West Virginia Solid Waste Management Plan

Prepared by the West Virginia Solid Waste Management Board

2017

Blackwater Falls, Davis, West Virginia

Solid Waste Management Board

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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 to reduce the volume. This method of solid waste "management" often resulted in the degradation of surface and groundwater that could have 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 the reduction and recycling goals, and other solid waste management policies.
5. Provide guidance to local solid waste authorities and municipalities in meeting the 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 2037. 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 are discussed. Responsibility for the creation, application, and enforcement of the State's goals, objectives, rules, and law are divided among several agencies. The individual responsibilities of the Solid Waste Management Board, Department of Environmental Protection, Division of Natural Resources, and Public Service Commission are explained.

Chapter 2, History and Legal Environment of Solid Waste Management in West Virginia
Chapter 2 discusses solid waste legislation put into place since the Resource Conservation and Recovery Act of 1976. We examine the effects it 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, watershed, 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 1, 2016, West Virginia had 18 Municipal Solid Waste (MSW) landfills, and 16 transfer stations in operation serving all areas of the state. For CY 2015, the state's 18 landfills processed a total of 1,999,748 tons of waste or a monthly average of 166,646 tons.

This amounts to approximately 49% of the total permitted capacity for these facilities. Of this amount, 1,189,021 tons were classified as municipal waste, the other 810,727 tons as various types of special waste.

The makeup of this special waste includes 6.20% industrial waste, 1.72% industrial sludge, 11.08% construction and demolition waste, 4.11% petroleum contaminated soil, 2.83% other special waste, 1.32% as miscellaneous waste and 9.98% as drilling waste. The average tipping fees of the 18 operational facilities listed for municipal solid waste was $45.76 per ton.

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 2015, the State exported 706,987 tons of waste, and imported 200,605 tons creating a positive export balance of 506,382 tons. That equates to a loss of $4,177,651 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.

The role of composting in solid waste management continues to be important. There are currently 4 permitted commercial composting facilities and 19 registered composting activity facilities in WV.

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. Seven of the state's eighteen landfills and five of the state's eighteen transfer stations are owned by the Solid Waste Authorities. The authorities also own and manage many of the state's recycling collection programs and material processing centers.

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 thinly 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, transfer stations, waste haulers, and recycling centers paid out approximately $67.7 million in wages in 2015.
- These same organizations and businesses maintained at least 1,476 jobs during the same period.
- Salaries and wages in waste management compare favorably to other relevant employment sectors with an average weekly salary of $882, compared to an average weekly salary of $492 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.

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

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 USEPA 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 2037. 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 the remaining 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. In order 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 (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.

It should be understood that 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 and/or detours. 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 the public health and welfare by establishing a comprehensive program of solid waste collection, processing, recycling, and disposal to be implemented by State and local government 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.

In order to accomplish these objectives, goals must be identified which are based on policies created through legislation that are 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 exists 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 general 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 the 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), 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 pre-requisites, 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), as well as, REAP programs such as the Pollution Prevention and Open Dump program (PPOD). LCAP provides landfill closure assistance to the permittees of landfills which were required to close pursuant to certain closure deadlines. PPOD promotes cleanups and prevention practices that help to eliminate open dumps.

The DWWM also serves as a data resource center. They accumulate various records and reports 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’s 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.

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 cleanup, 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 the 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 fees is on a diminishing scale so the fund will remain static or begin shrinking in future grant cycles. Municipalities, county commissions, or 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, and other sponsors host the annual Educational Conference on Litter Control and Solid Waste Management.

Division of Natural Resources (DNR)
DNR conservation 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 of solid waste that is 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 in light of 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 the 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 the area of 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 sited in 54-3 Code of State Rules.

A Business and Financial Assistance Section program was funded in the 1998 legislative session to provide assistance to those 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 for conducting performance reviews of solid waste authorities.

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, as well as, a comprehensive program to provide 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

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 is 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, requiring the installation of liners and leachate collection systems. 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 lead 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.

The Legislature drastically changed the management of solid waste with the passage of H.B. 3146 in 1988. In November 1988, the then 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 – 2014: 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 the development of 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), formerly W.Va. Code § 20-11-5a(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), formerly W. Va. Code § 20-11-7 (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.
3. Senate Bill 12 amended the definition of "solid waste" to exclude yard waste.
4. Senate Bill 406 authorized litter control officers to issue citations.
5. Senate Bill 548 made failing to subscribe to solid waste disposal service or provide proper proof of disposition of waste a misdemeanor offense.
6. Senate Bill 635 created and imposed a tax on the sale of new and reconditioned tires in WV used in waste tire remediation.
7. Senate Bill 709 empowered county commissions to establish, operate and maintain residential garbage and refuse collection and disposal services by use of county-wide curbside collection points or green boxes.
8. Senate Bill 715 allowed the Division of Highways to use funds from the tire remediation/environmental cleanup fund to pay people who turn in waste tires under the tire disposal program. Also, allowing payment to waste tire processing facilities to accept waste tires and authorizing the fund to be used for the tire disposal program.

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 capitol 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, formerly W.Va. Code § 20-7-24 through 29 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, which can adversely affect West Virginia's natural resources and public health. To ensure these issues are managed efficiently, this legislation consolidated litter control, open dump elimination and reclamation, waste tire clean up 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 to promote pollution prevention, it 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; 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.

4. House Bill 202 required purchasers of nonferrous metal or steel railroad track and track material to require additional information from the sellers. The bill also increased the penalties for knowing failures to collect and provide information relating to the sale of certain metals.

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 638 required purchasers of catalytic converters or any material derived from catalytic converters to require additional information from the sellers. The bill sets penalties for knowingly failing to collect and provide information relating to the sale of catalytic converters or any material derived from catalytic converters.
6. Senate Bill 746 established a convenient and environmentally sound recovery program for the collection, recycling, and reuse of covered electronic devices that have reached the end of their useful lives. It maximized recovery of resources contained in discarded covered electronic devices and prevented improper disposal of materials in electronic devices in state landfills.
7. 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 publically 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 4320 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 purchaser 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 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 requiring onsite employees at certain work place 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 in order 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.

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 exports 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, provided that 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 in to 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 and Population & Waste Projections

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

3.1 Demographics[1]

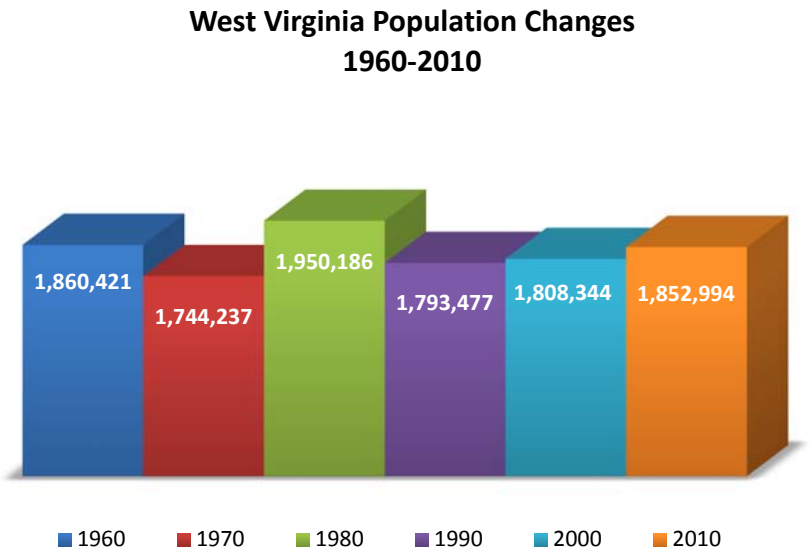
Perhaps more than any other factor, the demographics of an area, including geography, population, economic base, income, land use and available transportation routes, determine both the waste that is generated and the options available to manage that waste. For example, a county with a low density population 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 as a whole 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 overall increase of 14,467 people. During that time the population of 25 of the state's 55 counties declined, with four southern coalfield counties losing 11% to 22% of their populations.

Figure 3-1
West Virginia Population Changes (1960-2010)



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 2000 and 2010 West Virginia grew by 2.5%. The rest of the US grew at a rate of 9.8%. The state is currently projected to decline by 1.6% between 2015 and 2035 according to estimates calculated by WVU Bureau of Business and Economic Research.

While it appears the state's population will be stable over the next twenty years, various regions within the state are expected to experience various levels of growth or decline. For example, the growth rate for Wasteshed E, covering the eastern panhandle is projected to be 13.9%. The coalfield counties of Wasteshed H are projected to decline by 5.7%.

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 in the eyes of developers, potentially complicating solid waste management in the state.

