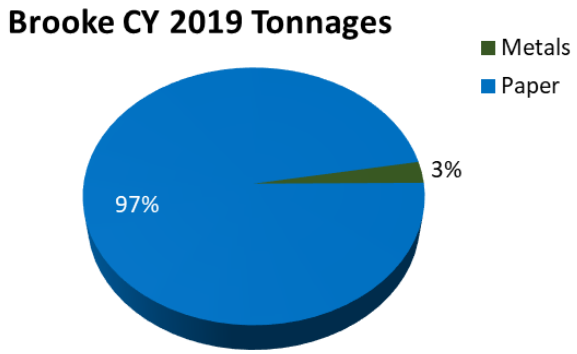
Wasteshed A consists of six West Virginia counties:

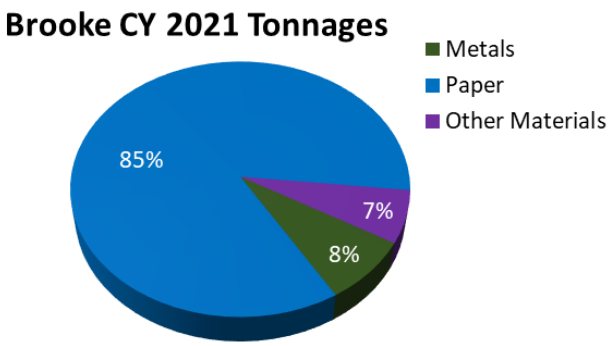
- Brooke
- Hancock
- Marshall
- Ohio
- Tyler
- Wetzel



Brooke

Drop-Offs:	**4**	Materials Collected: **Commingled**			
Curbside Collections:	**0**				
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans		8.40		$12,708.29	Vans Iron & Metal
Scrap Metals	3.86	5.91	$944.00	$1,201.60	Vans Iron & Metal
Mixed Papers	140.70	152.00	$9,386.00	$9,147.60	Valley Converting
Electronics		5.91		$0.00	Greenwave Electronics
Tires		5.50		$0.00	WVDEP Litter Control Program
Other Materials: Freon		0.43		$0.00	Greenwave Electronics
	144.56	**178.15**	**$10,330.00**	**$23,057.49**	

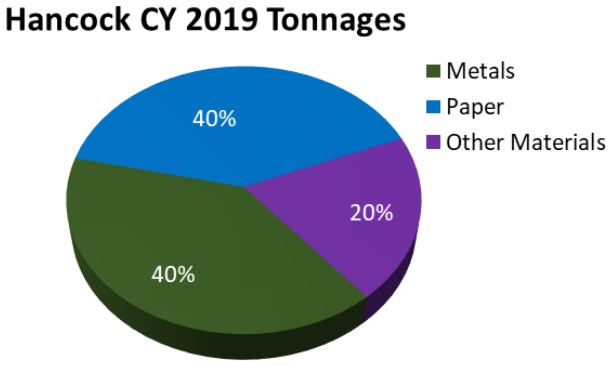


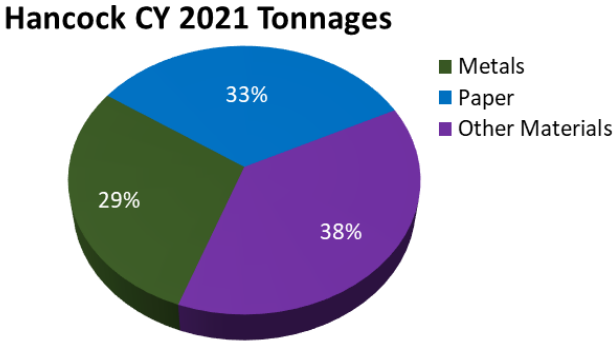


Hancock

Drop-Offs:	1	Materials Collected: **Separated & Commingled**		
Curbside Collections:	1			
	TONNAGE*		**REVENUE**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Scrap Metals	39.98	33.30	$2,682.70	$5,821.50	Six Recycling
Mixed Papers	40.52	38.00	$2,431.20	$2,280.00	Valley Converting
Commingled	12.64	11.90	$0.00	$0.00	Greenstar
Electronics	4.72	3.50	$0.00	$272.69	Infinite Electronics Recycling
Oil/Paint	2.90	5.10	$0.00	$0.00	Am. Waste Management Services
Tires	3,627 tires	23.00	$0.00	$0.00	WVDEP Contractor
Used Oil	330 gallons		$0.00		
	100.76	**114.80**	**$5,113.90**	**$8,374.19**	

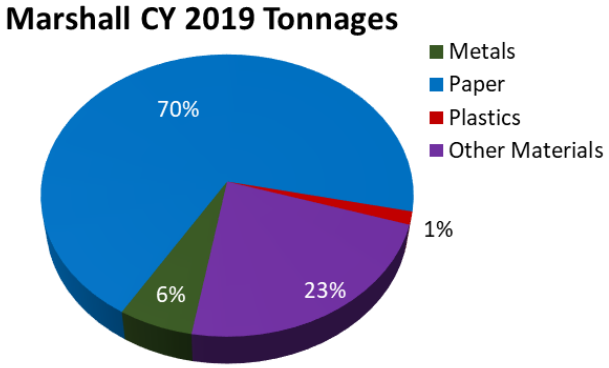
*Tires and used oil are not calculated in the tonnages for CY 2019 but are for CY 2021..
Commingled Materials Include: Aluminum cans, bi-metal cans, steel cans, #1 plastics, #2 plastics, and other plastics.

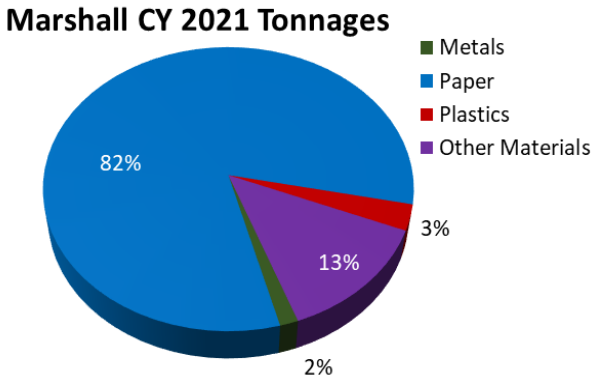




Marshall

Drop-Offs:	**5**	Materials Collected: **Commingled**			
Curbside Collections:	**0**				
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	4.00	0.50	$0.00	$0.00	Quigley's
Newspapers		6.00		$0.00	Valley Converting
Cardboard	9.35	3.00	$0.00	$0.00	Valley Converting
Mixed Papers	37.74	19.00	$0.00	$0.00	Valley Converting
Mixed Plastics	1.00	1.00	$0.00	$0.00	Green Team
Electronics	3.50	4.50	$0.00	$0.00	PC Renewal
Other Materials	12.00		$0.00		
	67.59	**34.00**	**$0.00**	**$0.00**	





Ohio

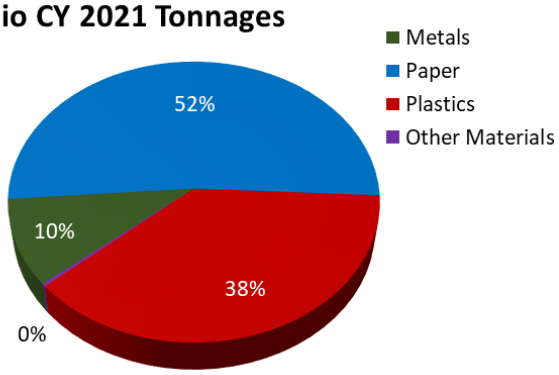
Drop-Offs:	**10**	Materials Collected: **Source Separated**			
Curbside Collections:	**1**				
	TONNAGE		**REVENUE**		
Item	**2019**	**2021***	**2019**	**2021***	**Markets**
Mixed Paper		8.37		$154.80	Valley Converting
Other Metals		1.60		$289.80	Quigley's
Mixed Plastics		4.06		$0.00	WM Recycle America - Greenstar
Other Plastics		2.03		$0.00	Trex Company
Yard Waste		0.05		$0.00	OCSWA Fall Plant Swap
		16.11		**$444.60**	

*Program did not exist in CY 2019. Amounts are estimated for CY 2021 - accurate records were not available prior to September 7, 2021.

Ohio CY 2019 Tonnages

Program was nonexistent in CY 2019

Ohio CY 2021 Tonnages



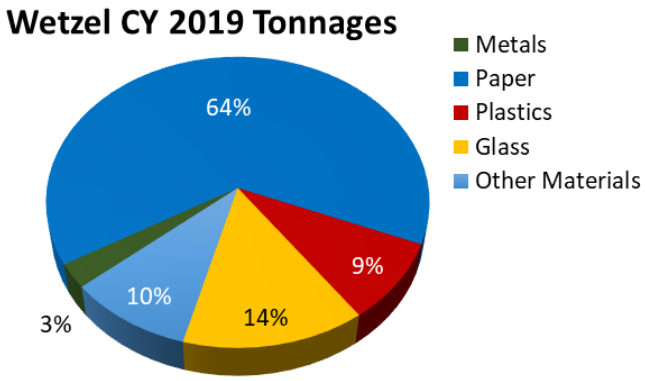
Tyler

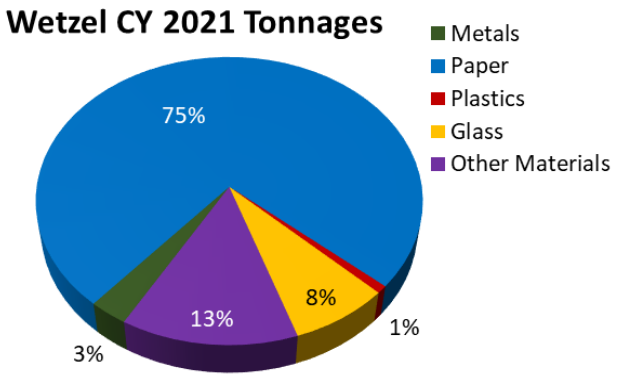
Failed to file a CY 2019 or CY 2021 report.

Wetzel

Drop-Offs:	1	Materials Collected: **Source Separated**			
Curbside Collections:	0				
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	2.20	2.00	$0.00	$485.00	Strauss Aluminum
Bi-Metal Cans	3.39	1.50	$0.00	$0.00	Pleasants Co SWA
Newspapers	10.98		$0.00		Valley Converting
Cardboard	92.00		$0.00		Valley Converting
Mixed Paper	24.24	88.55	$1,782.60	$1,822.87	Valley Converting
Other Paper	6.13		$0.00		Valley Converting
Mixed Plastics	18.42	1.00	$0.00	$0.00	Pleasants Co SWA
Mixed Glass	29.19	9.00	$0.00	$0.00	Bradish Glass
Other: Magazines/Books	20.04		$0.00		
Tires		16.00		$0.00	Weston Tire
	206.59	**118.05**	**$1,782.60**	**$2,307.87**	

NOTES: 2019 Survey reported paper tonnages separately with only one item showing revenue. Paper items were combined and reported as "mixed paper" for the 2021 survey. Valley Converting pays $0.03/pound for all grades of paper.





WASTESHED A: RECYCLING ANALYSIS

Recycling Facilities

	CY 2019	CY 2021
Drop-Offs	13	21
Curbside	2	2

Recycling Tonnage/Revenue

	CY 2019	CY 2021
Total Recycled	519.50	461.11
Total Recycling Income	$17,226.50	$34,184.15

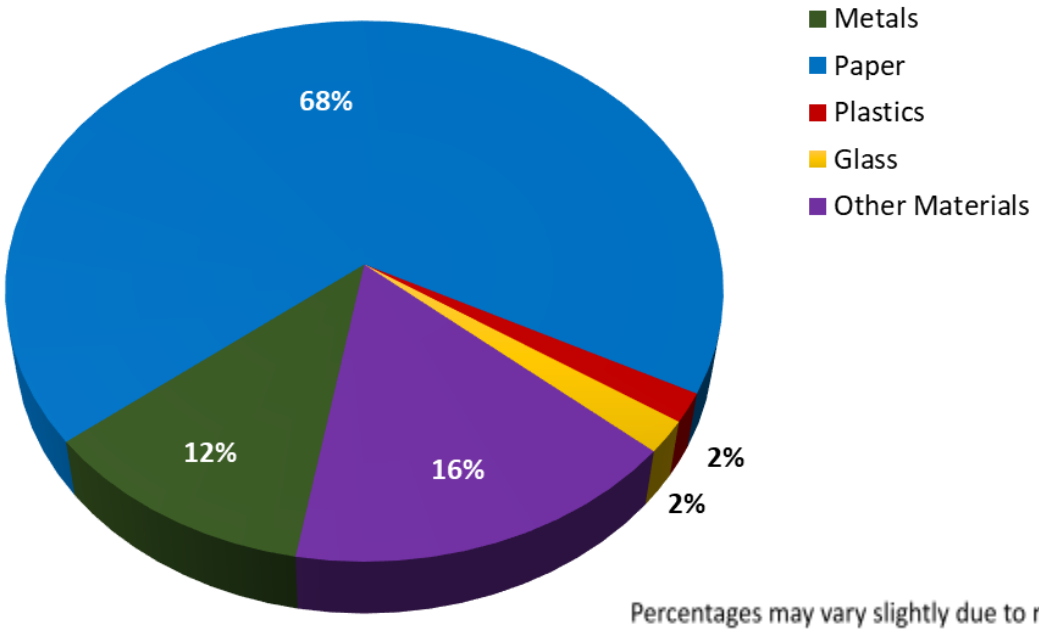
Recycling Materials Collected and Marketed in Wasteshed A: 2019 & 2021 Comparison

	TONNAGE			REVENUE		
MATERIAL	2019	2021	CHANGE	2019	2021	CHANGE
METALS						
Aluminum Cans	6.20	10.90	4.70	$0.00	$13,193.29	$13,193.29
Bi-Metal Cans	3.39	1.50	(1.89)	$0.00	$0.00	$0.00
Steel Cans	0.00	0.00	0.00	$0.00	$0.00	$0.00
Scrap Metals	43.84	39.21	(4.63)	$3,626.70	$7,023.10	$3,396.40
White Goods	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Metals	0.00	1.60	1.60	$0.00	$289.80	$289.80
PAPER						
Newspapers	10.98	6.00	(4.98)	$0.00	$0.00	$0.00
Cardboard	101.35	3.00	(98.35)	$0.00	$0.00	$0.00
Office Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Paper	243.20	305.92	62.72	$13,599.80	$13,405.27	($194.53)
Other Paper	6.13	0.00	(6.13)	$0.00	$0.00	$0.00
PLASTICS						
#1 PET	0.00	0.00	0.00	$0.00	$0.00	$0.00
#2 HDPE	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Plastics	19.42	6.06	(13.36)	$0.00	$0.00	$0.00
Other Plastics	0.00	2.03	2.03	$0.00	$0.00	$0.00
GLASS						
Clear Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Glass	29.19	9.00	(20.19)	$0.00	$0.00	$0.00
OTHER MATERIALS						
Commingled	12.64	11.90	(0.74)	$0.00	$0.00	$0.00
Yard Waste/Brush	0.00	0.05	0.05	$0.00	$0.00	$0.00
Electronics	8.22	13.91	5.69	$0.00	$272.69	$272.69
Tires	0.00	44.50	44.50	$0.00	$0.00	$0.00
Other Materials	34.94	5.53	(29.41)	$0.00	$0.00	$0.00
	519.50	**461.11**	**(58.39)**	**$17,226.50**	**$34,184.15**	**$16,957.65**

NOTE: Tonnage numbers and income is calculated as reported. Tonnage may include collected or collected and marketed. Income was not reported on all surveys. Income comparison change reflects only entities that filed a report.

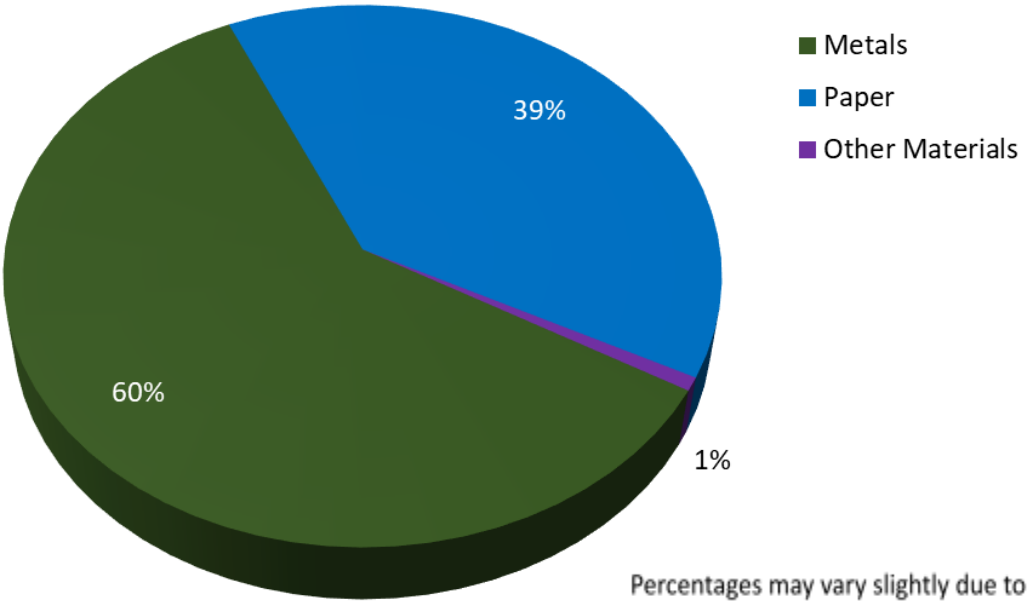
WASTESHED A: RECYCLING ANALYSIS (Continued)

CY 2021 Recycling Materials by Category for Wasteshed A



Percentages may vary slightly due to rounding.

CY 2021 Recycling Income by Category for Wasteshed A



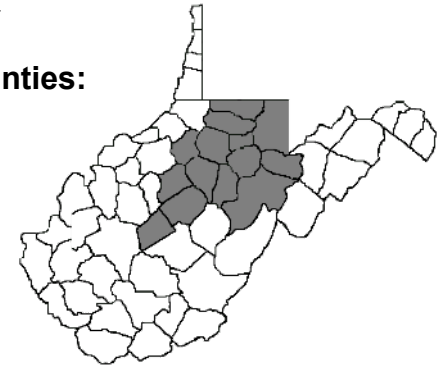
Percentages may vary slightly due to rounding.

WASTESHED B: RECYCLING SURVEY

Grayed out areas indicate items were not accepted or reported for the specified calendar year.

Wasteshed B consists of fourteen West Virginia counties:

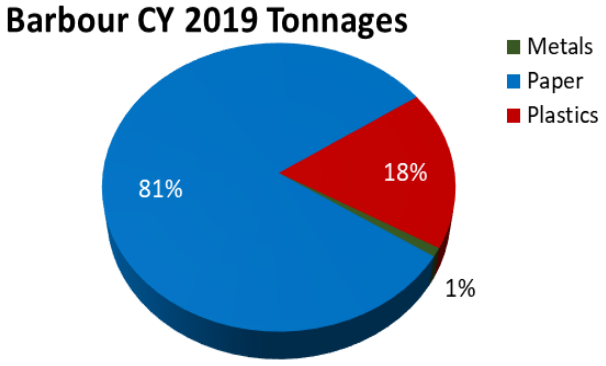
- Barbour
- Braxton
- Clay
- Doddridge
- Gilmer
- Harrison
- Lewis
- Marion
- Monongalia
- Preston
- Randolph
- Taylor
- Tucker
- Upshur



Barbour

Drop-Offs:	**12**	Materials Collected: **Commingled**		
Curbside Collections:	**0**			
	TONNAGE		**REVENUE**	
Item	**2019**	**2021***	**2019**	**2021**	**Markets**
Aluminum Cans	0.50		$0.00		Randolph County Recycling Center
Bi-Metal Cans	0.50		$0.00		Randolph County Recycling Center
Newspapers	16.00		$0.00		Randolph County Recycling Center
Cardboard	58.00		$0.00		Randolph County Recycling Center
Office Paper	8.00		$0.00		Randolph County Recycling Center
#1 PET	10.00		$0.00		Randolph County Recycling Center
#2 HDPE	8.00		$0.00		Randolph County Recycling Center
Electronics					
	101.00		**$0.00**		

*BCSWA leased their recycling program to Randolph Co Recycling Center. All sales go through RCRC. No information was available for CY 2021.

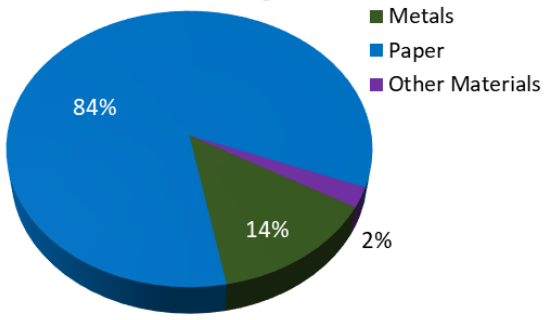


WASTESHED B: RECYCLING SURVEY (Continued)

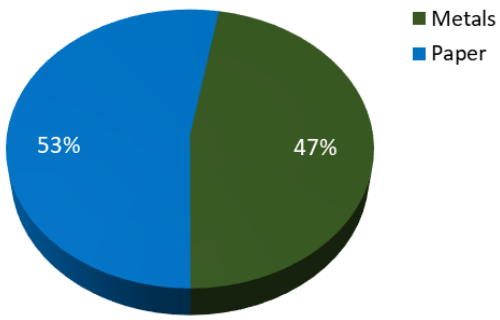
Braxton

Drop-Offs:	1	Materials Collected: **Separated**		
Curbside Collections:	1			
	TONNAGE		REVENUE	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	11.26	10.45	$10,997.51	$14,026.43	WV Cashin
Steel Cans	7.09	0.96	$592.99	$57.57	WV Cashin
Scrap Metal	4.02	17.89	$4,160.36	$32,963.09	WV Cashin
Other Metals	8.58		$21,782.14		
Newspapers	28.43	4.01	$10.39	$0.00	WV Cashin
Cardboard	128.77	19.15	$1,892.93	$1,464.40	WV Cashin
Mixed Paper	32.27	9.65	$2,983.98	$385.92	WV Cashin
Office Paper					
Other Paper					
Batteries	5.31		$3,013.74		
	225.73	**62.11**	**$45,434.04**	**$48,897.41**	

Braxton CY 2019 Tonnages



Braxton CY 2021 Tonnages



Clay

Does not own, operator, or participate in a recycling program.