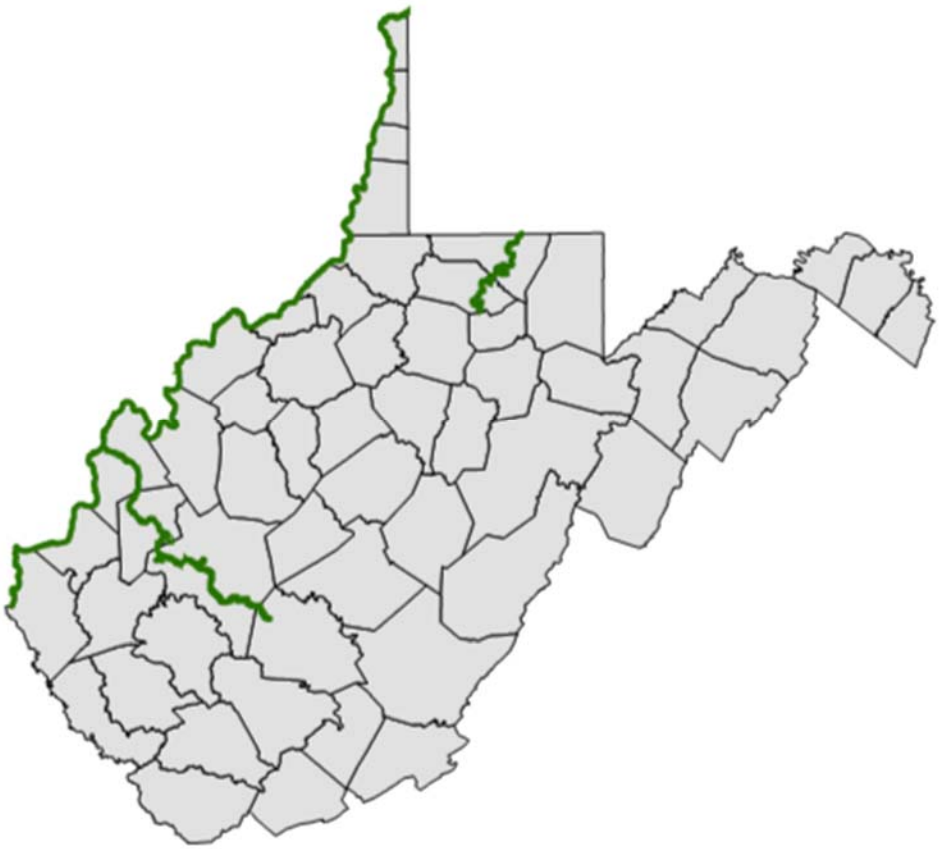
Figure 3-2
Geographic Location

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



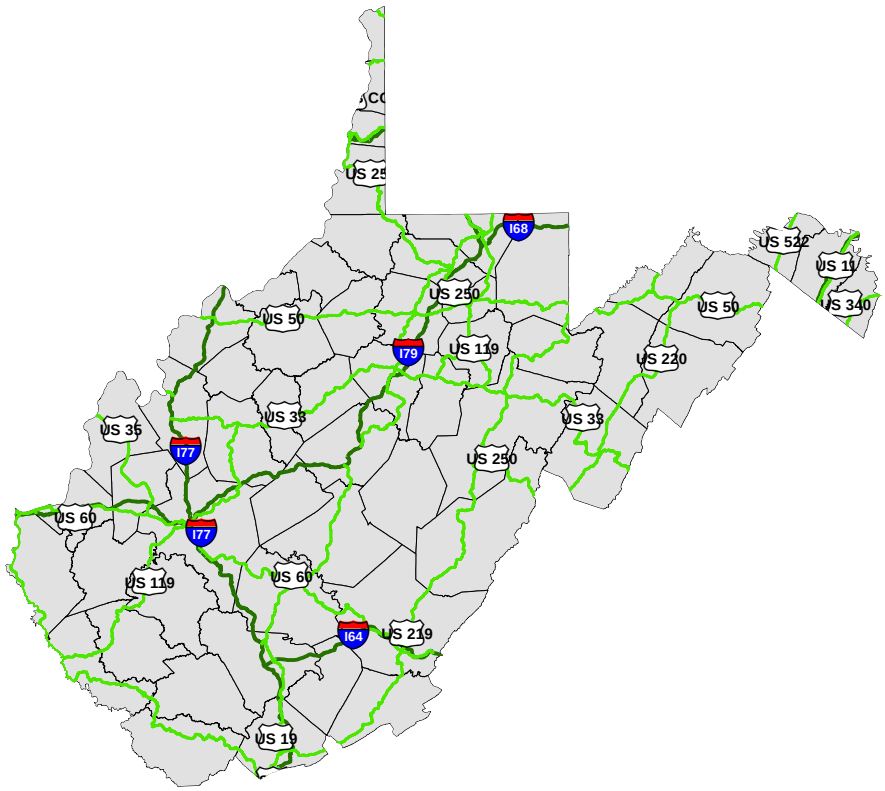
3.2.2 Highways

West Virginia is served by 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 Weight Limit (GWL) 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 GWL of 80,000 pounds. West Virginia routes with a similar GWL are portions of 34, 2, 39, 57 and 9. Other routes have a similar GWL for short distances. Portions of the above routes, and other highways, have a GWL of 73,500 pounds, others are limited to 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

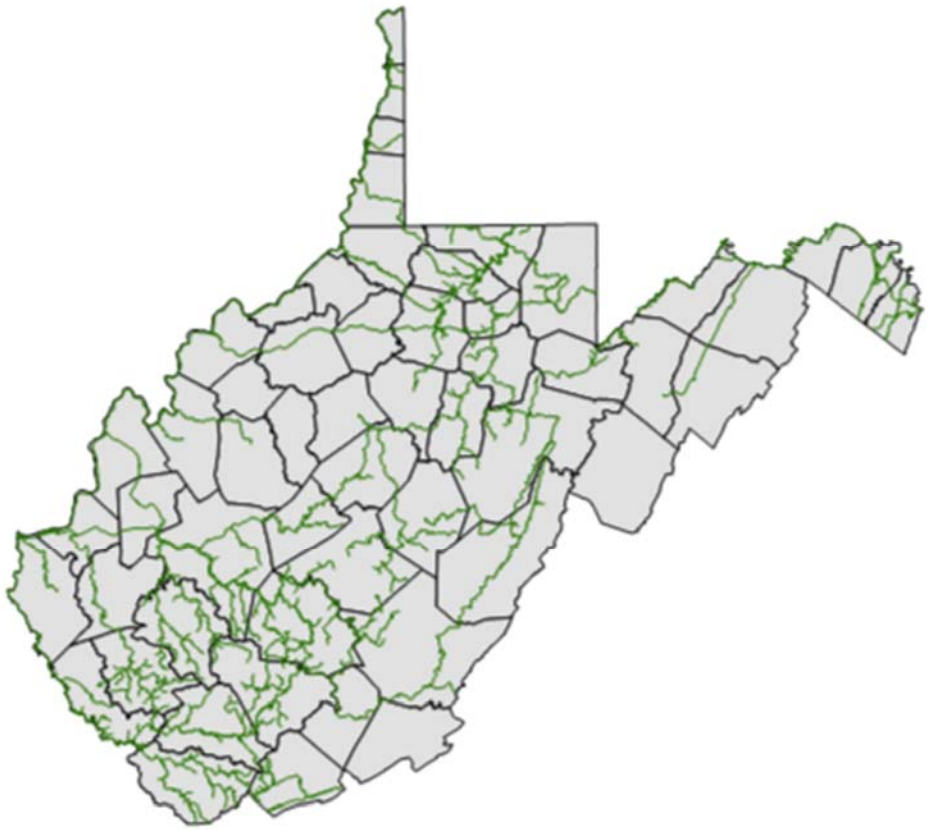
To date, railways have played a small part in solid waste management in the state. Copper Ridge Landfill in McDowell County, owned by the Solid Waste Authority and managed by EnviroSolutions, Inc., currently has the ability to accept waste via rail from outside of the state. Copper Ridge is a Class A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

The West Virginia rail system is comprised 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, Little Kanawha River Rail, South Branch Valley Railroad, Vaughan Railroad, West Virginia Central Railroad, West Virginia Southern, 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 relative 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.

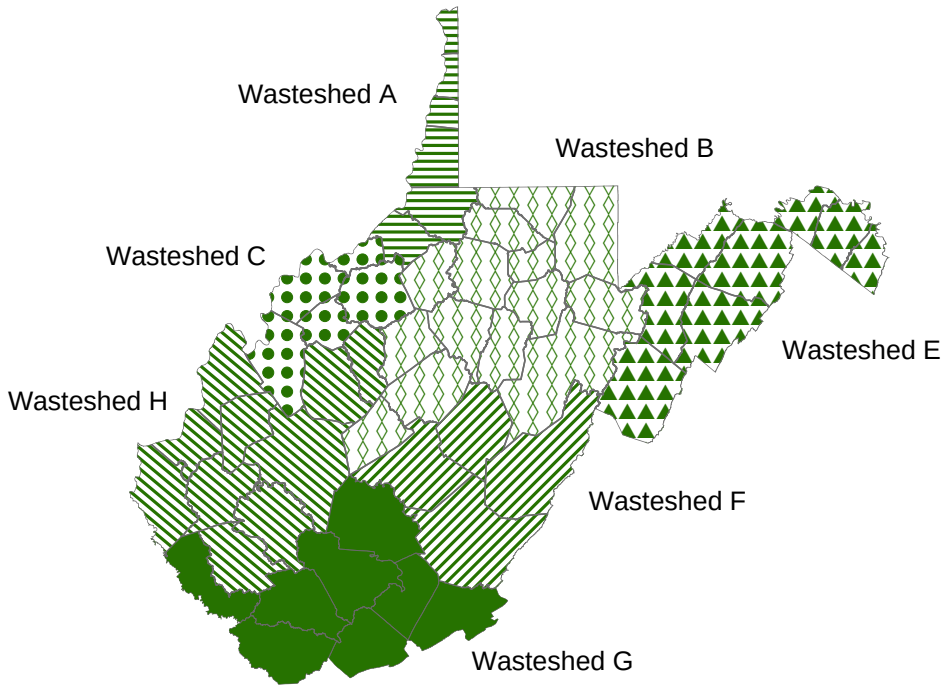
Solid waste planning includes the prediction of future needs. Sections 3.3.1 - 3.3.7 of this chapter provide tonnage projections based on population projections compiled by the West Virginia University Bureau of Business and Economic Research (BBER) and a waste characterization study conducted for the US EPA.

Tonnage projections in this section are computed using the 4.43 pounds per person, per day rate indicated by the US EPA’s 2010 study, which is discussed in Section 3.4 of this chapter, along with projected population rates from BBER Population projections calculated by the BBER have been done so 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 2035 along with a summary of non-municipal solid waste going into the states landfills for the year 2015.

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

WASTESHED A

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 2015, the three facilities processed a total of 602,159 tons of waste. This amounts to an average monthly waste intake of 50,180 tons. For the same period, 21% 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 2015 through 2035, all 6 counties in the wasteshed will decline in population. Brooke by 12.5%, Hancock County by 11.8%, Marshall by 16.1%, Ohio by 10.4%, Tyler by 16.1% and Wetzel by 18.9%. The 2010 US Census shows Wasteshed A's population was 158,086.

Heavy industry is often found in areas near major rivers where materials used in production and/or output from the facilities is 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 2015 Waste Stream Composition for Wasteshed A[4]

Municipal Solid Waste* (MSW)		Non Municipal Waste (NMSW)*	
Residential Waste	39.4%	Industrial Waste	5.8%
Commercial Waste	5.3%	Construction Demolition	10.1%
Sewage Sludge**	2.1%	Petroleum Contaminated Soil	3.3%
Total MSW	**46.8%**	Industrial Sludge	0.3%
		Drilling Mud	26.0%
		Other Special Waste	7.4%
		Miscellaneous Waste	0.0%
		Total NMSW	**52.9%**

*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 2015 through 2035 for Wasteshed A

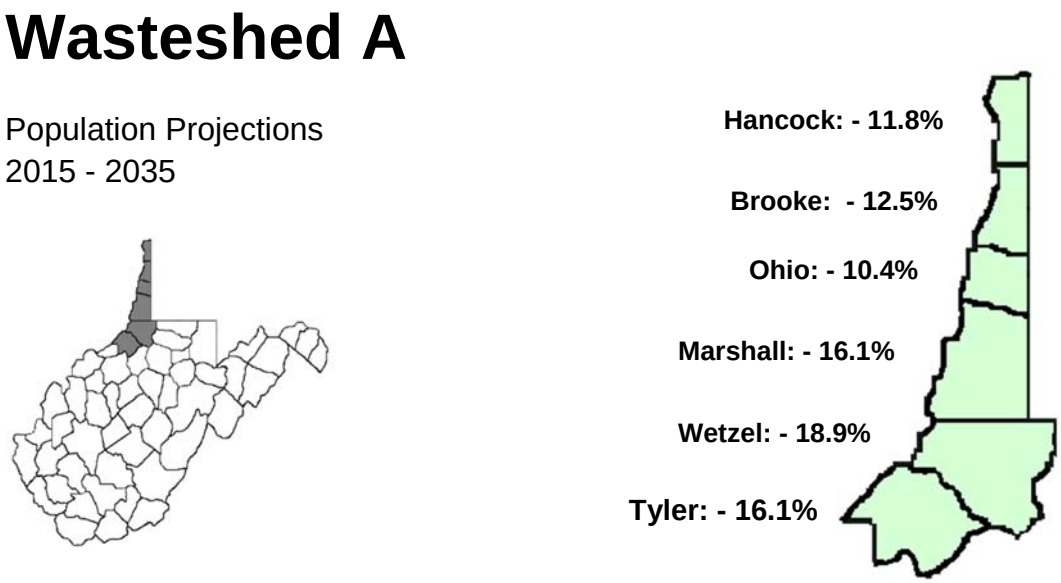


Table 3-2
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed A

	2015	2020	2025	2030	2035
Brooke	1,570	1,521	1,474	1,422	1,374
Hancock	2,012	1,955	1,897	1,834	1,775
Marshall	2,156	2,074	1,987	1,890	1,809
Ohio	2,939	2,871	2,796	2,708	2,634
Tyler	602	579	555	528	505
Wetzel	1,079	1,033	981	921	875
Totals	**10,358**	**10,033**	**9,690**	**9,303**	**8,972**

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 three approved solid waste landfills; the Tucker County Landfill, S & S Grading and Meadowfill landfills, both in Harrison County. For the year 2015, the three landfills processed a total of 321,378 tons of waste averaging 26,781 tons per month.

Wasteshed B has two waste tire monofills, Pace Tire Monofill, located near Kingwood in Preston County and Tire & Rubber, Inc., in Lewis County. Tire and Rubber also accepts C/D waste. Wasteshed B has 5 solid waste transfer stations.

Overall the population of Wasteshed B is expected to experience modest growth through 2035, with three of the fourteen counties expected to gain population and eleven declining. The majority of growth in Wasteshed B will come from Monongalia, Preston and Doddridge counties. Wasteshed B's population, according to the 2010 US Census, was 406,686.