Doddridge

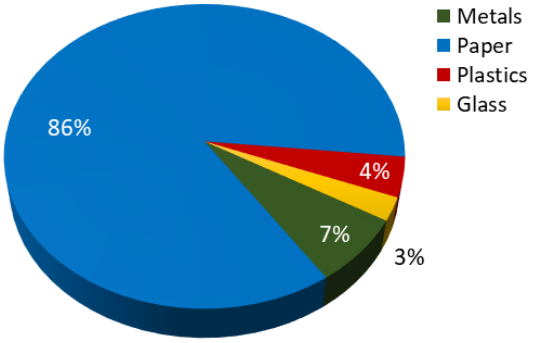
Does not own, operator, or participate in a recycling program.

Harrison

Drop-Offs:	1	Materials Collected: **No Response**		
Curbside Collections:	1			
	TONNAGE*		**REVENUE**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	55.00		$0.00		
Bi-Metal Cans	89.73		$0.00		
Newspapers	190.88		$0.00		
Cardboard	1,254.25		$0.00		
Office Paper	282.00		$0.00		
#1 PET	49.73		$0.00		
#2 HDPE	35.37		$0.00		
Mixed Glass	50.00		$0.00		
	2,006.96		**$0.00**		

*The Harrison Co SWA participates in a recycling partnership with Enterprise Sanitation offering a drop-off recycling program to county residents. This program is also used by county waste haulers accepting recyclables curbside from residents in their certificated areas. Do not have numbers to report for CY 2021.

Harrison CY 2019 Tonnages



Harrison CY 2021 Tonnages

CY 2021 Tonnages were not available for this publication.

Lewis/Gilmer

Drop-Offs:	3	Materials Collected: **Separated**
Curbside Collections:	1	Geographic Area of Responsibility: **75%**
Lewis/Gilmer SWA offers recycling to county residents through a partnership with Mountain State Waste. Tonnage info was not provided. Materials collected are: aluminum cans, bi-metal cans, steel cans, all papers and mixed plastics.		

WASTESHED B: RECYCLING SURVEY (Continued)

Marion

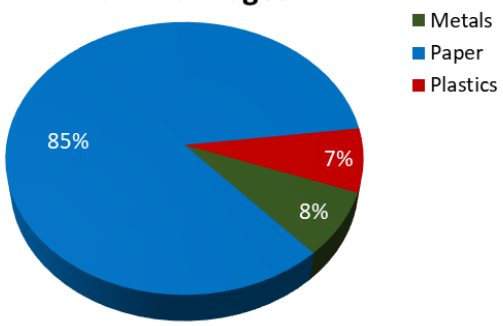
Drop-Offs:	1	Materials Collected: Commingled & Source Separated			
Curbside Collections:	7				
	TONNAGE		REVENUE		
Item	**2019***	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans		20.00		$0.00	Did Not Market During 2021
Bi-Metal Cans		15.00		$0.00	Did Not Market During 2021
Cardboard		309.92		$31,186.00	Sunrise Sanitation / ND Paper
Office Paper		3.00		$0.00	Did Not Market During 2021
Mixed Paper		70.28		$5,685.00	ND Paper
#1 PET		19.12		$525.96	Shamrock Sanitation
#2 HDPE		15.00		$0.00	Did Not Market During 2021
		452.32		**$37,396.96**	

*No report was filed for CY 2019.

Marion CY 2019 Tonnages

Did not file a CY 2019 report.

Marion CY 2021 Tonnages



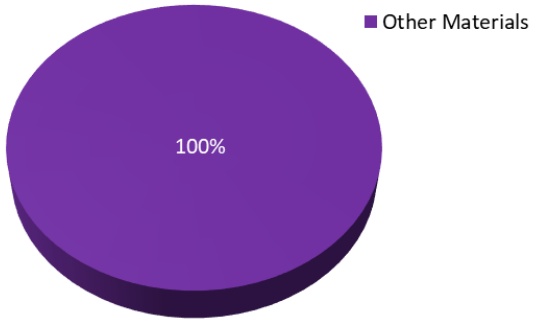
Monongalia

Drop-Offs:	2	Materials Collected: **Not Applicable**			
Curbside Collections:	1				
	TONNAGE*		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Electronics		11.73		$0.00	N/A - Vendor Processed
		11.73		**$0.00**	

Monongalia CY 2019 Tonnages

No tonnage information was available for CY 2019

Monongalia CY 2021 Tonnages



Preston

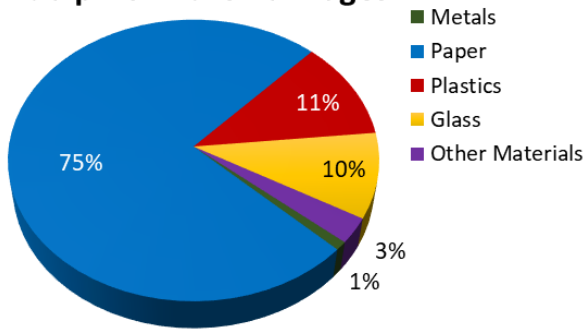
Drop-Offs:	**7**	Materials Collected: **Separated**
Curbside Collections:	**1**	
Does not own or operate a recycling program. However, they assist in setting up drop-off locations for the Town of Terra Alta, City of Kingwood and a private contractor, Sunrise Sanitation.		

Randolph

Drop-Offs:	**1**	Materials Collected: **No Response**			
Curbside Collections:	**0**				
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	2.00		$1,200.00		RRHAMCO Inc.
Steel Cans	4.00		$160.00		RRHAMCO Inc.
Newspapers	40.00		$120.00		Caraustar
Cardboard	240.00		$0.00		Shamrock Recycling East
Office Paper	180.00		$0.00		ND Paper
#1 PET	40.00		$8,000.00		UNIFI
#2 HDPE	30.00		$7,200.00		UNIFI
Clear Glass	30.00		$0.00		Bradish Glass
Amber Glass	15.00		$0.00		Bradish Glass
Green Glass	15.00		$0.00		Bradish Glass
Electronics	18.00		$0.00		None Listed
	614.00		**$16,680.00**		

The RCSWA provides assistance to the Randolph County Recycling Center (RCRC), a private recycler, which provides services to the county. The RCRC was sold in 2022 and there were no tonnage totals available for 2021.

Randolph CY 2019 Tonnages



Randolph CY 2021 Tonnages

Tonnage info was not available for CY 2021

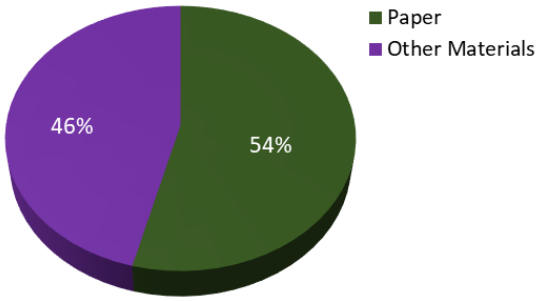
WASTESHED B: RECYCLING SURVEY (Continued)

Taylor

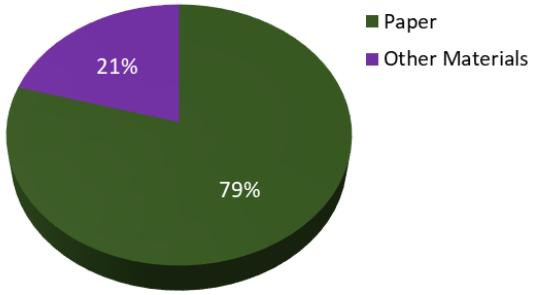
Drop-Offs:	**2**	Materials Collected: **Separated**			
Curbside Collections:	**1**				
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Cardboard	74.88	107.47	$0.00	$0.00	Mountain State Waste
Commingled	63.75	27.80	$0.00	$0.00	Mountain State Waste
	138.63	**135.27**	**$0.00**	**$0.00**	

Commingled Materials Include: All plastics, paper, aluminum, steel and catalogs and magazines.

Taylor CY 2019 Tonnages



Taylor CY 2021 Tonnages

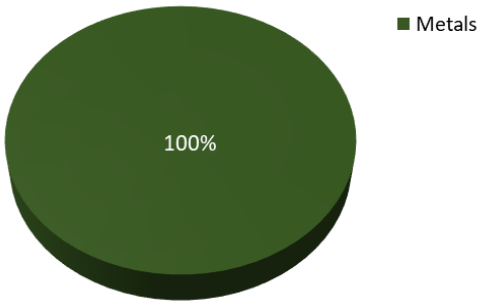


Tucker

Drop-Offs:	**4**	Materials Collected: **Not Applicable**			
Curbside Collections:	**0**				
Does not own, operate or participate in a recycling program.					
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Scrap Metals	33.46		$0.00		
Tires*	6,191 tires		$0.00		
	33.46		**$0.00**		

*Tires not calculated on tonnage.

Tucker CY 2019 Tonnages



Tucker CY 2021 Tonnages

Does not own, operate or participate in a recycling program.

Upshur

Drop-Offs:	**1**	Materials Collected: **No Response**
Curbside Collections:	**1**	
UCSWA has a cooperative agreement with the City of Buckhannon to promote and provide education for the City's recycling program.		

WASTESHED B: RECYCLING ANALYSIS

Recycling Facilities

	2019	2021
Drop-Offs	**41**	**35**
Curbside	**10**	**14**

Recycling Tonnage/Revenue

	2019	2021
Total Recycled	**3,119.78**	**661.43**
Total Recycling Income	**$62,114.04**	**$86,294.37**

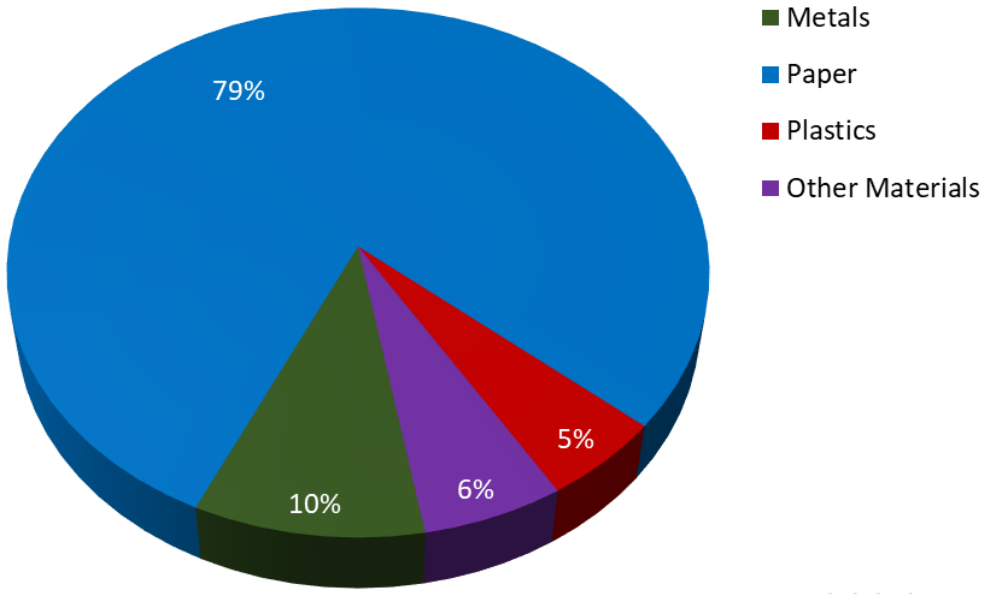
Recycling Materials Collected and Marketed in Wasteshed B: 2019 & 2021 Comparison

	TONNAGE			INCOME		
MATERIAL	**2019**	**2021**	**CHANGE**	**2019**	**2021**	**CHANGE**
METALS						
Aluminum Cans	68.76	30.45	(38.31)	$12,197.51	$14,026.43	$1,828.92
Bi-Metal Cans	90.23	15.00	(74.73)	$0.00	$0.00	$0.00
Steel Cans	11.09	0.96	(10.63)	$752.99	$57.57	($695.42)
Scrap Metals	37.48	17.89	(19.59)	$4,160.36	$32,963.09	$28,802.73
White Goods	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Metals	8.58	0.00	(8.58)	$21,782.14	$0.00	($21,782.14)
PAPER						
Newspapers	275.31	4.01	(271.30)	$130.39	$0.00	($130.39)
Cardboard	1,755.90	436.54	(1,319.36)	$1,892.93	$32,650.40	$30,757.47
Office Paper	470.00	3.00	(467.00)	$0.00	$0.00	$0.00
Mixed Paper	32.27	79.93	47.66	$2,983.98	$6,070.92	$3,086.94
Other Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
PLASTICS						
#1 PET	99.73	19.12	(80.61)	$8,000.00	$525.96	($7,474.04)
#2 HDPE	73.37	15.00	(58.37)	$7,200.00	$0.00	($7,200.00)
Mixed Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
GLASS						
Clear Glass	30.00	0.00	(30.00)	$0.00	$0.00	$0.00
Amber Glass	15.00	0.00	(15.00)	$0.00	$0.00	$0.00
Green Glass	15.00	0.00	(15.00)	$0.00	$0.00	$0.00
Mixed Glass	50.00	0.00	(50.00)	$0.00	$0.00	$0.00
OTHER MATERIALS						
Commingled	63.75	27.80	(35.95)	$0.00	$0.00	$0.00
Yard Waste/Brush	0.00	0.00	0.00	$0.00	$0.00	$0.00
Electronics	18.00	11.73	(6.27)	$0.00	$0.00	$0.00
Tires*	6,191 tires	0.00	1,697 tires	$0.00	$0.00	$0.00
Other Materials	5.31	0.00	(5.31)	$3,013.74	$0.00	($3,013.74)
	3,119.78	**661.43**	**(2,458.35)**	**$62,114.04**	**$86,294.37**	**$24,180.33**

NOTE: Tonnage numbers and income is calculated as reported. Tonnage may include collected or collected and marketed. Income was not reported on all surveys. Income comparison change reflects only entities that filed a report.

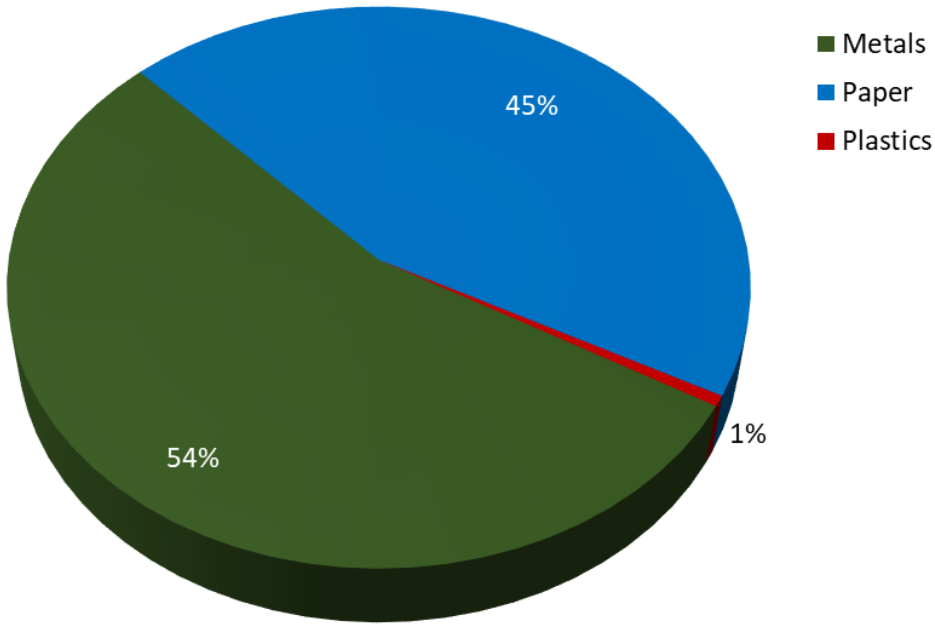
* Tires are not calculated with the tonnage.

CY 2021 Recycling Materials by Category for Wasteshed B



Percentages may vary slightly due to rounding.

CY 2021 Recycling Income by Category for Wasteshed B



Percentages may vary slightly due to rounding.

WASTESHED C: RECYCLING SURVEY

Gray areas indicate items were not accepted or reported for the specified calendar year.

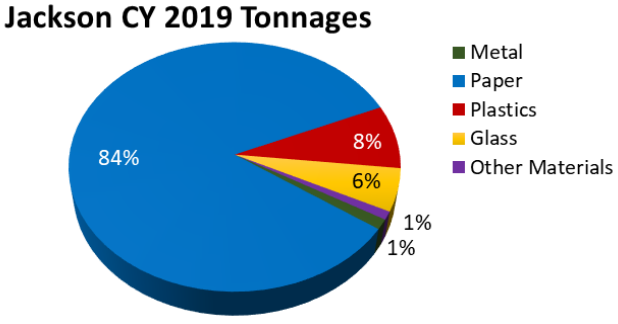
Wasteshed C consists of five West Virginia counties:

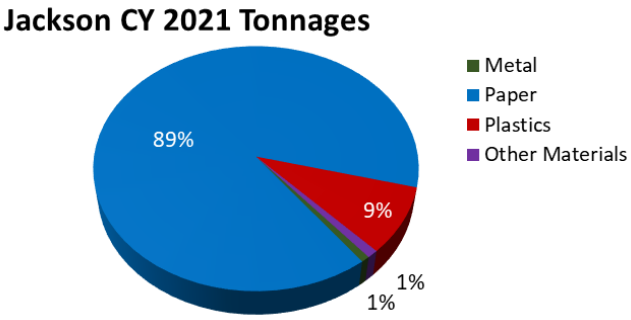
- Jackson
- Pleasants
- Ritchie
- Wirt
- Wood

Jackson

Drop-Offs:	1	Materials Collected: **Separated**		
Curbside Collections:	0			
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	4.18	2.98	$2,483.25	$2,554.16	Brad Garrett
Steel Cans	8.87	4.99	$669.43	$877.70	Brad Garrett
Newspapers	149.35	107.78	$3,954.79	$13,458.46	Four Seasons
Cardboard	661.51	749.11	$18,984.47	$126,197.06	River Valley Paper
Office Paper	21.28	21.47	$3,511.04	$4,401.35	Sunrise Sanitation
Other Paper		19.09		$859.05	Infinite Electronics Recycling
#1 PET	18.96	21.09	$5,877.60	$10,334.10	Prime Plastic
#2 HDPE		68.19		$13,638.30	Mondo Technologies Inc.
**Mixed Plastics	63.70		$12,739.70		
*Mixed Glass	55.57		$267.75		
Electronics	10.64	6.50	$1,055.00	$603.81	Brad Garrett
Other Materials		3.74		$166.00	Infinite Electronics Recycling
	994.06	**1,004.94**	**$49,543.03**	**$173,089.99**	

*Discontinued glass collections in August 2019 - no available buyers for glass.



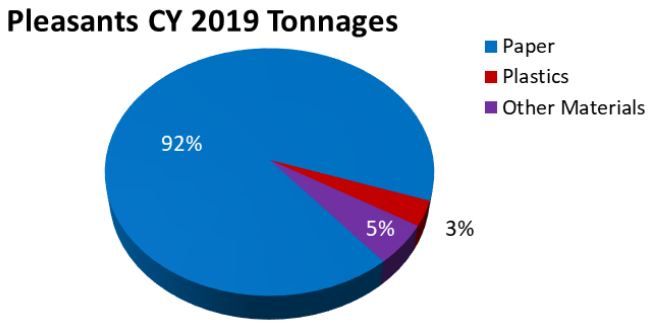


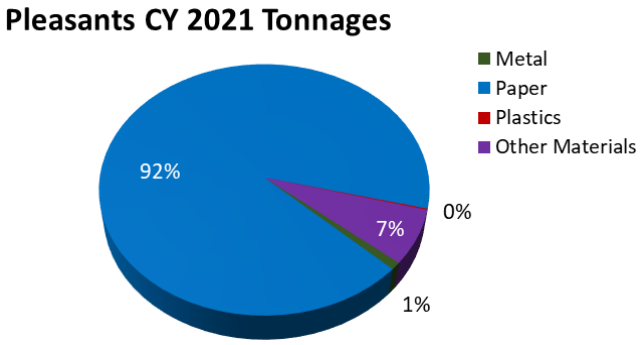
Pleasants

Drop-Offs:	1	Materials Collected: **Separated**			
Curbside Collections:	1				
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans		0.80		$0.00	Have Not Marketed
Bi-Metal Cans		1.50		$0.00	Have Not Marketed
Newspapers*	21.20	21.90	$1,272.00	$1,205.00	Four Seasons Recycling
Cardboard*	172.30	186.80	$4,679.00	$28,927.00	Shamrock Recycling; Ace Paper
Office Paper*		20.40		$3,883.00	Shamrock Recycling
Mixed Paper*	20.00		$1,200.00		
#1 PET		0.37		$0.00	Have Not Marketed
Mixed Plastics	7.70	0.00	$765.00	$0.00	Have Not Marketed
Electronics	12.50	17.50	$0.00	$0.00	Green Wave
	233.70	**249.27**	**$7,916.00**	**$34,015.00**	

*Did not collect paper in 2021. Materials sold were from held inventory.

NOTES: Mixed Paper includes magazines & books. Mixed Plastics includes #2 & #4-5 mix. Collects aluminum cans, steel cans and #1 plastics but haven't marketed those materials since 2018.





Ritchie

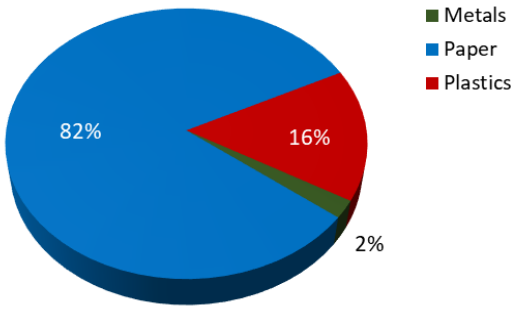
Failed to file a CY 2019 Survey. CY 2021 - was not in operation due to loss of facility to fire December 2020.

WASTESHED C: RECYCLING SURVEY (Continued)

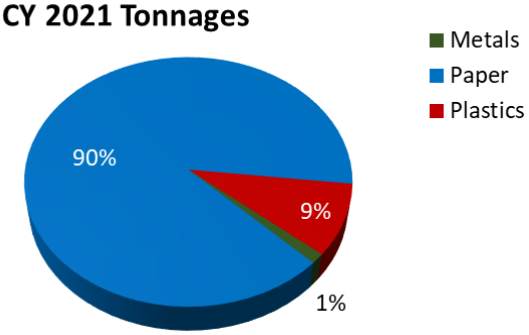
Wirt

Drop-Offs:	1	Materials Collected: **Commingled**			
Curbside Collections:	0				
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	1.91	1.56	$935.28	$1,171.00	Ashley's Metal Recycling
Scrap Metal		0.05		$187.00	R&J Recycling
Newspapers	11.23		$647.65		
Cardboard	53.25		$576.05		
Mixed Paper	5.68	112.40	$79.41	$7,714.12	River Valley Paper Co.
Other Paper	3.36		$31.49		
#1 PET	13.34		$348.70		
#2 HDPE	0.77		$185.70		
Mixed Plastic		11.70		$4,688.35	Prime Plastics
	89.54	**125.71**	**$2,804.28**	**$13,760.47**	

Wirt CY 2019 Tonnages



Wirt CY 2021 Tonnages



Wood

County recycling opportunities are provided through a partnership between the WCSWA and the City of Parkersburg.

WASTESHED C: RECYCLING ANALYSIS

Recycling Facilities

	2019	2021
Drop-Offs	3	3
Curbside	1	1

Recycling Tonnage/Revenue

	2019	20216411
Total Recycled	1,317.30	1,379.92
Total Recycling Income	$60,263.31	$220,865.46

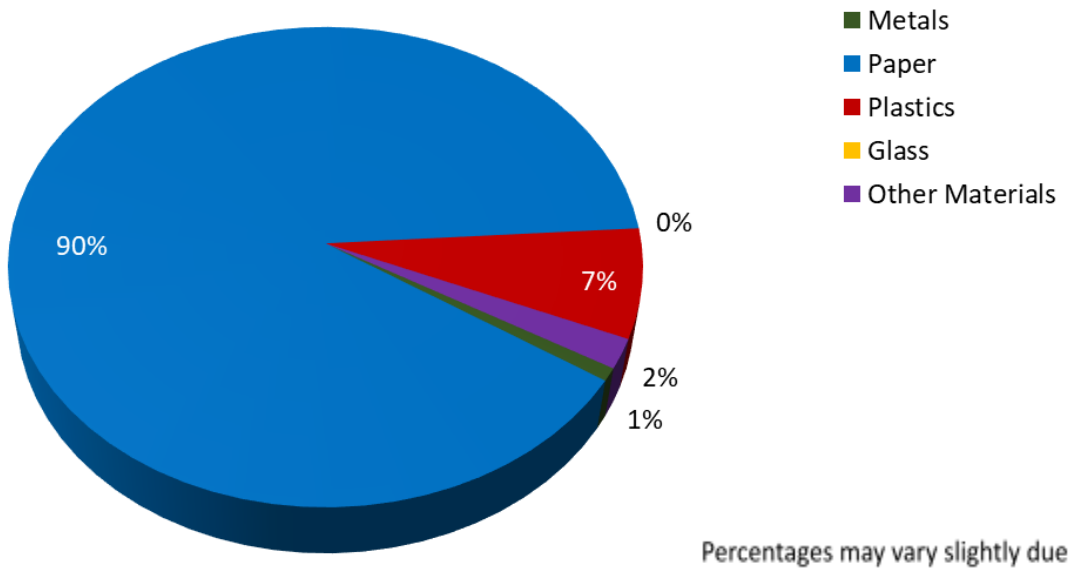
Recycling Materials Collected and Marketed in Wasteshed C: 2019 & 2021 Comparison

	TONNAGE			INCOME		
MATERIAL	2019	2021	CHANGE	2019	2021	CHANGE
METALS						
Aluminum Cans	6.09	5.34	(0.75)	$3,418.53	$3,725.16	$306.63
Bi-Metal Cans	0.00	1.50	1.50	$0.00	$0.00	$0.00
Steel Cans	8.87	4.99	(3.88)	$669.43	$877.70	$208.27
Scrap Metals	0.00	0.05	0.05	$0.00	$187.00	$187.00
White Goods	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Metals	0.00	0.00	0.00	$0.00	$0.00	$0.00
PAPER						
Newspapers	181.78	129.68	(52.10)	$5,874.44	$14,663.46	$8,789.02
Cardboard	887.06	935.91	48.85	$24,239.52	$155,124.06	$130,884.54
Office Paper	21.28	41.87	20.59	$3,511.04	$8,284.35	$4,773.31
Mixed Paper	25.68	112.40	86.72	$1,279.41	$7,714.12	$6,434.71
Other Paper	3.36	19.09	15.73	$31.49	$859.05	$827.56
PLASTICS						
#1 PET	32.30	21.46	(10.84)	$6,226.30	$10,334.10	$4,107.80
#2 HDPE	0.77	68.19	67.42	$185.70	$13,638.30	$13,452.60
Mixed Plastics	71.40	11.70	(59.70)	$13,504.70	$4,688.35	($8,816.35)
Other Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
GLASS						
Clear Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Glass	55.57	0.00	(55.57)	$267.75	$0.00	($267.75)
OTHER MATERIALS						
Commingled	0.00	0.00	0.00	$0.00	$0.00	$0.00
Yard Waste/Brush	0.00	0.00	0.00	$0.00	$0.00	$0.00
Electronics	23.10	24.00	0.90	$1,055.00	$603.81	($451.19)
Tires	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Materials	0.00	3.74	3.74	$0.00	$166.00	$166.00
	1,317.26	1,379.92	62.66	$60,263.31	$220,865.46	$160,602.15

NOTE: Tonnage numbers and income is calculated as reported. Tonnage may include collected or collected and marketed. Income was not reported on all surveys. Income comparison change reflects only entities that filed a report.

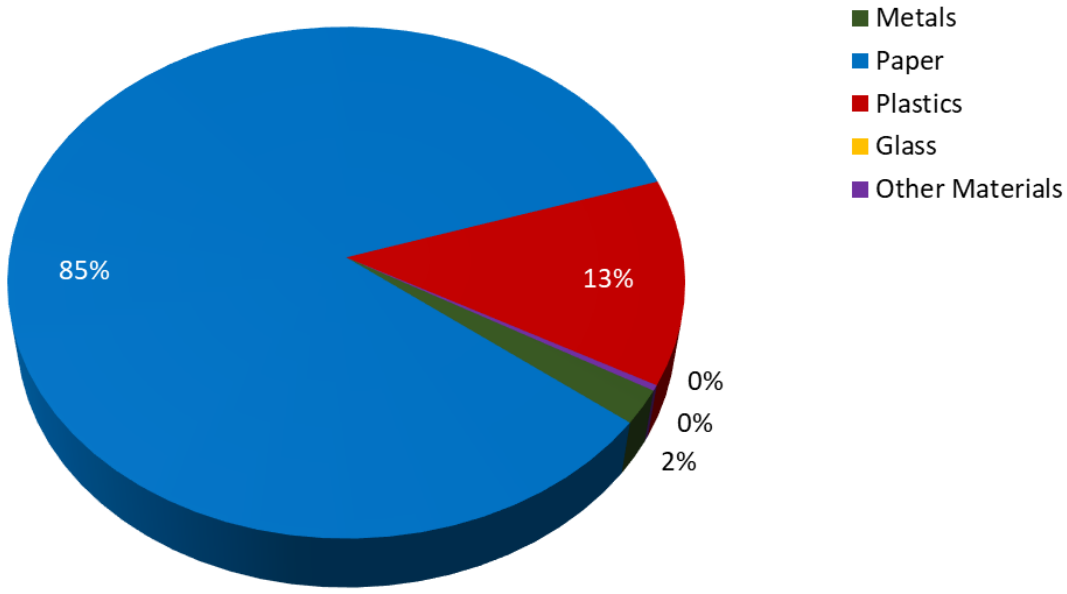
WASTESHED C: RECYCLING ANALYSIS (Continued)

CY 2021 Recycling Materials by Category for Wasteshed C



Percentages may vary slightly due to rounding.

CY 2021 Recycling Income by Category for Wasteshed C



Percentages may vary slightly due to rounding.

WASTESHED E: RECYCLING SURVEY

Gray areas indicate items were not accepted or reported for the specified calendar year.

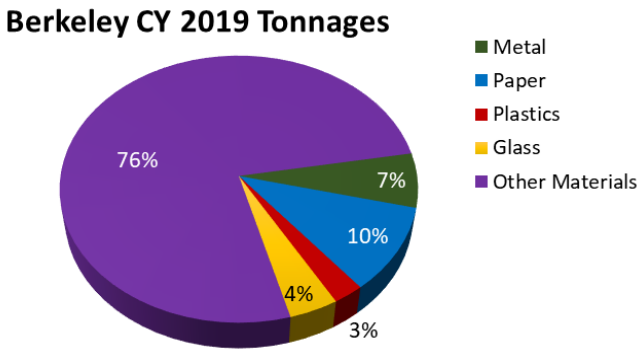
Wasteshed E consists of eight West Virginia counties:

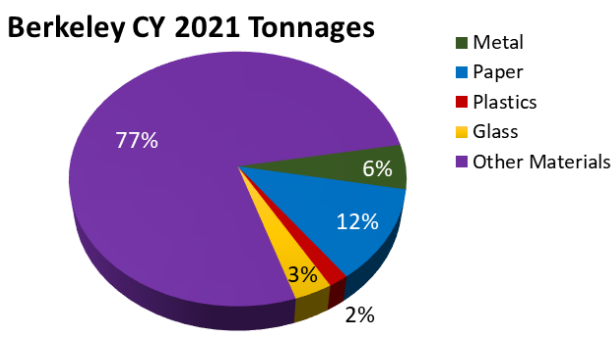
- Berkeley
- Grant
- Hampshire
- Hardy
- Jefferson
- Mineral
- Morgan
- Pendleton

Berkeley

Drop-Offs:	3	Materials Collected: **Separated & Commingled**			
Curbside Collections:	2				
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	22.17	24.44	$20,504.45	$12,372.64	Conservit
Steel Cans	32.34	17.21	$0.00	$0.00	Conservit
Scrap Metals	318.61	261.97	$30,164.04	$36,981.69	Conservit
Mixed Paper	588.36	641.13	$965.86	$27.40	Chambersburg Waste Paper
Mixed Plastics	126.13		$4,198.40		
Other Plastics	18.21	94.43	$0.00	$719.80	Trex
Mixed Glass	230.88	179.24	$6,177.00	($7,032.00)	Carry All Products
Commingled	901.30		$9,237.15	`	
Yard Waste/Brush	2,759.38	2,903.00	$3,745.00	$22,053.39	Tabb Composting Facility
Electronics	157.33	102.90	$0.00	$0.00	Green Wave
Other Materials*	521.16	1,140.30	$60.38	$0.00	Various Markets
	5,675.87	**5,364.62**	**$75,052.28**	**$65,122.92**	

*CY 2019 Report listed "Other Materials" by the individual item. All items were combined for CY 2021.



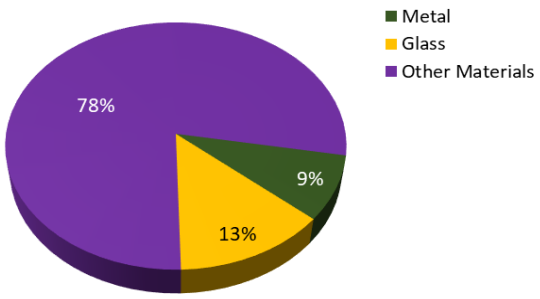


Jefferson

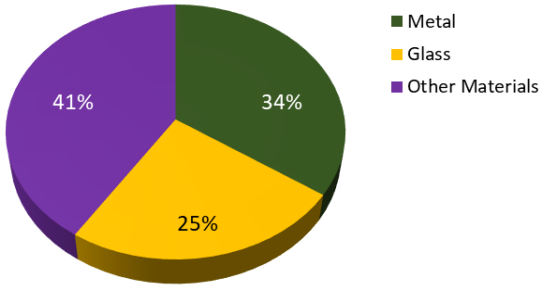
Drop-Offs:	1	Materials Collected: **Source Separated & Commingled**			
Curbside Collections:	1				
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Scrap Metals	101.00	110.72	$7,045.34	$17,478.13	Conservit / Potomac Metals
Mixed Glass	157.33	78.84	($9,256.50)	($7,032.00)	PA Glassphalt Plant
Commingled	85.50	89.25	($7,138.25)	($27,625.35)	Apple Valley Waste Recycling
Yard Waste/Brush	799.43		$1,185.25		
Electronics	42.45	41.46	($15,396.78)	($16,242.24)	Green Wave
	1,185.71	**320.27**	**(23,560.94)**	**($33,421.46)**	

Commingled Material Includes: Aluminum cans, bi-metal cans, steel cans, cardboard, mixed paper and mixed plastics.

Jefferson CY 2019 Tonnages



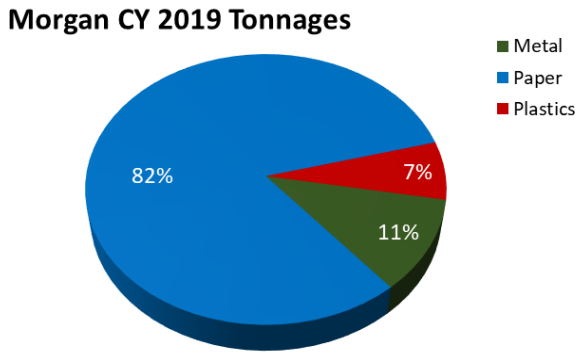
Jefferson CY 2021 Tonnages

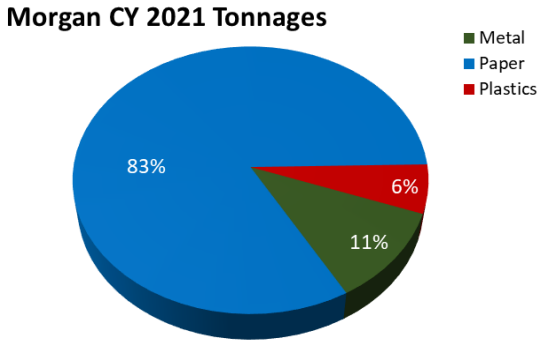


Morgan

Drop-Offs:	**1**	Materials Collected: **Separated**			
Curbside Collections:	**0**	Geographic Area of Responsibility: **80%**			
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	2.98	5.77	$1,354.00	$5,323.92	Conservit
Mixed Metals	27.97	26.47	$1,650.07	$3,615.00	Conservit
Cardboard	98.25		$518.01		
Mixed Paper	68.87	238.49	$0.00	$7,055.58	MD Paper
Other Paper	60.78		$1,823.40		
Mixed Plastics	19.28	16.90	$474.00	$0.00	Apple Valley Recycling
	278.13	**287.63**	**$5,819.48**	**$15,994.50**	

NOTES: "Mixed Metals" were listed as "Scrap Metals" in the 2021 Plan. "Scrap Metals" included bi-metal cans, steel cans and scrap metal. Scrap Metals designation was changed to "Mixed Metals" to stay consistent with the 2021 survey. Mixed Paper includes newspapers and office paper mix.

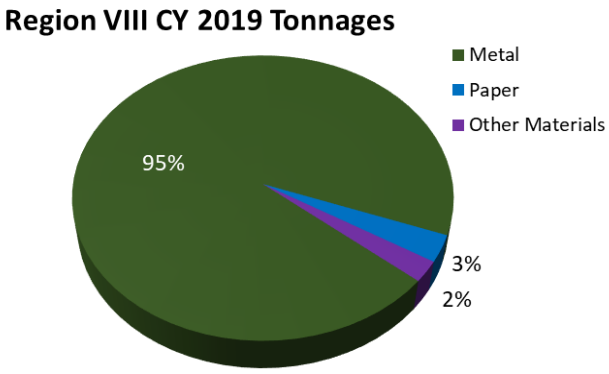


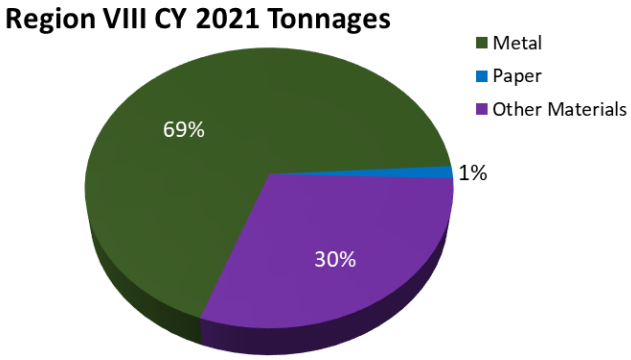


WASTESHED E: RECYCLING SURVEY (Continued)

Region VIII

Drop-Offs:	**12**	Materials Collected: **Separated & Commingled**			
Curbside Collections:	**0**	Geographic Area of Responsibility: **25-30%**			
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Scrap Metals	242.30	235.02	$13,870.60	$22,275.50	C&K Metal Recycling / Elkins Metal
Other Metals		2.87		$1,148.00	C&K Metal Recycling / Elkins Metal
Cardboard	7.80	4.95	$0.00	$0.00	Have Not Marketed
Electronics	6.09	6.47	$1,218.00	$1,651.20	C&K Metal Recycling
Tires		97.95		$0.00	Tire & Rubber
	256.19	**347.26**	**$15,088.60**	**$25,074.70**	





WASTESHED E: RECYCLING ANALYSIS

Recycling Facilities

	2019	2021
Drop-Offs	17	17
Curbside	3	3

Recycling Tonnage/Revenue

	2019	2021
Total Recycled	7,395.90	6,319.78
Total Recycling Income	$72,399.42	$72,770.66

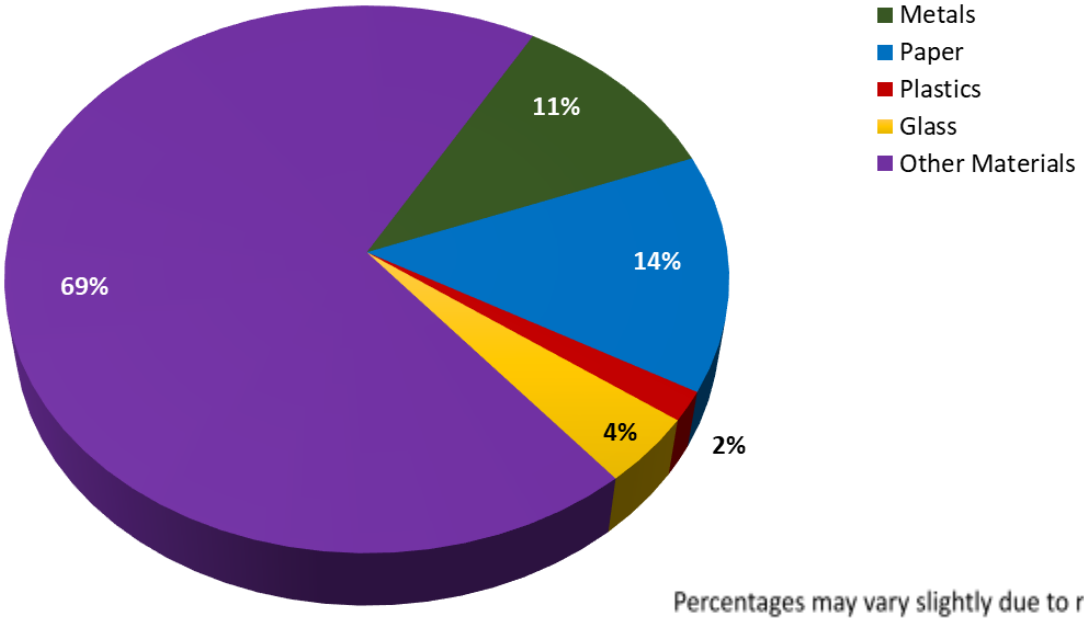
Recycling Materials Collected and Marketed in Wasteshed E: 2019 & 2021 Comparison

	TONNAGE			INCOME		
MATERIAL	2019	2021	CHANGE	2019	2021	CHANGE
METALS						
Aluminum Cans	25.15	30.21	5.06	$21,858.45	$17,696.56	($4,161.89)
Bi-Metal Cans	0.00	0.00	0.00	$0.00	$0.00	$0.00
Steel Cans	32.34	17.21	(15.13)	$0.00	$0.00	$0.00
Scrap Metals	689.88	634.18	(55.70)	$52,730.05	$80,350.32	$27,620.27
White Goods	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Metals	0.00	2.87	2.87	$0.00	$1,148.00	$1,148.00
PAPER						
Newspapers	0.00	0.00	0.00	$0.00	$0.00	$0.00
Cardboard	106.05	4.95	(101.10)	$518.01	$0.00	($518.01)
Office Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Paper	657.23	879.62	222.39	$965.86	$7,082.98	$6,117.12
Other Paper	60.78	0.00	(60.78)	$1,823.40	$0.00	($1,823.40)
PLASTICS						
#1 PET	0.00	0.00	0.00	$0.00	$0.00	$0.00
#2 HDPE	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Plastics	145.41	16.90	(128.51)	$4,672.40	$0.00	($4,672.40)
Other Plastics	18.21	94.43	76.22	$0.00	$719.80	$719.80
GLASS						
Clear Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Glass	388.21	258.08	(130.13)	($3,079.50)	($14,064.00)	($10,984.50)
OTHER MATERIALS						
Commingled	986.80	89.25	(897.55)	$2,098.90	($27,625.35)	($29,724.25)
Yard Waste/Brush	3,558.81	2,903.00	(655.81)	$4,930.25	$22,053.39	$17,123.14
Electronics	205.87	150.83	(55.04)	($14,178.78)	($14,591.04)	($412.26)
Tires	0.00	97.95	97.95	$0.00	$0.00	$0.00
Other Materials	521.17	1,140.30	619.13	$60.38	$0.00	($60.38)
	7,395.91	**6,319.78**	**(1,076.13)**	**$72,399.42**	**$72,770.66**	**$371.24**

NOTE: Tonnage numbers and income is calculated on what was reported. Tonnage may only include collected, or collected and marketed. Income was not reported on all surveys. Therefore, income comparison change is only including those entities that filed a report.