Table 3-3
CY 2015 Waste Stream Composition for Wasteshed B

Municipal Solid Waste* (MSW)		Non Municipal Waste (NMSW)*	
Residential Waste	44.4%	Industrial Waste	9.0%
Commercial Waste	15.3%	Construction Demolition	20.2%
Sewage Sludge**	2.4%	Petroleum Contaminated Soil	4.1%
Total MSW	**62.1%**	Industrial Sludge	2.8%
		Drilling Mud	0.6%
		Other Special Waste	0.6%
		Miscellaneous Waste	0.6%
		Total NMSW	**37.9%**

*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 3-7
Population Projections 2015 through 2035 for Wasteshed B

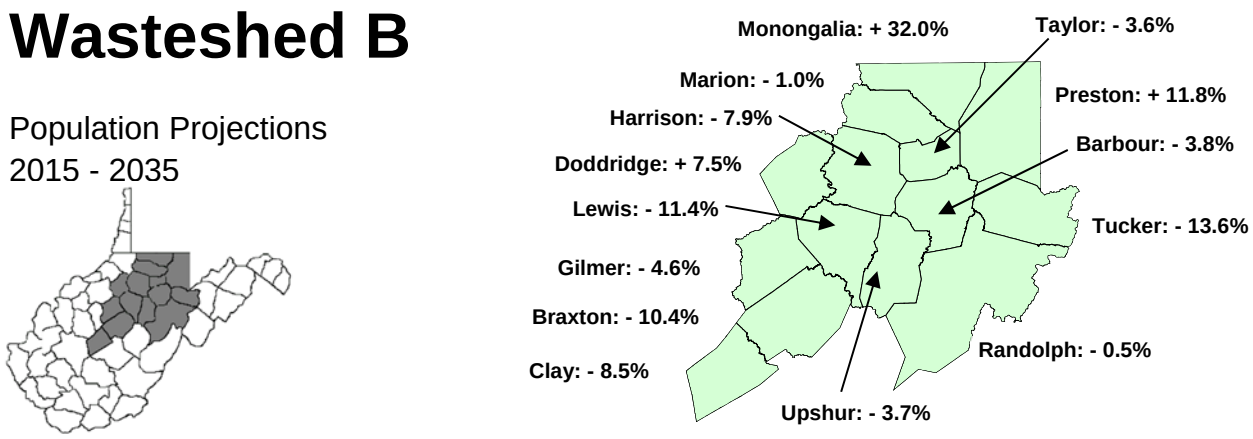


Table 3-4 Projected Monthly Municipal Solid Waste Tonnage for Wasteshed B

	2015	2020	2025	2030	2035
Barbour	1,120	1,116	1,106	1,087	1,077
Braxton	969	951	925	891	868
Clay	621	609	596	582	569
Doddridge	566	579	591	597	608
Gilmer	581	578	573	560	554
Harrison	4,611	4,547	4,457	4,333	4,247
Lewis	1,088	1,065	1,032	992	963
Marion	3,837	3,845	3,840	3,809	3,798
Monongalia	6,990	7,472	8,036	8,630	9,225
Preston	2,362	2,448	2,518	2,565	2,640
Randolph	2,014	2,030	2,027	2,004	2,004
Taylor	1,142	1,139	1,128	1,111	1,101
Tucker	473	461	445	423	409
Upshur	1,680	1,678	1,664	1,630	1,618
Totals	**28,054**	**28,518**	**28,938**	**29,214**	**29,681**

WASTESHED C

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.

Population for Wasteshed C is expected to experience a decline through 2035. Pleasants and Wirt Counties are expected to grow with a projected growth rate through the period of 3.7% and 8.7%, respectively. Ritchie will lose 19.5%, Wood will lose 6.9% and Jackson will lose 3.4%. Wasteshed C's population, according to the 2010 US Census, was 139,938.

Wasteshed C is similar to Wasteshed A in that some counties border the Ohio River. This accounts for the 14.1% industrial waste and 6.5% industrial sludge in their waste stream. 22% of all waste processed by Wasteshed C commercial solid waste facilities was from other states.

Table 3-5
CY 2015 Waste Stream Composition for Wasteshed C

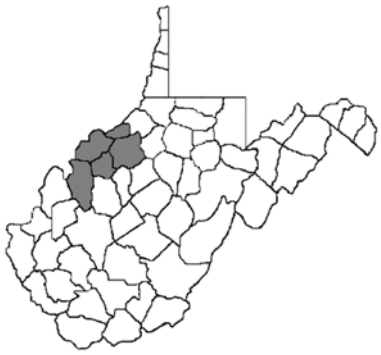
Municipal Solid Waste* (MSW)		Non Municipal Waste (NMSW)*	
Residential Waste	25.0%	Industrial Waste	14.1%
Commercial Waste	19.0%	Construction Demolition	12.9%
Sewage Sludge**	1.7%	Petroleum Contaminated Soil	5.8%
Total MSW	**45.7%**	Industrial Sludge	6.5%
		Drilling Mud	14.3%
		Other Special Waste	0.0%
		Miscellaneous Waste	0.0%
		Total NMSW	**53.6%**

*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 2015 through 2035 for Wasteshed C

Wasteshed C

Population Projections
2015 - 2035



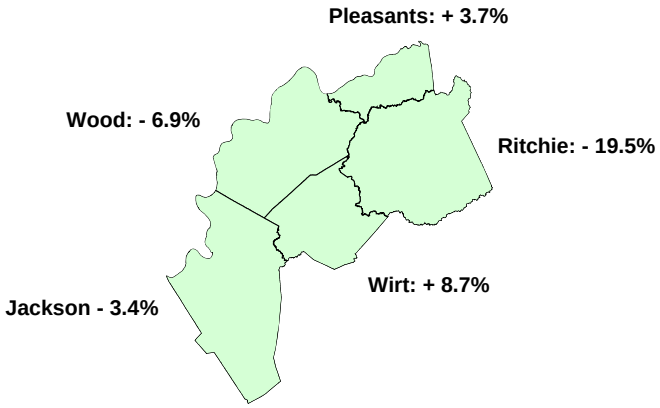


Table 3-6
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed C

	2015	2020	2025	2030	2035
Jackson	1,957	1,947	1,932	1,907	1,889
Pleasants	509	517	523	522	527
Ritchie	679	654	620	574	547
Wirt	393	399	410	419	427
Wood	5,796	5,721	5,625	5,495	5,397
Totals	**9,334**	**9,238**	**9,110**	**8,917**	**8,787**

WASTESHED E

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 the transfer stations in Romney and Petersburg. The area has access to several out-of-state landfills that will accept West Virginia waste in Maryland, Pennsylvania and Virginia.

For CY 2015, the LCS Landfill processed 109,576 tons of waste or an average of 9,131 tons per month. The three transfer stations processed and shipped 59,190 tons or an average of 4,933 tons per month.

Wasteshed E currently has the most robust economy in the state. Most counties are expected to demonstrate a slight population decline from 2015 through 2035, with the exceptions of Berkeley and Jefferson counties who are expected to increase by 29.0% and 20.6%, respectively. Pendleton County is expected to decline by 21.6%, Hampshire 13.9%, Mineral by 3.5%, Grant by 2.8%, Hardy by 1.1% and Morgan by 0.9%. Wasteshed E's population, according to the 2010 US Census, was 261,041.

Most non-municipal solid waste in Wasteshed E, is and has been for several years, construction and demolition waste resulting from residential and light commercial building to accommodate spillover population growth from the Washington, DC metropolitan area. However, only 2% of waste deposited in LCS Landfill in 2015 came from out of state.

Table 3-7
CY 2015 Waste Stream Composition for Wasteshed E

Municipal Solid Waste* (MSW)		Non Municipal Waste (NMSW)*	
Residential Waste	51.2%	Industrial Waste	4.1%
Commercial Waste	25.9%	Construction Demolition	11.8%
Sewage Sludge**	4.8%	Petroleum Contaminated Soil	1.0%
Total MSW	**81.9%**	Industrial Sludge	0.6%
		Drilling Mud	0.0%
		Other Special Waste	0.0%
		Miscellaneous Waste	0.0%
		Total NMSW	**17.5%**

*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 2015 through 2035 for Wasteshed E

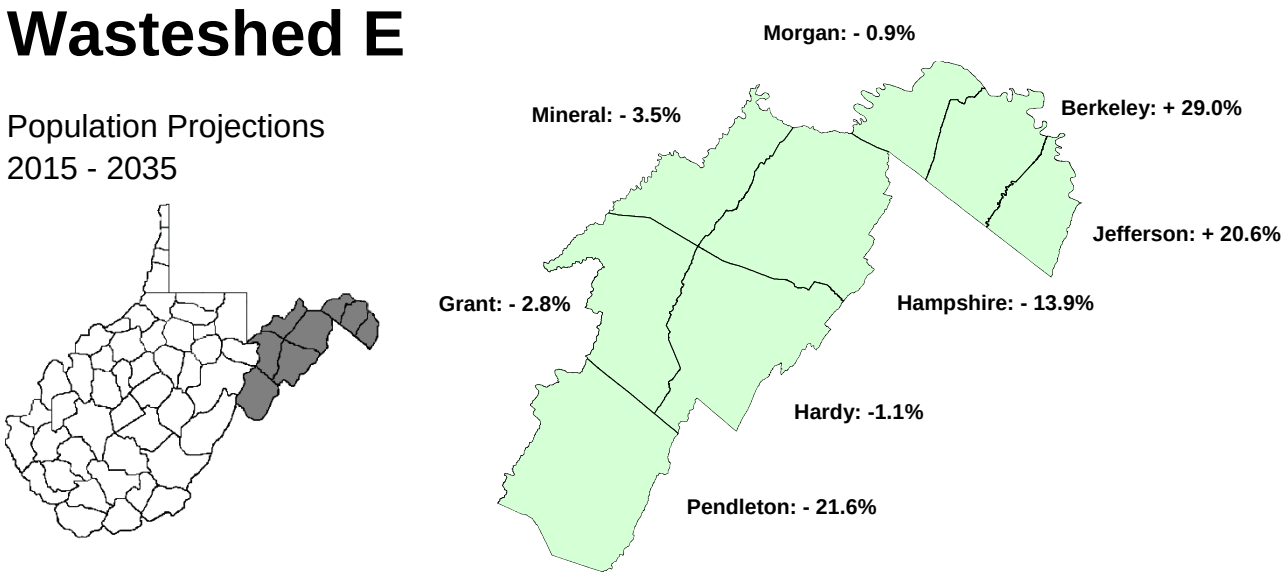


Table 3-8
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed E

	2015	2020	2025	2030	2035
Berkeley	7,565	8,101	8,637	9,164	9,761
Grant	803	800	795	786	780
Hampshire	1,571	1,524	1,470	1,402	1,352
Hardy	949	952	952	941	940
Jefferson	3,811	4,012	4,208	4,389	4,598
Mineral	1,882	1,865	1,856	1,834	1,816
Morgan	1,184	1,187	1,186	1,176	1,173
Pendleton	498	474	446	414	391
Totals	**18,263**	**18,915**	**19,550**	**20,106**	**20,811**

3.3.5 Wasteshed F

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

For calendar year 2015, the Greenbrier SWA landfill processed a total of 39,071 tons of waste or an average monthly tonnage of 3,256 tons, all from Greenbrier and the surrounding West Virginia counties. The Nicholas SWA landfill processed 23,160 tons for the year or an average of 1,930 tons a month. Pocahontas SWA landfill processed 6,867 tons for the year or an average of 572 tons a month. None of the landfills in Wasteshed F processed any out of state waste.

Population between the years 2015 and 2035 is expected to decline in Nicholas by 8.3%, Webster by 16.4%, Pocahontas by 19.6% and Greenbrier by 2.1%. Overall, Wasteshed F is expected to decline by 7.6%. Wasteshed F's population, according to the 2010 US Census, was 79,586.

Table 3-9
CY 2015 Waste Stream Composition for Wasteshed F

Municipal Solid Waste* (MSW)		Non Municipal Waste (NMSW)*	
Residential Waste	11.4%	Industrial Waste	0.0%
Commercial Waste	78.6%	Construction Demolition	6.5%
Sewage Sludge**	2.8%	Petroleum Contaminated Soil	0.1%
Total MSW	**92.8%**	Industrial Sludge	0.0%
		Drilling Mud	0.2%
		Other Special Waste	0.0%
		Miscellaneous Waste	0.0%
		Total NMSW	**6.8%**

*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 3-10
Population Projections 2015 through 2035 for Wasteshed F

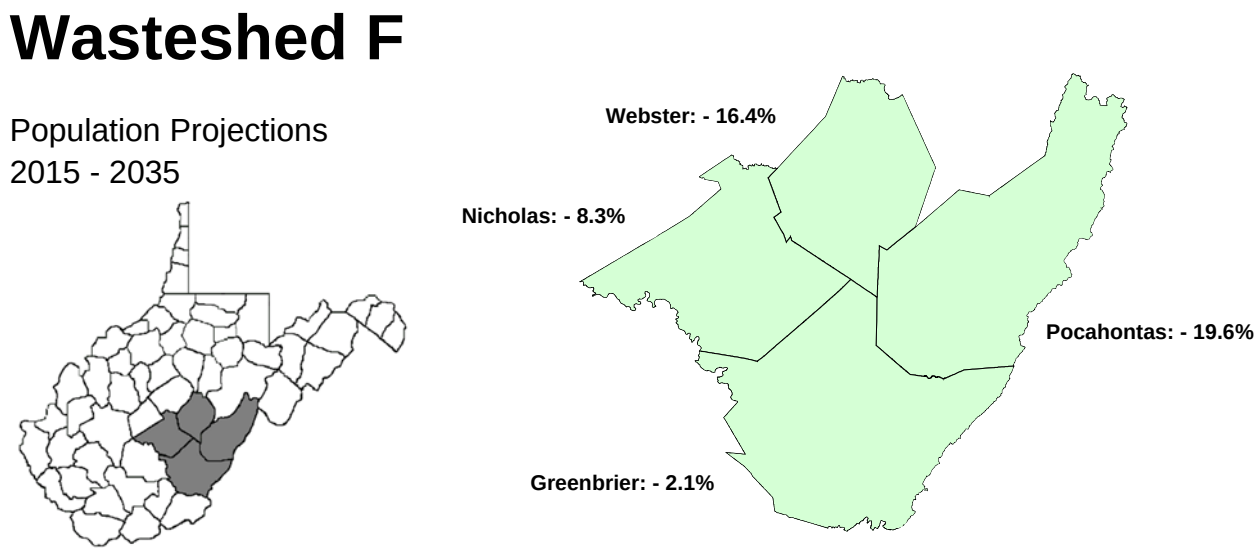


Table 3-10
Projected Monthly Municipal Solid Waste for Wasteshed F

	2015	2020	2025	2030	2035
Greenbrier	2,414	2,417	2,403	2,375	2,362
Nicholas	1,763	1,743	1,705	1,650	1,617
Pocahontas	570	547	518	483	459
Webster	602	581	555	525	503
Totals	**5,349**	**5,288**	**5,181**	**5,033**	**4,941**

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, serving the general public.

The population of all Wasteshed G counties will decline with McDowell loosing 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 2010 US Census, was 287,339.

Wasteshed G landfills processed 241,610 tons of waste in 2015 including 8,839 tons of out of state waste. The four transfer stations processed and shipped 4,377 tons of waste for the same period.

Table 3-11
CY 2015 Waste Stream Composition for Wasteshed G

Municipal Solid Waste* (MSW)		Non Municipal Waste (NMSW)*	
Residential Waste	33.3%	Industrial Waste	1.8%
Commercial Waste	36.1%	Construction Demolition	4.5%
Sewage Sludge**	1.9%	Petroleum Contaminated Soil	5.4%
Total MSW	**71.3%**	Industrial Sludge	0.2%
		Drilling Mud	0.0%
		Other Special Waste	3.2%
		Miscellaneous Waste	10.9%
		Total NMSW	**26.0%**

*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 3-11
Population Projections 2015 through 2035 for Wasteshed G

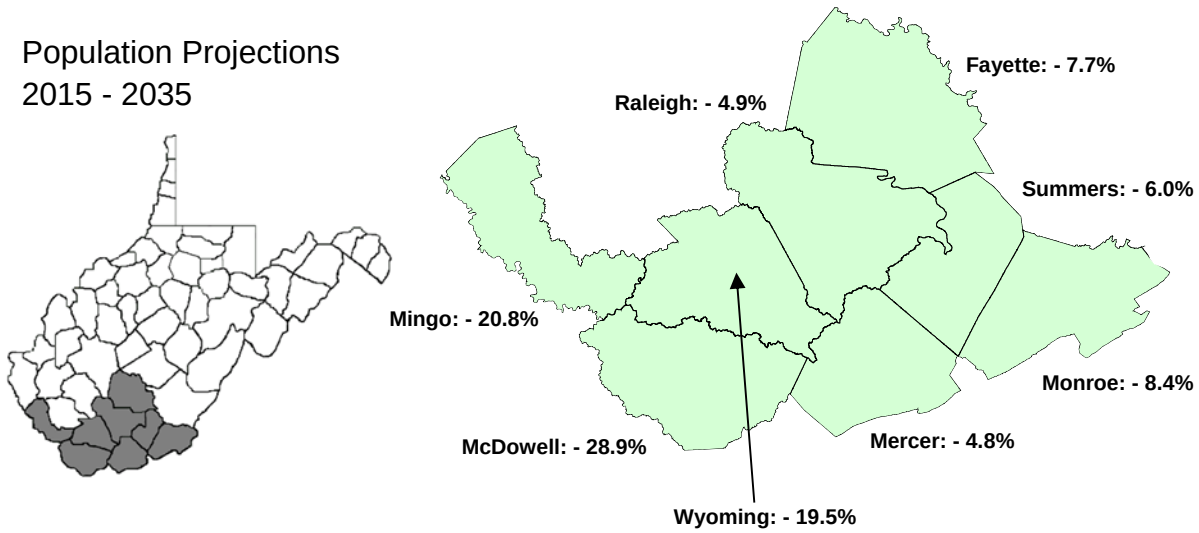


Table 3-12
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed G

	2015	2020	2025	2030	2035
Fayette	3,058	3,006	2,948	2,883	2,822
McDowell	1,392	1,291	1,183	1,076	989
Mercer	4,155	4,118	4,071	4,006	3,953
Mingo	1,738	1,654	1,560	1,457	1,376
Monroe	908	899	880	847	831
Raleigh	5,298	5,257	5,193	5,108	5,041
Summers	935	927	912	893	879
Wyoming	1,549	1,478	1,399	1,317	1,247
Totals	**19,033**	**18,630**	**18,146**	**17,587**	**17,138**

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; Chesapeake and Marmet in Kanawha County, St. Albans in Putnam County, and Waste Management in Logan County. Boone #1 and #2 in Boone County ceased operation in 2016, however their tonnage numbers prior to closure are reflected in the current plan. Wasteshed H's population, according to the 2010 US Census, was 520,318.

Overall, Wasteshed H is expected to have a population decline of 5.7% from 2015 through 2035. Cabell and Putnam counties are expected to grow with a projected growth rate of 2.7% and 2.0 % respectively. All others will decline. The biggest losers will be Logan County with a loss of 22.1%, Roane County at 15.6%, Boone at 14.2%, Lincoln County at 11.4%, Wayne at negative 9.4%, Kanawha at 6.7%, Calhoun at 6.5% and Mason at 1.5%.

The landfills in Wasteshed H processed a total of 376,919 tons of waste in 2015. Wasteshed H transfer stations processed and shipped a total of 54,451 tons of waste in the same period. Out of state waste was not a significant factor for this area.

Table 3-13
CY 2015 Waste Stream Composition for Wasteshed H

Municipal Solid Waste* (MSW)		Non Municipal Waste (NMSW)*	
Residential Waste	38.0%	Industrial Waste	3.6%
Commercial Waste	38.7%	Construction Demolition	8.4%
Sewage Sludge**	2.7%	Petroleum Contaminated Soil	5.1%
Total MSW	**79.4%**	Industrial Sludge	1.3%
		Drilling Mud	0.0%
		Other Special Waste	0.9%
		Miscellaneous Waste	0.0%
		Total NMSW	**19.3%**

*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 2015 through 2035 for Wasteshed H

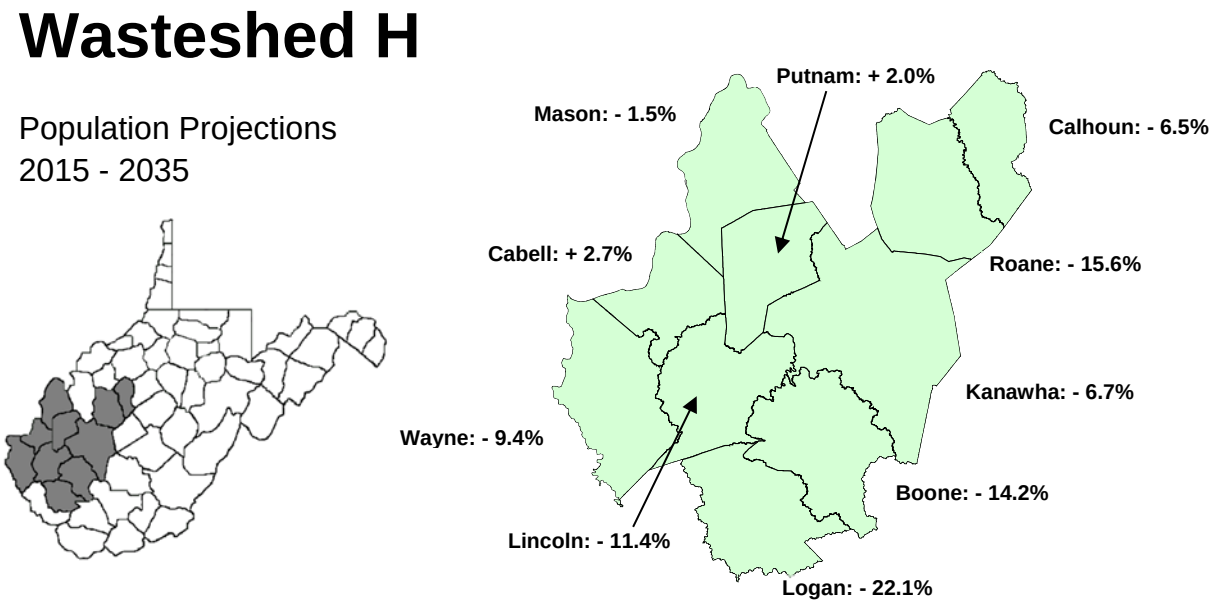


Table 3-14
Projected Monthly Municipal Solid Waste Tonnage for Wasteshed H

	2015	2020	2025	2030	2035
Boone	1,625	1,578	1,518	1,447	1,394
Cabell	6,580	6,648	6,699	6,721	6,760
Calhoun	511	504	496	486	478
Kanawha	12,914	12,745	12,533	12,272	12,053
Lincoln	1,448	1,418	1,375	1,321	1,283
Logan	2,378	2,252	2,116	1,970	1,852
Mason	1,840	1,839	1,833	1,821	1,812
Putnam	3,835	3,885	3,900	3,889	3,910
Roane	979	945	906	862	827
Wayne	2,780	2,726	2,659	2,582	2,517
Totals	**34,890**	**34,540**	**34,035**	**33,371**	**32,886**

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 2010 EPA Waste Characterization Study found that the average per capita disposal rate nationwide was 4.43 lbs. per person per day.[6] The EPA also found that 1.51 lbs., or 34%, of the 4.43 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	2010 US EPA Study
Paper	45.4%	28.5%
Plastics	15.4%	12.4%
Glass	7.8%	4.6%
Metals	5.3%	9.0%
Food	8.2%	13.9%
Yard Waste	6.7%	13.4%
Textiles	2.8%	8.4%