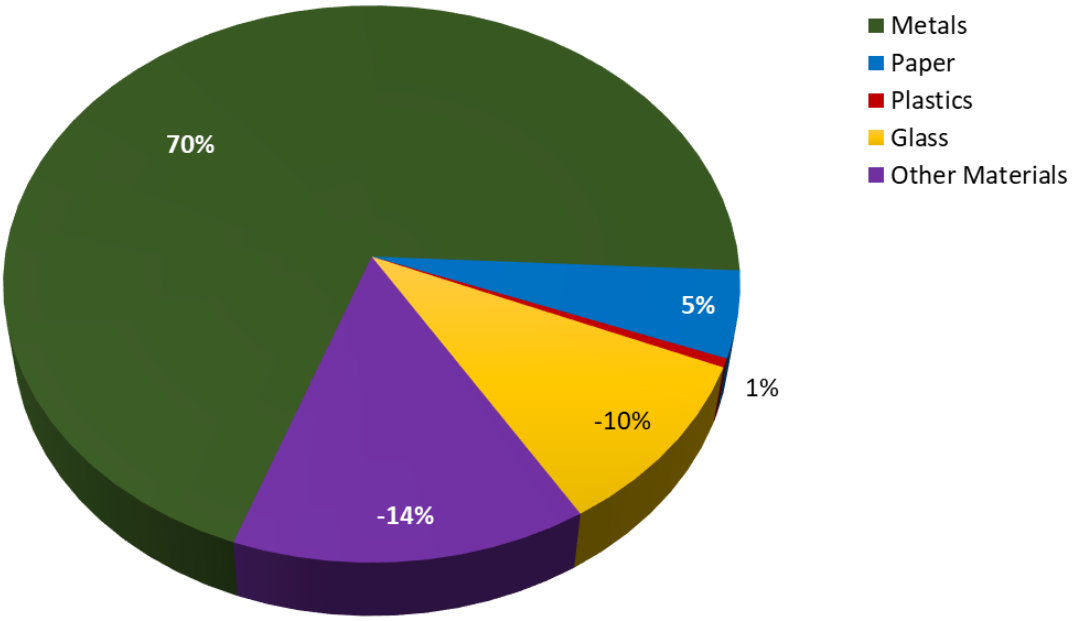
WASTESHED E: RECYCLING ANALYSIS (Continued)

CY 2021 Recycling Materials by Category for Wasteshed E



Percentages may vary slightly due to rounding.

CY 2021 Recycling Income by Category for Wasteshed E



Percentages may vary slightly due to rounding.

WASTESHED F: RECYCLING SURVEY

Grayed out areas indicate items were not accepted or reported for the specified calendar year.

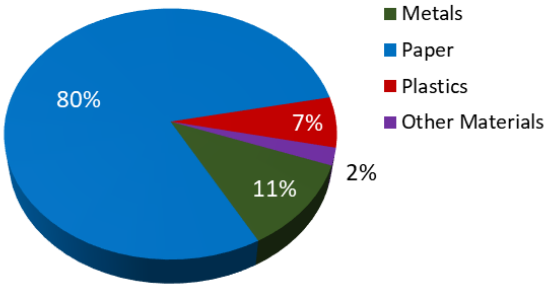
Wasteshed F consists of four West Virginia counties:

- Greenbrier
- Nicholas
- Pocahontas
- Webster

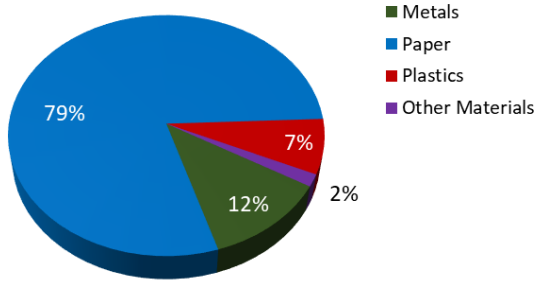
Greenbrier

Drop-Offs:	**4**	Materials Collected: **Separated**		
Curbside Collections:	**3**	Geographic Area of Responsibility: **85%**		
	TONNAGE		**REVENUE**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	55.30	53.80	$57,731.44	$72,682.10	WV Cashin Recyclables
Bi-Metal Cans	20.90	22.80	$1,988.10	$4,801.36	TMS International
Scrap Metals	69.10	54.80	$61,237.34	$76,312.31	WV Cashin Recyclables / Boggs Scrap
Newspapers	123.80	64.40	$4,415.50	$7,961.10	Greif Packaging / Harmon Associates
Cardboard	695.60	706.80	$47,897.58	$103,812.75	Harmon Associates
Office Paper	65.60	43.10	$9,391.12	$6,973.60	Greif Packaging
Mixed Paper	132.30	64.50	$3,599.80	$6,522.70	Greif Packaging
#1 PET	41.00	60.50	$11,889.60	$18,758.15	Cellmark
#2 HDPE	41.70	21.00	$18,473.00	$34,177.50	Cellmark
Electronics	28.70	18.20	$3,412.25	$2,168.40	Ecyclers USA
	1,274.00	**1,109.90**	**$220,035.73**	**$334,169.97**	

Greenbrier CY 2019 Tonnages



Greenbrier CY 2021 Tonnages

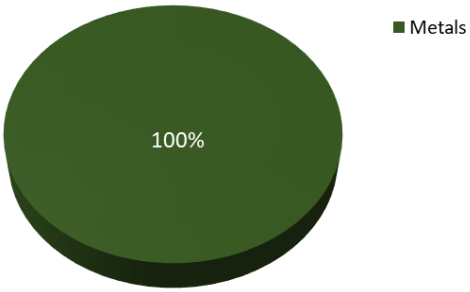


WASTESHED F: RECYCLING SURVEY (Continued)

Nicholas

Drop-Offs:	2	Materials Collected: **Separated**			
Curbside Collections:	0	Geographic Area of Responsibility: **50%**			
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Scrap Metals	85.07		$5,147.50		
	85.07		**$5,147.50**		

Nicholas CY 2019 Tonnages



Nicholas CY 2021 Tonnages

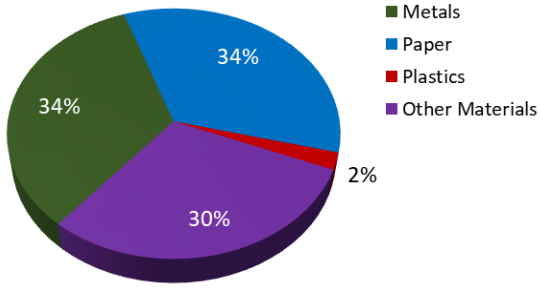
Did not file a CY 2021 report.

Pocahontas

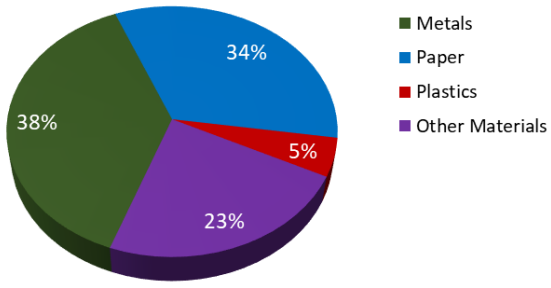
Drop-Offs:	2	Materials Collected: **Separated**			
Curbside Collections:	0	Geographic Area of Responsibility: **80%**			
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
White Goods	77.98	92.01	$1,696.80	$0.00	Allegheny Disposal
Newspapers		1.16		$41.99	Greenbrier Recycling
Cardboard	45.19	64.92	$2,561.86	$6,393.97	Greenbrier Recycling
Mixed Paper	34.37	14.43	$478.65	$210.66	Greenbrier Recycling
*Mixed Plastics	5.08	11.89	$1,868.70	$5,906.20	Greenbrier Recycling
Electronics	2.35		$0.00		
Other: Tires	67.24	55.87	$0.00	$0.00	Emanuel Tire of Virginia
	232.21	**240.28**	**$6,606.01**	**$12,552.82**	

*Mixed Plastics only includes #1 & #2 plastics - Tonnage and Revenue added together by Greenbrier Recycling.

Pocahontas CY 2019 Tonnages



Pocahontas CY 2021 Tonnages



Webster

Does not own, operator, or participate in a recycling program.

WASTESHED F: RECYCLING ANALYSIS

Recycling Facilities

	2019	2021
Drop-Offs	8	8
Curbside	3	3

Recycling Tonnage/Revenue

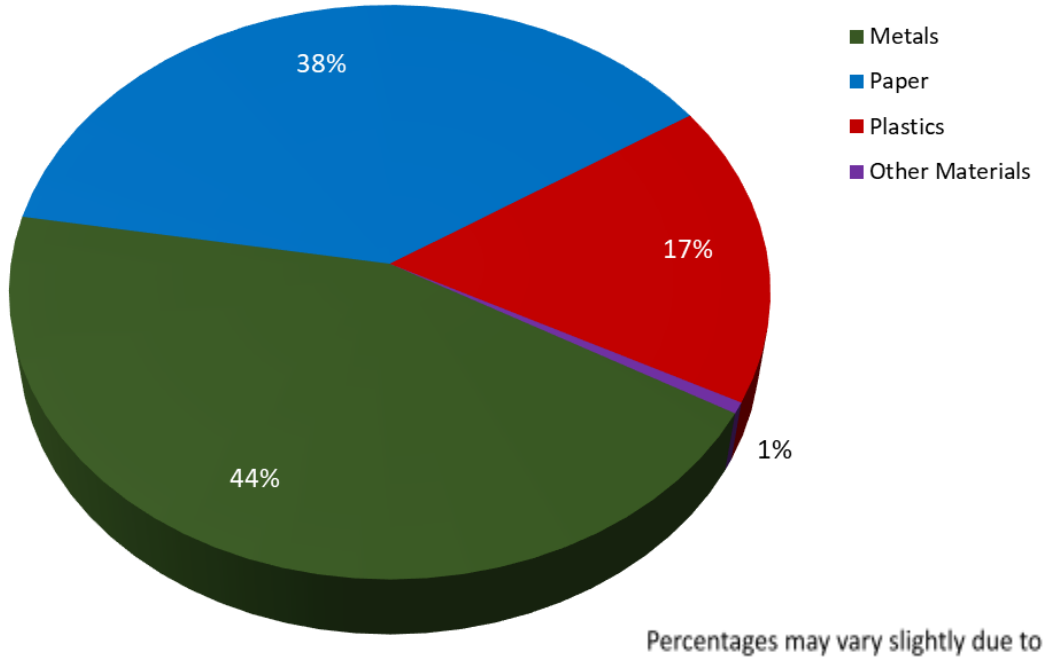
	2019	2021
Total Recycled	1,591.28	1,350.18
Total Recycling Income	$231,789.24	$346,722.79

Recycling Materials Collected and Marketed in Wasteshed F: 2019 & 2021 Comparison

	TONNAGE			INCOME		
MATERIAL	2019	2021	CHANGE	2019	2021	CHANGE
METALS						
Aluminum Cans	55.30	53.80	(1.50)	$57,731.44	$72,682.10	$14,950.66
Bi-Metal Cans	20.90	22.80	1.90	$1,988.10	$4,801.36	$2,813.26
Steel Cans	0.00	0.00	(20.90)	$0.00	$0.00	$0.00
Scrap Metals	154.17	54.80	(99.37)	$66,384.84	$76,312.31	$9,927.47
White Goods	77.98	92.01	14.03	$1,696.80	$0.00	($1,696.80)
Other Metals	0.00	0.00	0.00	$0.00	$0.00	$0.00
PAPER						
Newspapers	123.80	65.56	(58.24)	$4,415.50	$8,003.09	$3,587.59
Cardboard	740.79	771.72	30.93	$50,459.44	$110,206.72	$59,747.28
Office Paper	65.60	43.10	(22.50)	$9,391.12	$6,973.60	($2,417.52)
Mixed Paper	166.67	78.93	(87.74)	$4,078.45	$6,733.36	$2,654.91
Other Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
PLASTICS						
#1 PET	41.00	60.50	19.50	$11,889.60	$18,758.15	$6,868.55
#2 HDPE	41.70	21.00	(20.70)	$18,473.00	$34,177.50	$15,704.50
Mixed Plastics	5.08	11.89	6.81	$1,868.70	$5,906.20	$4,037.50
Other Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
GLASS						
Clear Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
OTHER MATERIALS						
Commingled	0.00	0.00	0.00	$0.00	$0.00	$0.00
Yard Waste/Brush	0.00	0.00	0.00	$0.00	$0.00	$0.00
Electronics	31.05	18.20	(12.85)	$3,412.25	$2,168.40	($1,243.85)
Tires	67.24	55.87	(11.37)	$0.00	$0.00	$0.00
Other Materials	0.00	0.00	0.00	$0.00	$0.00	$0.00
	1,591.28	**1,350.18**	**(241.10)**	**$231,789.24**	**$346,722.79**	**$114,933.55**

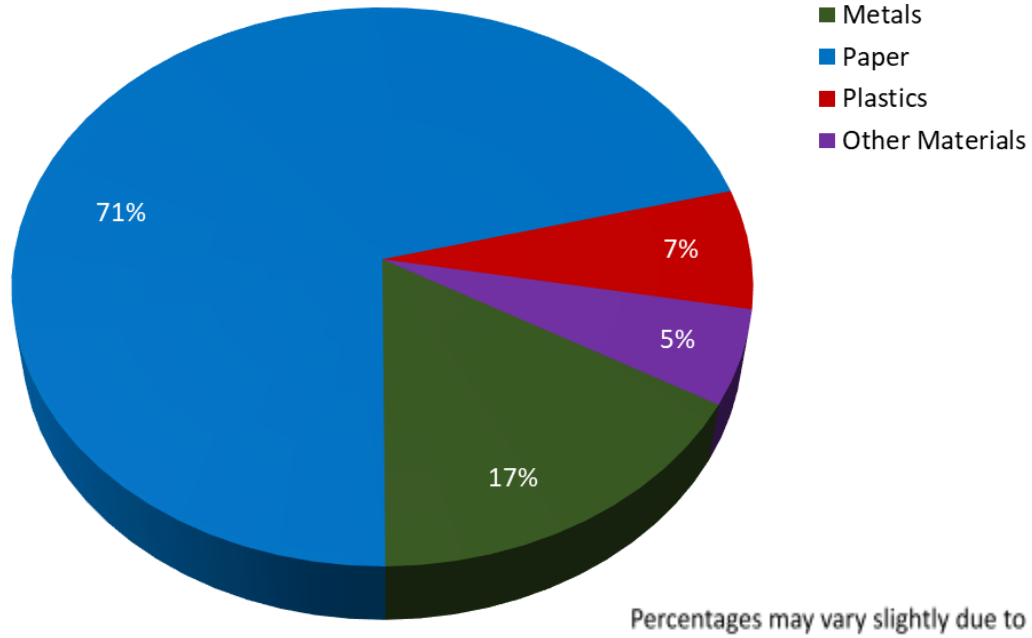
NOTE: Tonnage numbers and income is calculated on what was reported. Tonnage may only include collected, or collected and marketed. Income was not reported on all surveys. Therefore, income comparison change is only including those entities that filed a report.

CY 2021 Recycling Income by Category for Wasteshed F



Percentages may vary slightly due to rounding.

CY 2021 Recycling Tonnage by Category for Wasteshed F



Percentages may vary slightly due to rounding.

WASTESHED G: RECYCLING SURVEYS (Continued)

Grayed out areas indicate items were not accepted or reported for the specified calendar year.

Wasteshed G consists of eight West Virginia counties:

- Fayette
- McDowell
- Mercer
- Mingo
- Monroe
- Raleigh
- Summers
- Wyoming

Fayette

Does not own, operator, or participate in a recycling program.

McDowell

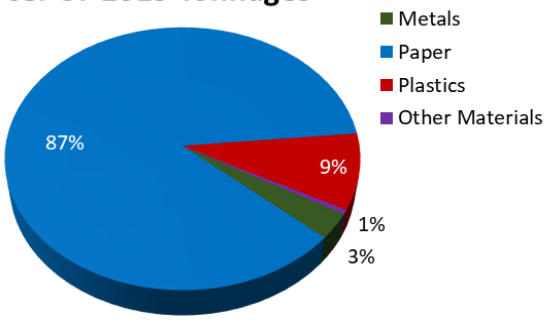
Does not own, operator, or participate in a recycling program.

Mercer

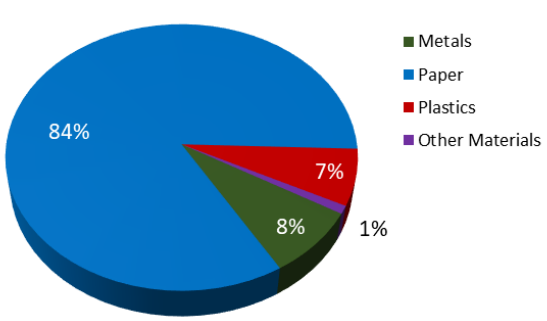
Drop-Offs:	22	Materials Collected: **Separated & Commingled**		
Curbside Collections:	0	Geographic Area of Responsibility: **50%**		
	TONNAGE		REVENUE	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Scrap Metals	8.89	24.99	$2,834.27	$3,938.80	RecycleWV
Cardboard	155.85	179.79	$7,452.90	$19,729.45	Southwest Recycling
Mixed Paper	90.05	79.90	$4,444.55	$3,196.00	Southwest Recycling
#2 Plastics		21.09		$8,832.60	ADS
Mixed Plastics	26.40		$6,237.25		
Electronics	1.50	3.00	$0.00	$0.00	Ecyclers USA
	282.69	**308.77**	**$20,968.97**	**$35,696.85**	

Scrap Metals Includes: Aluminum cans, scrap metals and white goods. - **Mixed Paper Includes:** Newspapers, office paper and other paper.

Mercer CY 2019 Tonnages



Mercer CY 2021 Tonnages



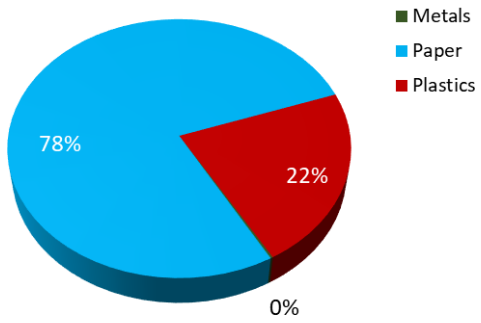
Mingo

Does not own, operator, or participate in a recycling program.

Monroe

Drop-Offs:	**4**	Materials Collected: **Sorted**			
Curbside Collections:	**7**	Geographic Area of Responsibility: **25-30%**			
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	0.17		$117.98		
Cardboard	47.19		$1,607.80		
Mixed Paper	15.89		$1,554.70		
Mixed Plastics	17.91		$0.00		
	81.16		**$3,280.48**		

Monroe CY 2019 Tonnages



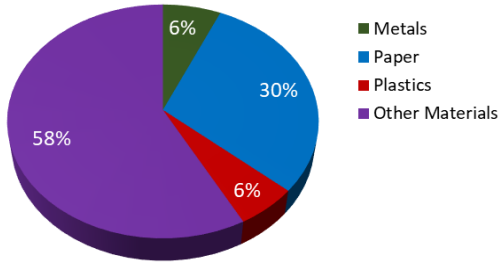
Monroe CY 2021 Tonnages

Did not file a CY 2021 report.

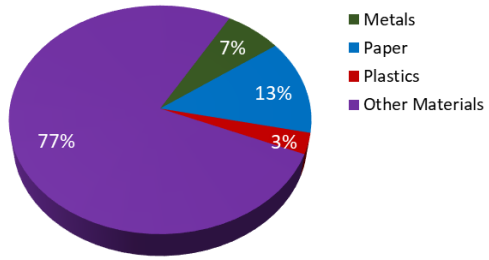
Raleigh

Drop-Offs:	1	Materials Collected: **Commingled**		
Curbside Collections:	1	Geographic Area of Responsibility: **75%**		
	TONNAGE		**REVENUE**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans		28.51		$57,638.94	Service Aluminum
Bi-Metal Cans		41.94		$2,023.00	TMS International
Steel Cans	41.97		$7,639.67		
White Goods	212.58		$20,358.33		
Scrap Metals		12.90		$22,283.06	TMS International
Other Metals		266.90		$39,807.90	Barker's Junk
Newspapers	351.64	137.17	$22,167.56	$13,937.30	Caraustar / Four Seasons
Cardboard	562.88	313.26	$30,573.36	$38,243.85	Greif
Office Paper	145.20	61.94	$18,388.02	$11,823.10	Caraustar / Four Seasons
Mixed Paper	82.45	187.97	$823.45	$10,823.10	Caraustar / Four Seasons
#1 PET	153.36	102.95	$39,262.07	$41,595.07	Clear Path
#2 HDPE	66.95	40.74	$26,650.04	$52,627.49	Envision
Other Plastics	2.94	11.59	$394.80	$1,159.00	Mondo Polymer
Yard Waste/Brush	2,223.39	4,034.64	$21,611.30	$35,535.16	None Listed
	3,843.36	**5,240.51**	**$187,868.60**	**$327,496.97**	

Raleigh CY 2019 Tonnages



Raleigh CY 2021 Tonnages



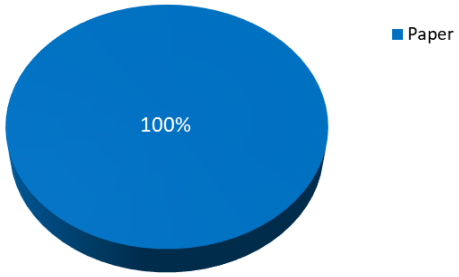
Summers

Drop-Offs:	**1**	Materials Collected: **Separated**			
Curbside Collections:	**0**	Geographic Area of Responsibility: **0.1%**			
	TONNAGE*		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Cardboard		11.10		$555.84	Greenbrier Recycling
		11.10		**$555.84**	

Summers CY 2019 Tonnages

Did not file a CY 2019 report.

Summers CY 2021 Tonnages



Wyoming

Does not own, operator, or participate in a recycling program.