Figure 3-13
Wasteshed H Composition – 1997 GAI Study

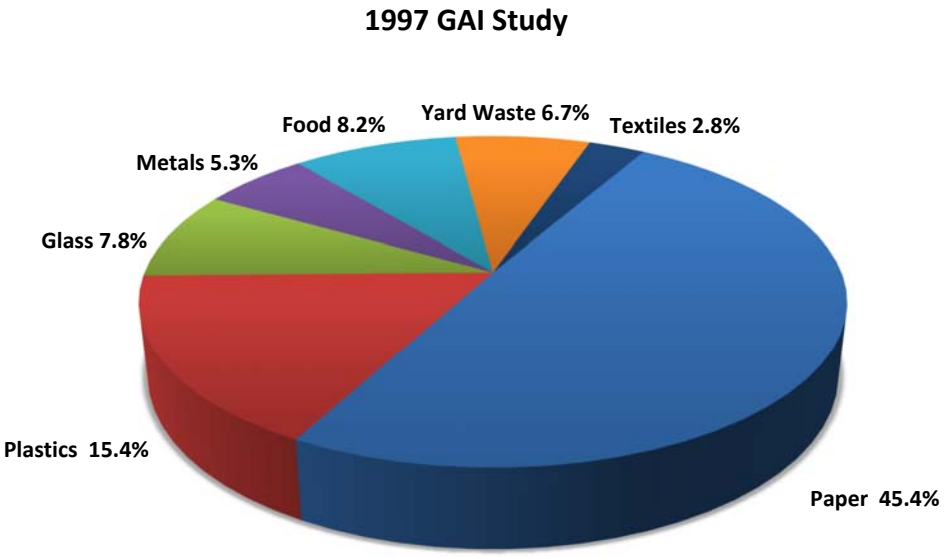
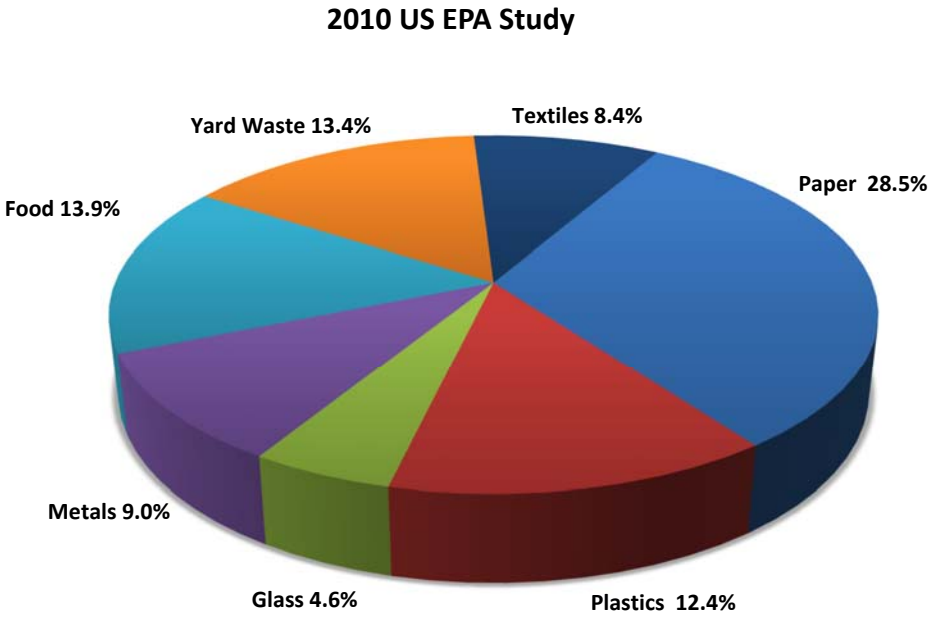


Figure 3-14
National Average Waste Stream Composition – 2010 US EPA Study



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. Holmes, Darrell E., ed., *West Virginia Blue Book: 2012*, Chapman Printing Company, Charleston, WV, 2012, p. 768.

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 2015.

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

6. US EPA: *Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2010.*

Chapter 4

Solid Waste Facility Status

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 18 operational landfills, 16 operational transfer stations, 3 operating tire monofills and 4 commercial composting facilities.

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 table demonstrates that public sector landfills are using 35% of their permitted monthly capacity while private sector facilities are using 58% of available permitted capacity. Overall, the state is using 49% of its total permitted monthly landfill capacity.

Table 4-1
Public & Private Landfills in West Virginia

PUBLIC FACILITIES* **Monthly Tonnages**

WS	Class	Facility Name	^Type of Facility	**Tipping Fee	Permitted Tonnage	Out-Of-State Waste	Average Tonnage	% of Permitted
B	B	Tucker County	MSW	$47.50	9,999	66	5,547	55%
F	B	Greenbrier County	MSW	$46.75	5,500	0	3,256	59%
	B	Nicholas County	MSW	$69.25	9,999	0	1,930	19%
	B	Pocahontas County	MSW, CD	$72.75	1,400	0	572	41%
G	A	†Copper Ridge	MSW	$42.50	50,000	0	3,879	8%
	B	Mercer County	MSW	$46.75	9,999	8	5,255	53%
	A	Raleigh County	MSW, CD	$41.75	16,638	66	5,547	33%
H	A	†Charleston	MSW	$40.00	24,157	5,054	23,251	96%
Average/Totals				**$50.91**	**127,692**	**5,194**	**6,154**	**35%**

*Information used was based off current permitted tonnage and tonnage accepted for CY 2015.
**Tipping Fees represent charges for depositing one ton of municipal solid waste in each specified facility and include landfill fees and state and local assessment fees.
^MSW (Municipal Solid Waste) - CD (Has a dedicated Construction & Demolition cell).
†Both Copper Ridge and Charleston Landfills are publicly owned and privately managed.

PRIVATE FACILITIES* **Monthly Tonnages**

WS	Class	Facility Name	^Type of Facility	**Tipping Fee	Permitted Tonnage	Out-Of-State Waste	Average Tonnage	% of Permitted
A	A	Brooke/Valero	MSW	$37.00	20,000	3,880	6,572	33%
	A	Short Creek	MSW	$32.50	50,000	4,429	29,219	58%
	B	Wetzel	MSW	$31.75	9,999	2,008	14,389	144%
B	A	Meadowfill	MSW	$45.35	30,000	378	15,980	53%
	B	S & S	MSW	$46.75	9,999	8	5,255	53%
C	A	Northwestern	MSW	$42.05	30,000	5,054	23,251	78%
E	B	LCS	MSW	$50.30	9,999	151	9,131	91%
G	B	HAM	MSW	$43.75	9,999	641	4,669	47%
H	A	Disposal Services	MSW	$48.25	20,000	3	6,973	35%
	A	Sycamore	MSW	$38.75	20,000	4	6,224	31%
Average/Totals				**$41.65**	**209,996**	**16,556**	**121,663**	**58%**

*Information used was based off current permitted tonnage and tonnage accepted for CY 2015.
**Tipping Fees represent charges for depositing one ton of municipal solid waste in each specified facility and include landfill fees and state and local assessment fees.
^MSW (Municipal Solid Waste) - CD (Has a dedicated Construction & Demolition cell).

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, unstabilized 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	Industrial Waste and/or Sludge	Electronic Waste*	Appliances	Refrigerated Appliances	Drilling Mud	Asbestos	C/D Waste	Yard Waste Brush
Brooke/Valero	<>	<>	<>	<>	<>		<>	<>
Charleston	<>	<>	<>				<>	<>
Copper Ridge	<>	<>	<>	<>			<>	<>
Disposal Services	<>	<>	<>				<>	<>
Greenbrier			<>	<>			<>	<>
Ham	<>	<>	<>	<>		<>	<>	<>
LCS	<>		<>	<>			<>	
Meadowfill	<>	<>	<>	<>	<>	<>	<>	<>
Mercer County	<>	<>	<>	<>			<>	<>
Nicholas County		<>	<>	<>			<>	<>
Northwestern	<>	<>	<>	<>	<>		<>	<>
Pocahontas County		<>	<>	<>			<>	
Raleigh County	<>	<>	<>	<>			<>	<>
S & S Grading	<>	<>	<>	<>	<>		<>	<>
Short Creek	<>	<>	<>	<>	<>		<>	<>
Sycamore	<>	<>	<>	<>			<>	<>
Tucker County	<>	<>	<>	<>			<>	
Wetzel County	<>	<>	<>	<>	<>		<>	<>

*Effective July 1, 2016, covered electronic devices (electronic waste) may not be disposed of in a solid waste landfill in West Virginia, 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.

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 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 commercial recycler 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 2015, of total waste collected at the state's landfills, 59.46% was municipal solid waste, 6.20% industrial waste, 1.72% industrial sludge, 11.08% C & D waste, 4.11% petroleum contaminated soil, 9.98% drilling waste and 2.83% 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 also required to keep records of inspections and gas and leachate monitoring.

They also have to 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 particular 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. 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. http://apps.sos.wv.gov/adlaw/csr/rule.aspx?rule=54-06

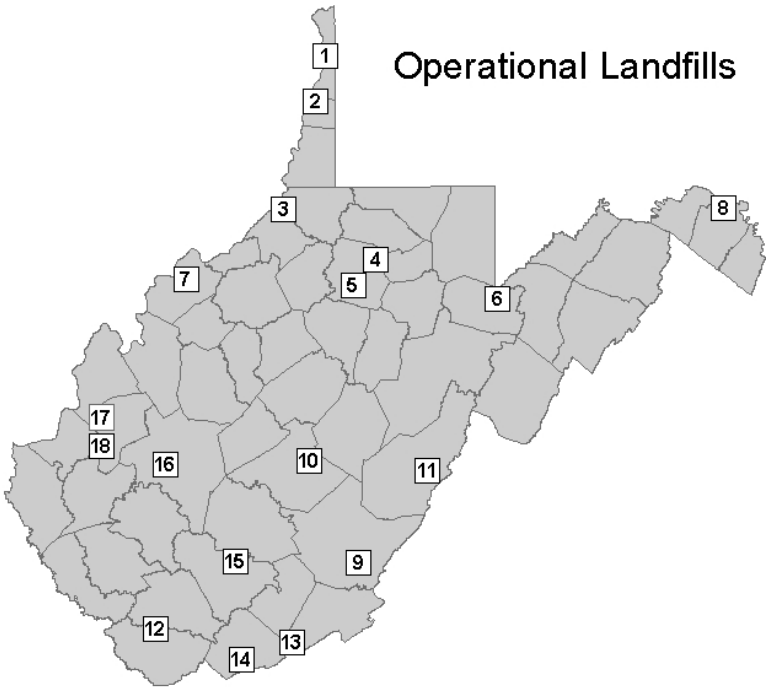
4.3 Landfill Status - Estimated Lifespan and Potential Impact on Solid Waste Management

On June 8, 1993, West Virginia had a total of 38 permitted MSW landfills in operation. As of November 2016, there were 18 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
	5	B	S & S	Harrison	Permitted and Operational	9,999
	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
	10	B	Nicholas County	Nicholas	Permitted and Operational	9,999
	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 J. P. Mascaro & Sons and has a life expectancy of about 50 + years. It is a Class A facility, permitted to accept 20,000 tons per month. Brooke's average waste intake for 2015 was 6,572 tons per month, about 33% 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 3,880 tons per month in 2015. Their tipping fee is $37.00 per ton. Construction of their next cell is scheduled to begin in 2017. The estimated life of the current permitted area and the facility as a whole, is 50+ years. The entire facility consists of 196 acres.

Charleston, City of (16): The City of Charleston Landfill has a life expectancy of about 11 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 2015 was 23,251 or about 96% 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 $40.00 per ton. Construction of their next cell will begin sometime in 2021, be 4.9 acres and provide over one million cubic yards of airspace. At the current rate of usage the cell is expected to extend the facility's lifespan by 5 years. 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 EnviroSolutions, Inc. 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 WV DEP in 1998. The average monthly waste intake for 2015 was 3,879 tons or about 8% of permitted capacity. The facility mainly

serves McDowell and Wyoming counties but has the ability to accept waste, via rail from outside of the state. The remaining life of the permitted area is an estimated 50 or more years. The tipping fee is $42.50 per ton. The facility has a total of 106 permitted acres with a total acreage of 200 acres. Copper Ridge has a life expectancy of over 50+ years.

Disposal Services Landfill (17): This facility is located in Putnam County and owned by Waste Management, Inc. It has an expected lifespan of 70 years. In 2015, Disposal Services' average waste intake per month was 6,973 tons or about 35% of its permitted 20,000 monthly limit. Disposal Services primarily serves Putnam, Kanawha and Logan counties and occasionally Wayne, Lincoln and Mason. Their tipping fee is $48.25 per ton. Construction of the next cell is expected to begin in 2017, include an estimated 2.3 acres and provide 631,000 cubic yards of airspace. This is expected to sustain the landfill for around 4 years. Disposal Services includes 335 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 for 5,500 tons per month, they averaged 3,256 tons or about 59% of capacity in 2015. The facility primarily serves Greenbrier, Summers and Monroe counties with occasional service to Nicholas, Pocahontas and Fayette. Greenbrier has a life expectancy of at least 100+ years. The facility's tipping fee is $46.75 per ton. The current cell was completed in December 2013 at a cost of $1.75 million. The cell was 5.16 acres in size. The facility has a dedicated construction and demolition cell. Greenbrier encompasses 76 acres all of which is permitted.

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 2015, the monthly intake averaged 4,669 tons or about 47% of total permitted capacity. Approximately 14% of waste deposited in HAM originates out-of-state. The facility serves only Monroe County and a small portion of Virginia. HAM's tipping fee is $43.75 per ton. HAM is one of only two facilities in the state permitted to accept asbestos waste. The HAM facility includes 180 acres including 23 acres permitted for municipal and other waste.

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 9,131 tons of material a month in 2015 using approximately 91% of its permitted capacity. LCS has a life expectancy of 40 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 2017, will be 8.8 acres in size and will create 1,072,100 cubic yards of airspace. The facility currently has 544.7 acres of land with 67 acres permitted for solid waste.

Meadowfill Landfill (4): Located in Harrison County, Meadowfill, owned by Waste Management, Inc., is permitted to accept 30,000 tons of waste per month. The facility used approximately 53% of its permitted capacity in 2015. Meadowfill has a life expectancy of 100+ years. It is a large facility who's 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 expected to begin construction of their next cell sometime in the Spring of 2017. The cell will be 3.7 acres in size, create 530,000 cubic yards of airspace and last approximately 2 years. Meadowfill also has

a dedicated cell for drilling mud and 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 2015, Mercer averaged 5,255 tons a month, about 53% of its permitted capacity. They have a life expectancy of about 100 years. Mercer provides services primarily for their home county and their 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. Mercer expects to begin construction of their next cell sometime in 2016-2017. The cell will be approximately 2.9 - 4 acres in size and provide between 650,000 – 800,000 cubic yards of airspace. The Mercer facility consists of 266 acres with 45 acres permitted for solid waste and has a life expectancy of 45 years for the current permitted area.

Nicholas County Landfill (10): Owned and operated by the Nicholas County Solid Waste Authority, the facility is permitted to accept 9,999 tons of waste per month. The 2015 average monthly intake was 1,930 tons, approximately 19% of its permitted capacity. At the current tonnage level, the projected lifespan for the Nicholas facility is around 100+ years. The facility primarily serves Nicholas and Webster counties but also receives waste from the counties of Braxton, Clay, Fayette, Gilmer, Greenbrier and others. Nicholas's tipping fee of $69.25 was established in 1995. The landfill has a total of 111 acres with 12 acres being actively permitted. During a regularly scheduled performance evaluation in mid-2011, the Solid Waste Management Board, by authority of W. Va. Code §22C-4-9a, identified the facility as being impaired. Technical assistance was rendered at that time by the SWMB. During the following two and a half years problems at the facility continued. The next evaluation was performed in early 2014 and the landfill was found to be seriously impaired. At that time, the decision was made for the Solid Waste Management Board to intervene as allowed by W.Va. Code §22C-3-26. At the time of this writing, the facility remains operational under the authority of the SWMB. Improvements are being made.

Northwestern Landfill (7): Located in Wood County, the facility is owned by Waste Management, Inc. Northwestern is permitted to accept 30,000 tons of waste per month. Their 2015 monthly average intake was 23,251, or 78% of permitted capacity. The facility primarily serves Wood, Wirt, Ritchie, Pleasants and Jackson counties in West Virginia and Washington County Ohio with smaller amounts of waste coming in from Calhoun, 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 4.5 acres and is expected to be depleted in two years. Construction of the next cell is expected to begin in 2017 and it will be 4 acres and have a volume of 1.08 million 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 52 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 2015 monthly tonnage averaged 572 tons or about 41% of permitted capacity. Pocahontas has a dedicated construction and demolition (C&D) cell. The landfill has a projected lifespan of 21 years with the current cell having a lifespan of 11 years. The Pocahontas County Landfill serves only its home county. Their tipping fee is $72.75 Pocahontas has a current 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 2015 indicate an average monthly intake of 5,547 tons per month, approximately 33% of permitted capacity. The facility has a life expectancy of 100 years. Raleigh primarily serves Raleigh, Wyoming and Summers counties. The facility charges a tipping fee of $41.75 per ton. Construction of Raleigh's next cell is projected to start in 2017. The Authority owns 680 acres of land around the facility and has 88 acres permitted for solid waste.

S & S Grading Landfill (5): S & S is located in Harrison County and owned by Waste Management, Inc. The facility is permitted to accept 9,999 tons of waste per month. Their 2015 average monthly intake was 5,255 tons or 53% of permitted capacity. The life expectancy of S & S Landfill is approximately 30 years. The facility primarily serves Harrison, Lewis, Gilmer and Barbour counties also processing smaller amounts of waste from Braxton, Doddridge, Upshur, Webster and other counties. S & S Grading charges a tipping fee of $46.75 per ton. Construction of the next cell was set to begin in Spring of 2016. The cell will be 2 acres in size and create 275,000 cubic yards of airspace. The facility's total acreage is 155.89 acres with 66 acres currently 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 2015 average monthly intake of 29,219 tons or about 58% of permitted capacity. Short Creek has a projected lifespan of about 36 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 $32.50 per ton. The facility adds $1.00 per ton for loads of drilling mud. Construction of the next cell is projected to begin in 2018, will encompass 6 acres and provide 2 million cubic yards of airspace. This cell is expected to sustain the landfill for about 5 years. The facility currently has approximately 404 total acres of land with 115 permitted for disposal.

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 2015 monthly waste intake of 6,224 tons or about 31% of permitted capacity. Sycamore's primary customers are located in Putnam, Cabell, Wayne, Kanawha, Mason and Lincoln counties. This facility has a PSC approved tipping fee of $38.75.

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. Actual 2015 monthly intake was 5,547 or about 55% of permitted 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 including Tucker, Grant, Hardy, Hampshire, Pendleton, Preston, Randolph and other counties in West Virginia and taking in smaller amounts of waste from Garrett County, Maryland. Tucker's tipping fee is $47.50 per ton of municipal waste. Construction of the next cell is expected to begin in Spring of 2017. The size of this cell will be 10 acres with approximately 330,000 cubic yards of airspace. The cell will have a lifespan of 4 years. The facility has a total acreage of 141.81. The total permitted area is 59.7 acres.

Wetzel County Landfill (3): The Wetzel facility is owned by J. P. Mascaro & Sons and permitted to accept up to 9,999 tons of waste per month. Their 2015 average monthly intake was 14,389 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 on 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, Doddridge, Ritchie and Marshall Counties in West Virginia and Monroe County in Ohio. The expected lifespan of the current permitted area is an estimated 30+ years. Wetzel has an expected total lifespan of 30+ years. Wetzel County's tipping fee is $31.75 per ton. Construction of the facility's next cell is underway at the time of this writing and is expected to be 5.64 acres, will be a dedicated cell for drilling waste and is expected to last 6 months. The facility has 190 permitted acres.

Summary: For CY 2015 the state's 18 landfills processed a total of 1,999,748 tons of waste or a monthly average of 166,646 tons. This amounts to approximately 49% of the total permitted capacity for these facilities. Of this amount, 1,189,021 tons were classified as municipal waste, the other 810,727 tons as various types of special waste. The makeup of this special waste includes 6.20% industrial waste, 1.72% industrial sludge, 11.08% construction and demolition waste, 4.11% petroleum contaminated soil, 2.83% other special waste, 1.32% as miscellaneous waste and 9.98% as drilling mud. The average tipping fees of the 18 operational facilities listed for municipal solid waste was $45.76 per ton.

Over the next several years, fifteen of the state's landfills either have under construction or intend to construct, an estimated 68 acres of landfill air space at an estimated cost of over $26 million.

In 2015, Northwestern, Short Creek, S & S Grading and Wetzel County landfills used over 2,000 tons of shredded tires and only 327 tons of petroleum contaminated soil for daily cover and/or as a drainage material at their facilities. Progressive management practices such as these tend to create a more efficient operating environment for these facilities.

Click here for an interactive map of the state's operational landfills and other commercial solid waste facilities.

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. In some cases management contracts were put into place that took advantage of corporate economies of scale while leaving ownership with the public. The primary waste management corporations doing business in West Virginia were Allied Waste Services of North America, LLC and various divisions of Waste Management, Inc.

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 2015, the state exported 706,987 tons of waste while importing 200,605 tons creating a positive export balance of 506,382 tons. The consequence of not collecting the $8.25 tipping fee on these tons is a loss of approximately $4,177,651 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 disposed 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 the effect of devaluing this entire business sector.

Table 4-4
Solid Waste Exported to Out-of-State Landfills: 2015

Total Solid Waste Exported to Other States (tons)

	2003	2005	2007	2009	2011	2013	2015
Kentucky	154,684	97,134	113,127	125,917	80,085	173,973	217,408
Maryland	5,651	8,844	10,672	13,810	13,810	29,464	35,790
Ohio	87,592	116,459	126,624	129,998	171,925	221,760	280,648
Pennsylvania	89,323	158,539	156,856	55,832	85,871	174,562	164,193
Virginia	45,724	35,533	33,060	27,188	27,188	14,121	8,948
Totals	**382,974**	**416,509**	**440,339**	**352,745**	**378,879**	**613,880**	**706,987**

Table 4-5
Solid Waste Imported to West Virginia: 2015

Total Solid Waste Imported (tons)

	2003	2005	2007	2009	2011	2013	2015
Brooke/Valero	23,737	29,783	30,754	37,395	21,865	40,810	46,555
LCS	10,692	36	8,603	16,072	14,727	9,778	1,811
Meadowfill	19,961	15,003	261	923	6,470	1,584	4,538
Short Creek	92,861	59,194	61,998	38,602	77,067	65,871	53,150
Northwestern	69,427	48,363	59,168	38,237	46,861	110,220	60,649
Wetzel County	18,956	6,659	8,935	6,628	6,253	67,908	24,091
All Others	1,630	7,554	5,327	4,835	11,655	9,118	9,811
Totals	**237,264**	**166,592**	**175,046**	**142,692**	**184,898**	**305,289**	**200,605**

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. 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 gases, limit soil erosion and ensure the long term integrity of closed landfills. The DEP 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 of time, 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 DEP - OER received thirty-four (34) applications for closure assistance funding and determined that twenty-eight (28) were eligible. Two more were later added and in 2014, Elkins/Randolph, Webster County and Prichard landfills were added by the legislature.