WASTESHED G: RECYCLING ANALYSIS

Recycling Facilities

	2019	2021
Drop-Offs	**16**	**28**
Curbside	**10**	**8**

Recycling Tonnage/Revenue

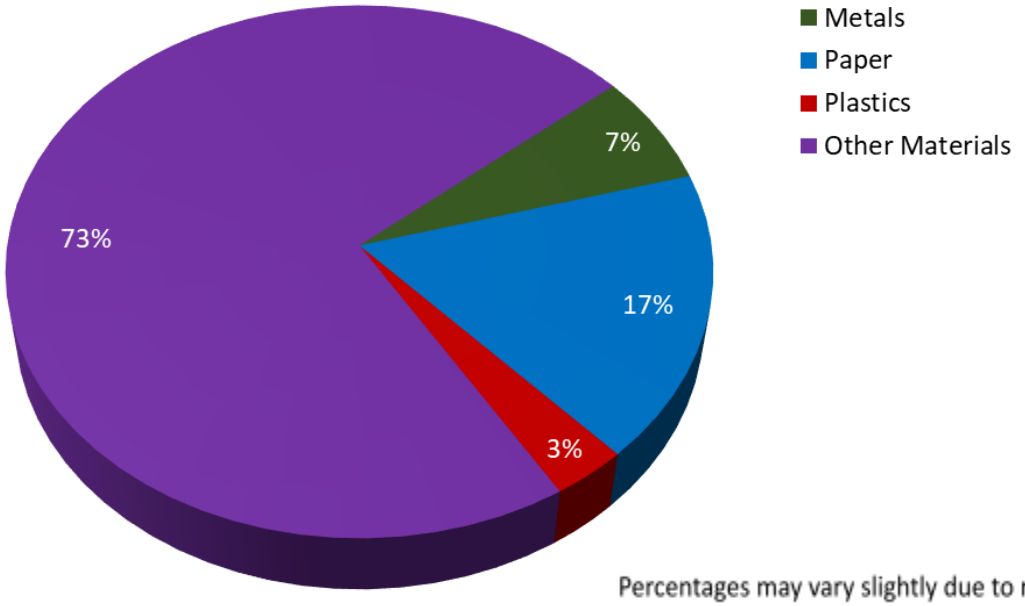
	2019	2021
Total Recycled	**4,207.21**	**5,560.38**
Total Recycling Income	**$212,118.05**	**$363,749.66**

Recycling Materials Collected and Marketed in Wasteshed G: 2019 & 2021 Comparison

	TONNAGE			INCOME		
MATERIAL	**2019**	**2021**	**CHANGE**	**2019**	**2021**	**CHANGE**
METALS						
Aluminum Cans	0.17	28.51	28.34	$117.98	$57,638.94	$57,520.96
Bi-Metal Cans	0.00	41.94	41.94	$0.00	$2,023.00	$2,023.00
Steel Cans	41.97	0.00	(41.97)	$7,639.67	$0.00	($7,639.67)
Scrap Metals	8.89	37.89	29.00	$2,834.27	$26,221.86	$23,387.59
White Goods	212.58	0.00	(212.58)	$20,358.33	$0.00	($20,358.33)
Other Metals	0.00	266.90	266.90	$0.00	$39,807.90	$39,807.90
PAPER						
Newspapers	351.64	137.17	(214.47)	$22,167.56	$13,937.30	($8,230.26)
Cardboard	765.92	504.15	(261.77)	$39,634.06	$58,529.14	$18,895.08
Office Paper	145.20	61.94	(83.26)	$18,388.02	$11,823.10	($6,564.92)
Mixed Paper	188.39	267.87	79.48	$6,822.70	$14,019.10	$7,196.40
Other Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
PLASTICS						
#1 PET	153.36	102.95	(50.41)	$39,262.07	$41,595.07	$2,333.00
#2 HDPE	66.95	61.83	(5.12)	$26,650.04	$61,460.09	$34,810.05
Mixed Plastics	44.31	0.00	(44.31)	$6,237.25	$0.00	($6,237.25)
Other Plastics	2.94	11.59	8.65	$394.80	$1,159.00	$764.20
GLASS						
Clear Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
OTHER MATERIALS						
Commingled	0.00	0.00	0.00	$0.00	$0.00	$0.00
Yard Waste/Brush	2,223.39	4,034.64	1,811.25	$21,611.30	$35,535.16	$13,923.86
Electronics	1.50	3.00	1.50	$0.00	$0.00	$0.00
Tires	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Materials	0.00	0.00	0.00	$0.00	$0.00	$0.00
	4,207.21	**5,560.38**	**1,353.17**	**$212,118.05**	**$363,749.66**	**$151,631.61**

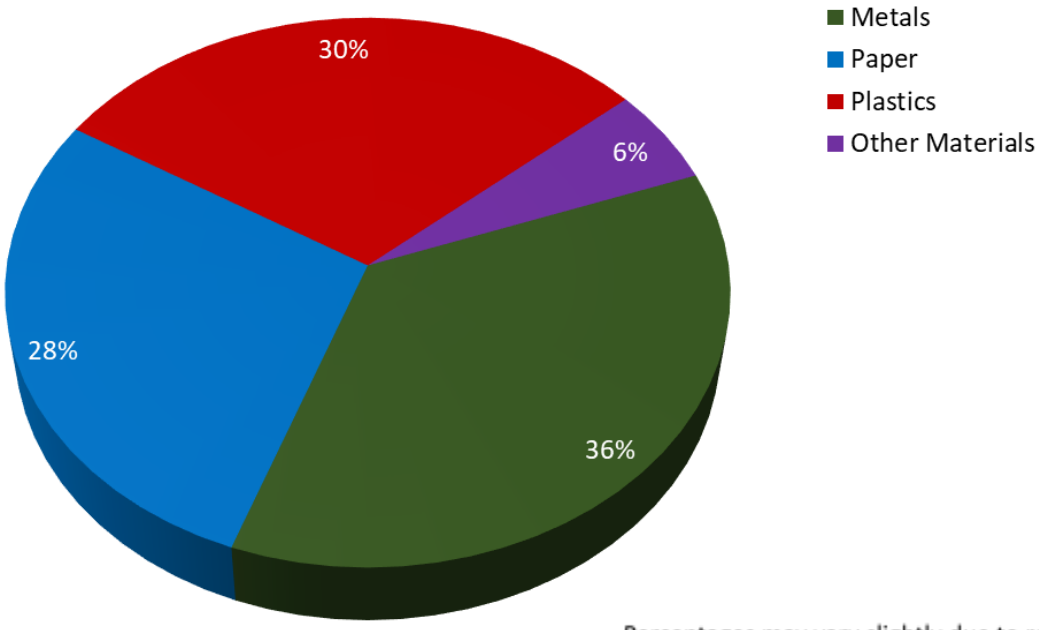
NOTE: Tonnage numbers and income is calculated on what was reported. Tonnage may only include collected, or collected and marketed. Income was not reported on all surveys. Therefore, income comparison change is only including those entities that filed a report.

CY 2021 Recycling Materials by Category for Wasteshed G



Percentages may vary slightly due to rounding.

CY 2021 Recycling Income by Category for Wasteshed G



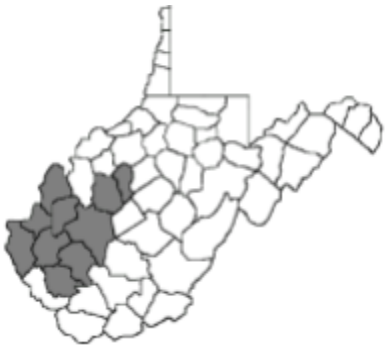
Percentages may vary slightly due to rounding.

WASTESHED H: RECYCLING SURVEYS

Grayed out areas indicate items were not accepted or reported for the specified calendar year.

Wasteshed H consists of ten West Virginia counties:

- Boone
- Cabell
- Calhoun
- Kanawha
- Lincoln
- Logan
- Mason
- Putnam
- Roane
- Wayne

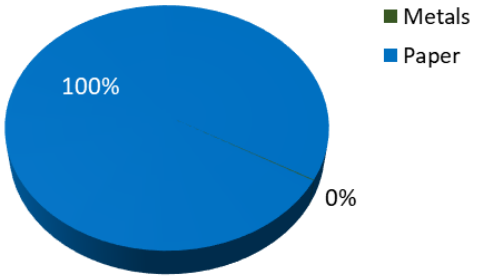


Boone

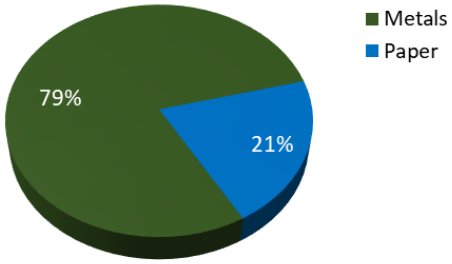
Drop-Offs:	**11**	Materials Collected: **Commingled**		
Curbside Collections:	**0**	Geographic Area of Responsibility: **80%**		
	TONNAGE		**REVENUE**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	0.18	0.08	$0.00	$0.00	Benders Salvage
Scrap Metals	1.57	86.77	$18.39	$781.00	Benders Salvage
Newspapers	1,685.56	3.27	$13.98	$0.00	Not Marketed
Cardboard	89.49	15.26	$663.86	$0.00	Not Marketed
Office Papers	13.20	2.37	$0.00	$0.00	Not Marketed
Other Paper: Magazines	2.68	1.78	$0.00	$0.00	Not Marketed
	1,792.68	**109.53**	**$696.23**	**$781.00**	

NOTE: Due to the COVID restrictions, processed paper has not been sold to the market - still in storage.

Boone CY 2019 Tonnages



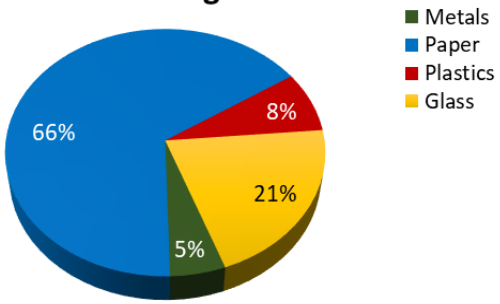
Boone CY 2021 Tonnages



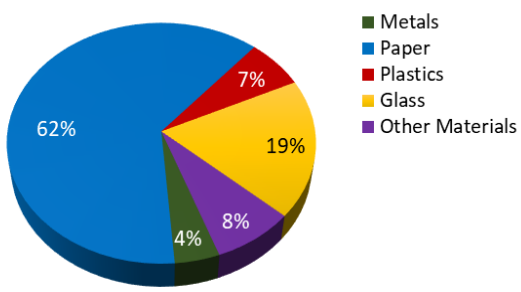
Cabell

Drop-Offs:	**2**	Materials Collected: **Commingled**		
Curbside Collections:	**0**	Geographic Area of Responsibility: **50%**		
	TONNAGE		**REVENUE**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	11.65	10.67	$0.00	$0.00	Rumpke
Steel Cans	20.15	18.45	$0.00	$0.00	Rumpke
Newspapers	278.46	270.37	$0.00	$0.00	Rumpke
Cardboard	46.24	57.83	$0.00	$0.00	Rumpke
Mixed Paper	87.20	95.33	$0.00	$0.00	Rumpke
#1 PET	16.34	14.96	$0.00	$0.00	Rumpke
#2 HDPE	27.70	25.36	$0.00	$0.00	Rumpke
Mixed Plastics	5.50	5.03	$0.00	$0.00	Rumpke
Mixed Glass	129.63	125.93	$0.00	$0.00	Rumpke
Electronics		6.57	$0.00	$0.00	Taylors
Other Materials*		46.96	$0.00	$0.00	Rumpke
	622.87	**677.46**	**$0.00**	**$0.00**	

Cabell CY 2019 Tonnages



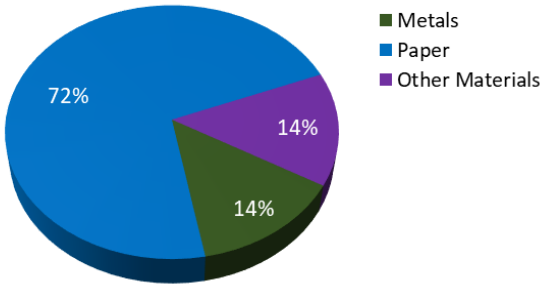
Cabell CY 2021 Tonnages



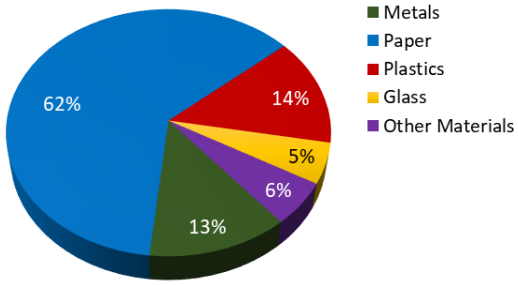
Calhoun

Drop-Offs:	5	Materials Collected: **Separated**		
Curbside Collections:	0	Geographic Area of Responsibility: **90%**		
	TONNAGE		**REVENUE**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	4.06	8.00	$3,017.28	$10,915.64	Ashley's
Scrap Metals	0.003	0.82	$0.18	$131.20	Ashley's
Other Metals	3.34	8.00	$3,011.27	$4,119.95	Ashley's
Newspapers		21.50		$540.25	
Cardboard	19.73	40.50	$789.20	$6,330.90	Greif
Mixed Paper		19.50		$2,335.20	
Other Paper	18.94		$284.10		
#1 PET		3.50		$0.00	Grief
#2 HDPE		15.00		$3,945.50	Grief
Mixed Glass		7.00		$0.00	Braddish
Electronics	5.07	5.00	$0.00	$0.00	Goodwill
Other: Lead Acid Batteries	1.98	2.50	$738.68	$1,756.77	Ashley's
Other: Household Batteries	0.70		($1,014.53)	$0.00	Battery Solutions
	53.82	**131.32**	**$6,826.18**	**$30,075.41**	

Calhoun CY 2019 Tonnages



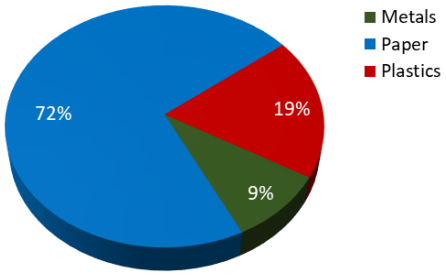
Calhoun CY 2021 Tonnages



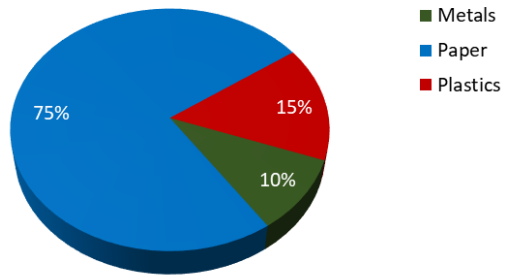
Kanawha

Drop-Offs:	1	Materials Collected: **Separated**			
Curbside Collections:	5	Geographic Area of Responsibility: **30%**			
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	3.66	15.83	$3,294.00	$22,160.00	RJ Recycling
Bi-Metal Cans	12.03	19.82	$1,203.00	$2,400.00	RJ Recycling
Scrap Metals	11.14		$1,114.00		Not Reported
Cardboard	29.98	118.79	$1,049.30	$12,475.00	River Valley Paper
Mixed Paper	176.18	150.61	$0.00	$18,000.00	River Valley Paper
Mixed Plastics	54.17	55.20	$2,166.80	$8,300.00	Prime Plastics
	287.16	**360.25**	**$8,827.10**	**$63,335.00**	

Kanawha CY 2019 Tonnages



Kanawha CY 2021 Tonnages



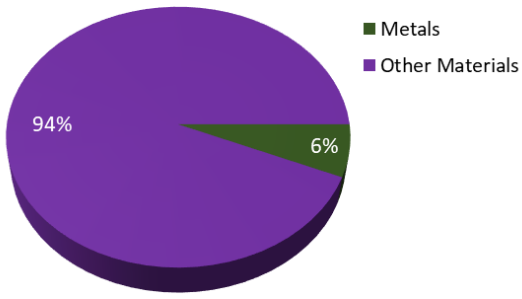
Lincoln

Drop-Offs:	3	Materials Collected: **Separated**			
Curbside Collections:	0	Geographic Area of Responsibility: **60%**			
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	0.89	1.20	$0.00	$0.00	Proceeds Donated to Lion's Club
Commingled	12.90	10.30	$0.00	$0.00	Kanawha Co SWA
	13.79	**11.50**	**$0.00**	**$0.00**	

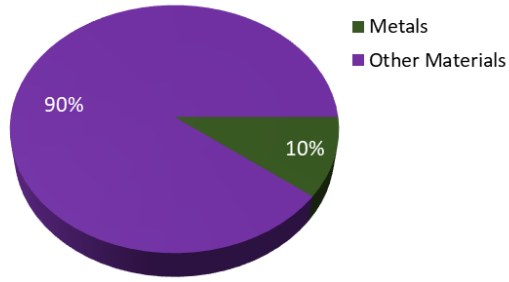
Commingled Materials Include: Newspapers, cardboard, mixed paper, #1 PET & #2 HDPE plastics.

Items are collected source separated. Listed as commingled since material is weighed collectively.

Lincoln CY 2019 Tonnages



Lincoln CY 2021 Tonnages



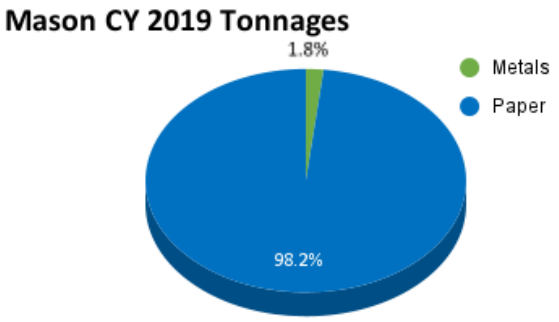
WASTESHED H: RECYCLING SURVEYS (Continued)

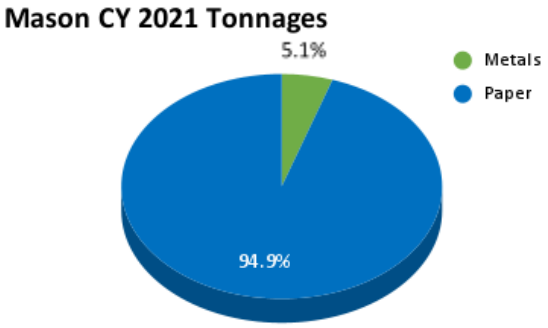
Logan

Does not own, operator, or participate in a recycling program.

Mason

Drop-Offs:	1	Materials Collected: **Source Separated & Commingled**			
Curbside Collections:	0	Geographic Area of Responsibility: **100%**			
	TONNAGE		REVENUE		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	0.53		$319.50		
Other Metals	0.96	5.48	$48.00	$825.20	L&L Scrap
Newspapers	17.80		$0.00		
Cardboard	60.91	101.34	$1,047.20	$8,490.85	Shamrock Recycling East
Office Paper	3.52		$0.00		
	83.72	**106.82**	**$1,414.70**	**$9,316.05**	

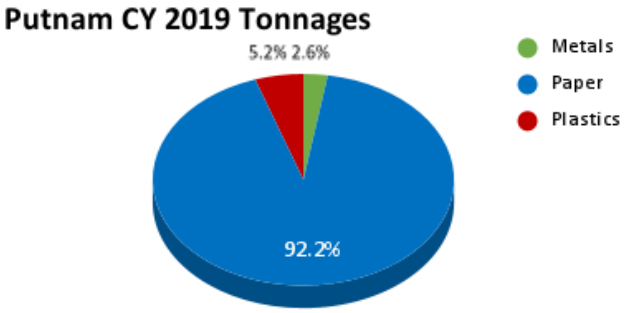


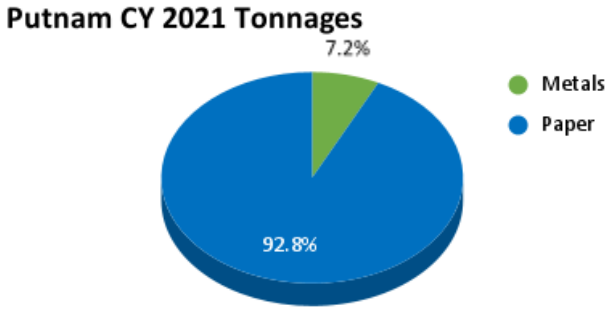


Putnam

Drop-Offs:	**4**	Materials Collected: **Separated**			
Curbside Collections:	**1**	Geographic Area of Responsibility: **20%**			
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	1.00	1.00	$0.00	$0.00	WV Cashin
Steel Cans	1.00		$0.00		WV Cashin
Scrap Metals		5.00		$0.00	WV Cashin
Newspapers	10.00	36.00	$0.00	$0.00	WV Cashin
Cardboard	50.00	39.00	$0.00	$0.00	WV Cashin
Office Paper	11.00	2.00	$0.00	$0.00	WV Cashin
Mixed Plastics	4.00		$0.00		
	77.00	**83.00**	**$0.00**	**$0.00**	

Putnam Co SWA provides a recycling program to county residents through a partnership with WV Cashin Recyclables.

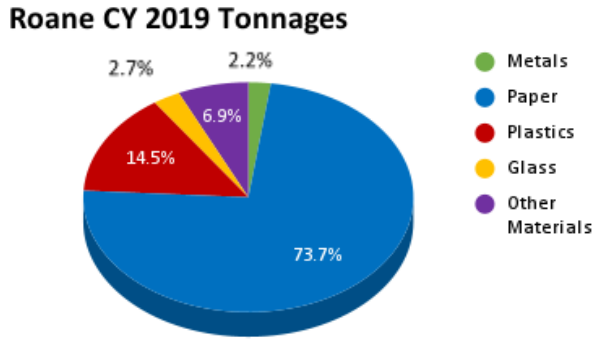


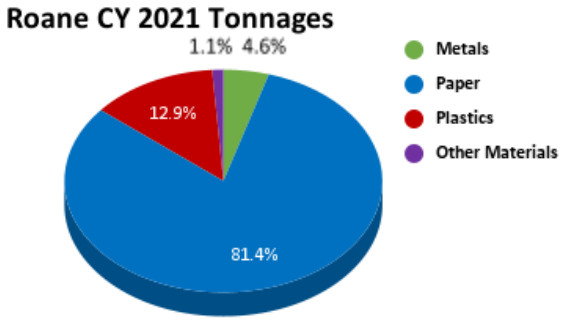


Roane

Drop-Offs:	**4**	Materials Collected: **Separated**		
Curbside Collections:	**0**	Geographic Area of Responsibility: **95%**		
	TONNAGE		**REVENUE**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	0.20	1.65	$0.00	$1,865.00	Ripley Recycling
Bi-Metal Cans	1.20	2.50	$0.00	$450.00	Ripley Recycling
Scrap Metals	0.20	4.75	$0.00	$925.00	Ripley Recycling
Other Metals		0.25		$280.00	Ripley Recycling
Newspapers	37.80	49.75	$661.34	$3,815.00	Jackson Co SWA
Cardboard	14.93	107.50	$1,917.80	$13,120.00	Jackson Co SWA
Office Paper	1.18	3.75	$185.00	$390.00	Jackson Co SWA
Mixed Plastics	10.58	25.50	$1,587.00	$3,835.00	Jackson Co SWA
Mixed Glass	1.96		$0.00		Jackson Co SWA
Electronics	5.07	2.25	$566.00	$175.00	Infinite Electronics
	73.12	**197.90**	**$4,917.14**	**$24,855.00**	

NOTES: Collected cardboard (7.4 tons), mixed paper (10.2 tons) and metals (.25 tons) but not marketed

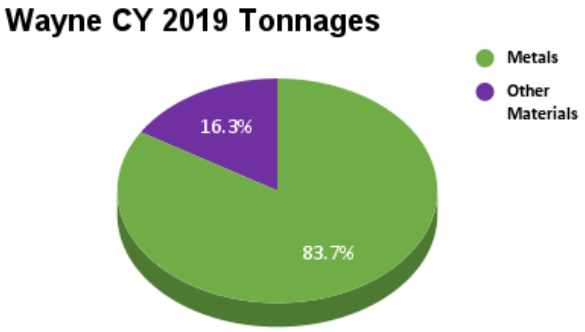


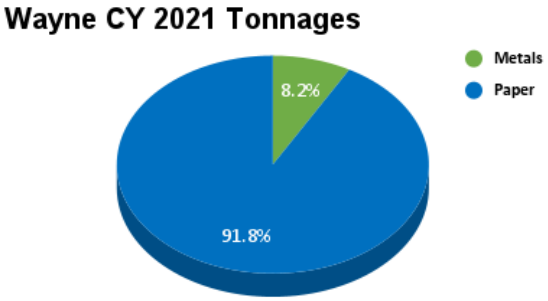


.