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 three in the Pre-Closure phase. During the 2014 Legislative session, House Bill 4339 was passed and signed by the Governor allowing the Elkins/Randolph, Webster County and Prichard facilities to apply for the program. Since that time, Prichard was accepted in to the program but has yet to file a formal application. More information on the LCAP Program is available at: www.dep.wv.gov/dlr/oer/LCAP/Pages/default.aspx

The following facilities have been accepted into the LCAP program.[1]

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	21	Big Bear	Preston	Closed - LCAP	Post-Closure
	22	Buckhannon	Upshur	Closed - LCAP	Post-Closure
	23	Central WV Refuse	Braxton	Closed - LCAP	Post-Closure
	24	Clarksburg	Harrison	Closed - LCAP	Closure
	24b	Elkins/Randolph	Randolph	Closed - LCAP	Closure
	25	Kingwood	Preston	Closed - LCAP	Pre-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
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	Pre-Closure
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
	45	E.R.O.	Mason	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

Definition of Terms

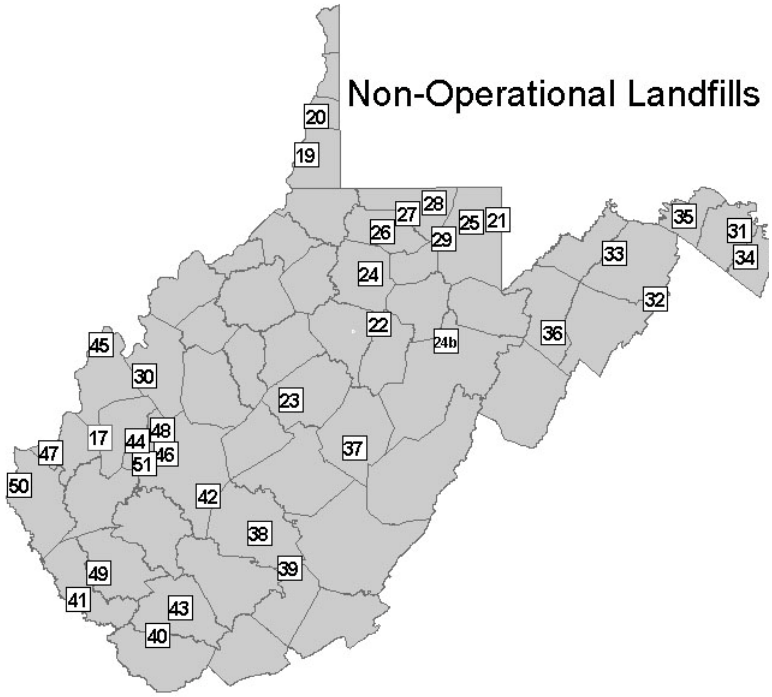
Post-Closure: Indicates that closure activities are complete and the facility is in the 30 year post-closure monitoring period.

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 assistance.

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 currently in post-closure status. Landfill site inspections, methane gas inspections, surface water inspections, & groundwater inspections are being completed under the LCAP program. 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.

Big Bear Lake Landfill (21): The permittee is Big Bear Lake. The facility is in Preston County and was closed in 1998. Big Bear Lake Landfill is located 1 mile west of Bruceton Mills and accessible via an unimproved local road off of county road 28 from the south, or from Bruceton Mills along Lakeview Drive. Closure costs were $393,955. In early 2012, due to the size of the facility, Big Bear was removed and hauled to Meadowfill Landfill in Harrison County.

Buckhannon Landfill (22): The closure cap was completed on January 3, 2002. The facility is presently in post-closure phase with leachate being collected through a perforated perimeter drain and piped to the City of Buckhannon Wastewater Treatment Plant. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under the LCAP program. Closure costs were $2,039,761. The facility is in Upshur County, the permit holder is the City of Buckhannon.

Capon Springs Landfill (32): Capon is currently in post-closure status. The final cap is in place. Landfill site inspections, are being performed by LCAP. Landfill site inspections, methane gas inspections, surface water inspections and groundwater inspections are being completed under the LCAP program. Closure was completed in 2012 and closure costs were $2,346,477. 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 with groundwater monitoring being performed under the LCAP program. 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 closure status. Plans for the final cap for this facility were being completed in early 2014. Landfill closure cap is currently under construction. Leachate is being controlled by city sewer. City of Clarksburg is also monitoring water quality. 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. Click here for more information.

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. Closure costs were $3,410,033. 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. At the time of this writing an engineering firm has been selected to conduct the surveys, mapping and design of the capping system and LCAP had issued a leachate hauling contract for the landfill. Once the work is complete, the facility can be scheduled for closure activities. The permit holder is the City of Elkins.

E.R.O. Landfill (45): Consultant design (wetland leachate treatment) has been completed. Cap construction and wetland collection was completed as of December 1997. E.R.O is in post-closure status. Inspections and leachate and groundwater monitoring are ongoing. Closure costs were $2,434,737. The facility is in Mason County approximately 1.5 miles east of SR 62 at the town of Lakin. The permit holder is E.R.O. Landfill.

Fayette County Landfill (38): Closure activities are complete and this site is currently in post-closure phase. Cap construction was completed in September 1999. Closure costs were $1,376,737. Leachate is being trucked from the site as part of the LCAP program. 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 phase. Closure costs were $2,893,410. Groundwater quality tests are being completed by LCAP. Leachate is being managed by a sanitary sewer plant. 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 the post-closure phase. 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. 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 phase. The design was completed by Potesta. Groundwater monitoring is being completed under LCAP. 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 post-closure phase. Leachate is being trucked from the site and groundwater monitoring is being performed under LCAP. 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 is monitoring the water quality. This site is currently in post-closure phase. The permit is held by the Kanawha County Solid Waste Authority and located north of Cross Lanes.

Kingwood Landfill (25): Interim closure cap is in place and the site is currently in pre-closure status. Design work is still ongoing. Estimated closure costs are $2,646,984. Landfill site inspections, surface water inspections, and groundwater inspections are being completed under LCAP. The facility is connected to sanitary sewer. The facility is in Preston County, 1.5 miles north of Kingwood. The permit holder is the City of Kingwood.

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. Closure costs are estimated to be $7,337,751. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. 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 phase. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. 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. 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. Leachate is being trucked from the site. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under the LCAP program. 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. This site is in post-closure monitoring and maintenance phase. 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. The City of Montgomery is performing water quality monitoring. Leachate is being controlled by the city's sewer facility with cost being covered by the city. The City of Montgomery is the permit holder.

Morgan County Landfill (35): The Morgan County facility is in the post-closure phase. Closure costs were $1,134,195. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. 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 has been completed. This site is currently in post-closure phase. 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. The permittee is the City of Morgantown; the facility is in Monongalia County. The facility is 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. The facility went into post-closure phase in the spring of 2012. Closure costs were $4,110,108. 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 at Moundsville.

Petersburg Landfill (36): The cap was completed in February 2003. This site is currently in post-closure phase. A sewer line was installed to pump leachate to the local sewer plant. The design was completed in 1999 by Triad Engineering. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. 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): This site is currently in post-closure. The design work was completed by Marshall Miller & Associates in 1999 and the closure costs were $1,306,325. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under LCAP. The permit holder is Pine Creek Omar, Inc. and the facility is in Logan County. The facility is 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 phase. 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 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 the facility eligible for LCAP assistance. Prichard Landfill has been accepted in to 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 owner. 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.

South Charleston Landfill (51): The facility is currently in pre-closure status. Landfill closure cap was completed in late 2016. Landfill site inspections, methane gas inspections, surface water inspections, and groundwater inspections are being completed under the LCAP program. The permit holder is the City of South Charleston; the facility is located in Kanawha County.

Webster County Landfill (37): The facility is in pre-closure status awaiting closure activities. During the 2014 Legislative session House Bill 4339 made the facility eligible for LCAP assistance. They later applied and were accepted into the program. At the time of this writing the landfill is in the process of being surveyed. Next, LCAP will go through the EOI process for selecting a design engineer. Once the work is complete the facility can be scheduled for closure activities. 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 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. Closure costs were $1,427,522. Leachate is currently being piped to the wastewater treatment plant. Groundwater and surface water monitoring is being completed under LCAP. The permit holder is the Wyoming County Commission. The Wyoming County Landfill is located on Rt. 9/6 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;
- 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 the low tonnages. Closing cost for the facility was estimated by Environmental Solutions, Inc. during July 2012 at $6,080,310;
- 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 was for expenses up to and including the final cap and does not include cost associated with the 30 year monitoring period.

Of the original 28 facilities in the LCAP program and the 2 other facilities that were later added, 28 are in post-closure phase, three are in pre-closure and the remaining two are in closure phase.

The two facilities in the closure phase are Clarksburg and Elkins/Randolph. The three facilities in pre-closure are Wheeling-North Park, Kingwood and Webster County. All others are in Post-Closure.

For FY 2016, $7,423,596 of the $17,576,895 collected by the state in landfill assessment fees was designated for the LCAP program.

Click here for an interactive map of the state's nonoperational landfills and tire monofills.

4.7 Transfer Stations

As of November 2016, West Virginia currently has 16 municipal solid waste transfer stations. Most of these facilities are either in the eastern panhandle or the southwestern part of the state, commonly known as the coalfield counties. Transfer stations allow garbage from packer 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 2015, West Virginia's (then) 18 operational transfer stations collected and transferred 283,071 tons of waste, approximately 14% 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.

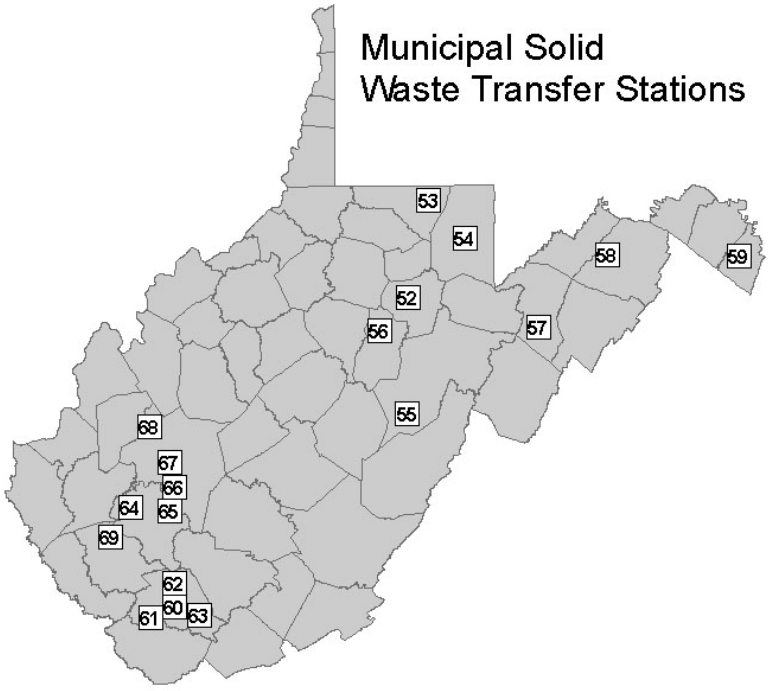
The following transfer stations are currently operational in West Virginia.

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	$89.60	$8.75	$98.35
	53	Monongalia	Mountaineer	$25.75	$8.75	+ Landfill Fees
	54	Preston	*Kingwood, City of	$54.60	$8.75	$63.35
	55	Randolph	Tygarts Valley Sanitation	$58.25	$8.75	$67.00
	56	Upshur	Buckhannon, City of	$74.50	$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
G	60	Wyoming	Wyoming Country - Pineville	$59.17	$8.75	$67.92
	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	$69.70	$9.25	$78.95

*****Municipal use only transfer stations. No fee to residents.

Map 4-3
Operational Transfer Stations



Baileysville (61): The Baileysville Transfer Station is owned by the Wyoming County Commission. The facility managed 668 tons of waste in 2015, an average of 56 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. Their regular rate is $59.75.

Buckhannon (56): Owned by the City of Buckhannon, they processed an average of 1,370 tons per month in 2015 and 16,443 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 55 tons per month during 2015 and 662 tons for the year.