Wayne

Drop-Offs:	**1**	Materials Collected: **Commingled**			
Curbside Collections:	**0**	Geographic Area of Responsibility: **50%**			
	TONNAGE		**REVENUE**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	0.12	0.24	$72.60	$241.50	Taylor Iron & Metal
Scrap Metals	1.94	1.10	$255.20	$144.30	Taylor Iron & Metal
Cardboard		9.20		$0.00	Jackson Co SWA
Mixed Paper		5.90		$0.00	Jackson Co SWA
Electronics	0.40		$0.00		
	2.46	**16.44**	**$327.80**	**$385.80**	





WASTESHED H: RECYCLING ANALYSIS

Recycling Facilities

	2019	2021
Drop-Offs	**34**	**32**
Curbside	**7**	**6**

Recycling Tonnage/Revenue

	2019	2021
Total Recycled	**3,006.62**	**1,694.22**
Total Recycling Income	**$23,009.15**	**$128,748.26**

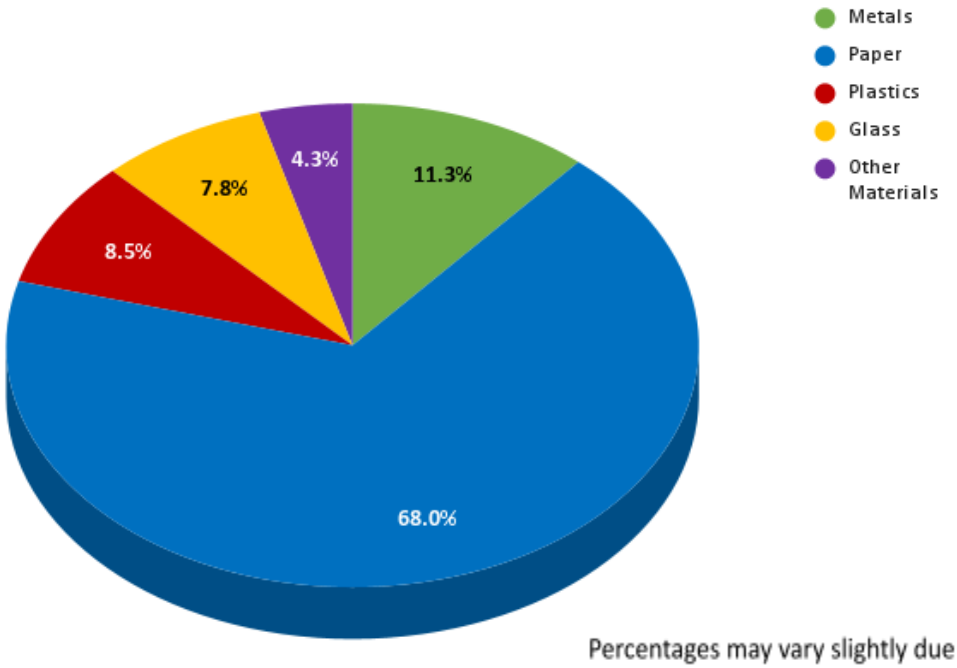
Recycling Materials Collected and Marketed in Wasteshed H: 2019 & 2021 Comparison

	TONNAGE			INCOME		
MATERIAL	**2019**	**2021**	**CHANGE**	**2019**	**2021**	**CHANGE**
METALS						
Aluminum Cans	22.29	38.67	16.38	$6,703.38	$35,182.14	$28,478.76
Bi-Metal Cans	13.23	22.32	9.09	$1,203.00	$2,850.00	$1,647.00
Steel Cans	21.15	18.45	(2.70)	$0.00	$0.00	$0.00
Scrap Metals	14.85	98.44	83.59	$1,387.77	$1,981.50	$593.73
White Goods	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Metals	4.30	13.73	9.43	$3,059.27	$5,225.15	$2,165.88
PAPER						
Newspapers	2,029.62	380.89	(1,648.73)	$675.32	$4,355.25	$3,679.93
Cardboard	311.28	489.42	178.14	$5,467.36	$40,416.75	$34,949.39
Office Paper	28.90	8.12	(20.78)	$185.00	$390.00	$205.00
Mixed Paper	263.38	271.34	7.96	$0.00	$20,335.20	$20,335.20
Other Paper	21.62	1.78	(19.84)	$284.10	$0.00	($284.10)
PLASTICS						
#1 PET	16.34	18.46	2.12	$0.00	$0.00	$0.00
#2 HDPE	27.70	40.36	12.66	$0.00	$3,945.50	$3,945.50
Mixed Plastics	74.25	85.73	11.48	$3,753.80	$12,135.00	$8,381.20
Other Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
GLASS						
Clear Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Glass	131.59	132.93	1.34	$0.00	$0.00	$0.00
OTHER MATERIALS						
Commingled	12.90	10.30	(2.60)	$0.00	$0.00	$0.00
Yard Waste/Brush	0.00	0.00	0.00	$0.00	$0.00	$0.00
Electronics	10.54	13.82	3.28	$566.00	$175.00	($391.00)
Tires	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Materials	2.68	49.46	46.78	($275.85)	$1,756.77	$2,032.62
	3,006.62	**1,694.22**	**(1,312.40)**	**$23,009.15**	**$128,748.26**	**$105,739.11**

NOTE: Tonnage numbers and income is calculated on what was reported. Tonnage may only include collected, or collected and marketed. Income was not reported on all surveys. Therefore, income comparison change is only including those entities that filed a report.

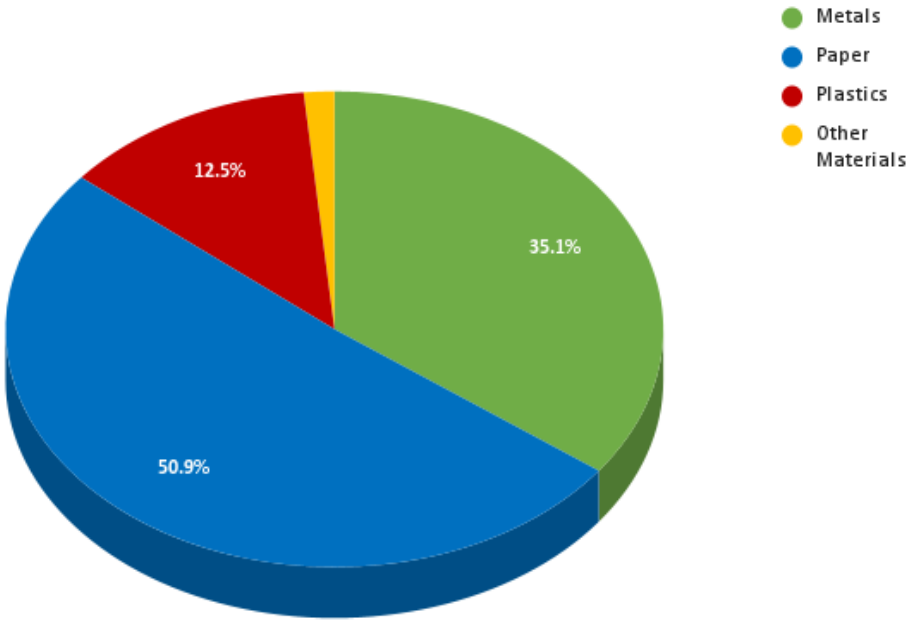
WASTESHED H: RECYCLING ANALYSIS

CY 2021 Recycling Materials by Category for Wasteshed H



Percentages may vary slightly due to rounding.

CY 2021 Recycling Income by Category for Wasteshed H

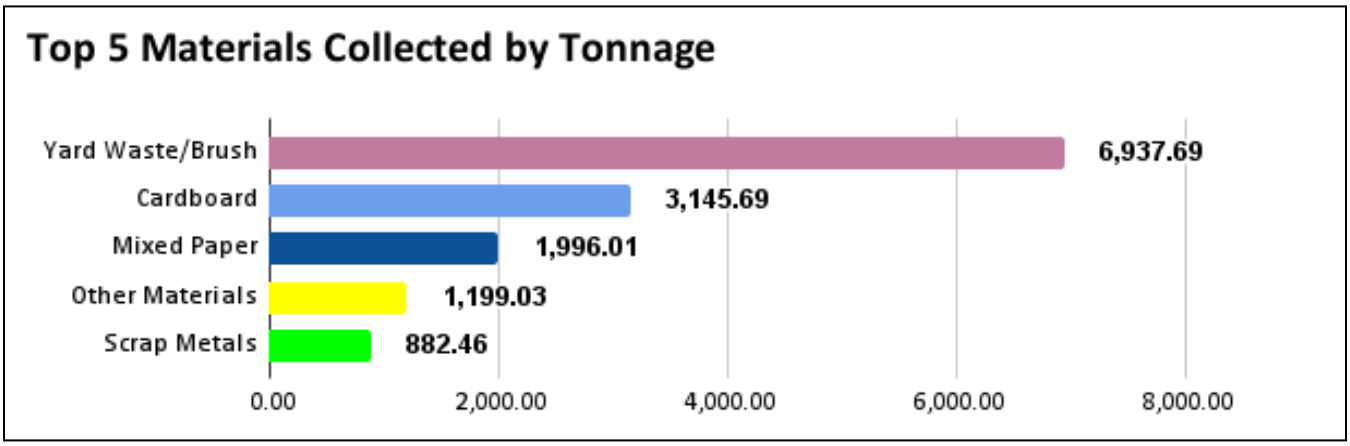


Percentages may vary slightly due to rounding.

SOLID WASTE AUTHORITY CY 2021 RECYCLING SURVEY SUMMARY

Tonnages Collected by Solid Waste Authority Recycling Programs: CY 2021

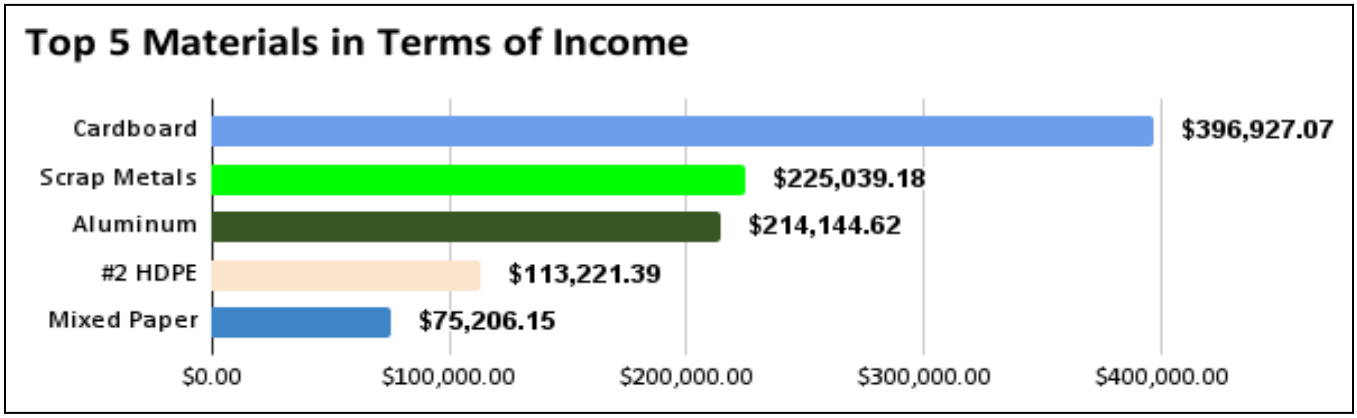
MATERIAL	WS A	WS B	WS C	WS E	WS F	WS G	WS H	TOTALS
Aluminum Cans	10.90	30.45	5.34	30.21	53.80	28.51	38.67	197.88
Bi-Metal Cans	1.50	15.00	1.50	0.00	22.80	41.94	22.32	105.06
Steel Cans	0.00	0.96	4.99	17.21	0.00	0.00	18.45	41.61
Scrap Metals	39.21	17.89	0.05	634.18	54.80	37.89	98.44	882.46
White Goods	0.00	0.00	0.00	0.00	92.01	0.00	0.00	92.01
Other Metals	1.60	0.00	0.00	2.87	0.00	266.90	13.73	285.10
Newspapers	6.00	4.01	129.68	0.00	65.56	137.17	380.89	723.31
Cardboard	3.00	436.54	935.91	4.95	771.72	504.15	489.42	3,145.69
Office Paper	0.00	3.00	41.87	0.00	43.10	61.94	8.12	158.03
Mixed Paper	305.92	79.93	112.40	879.62	78.93	267.87	271.34	1,996.01
Other Paper	0.00	0.00	19.09	0.00	0.00	0.00	1.78	20.87
#1 PET	0.00	19.12	21.46	0.00	60.50	102.95	18.46	222.49
#2 HDPE	0.00	15.00	68.19	0.00	21.00	61.83	40.36	206.38
Mixed Plastics	6.06	0.00	11.70	16.90	11.89	0.00	85.73	132.28
Other Plastics	2.03	0.00	0.00	94.43	0.00	11.59	0.00	108.05
Clear Glass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Amber Glass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Glass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mixed Glass	9.00	0.00	0.00	258.08	0.00	0.00	132.93	400.01
Commingled	11.90	27.80	0.00	89.25	0.00	0.00	10.30	139.25
Yard Waste/Brush	0.05	0.00	0.00	2,903.00	0.00	4,034.64	0.00	6,937.69
Electronics	13.91	11.73	24.00	150.83	18.20	3.00	13.82	235.49
Tires	44.50	0.00	0.00	97.95	55.87	0.00	0.00	198.32
Other Materials	5.53	0.00	3.74	1,140.30	0.00	0.00	49.46	1,199.03
	461.11	**661.43**	**1,379.92**	**6,319.78**	**1,350.18**	**5,560.38**	**1,694.22**	**17,427.02**



SOLID WASTE AUTHORITY CY 2021 RECYCLING SURVEY SUMMARY

Revenue Earned by Solid Waste Authority Recycling Programs: CY 2021

MATERIAL	WS A	WS B	WS C	WS E	WS F	WS G	WS H	TOTALS
Aluminum Cans	$13,193.29	$14,026.43	$3,725.16	$17,696.56	$72,682.10	$57,638.94	$35,182.14	$214,144.62
Bi-Metal Cans	$0.00	$0.00	$0.00	$0.00	$4,801.36	$2,023.00	$2,850.00	$9,674.36
Steel Cans	$0.00	$57.57	$877.70	$0.00	$0.00	$0.00	$0.00	$935.27
Scrap Metals	$7,023.10	$32,963.09	$187.00	$80,350.32	$76,312.31	$26,221.86	$1,981.50	$225,039.18
White Goods	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Other Metals	$289.80	$0.00	$0.00	$1,148.00	$0.00	$39,807.90	$5,225.15	$46,470.85
Newspapers	$0.00	$0.00	$14,663.46	$0.00	$8,003.09	$13,937.30	$4,355.25	$40,959.10
Cardboard	$0.00	$32,650.40	$155,124.06	$0.00	$110,206.72	$58,529.14	$40,416.75	$396,927.07
Office Paper	$0.00	$0.00	$8,284.35	$0.00	$6,973.60	$11,823.10	$390.00	$27,471.05
Mixed Paper	$13,405.27	$6,070.92	$7,714.12	$7,082.98	$6,733.36	$14,019.10	$20,335.20	$75,360.95
Other Paper	$0.00	$0.00	$859.05	$0.00	$0.00	$0.00	$0.00	$859.05
#1 PET	$0.00	$525.96	$10,334.10	$0.00	$18,758.15	$41,595.07	$0.00	$71,213.28
#2 HDPE	$0.00	$0.00	$13,638.30	$0.00	$34,177.50	$61,460.09	$3,945.50	$113,221.39
Mixed Plastics	$0.00	$0.00	$4,688.35	$0.00	$5,906.20	$0.00	$12,135.00	$22,729.55
Other Plastics	$0.00	$0.00	$0.00	$719.80	$0.00	$1,159.00	$0.00	$1,878.80
Clear Glass	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Amber Glass	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Green Glass	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Mixed Glass	$0.00	$0.00	$0.00	($14,064.00)	$0.00	$0.00	$0.00	($14,064.00)
Commingled	$0.00	$0.00	$0.00	($27,625.35)	$0.00	$0.00	$0.00	($27,625.35)
Yard Waste/Brush	$0.00	$0.00	$0.00	$22,053.39	$0.00	$35,535.16	$0.00	$57,588.55
Electronics	$272.69	$0.00	$603.81	($14,591.04)	$2,168.40	$0.00	$175.00	($11,371.14)
Tires	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Other Materials	$0.00	$0.00	$166.00	$0.00	$0.00	$0.00	$1,756.77	$1,922.77
	$34,184.15	**$86,294.37**	**$220,865.46**	**$72,770.66**	**$346,722.79**	**$363,749.66**	**$128,748.26**	**$1,253,335.35**

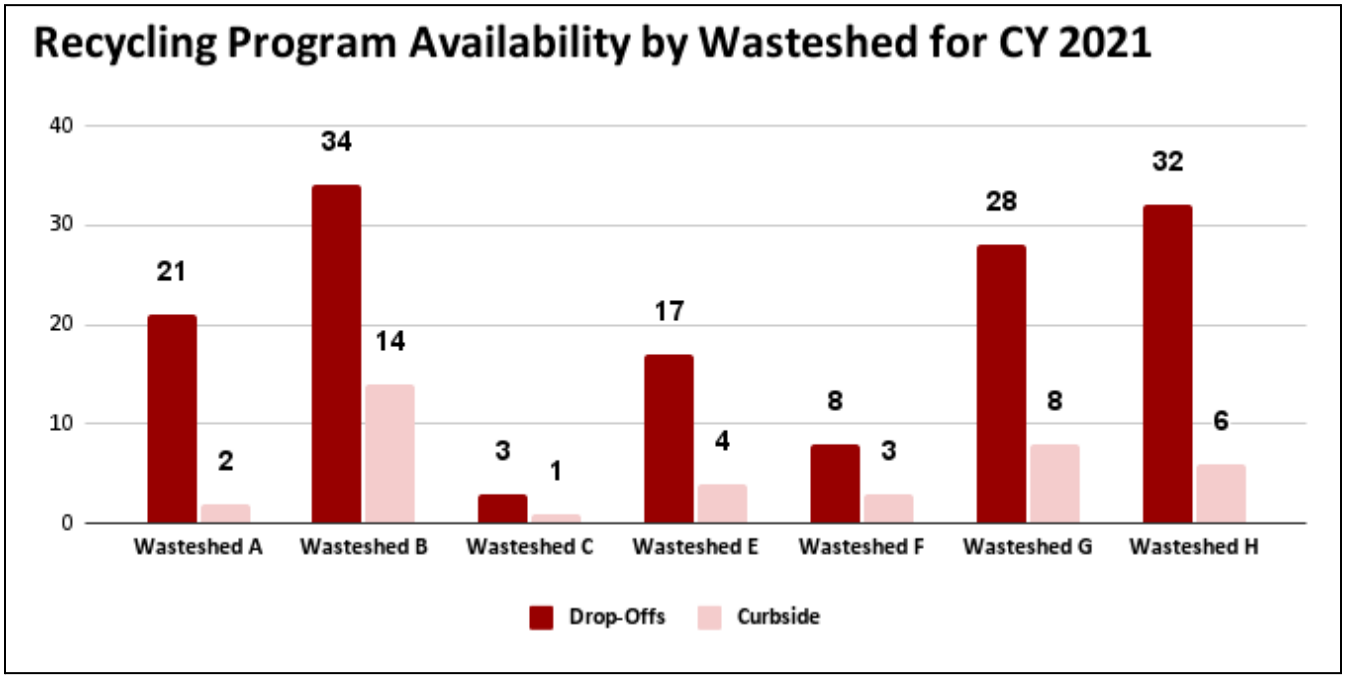


SOLID WASTE AUTHORITY CY 2021 RECYCLING SURVEY SUMMARY

SWA Recycling Data Per Wasteshed for CY 2021*

Wasteshed	Drop-Offs	Curbside	Tonnage	Revenue
Wasteshed A	21	2	461.11	$34,184.15
Wasteshed B	34	14	661.43	$86,294.37
Wasteshed C	3	1	1,379.92	$220,865.46
Wasteshed E	17	4	6,319.78	$72,770.66
Wasteshed F	8	3	1,350.18	$346,722.79
Wasteshed G	28	8	5,560.38	$363,749.66
Wasteshed H	32	6	1,694.22	$128,748.26
	143	**38**	**17,427.02**	**$1,253,335.35**

*Drop-off recycling programs include school programs and public countywide programs. Recycling tonnage and income are collected by SWA recycling centers.

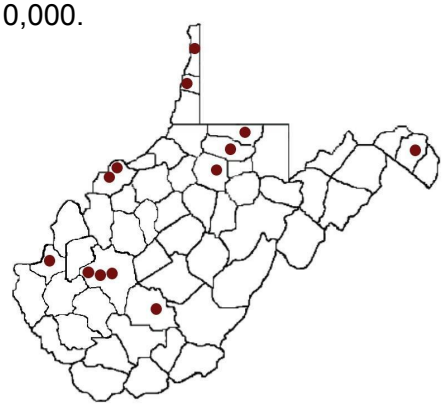


MANDATED MUNICIPALITY RECYCLING SURVEY

WV Code §22-15A-18(b) states that each municipality with a population of 10,000 or more people, as determined by the most recent decennial census, shall establish a source separation and curbside collection program for recyclable materials. According to the 2020 US Census Bureau data, West Virginia currently has thirteen municipalities with a population over 10,000.

West Virginia's thirteen Mandated Municipalities are:

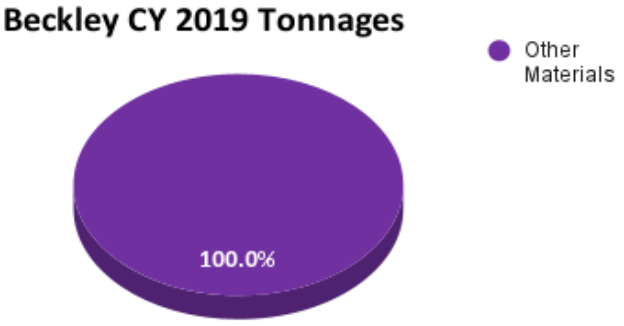
- City of Beckley
- City of Charleston,
- City of Clarksburg
- City of Fairmont
- City of Huntington
- City of Martinsburg
- City of Morgantown
- City of Parkersburg
- City of South Charleston
- City of St. Albans
- City of Vienna
- City of Weirton
- City of Wheeling

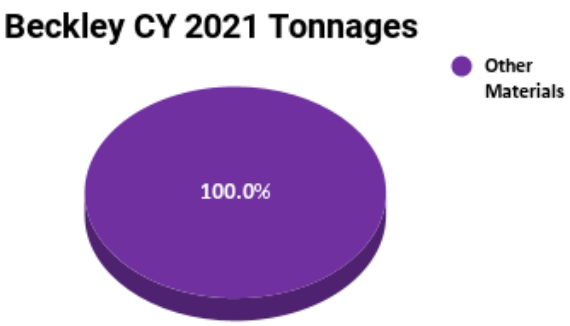


Beckley, City of

Outsourced:	**No**	Materials Collected: **Commingled**			
Processes Materials:	**No**	Compost Brush/Yard Wastes: **No**			
	TONS		**INCOME**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Commingled	220.67	185.56	$0.00	$0.00	Raleigh Co SWA Recycling Center
	220.67	**185.56**	**$0.00**	**$0.00**	

Commingled Materials Include: Newspapers, cardboard, office paper, mixed paper, aluminum cans, bi-metal cans and d#1 & #2 plastics.



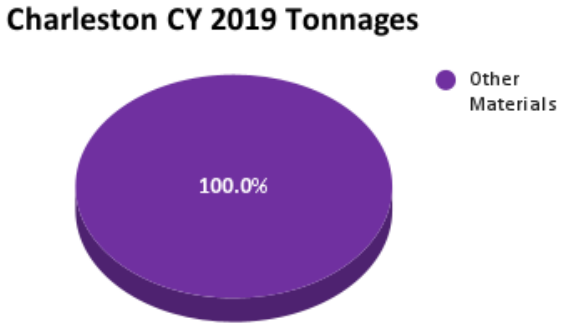


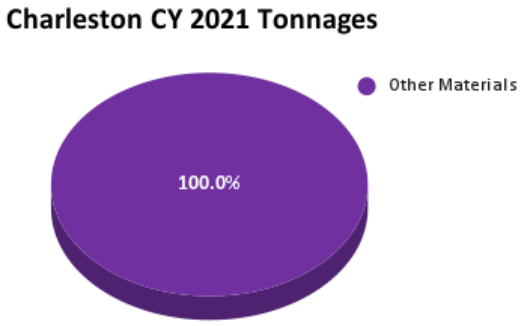
MANDATED MUNICIPALITY RECYCLING SURVEY (Continued)

Charleston, City of

Outsourced:	**No**	Materials Collected: **Commingled**			
Processes Materials:	**No**	Compost Brush/Yard Wastes: **Yes**			
	TONS		**INCOME**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Commingled	668.99	525.01	$0.00	($91,876.75)	Raleigh Co SWA
Scrap Metals		109.09		$17,075.40	River Metals Recycling
Tires		23.28		($1,425.00)	WV Tire Disposal
	668.99	**657.38**	**$0.00**	**($76,226.35)**	

Commingled Materials Include: Newspapers, cardboard, office paper, mixed paper, aluminum cans, bi-metal cans, scrap metals, mixed metals and plastics #1 and #2.

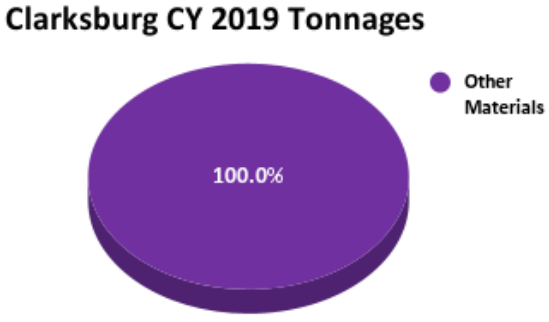


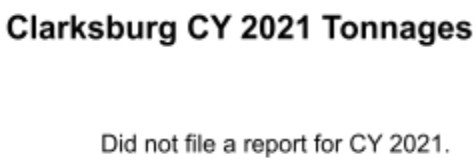


Clarksburg, City of

Outsourced:	**Yes**	Materials Collected: **Commingled**			
Processes Materials:	**No**	Compost Brush/Yard Wastes: **Yes**			
	TONS		**INCOME**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Yard Waste/Brush	517.00		$13,307.00		
	517.00		**$13,307.00**		

Commingled Materials Include: Plastics #1 & #2, newspapers, cardboard and aluminum cans
Clarksburg operates a Commercial Composting Facility. Curbside collection and drop-off is free for county residents.
Non-city residents and contractors are charged .01 cent per pound to drop-off brush and yard waste.
Compost is sold on site or delivered to a limited area for a nominal fee.





Fairmont, City of

Collection services in Fairmont are outsourced to Republic Services, Inc.

Huntington, City of

Collection services in Huntington are outsourced to Rumpke Waste & Recycling

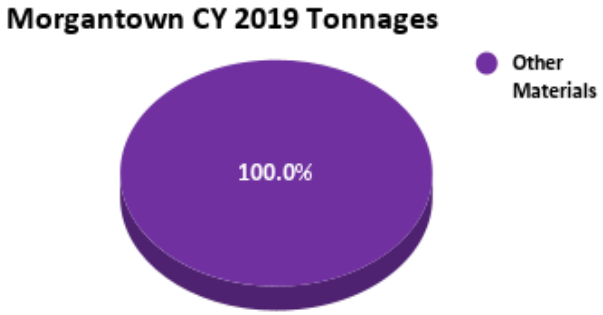
Martinsburg, City of

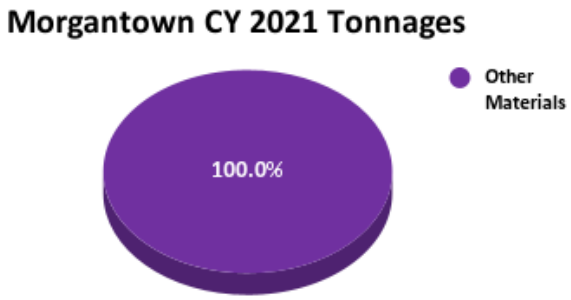
Failed to file a CY 2021 Survey

Morgantown, City of

Outsourced:	**Yes**	Materials Collected: **Commingled**			
Processes Materials:	**No**	Compost Brush/Yard Wastes: **No**			
	TONS		**INCOME**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Commingled	966.62	1,212.50	$0.00	$0.00	Republic Services
	966.62	**1,212.50**	**$0.00**	**$0.00**	

Commingled Materials Include: Newspapers, cardboard, office paper, mixed paper, aluminum cans, bi-metal cans, plastics and all grades of glass. Program is outsourced to Republic Services.



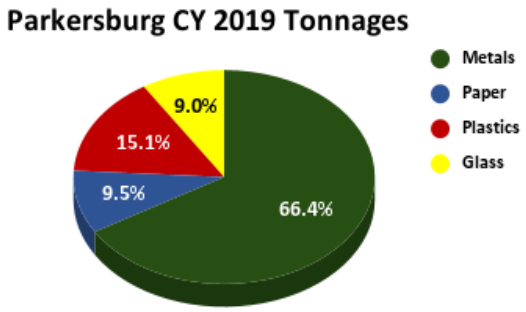


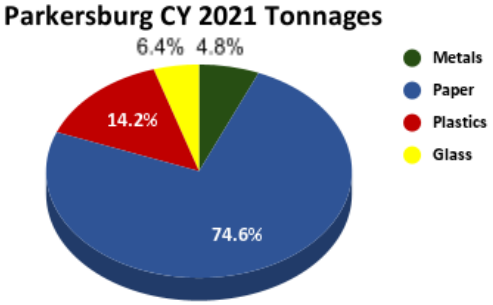
MANDATED MUNICIPALITY RECYCLING SURVEY (Continued)

Parkersburg, City of

Outsourced:	**No**	Materials Collected: **Commingled**		
Processes Materials:	**Yes**	Compost Brush/Yard Wastes: **No**		
	TONS		**INCOME**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Aluminum Cans	404.35	24.00	$8,425.80	$13,384.00	Ashley's Recycling
Scrap Metals	311.27	49.00	$2,994.25	$12,588.75	RJ Recycling
Cardboard	20.58	522.00	$12,782.00	$63,850.28	Four Seasons
Mixed Paper	82.05	332.00	$4,586.18	$22,054.87	Four Seasons
#1 PET	110.11	85.00	$19,716.35	$24,785.53	Four Seasons
#2 HDPE	52.49	78.00	$8,912.20	$9,562.70	Mondo Plastics
Clear Glass*	40.88	31.00	$151.09	$29.98	Bradish Glass
Amber Glass	29.58	24.00	$0.00	$20.63	Bradish Glass
Green Glass	26.02		$0.00		
	1,077.33	**1,145.00**	**$57,567.87**	**$146,276.74**	

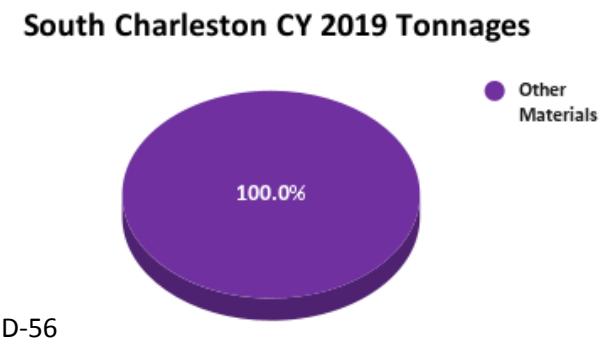
*2019 Income listed for Clear Glass is total for all three types of glass. Only listed one amount.

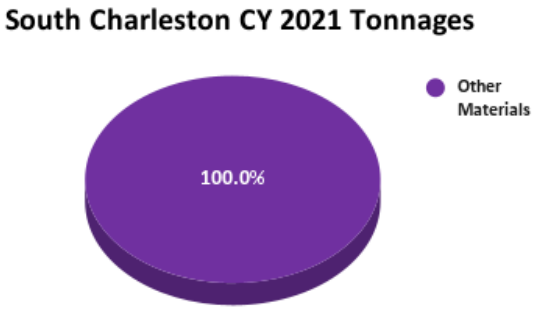




South Charleston, City of

Outsourced:	No	Materials Collected: **Commingled**		
Processes Materials:	No	Compost Brush/Yard Wastes: **Yes**		
	TONS		**INCOME**	
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Scrap Metals	34.00	44.00	$3,287.00	$4,632.40	RJ Recycling
Commingled	177.94	200.59	$0.00	$0.00	Raleigh Co SWA Recycling Center
Yard Waste/Brush	260.00	175.00	$0.00	$0.00	Donated to Manna Meal garden
	471.94	**419.59**	**$3,287.00**	**$4,632.40**	

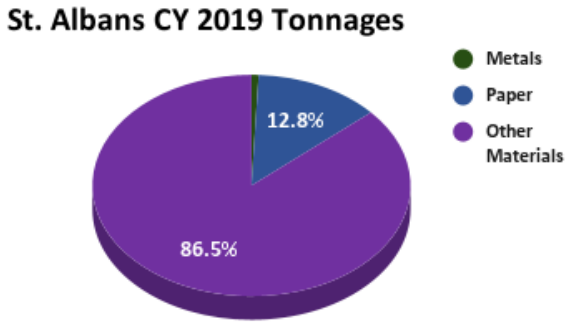


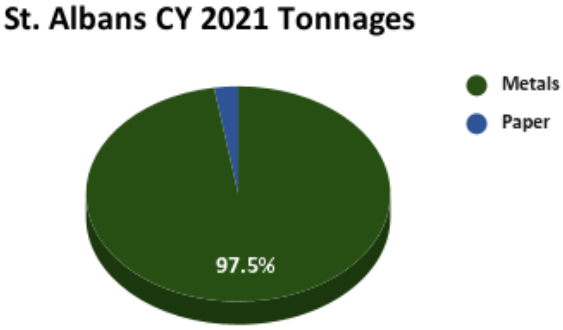


St. Albans, City of

Outsourced:	**No**	Materials Collected: **Seperated**			
Processes Materials:	**No**	Compost Brush/Yard Wastes: **Yes**			
	TONS		**INCOME**		
Item	**2019**	**2021**	**2019**	**2021***	**Markets**
Aluminum Cans	0.48	0.85	$0.00	$0.00	RJ Recycling
Scrap Metals	9.52	13.52	$2,119.54	$1,391.90	RJ Recycling
Other Metals		1.32		$0.00	RJ Recycling
Cardboard	86.92		$1,050.00		WV Cashin
Mixed Paper	91.11	0.41	$1,050.00	$0.00	WV Cashin
Yard Waste/Brush	1,202.00		$0.00		None Listed
	1,390.03	**16.10**	**$4,219.54**	**$1,391.90**	

*Revenue was not broken down by item for the 2021 report. Placed total revenue under scrap metal since there was no indication of breakdown.

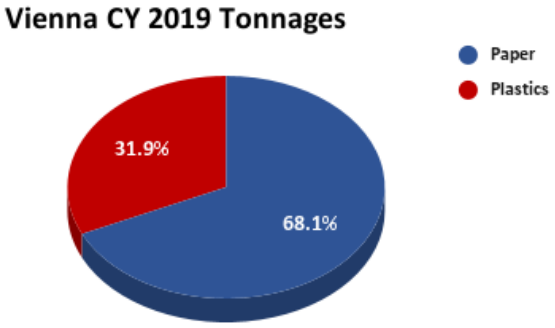


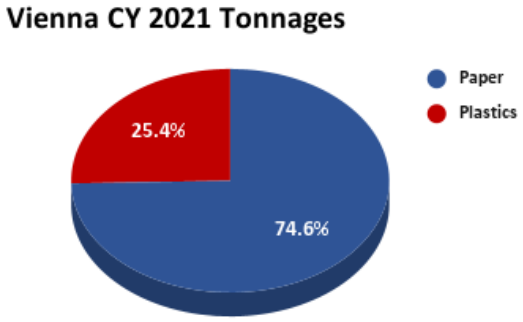


Vienna, City of

Outsourced:	**Yes**	Materials Collected: **Separated**			
Processes Materials:	**No**	Compost Brush/Yard Wastes: **No**			
	TONS		**INCOME**		
Item	**2019**	**2021**	**2019**	**2021**	**Markets**
Cardboard	92.24	193.31	$0.00	$0.00	City of Parkersburg
Mixed Paper	168.73	122.87	$0.00	$0.00	City of Parkersburg
Mixed Plastic	122.25	107.57	$0.00	$0.00	City of Parkersburg
	383.22	**423.75**	**$0.00**	**$0.00**	

Program is outsourced to HaulAway Trash LLC.



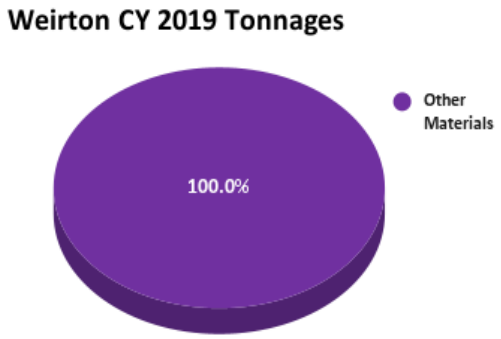


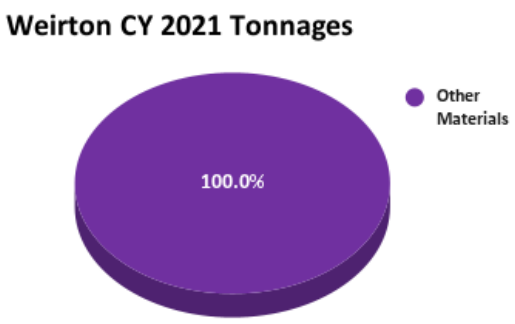
MANDATED MUNICIPALITY RECYCLING SURVEY (Continued)

Weirton, City of

Outsourced:	**Yes**	Materials Collected: **Commingled**			
Processes Materials:	**No**	Compost Brush/Yard Wastes: **Yes**			
	TONS		**INCOME**		
Item	**2019**	**2021***	**2019**	**2021**	**Markets**
Commingled	1,366.24	74.55	$0.00	$0.00	Brooke Co Landfill
Yard Waste/Brush	1,128.00	1,179.25	$0.00	$0.00	Iannetti's Garden Center
	2,494.24	**1,253.80**	**$0.00**	**$0.00**	

*Commingled tonnage was for items not accepted by Brooke County for part of the year.

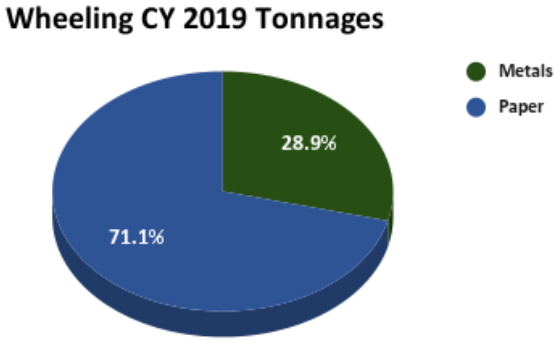




Wheeling, City of

Outsourced:	**No**	Materials Collected: **Separated**			
Processes Materials:	**No**	Compost Brush/Yard Wastes: **No**			
	TONS		**INCOME**		
Item	**2019**	**2021***	**2019**	**2021**	**Markets**
Aluminum Cans	2.75		$0.00		Brooke Co SWA Recycling Center
Mixed Papers	6.75		$0.00		Brooke Co SWA Recycling Center
	9.50		**$0.00**		

*Filed a CY 2021 survey but did not have any tonnage to actually report. Papers and aluminum and bi-metal cans are collected. Collected tonnage was not provided to Wheeling.



MANDATED MUNICIPALITY RECYCLING SUMMARY

Total Materials and Revenue	CY 2019	CY 2021
Total Recyclable Materials	**8,199.53**	**5,313.69**
Total Recycling Revenue	**$78,381.41**	**$76,074.69**

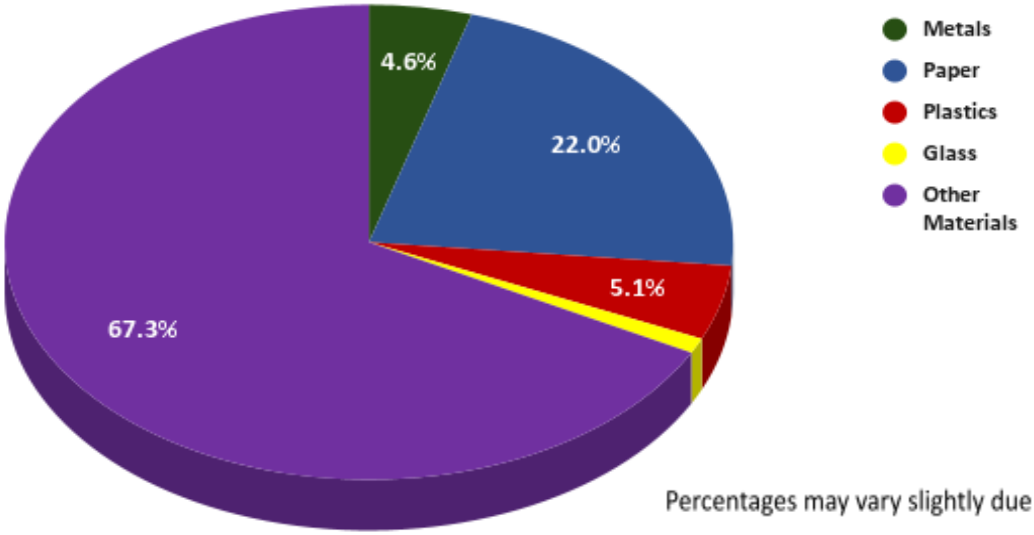
Recycling Materials Collected and Marketed by Mandated Municipalities: 2019 & 2021 Comparison

	TONNAGE			INCOME		
MATERIAL	2019	2021	CHANGE	2019	2021	CHANGE
METALS						
Aluminum Cans	407.58	24.85	(382.73)	$8,425.80	$13,384.00	$4,958.20
Bi-Metal Cans	0.00	0.00	0.00	$0.00	$0.00	$0.00
Steel Cans	354.79	0.00	(354.79)	$0.00	$0.00	$0.00
Scrap Metals	0.00	215.61	215.61	$8,400.79	$35,688.45	$27,287.66
White Goods	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Metals	0.00	1.32	1.32	$0.00	$0.00	$0.00
PAPER						
Newspapers	0.00	0.00	0.00	$0.00	$0.00	$0.00
Cardboard	199.74	715.31	515.57	$13,832.00	$63,850.28	$50,018.28
Office Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Paper	348.64	455.28	106.64	$5,636.18	$22,054.87	$16,418.69
Other Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
PLASTICS						
#1 PET	110.11	85.00	(25.11)	$19,716.35	$24,785.53	$5,069.18
#2 HDPE	52.49	78.00	25.51	$8,912.20	$9,562.70	$650.50
Mixed Plastics	122.25	107.57	(14.68)	$0.00	$0.00	$0.00
Other Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
GLASS						
Clear Glass	40.88	31.00	(9.88)	$151.09	$29.98	($121.11)
Amber Glass	29.58	24.00	(5.58)	$0.00	$20.63	$20.63
Green Glass	26.02	0.00	(26.02)	$0.00	$0.00	$0.00
Mixed Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
OTHER MATERIALS						
Commingled	3400.46	2198.21	(1,202.25)	$0.00	($91,876.75)	($91,876.75)
Yard Waste/Brush	3107	1354.25	(1,752.75)	$13,307.00	$0.00	($13,307.00)
Electronics	0.00	0.00	0.00	$0.00	$0.00	$0.00
Tires	0.00	23.28	23.28	$0.00	($1,425.00)	($1,425.00)
Other Materials	0.00	0.00	0.00	$0.00	$0.00	$0.00
	8,199.54	**5,313.68**	**(2,885.86)**	**$78,381.41**	**$76,074.69**	**($2,306.72)**

NOTE: Tonnage numbers and income is calculated on what was reported. Tonnage may only include collected, or collected and marketed. Income was not reported on all surveys. Therefore, income comparison change is only including those entities that filed a report.

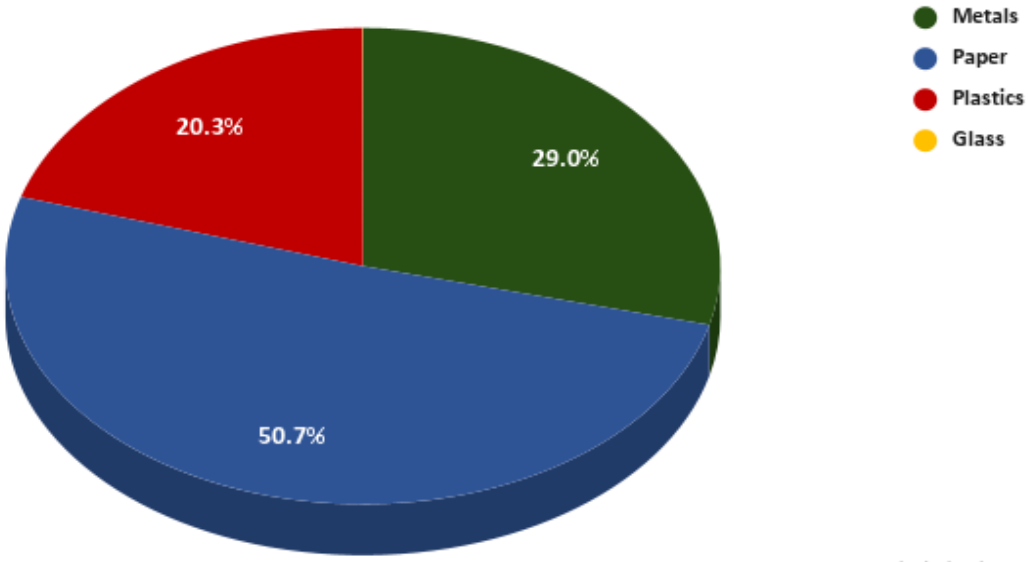
MANDATED MUNICIPALITY RECYCLING SUMMARY (Continued)

CY 2021 Recycling Materials by Category for Mandated Municipalities



Percentages may vary slightly due to rounding.

CY 2021 Recycling Materials by Income for Mandated Municipalities



Percentages may vary slightly due to rounding.

END NOTES FOR APPENDIX D

1. US Census Bureau City and Town Population Totals: 2020 - 2021 for West Virginia. Figures based on April 1, 2020 estimates base. https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-cities-and-towns.htm

Appendix E: Recycling Infrastructure and Market Development in Other States

West Virginia: Recycling Market Development	
Funding Sources	Many of West Virginia's environmental programs are financed through an $8.25 waste assessment fee collected at the landfills. Sixteen percent of this fee goes to the state's recycling programs.
Recycling Incentives	In accordance with WV Code §22C-4-30(e)(4), the state makes disposal-tax waivers available for commercial recyclers which dispose of 30%, or less, of total waste processed for recycling. Both of West Virginia's recycling grant programs are competitive in nature, requiring projects to impact a significant and measurable reduction in the municipal solid waste stream. Curbside recycling is available to approximately one third of the state's population.
Recycling Programs	The Solid Waste Management Board's (SWMB) provides recycling, market development and other technical assistance to the 50 local solid waste authorities, businesses, government entities and others. They also provide individual consulting, internet-based marketing services, environmental training, and other programs. Local solid waste authorities are required to have an approved recycling plan on file with the SWMB. The SWMB manages one of the state's grant programs exclusively for solid waste authorities and assists with special projects..
Recycling Mandates	The state has mandated curbside recycling for cities with populations of over 10,000. Local solid waste authorities are required to keep an approved recycling plan on file with the Solid Waste Management Board. State agencies and instrumentalities of the state are encouraged to purchase recycled products. Effective April 15, 2010, Senate Bill 746 mandated manufacturers of covered electronic devices doing business in West Virginia, register with the WV DEP. The goal of this law is to establish a registration process for manufacturers of covered electronic devices, to determine if they had adopted or implemented a take back/recycling program that is free to the public. Fees associated with registration are awarded to counties and municipalities in the form of grants for recycling or other programs that divert covered electronic devices from the waste stream. The bill also established penalties for noncompliance. The legislature followed up with a ban on the disposal of covered electronic devices in solid waste landfills, effective January 1, 2011 – which was repealed during 2016 Legislative Session under HB 4540. Items are now allowed to be landfilled unless a county or regional solid waste authority in the county in which a landfill is located determines there is a cost-effective recycling alternative.
Landfill Bans	West Virginia bans yard waste, lead acid batteries, and tires.
Recycling Grants/Loans	West Virginia provides three grant programs; the Department of Environmental Protection's Rehabilitation Environmental Action Plan (REAP) Recycling Assistance Grant Program, Covered Electronic Devices (CED) Grant Program, and the SWMB grant program. REAP grants are available to government entities, nonprofits, private sector businesses, and solid waste authorities. The CED grant program is funded through registration fees collected from manufacturers and are available to counties and municipalities for electronic recycling. SWMB grant program is available to local solid waste authorities only.
Recycling Budget	The Solid Waste Management Board (FY2020) and WVDEP REAP (CY 2020) recycling/grant programs distributed approximately $1.8 million.
Recycling Goals	West Virginia has no mandated recycling goals. It had a waste diversion goal of 50% by 2010, which expired and has not been renewed. West Virginia has no penalties for not meeting its diversion goals.
Recycling Rate	A study completed in the Spring of 2002 by the WV Recycling Measurement Committee, a group of both public and private sector individuals, indicated that 16% of the waste stream was being recycled at the time. This figure is deceptive due to lack of reporting requirements.

Kentucky: Recycling Market Development	
Funding Sources	Kentucky assesses a $1.75 tipping fee on all landfill disposals (KRS 224.43-500). Fees are deposited into Kentucky PRIDE, a restricted fund used for orphan landfill remediation, illegal dump cleanups, recycling development and household hazardous waste collection grants. Counties, city-county merged municipalities, and some cities, have the primary responsibility for solid waste management within their borders and the authority to place a surcharge on property taxes to pay for waste management services. Most of the responsibility for recycling in Kentucky lies with the local government.
Recycling Incentives	Kentucky provides grant funding to government entities to develop and expand recycling. There is a 50% tax credit (KRS 141.390) available to taxpayers on the purchase of recycling equipment used to process post consumer waste and compost. This exempts that purchase from state and local sales and use tax.
Recycling Programs	The Department of Environmental Protection DEP - Division of Waste Management operates a scrap paper and cardboard recycling program for all state government offices in Frankfort/Franklin County (the capital). It averages over 1,500 tons per year. Pandemic related telecommuting totals diminished to approximately 750 tons resulting from less waste generated at offices. Some form of recycling exists in most Kentucky counties ranging from convenience and drop-off centers to curbside single stream collection. The Recycling Assistance Section within the DWM provides technical assistance in designing and evaluating recycling programs and provides quarterly market prices and trend information. The Kentucky Pollution Prevent Center at the University of Louisville provides waste audits for business and industry to encourage waste diversion.
Recycling Mandates	Kentucky has two state statutes that require all state agencies, state supported institutions of higher learning, and all public-school districts to recycle paper and cardboard (KRS 224.10-650 and KRS 160.294). Most state colleges and universities have recycling programs that go beyond statutory requirements. The City of Vanceburg has an ordinance requiring mandatory recycling for its residents. Kentucky requires local school districts to establish recycling programs in each board owned facility for cardboard and white paper but gives them an exemption if there is no local recycling facility to support the programs.
Landfill Bans	Kentucky bans whole tire and lead acid battery disposal and has a waste tire remediation program.
Recycling Grants/Loans	Kentucky provides grants from the KY PRIDE Fund to government entities for the establishment and expansion of the recycling infrastructure across the state as well as Household Hazardous Waste collection events (KRS 224.43-505).
Recycling Budget	Grant dollars from the Kentucky PRIDE Fund, which is generated by a $1.75 fee for each ton of municipal solid waste disposed of in Kentucky landfills, funds Kentucky's recycling grant program. For FYs 2021-2022, the grant total was $4,699,998.05; this is divided between HHW ($798,964.38) Recycling ($2,469,302.07), and Composting ($1,431,731.60).
Recycling Goals	Senate Bill 2, enacted in 1997, established a 25% waste reduction goal for the state. This goal was not met and was not reauthorized.
Recycling Rate	Kentucky's common household material (aluminum, cardboard, steel, plastic, newspaper, glass and paper) recycling rate for 2020 was 26.9%, a decrease from 31.7% in 2019.
Recycling Reporting	It is required for counties to report in the Annual Solid Waste Update.

Maryland: Recycling Market Development

Funding Sources	State funding for recycling comes from the State's General Fund, Used Tire Cleanup and Recycling Fund, and from the State Recycling Trust Fund. The Used Tire Cleanup and Recycling Fund is financed through an $0.80 fee on the first sale of a new tire in Maryland. The Trust Fund is financed through electronic manufacturer registration fees, and telephone directory and newspaper publisher fines. The used scrap tire fund is supported through an 80¢/tire fee paid on the purchase of new tires in Maryland. The counties have the authority to place a surcharge on trash bills and/or a surcharge on tipping fees collected at the state's landfills.
Recycling Incentives	State and local authorities can prohibit the issuance of building permits for all new construction for failure to reach mandated recycling rates. Additionally, telephone directory and newspaper publishers are subject to fines of $10/ton for each ton they are short of the tons required to reach the 40% recycled content mandate. Maryland counties and municipalities are eligible for State electronic recycling grants. The grants are funded through annual electronic manufacturer registration fees. During the 2021 legislative session, the Maryland General Assembly passed House Bill 164 or the Department of the Environment - Office of Recycling - Recycling Market law. The law requires the Office of Recycling in the Department of the Environment promotes the development of markets for recycled materials and recycled products in the State. It also requires the Office to evaluate the availability of recycling markets and identify businesses in the State that use recycled materials.
Recycling Programs	The 1988 Maryland Recycling Act requires local recycling programs be run by the local government. The State of Maryland does not operate recycling programs. The Maryland Department of the Environment (MDE) assists Maryland State government agencies with their mandated recycling programs through the All STAR (All State Agencies Recycle) program. MDE operates the Maryland Scrap Tire Program which ensures the proper disposal (recycling) of scrap tires as well as providing oversight of the Maryland Recycling Trust Fund. The fund awards electronic recycling grants to local jurisdictions. The Maryland Department of the Environment assists each county in developing an acceptable recycling plan through technical assistance to the local governments, coordinates the efforts of the State to facilitate the implementation of the recycling goals at the county level, reviews all recycling plans submitted as part of a county plan, and administers the Statewide Electronics Recycling Program.
Recycling Mandates	The 1988 Maryland Recycling Act (MRA) requires each county to develop and implement recycling programs. The MRA requires each county to achieve a reduction of solid waste by recycling 35% for counties with populations greater than 150,000 or 20% for counties with populations less than 150,000. In no case is the recycling rate to be less than 15% or 10%, respectively. Additionally, the MRA requires the State Government to reduce by recycling the amount of the solid waste generated for disposal by at least 30%, or to an amount that is determined practical and economically feasible, but in no case may the amount to be recycled be less than 15%. The recycling from residents of apartment buildings and condominiums; the strategy for the collection, processing, marketing, and disposition of recyclable materials from county public schools; and the collection and recycling of recyclable materials from special events must be addressed in County Solid Waste Management Plans. Telephone directories and newsprint distributed in the State must use 40% recycled content paper. Additional legislation impacting recycling in Maryland includes requiring permits for private natural wood waste recycling facilities, requiring mercuric oxide battery manufacturers to be responsible for the collection, transportation and recycling or disposal of these batteries sold or offered for promotional purposes in the State, establishing a program or system for the collection, recycling, or disposal of each cell, rechargeable battery or rechargeable product sold in the State, prohibiting the sale of mercury thermometers and thermostats; and requiring manufacturers of computers and video display devices who sell or offer for sale their product in Maryland to register and pay a fee to MDE. In 2023, a new law takes effect that requires certain businesses that generate food residuals to separate the food residuals from other solid waste and ensure that the food residuals are diverted from disposal facilities.
Landfill Bans	The State bans separately collected yard waste, tires, infectious waste, controlled hazardous waste, liquid waste, radioactive hazardous substances, automobiles, unflattened drums or tanks, animal carcasses from medical research activities or destruction of diseased animals, untreated septic or sewage waste and chemical or petroleum cleanup materials from landfills.

Recycling Grants/Loans	MDE periodically offers electronics recycling grants to counties, who have addressed methods for the separate collection and recycling of covered electronic devices in their recycling plans and to municipalities to implement local covered electronic device recycling programs. MDE pays for innovative scrap tire recycling projects operated through the Maryland Environmental Service and they will periodically sponsor and pay for scrap tire collection events.
Recycling Budget	Maryland's FY 2023 recycling budget was approximately $352,774. This amount is the state budget only and does not include local input.
Recycling Goals	Maryland is working towards the goals laid out in the 2017 Waste Reduction and Resource Recovery Executive Order (EO). The EO lays out multiple goals related to sustainable materials management.
Recycling Rate	Maryland's FY 2023 MRA Waste Diversion Rate was 42.3% and consisted of a 38.2% Recycling Rate and a 4.1% Source Reduction Credit.
Recycling Reporting Requirements	Maryland Counties are required to report by April 1st, annually, to MDE their waste diversion activities for the previous calendar year. State government is required to report annually to MDE on their recycling programs. Newspaper publishers are required to report quarterly and annually on their use of recycled content newsprint. Telephone directory publishers are required to report annually on their use of recycled content directory stock. Maryland also has reporting requirements for electronics and tires.

Ohio: Recycling Market Development

Budget	Ohio EPA's spending authority is approximately $4 million. Ohio EPA's spending authority is approximately $4 million. However, in 2021 and 2022, Ohio EPA requested additional funds from the State of Ohio Controlling Board in order to fund a larger portion of requests. Ohio EPA awarded $6,244,174 in grants in 2021, and $5,978,513 in 2022.

Recycling Goals	Ohio's 2020 *State Solid Waste Management Plan* established the following goals:
	• **Goal 1 — Recycling Infrastructure:** The Solid Waste Management Districts (SWMD) shall provide its residents and commercial businesses with access to opportunities to recycle solid waste. At a minimum, the SWMD must provide access to recycling opportunities to 80 percent of its residential population in each county and ensure that commercial generators have access to adequate recycling opportunities.
	• **Goal 2 — Waste reduction and recycling rates:** The SWMD shall reduce and recycle at least 25 percent of the solid waste generated by the residential/commercial sector.
	• **Goal 3 — Outreach and Education, Minimum Required Programs:** The SWMD shall provide the following required elements:
	  • A website.
	  • A comprehensive resource guide.
	  • An inventory of available infrastructure; and,
	  • A speaker or presenter.
	• **Goal 4 — Outreach and Education:** The SWMD shall provide education, outreach, marketing, and technical assistance regarding reduction, recycling, composting, reuse, and other alternative waste management methods to identified target audiences using best practices.
	• **Goal 5 — Industrial Programs and Services:** The SWMD shall incorporate a strategic initiative for the industrial sector into its solid waste management plan.
	• **Goal 6 — Restricted Solid Wastes, Household Hazardous Waste (HHW) and Electronics:** The SWMD shall provide strategies for managing scrap tires, yard waste, lead-acid batteries, HHW, and obsolete/end-of-life electronic devices.
	• **Goal 7 — Economic Incentives:** The SWMD shall explore how to incorporate economic incentives into source reduction and recycling programs.
	• **Goal 8 — Measure Greenhouse Gas Reduction:** The SWMD will use the U.S. EPA's Waste Reduction Model (WARM) (or an equivalent model) to evaluate the impact of recycling programs on reducing greenhouse gas emissions.
	• **Goal 9 — Market Development:** The SWMD has the option of providing programs to develop markets for recyclable materials and the use of recycled-content materials.
	• **Goal 10 — Reporting:** The SWMD shall report annually to the Ohio EPA regarding implementation of the SWMD's solid waste management plan.

Recycling Rate	For 2020, Ohio EPA estimates that Ohio's statewide residential/commercial reduction and recycling rate was 30%, that the industrial rate was 53%, and that the overall rate was 40%.
Recycling Reporting Requirements	Ohio's SWMDs shall report annually to the Ohio EPA regarding implementation of its solid waste management plan.

Pennsylvania: Recycling Market Development

Funding Sources	Pennsylvania funds their programs with a $2 per ton landfill and resource recovery facility tipping fee. State funding for recycling program staff is from the General Fund. The Recycling Fund limits administrative expenditures to no more than 3% of the monies in the fund.
Recycling Incentives	As incentives to municipalities, Pennsylvania provides recycling performance grants based on the quantity of materials recycled. They also believe the widespread availability of curbside recycling is an incentive to recycle. Over 1,500 communities provide curbside collection.
Recycling Programs	PADEP financially supports the PA Recycling Markets Center (PARMC) which works directly with businesses to enhance the use of recycled materials in their production processes. The PARMC also works to bring new recycled product manufacturers to PA. Other Department efforts are directed toward electronics recycling, pharmaceutical collections, tire recycling, and household hazardous waste management. Additionally, the DEP oversees agreements with other state agencies to encourage the use of recycled materials in their daily operations.
Recycling Mandates	Since 1988, Pennsylvania has mandated curbside recycling for all municipalities with populations of more than 10,000, or more than 5,000 that also have a population density of greater than 300-persons per square mile.
Recycling Grants/Loans	According to the PA's FY 2022/2023 budget, PA DEP made $44.4 million available for recycling programs in general and allocated $36 million of that for grants to local governments. Of that amount, $20 million went to municipal Recycling Grants, $12 million for municipal recycling performance grants, 1.5 million for county planning grants, $12 million for county recycling coordinator grants, $400,000 for municipal inspectors, and $10,000 for host municipality review of permit applications.
Landfill Bans	Lead acid batteries, whole tires, yard waste and mercury thermostats are banned. As of January 2013, covered electronic devices are also banned, which includes TVs, desktop and laptop computers, tablets/e-readers and computer monitors and peripherals.
Recycling Budget	Pennsylvania's FY 2022/2023 recycling budget is $44.4 million.
Recycling Goals	A 1988 law, Act 101, required the state to recycle 25% of its municipal waste by January 1, 1997. The goal was met. Although no new legislation was passed, the governor announced a new voluntary goal in 1997 of a 35% recycling rate for municipal waste by 2005. The goal was exceeded in 2001. Pennsylvania has civil and other penalties for not meeting recycling goals. No new recycling goal has been established.
Recycling Rate	Pennsylvania does not promote the use of a recycling rate. The Commonwealth metrics for the recycling program are the environmental and economic benefits derived from the program.
Recycling Reporting Requirements	Counties are required to report annually to PA DEP on all their recycling efforts.

Virginia: Recycling Market Development

Funding Sources	1) The Virginia Department of Environmental Quality (DEQ) provides supplemental funding to locality-based litter and recycling programs with various forms of business taxation (litter/recycling tax). Each business owner pays a $20 “owner’s fee” type of litter control tax, and an additional $30 fee for each establishment the company owns. Carbonated soft drink wholesalers and distributors pay a litter tax, which is scaled to their gross receipts. They also have a beer and wine litter tax. Virginia counties have authority to levy a consumer utility tax to cover the cost of solid waste management. This can be used for recycling. 2) Virginia collects a $0.50 tax from tire retailers for each new tire sold in the Commonwealth. This tire funding supports DEQ’s Waste Tire Management Program administrative costs and program initiatives, specifically the End User Reimbursement Program which provides a subsidy for the beneficial use of Virginia-generated waste tire material.
Recycling Incentives	Virginia makes income tax credits (20% of the purchase price) available to corporations, and individuals for the purchase of recycling equipment. A similar credit is available for those that accept used motor oil. The credit is equal to 50 percent of the purchase price paid for equipment used exclusively for burning waste motor oil at the business facility. The state gives local governments the authority to exempt recycling businesses from property tax.
Recycling Mandates	Each town, city, and county is mandated to have a recycling program as part of a solid waste management plan on file with the DEQ. For CY 2016, all localities (counties, cities and towns or regional program units) are required to recycle at least 15% or 25% of their MSW. A new law effective July 1, 2006, established a two-tiered recycling rate based on population and/or unemployment levels (populations less than 100 persons per square mile or unemployment 50% or more above the statewide average.) Effective with the 2012 calendar year reporting by solid waste planning units, those reporting units with 100,000 or less populations only have to report every 4 years.
Recycling Programs	The Virginia Department of Business Assistance offers financing programs, workforce training programs, and consulting services to businesses operating in Virginia including those in the recycling industries.
Landfill Bans	Virginia bans lead acid batteries, whole tires, and free liquids from landfills. Jurisdictions may ban CRTs if they have a program in place to otherwise manage them. A new law in 2010 allows jurisdictions to ban mercury thermostats from the landfill if they have a program to otherwise manage them.
Recycling Grants/Loans	Virginia’s recycling grant programs distribute 90% of available funds to localities for litter prevention and recycling programs, up to 5% for operation of public information campaigns to discourage the sale & use of expanded polystyrene products, and a maximum of 5% is used for administrative expenses by the Virginia Department of Environment Quality (DEQ).
Recycling Budget	For SFY 2021, recycling and litter prevention related funding available for local grants and grant administration totaled $ 2,777,862.86.
Recycling Goals	All localities (counties, cities and towns or regional program units) are required to recycle at least 15% or 25% of their MSW. Localities unable to meet the mandatory recycling rate are required to develop and implement a recycling action plan.
Recycling Rate	For CY 2020, Virginia’s recycling rate was 45.5%.

Endnotes for Appendix E

Kentucky: John Brown, Environmental Scientist, Kentucky Division of Waste Management, Recycling and Local Assistance Branch. john.brown@ky.gov

Maryland: Dave Mrgich, Chief, Waste Diversion Division, Maryland Department of the Environment, Baltimore, MD. dave.mrgich@maryland.gov

Ohio: Ernie Stall, Ohio Environmental Protection Agency, Division of Materials and Waste Management. ernest.stall@epa.ohio.gov.

Pennsylvania: Lawrence Holley, Manager, Division of Waste Management and Planning, Pennsylvania Department of Environmental Protection, Rachel Carson State Office Building
400 Market Street, Harrisburg, PA 17101 lholley@pa.gov

Virginia: Sanjay Thirunagari, Programs Manager, Division of Land Protection & Revitalization, Virginia Department of Environmental Quality, Richmond, Virginia. sanjay.thirunagari@deq.virginia.gov