Glen Fork/Jesse (62): Owned by the Wyoming County Commission, the station processed an average of 49 tons per month and 590 tons for the year 2015. They charge a user fee of $1.10 per bag. 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 8,015 tons of waste in 2015 averaging 668 tons per month. All waste was transferred to Tucker County Landfill. The tipping fee at this facility is $82.85 per ton. Hampshire's PSC approved tariff is dated December 16, 2013.

Jefferson County (59): Owned by the Jefferson County Solid Waste Authority and operated by Waste Management of West Virginia, Inc., the facility processed 42,941 tons in 2015, an average of 3,578 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 1,041 tons per month. Total waste processed for 2015 was 12,487 tons. Kingwood's PSC approved tipping fee, as of May 2011, was $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 793 tons of solid waste in 2015 averaging 66 tons per month. The facility serves the City of Marmet.

Mountaineer Transfer Station (53): The facility processed 111,165 tons of waste in 2015 averaging 9,264 tons per month. The facility's tipping fee is $25.75 per ton plus landfill fees. Mountaineer serves Harrison, Marion, Monongalia and Preston counties in West Virginia and Fayette, Green, Somerset, Taylor, and Washington counties in Pennsylvania.

Petersburg (57): Owned by the Region VIII Solid Waste Authority, the Petersburg facility processed 8,234 tons of solid waste in 2015 averaging 686 tons per month. The tipping fee is $81.85 per ton. The facility serves the communities of Franklin, Moorefield and Petersburg.

Philippi (52): Owned by the City of Philippi, the facility processed 4,004 tons in 2015 averaging 334 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 2,773 tons of waste in 2015 or an average of 231 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 8,296 tons of waste in 2015. This is an average of 691 tons per month. The facility provides services for parts of Kanawha and Putnam counties.

Tralee (63): Owned by the Wyoming County Commission, the facility processed and transported 346 tons of waste in 2015 or an average of 29 tons per month. All waste collected goes to the Raleigh County Landfill. Tralee's tipping fee is $1.10 per bag.

Tygart Valley (55): The Tygart Valley Transfer Station is owned by Fred and Tim Hornick, and processed 20,953 tons of waste in 2015 or about 1,746 tons per month. The tipping fee is $67 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 35,852 tons of waste in 2015 or an average of 2,988 tons per month. The transfer station is owned by Waste Management of West Virginia. The facility's tipping fee is $78.95 per ton. The facility serves Boone, Lincoln, Logan, Mingo, Wayne and Wyoming counties, all in West Virginia.

Boone County No. 1 (64) CLOSED: Owned by the Boone County Commission, the facility closed on June 30, 2016, due to the loss of coal revenue and the county financial situation. During CY 2015, the facility processed an average of 521 tons per month, transferring 6,255 tons of waste to the City of Charleston Landfill. Citizens of Boone County were not charged. Primary users were the towns of Danville and Madison.

Boone County No. 2 (65) CLOSED: Also owned by the Boone County Commission, this facility closed on June 30, 2016, due to the loss of coal revenue and the county financial situation. During CY 2015, the facility processed an average of 216 tons per month, transferring 2,593 tons of waste to the City of Charleston Landfill. Citizens of Boone County were not charged. The facility served the Whitesville and Sylvester areas.

Click here for an interactive map of the state's operational transfer stations and other commercial solid waste facilities.

4.8 Material Recovery Facility

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. The most extensive recyclables processing throughout occurs in the Northeast and Midwest.

MRFs can be classified as clean or dirty. Those that are classified as clean, accept only source-separated material. These source 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 2010 study that yard waste makes up approximately 13.4% of all waste in the US.

W.Va. Code §22-15A-22(d) mandated that DEP promulgate rules for the handling of yard waste. Yard waste composting rules were enacted by legislative adoption 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 May 5, 1997.

Under these rules, the permitting of commercial yard waste composting operations must be approved by the Director of DEP-DWWM. 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 4-10 identifies the commercial composting facilities that have been issued permits or registration numbers.

Table 4-8
Registered Commercial and Activity Composting Facilities

Commercial Facility	City	County
City of Clarksburg	Clarksburg	Harrison
Jefferson Solid Waste Authority	Charles Town	Jefferson
Mercer Solid Waste Authority	Princeton	Mercer
Raleigh Solid Waste Authority	Lanark	Raleigh
Activity Facility	**City**	**County**
City of New Martinsville	New Martinsville	Wetzel
Short Creek	Wheeling	Ohio
City of Buckhannon	Buckhannon	Barbour
City of Philippi	Philippi	Barbour
City of Westover	Westover	Monongalia
Joseph Nurseries	Bridgeport	Taylor
Meadowfill Landfill	Bridgeport	Harrison
North Hills Nursery	Rock Cave	Upshur
Taylor County Workshop	Grafton	Taylor
Davis Nurseries	St. Mary's	Pleasants
Northwestern Landfill	Parkersburg	Wood
Pleasants Solid Waste Authority	St. Mary's	Pleasants
Wood County Commission	Parkersburg	Wood
City of Martinsburg	Martinsburg	Berkeley
Greenbrier Solid Waste Authority	Lewisburg	Greenbrier
City of Charleston	Charleston	Kanawha
City of Huntington	Huntington	Cabell
City of St. Albans	St. Albans	Kanawha
City of South Charleston	South Charleston	Kanawha

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 their state's in order to participate in WV. Transfer stations were exempted from the free day.

Table 4-9
2015 Free Day Tonnage Received at West Virginia Landfills

Landfills	Total Free Day Tons*	Total Tons*	Free Day % of Total Tons
Brooke/Valero	92	78,864	0.1%
Charleston	106	218,556	0.0%
Copper Ridge	475	46,547	1.0%
Disposal Services	46	83,678	0.1%
Greenbrier	119	39,071	0.3%
HAM	67	56,024	0.1%
LSC	553	109,576	0.5%
Meadowfill	453	191,764	0.2%
Mercer	694	30,549	2.3%
Nicholas	209	23,159	0.9%
Northwestern	321	279,007	0.1%
Pocahontas	1	6,867	0.0%
Raleigh	730	108,490	0.7%
Short Creek	0	350,625	0.0%
S & S	335	63,056	0.5%
Sycamore	74	74,685	0.1%
Tucker	228	66,559	0.3%
Wetzel	116	172,670	0.1%
Totals	**4,619**	**1,999,747**	**0.2%**

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.: Preston Tire monofill is located near Kingwood in Preston County. The facility is the smallest of the three, taking in an average of about 78 tons of tires a month for long term storage. The facility processed 937 tons in calendar year 2015.

West Virginia Tire Disposal, Inc.: West Virginia Tire Disposal, Inc. is the largest of the three facilities averaging 1,527 tons of used tires per month. Located near Summersville in Nicholas County, the facility processed over 18,329 tons of used tires in 2015 with about 43% being accepted from out of state. West

Virginia Tire offers a statewide tire pickup service. WV Tire is permitted to accept tires, C/D and auto fluff.

Tire & Rubber, Inc.: Tire & Rubber, located near Weston in Lewis County, is also permitted to accept Construction and Demolition waste. The facility managed over 1,143 tons a month in calendar year 2015 with overall tonnage for the year of 13,720. Tire & Rubber picks up tires in the surrounding counties and accepted 46% of their annual tonnage for 2015 from out of state. The company is permitted to accept tires and C/D waste.

Table 4-10
Operational Tire Monofills in West Virginia

WS	Facility Name	Tipping Fee	2015 Tons	Average Monthly Tons
B	Preston Tire & Recycling, Inc.	Variable	937	78
	Tire & Rubber, Inc.	Variable	13,720	1,143
F	WV Tire Disposal, Inc.	Variable	18,329	1,527

4.12 Discussion and Conclusions

As of November 1, 2016, West Virginia had 18 operational MSW landfills and 16 transfer stations. Of the 18 landfills, eight are publicly owned, and ten are privately owned.

The state's landfills are permitted to receive up to 4,052,256 tons of waste a year. Actual waste intake for FY 2015 was 1,999,747 tons or 49% 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 problem to appear is that of disposing of drilling waste or "drilling mud." To date, this material has materialized in rather large quantities on a regional basis affecting a few local facilities. Various steps on both the state and local levels have been taken and are expected to provide adequate landfill air space for the region. The Solid Waste Management Board will continue to monitor this changing situation.

In order 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

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Chapter 5

West Virginia's County and Regional Solid Waste Authorities

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 counties share one of two regional SWAs.

Of the state's 50 local solid waste authorities, 7 either own/operate one of the state's 18 operating landfills, 3 of 16 transfer stations, and either own/operate, or at least actively participate, in one of the over 37 recycling programs providing services in rural areas where low population makes such operations prohibitive for private sector businesses. The 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, and Commercial Solid Waste Facility Siting Plans. 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 government 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 did so, and 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 is authorized, prohibited, or tentatively prohibited.

Citizens and local governments often look to state environmental regulatory agencies to resolve local land use conflicts. Often, however, these conflicts are more effectively resolved in a local governmental forum where citizens can participate 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 is comprised of five members who are 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 situated, and one by the Chairman of the PSC.

Any 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 situated, one by the Chairman of the PSC, and two municipal representatives from each county having one or more participating municipalities from each county.

SWAs may exercise all powers necessary or 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, Allied Waste Services of West Virginia, and Solid Waste Services of West Virginia, Inc. providing service to the remainder of the county. They operate six recycling drop-off locations throughout the county, and a recycling facility located in Beech 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 two commercial haulers. 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 county SWA has developed a map of open dump sites and is using volunteers in a long-term plan to clean the 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 recycling trailers in place in McMechen, Benwood and Cameron. These communities have volunteer recycling programs in place. Glen Dale has a recycling program which has been in place since 1991.

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 private waste haulers, Jack Jochum Truck Service, and American Disposal. The SWA has identified plastic, metals, and newspapers as the materials to be collected at four drop-off locations throughout the county. 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 three commercial waste haulers; Martyn's Service, Inc., Solid Waste Service of West Virginia, Inc., and Wall's Sanitation, Inc. 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 (WCSWA), in cooperation with the Department of Environmental Protection's Pollution Prevention Open Dump Program, has cleaned up over 111 open dumps from within the county to date. For the past 22 years, the WCSWA operated a curbside recycling collection program in conjunction with Tyler County. Due to increasing costs, the Authority has since dropped that program and is currently transitioning to a drop-off system.

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 to 2015, 149 open dumps have been eliminated, 2,683 tons of material removed and 138 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 the Nicholas County Landfill, or at S&S Landfill 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 259 dumps cleaned, removing 3,815 tons of material and reclaiming over 213 acres of land. The Authority will continue to encourage recycling and support and educate on the mandatory disposal laws.

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 cleanup open dumps within the county. Since 1994, 416 open dumps have been eliminated.

Doddridge County is serviced by two commercial haulers which use two existing solid waste facilities 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.

Harrison County, the home of the Federal Bureau of Investigation (FBI) Fingerprinting Center, is also the home of two landfills which serve most of Wasteshed B. The two landfills have a permitted capacity of 29,999 tons per month. More than 60 illegal dumps have been cleaned up with the aid of DNR Conservation Officers, DEP Environmental Inspectors, the sheriff's department, 4-H clubs and other volunteers over the last six years. Clarksburg operates a compost facility at the site of the closed municipal landfill.

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 very 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 has a progressive campaign to implement mandatory disposal. 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 550 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, two curbside collection programs, and various drop-off sites.

Both commercial haulers provide drop-off locations, plus 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 114 open dumps since 2004. 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. *Important to note that 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 processes 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.

Upshur County's residents are serviced by two solid waste haulers, Mountain State Waste and Republic Services. The city of Buckhannon provides service to their residents. All waste is deposited into the S & S 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. Marys, and is quite active in educating the public through informational publications, local media articles, and programs at the public schools.

The **Ritchie** 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 57 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 ran 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. The City of Martinsburg is the only municipality which provides waste collection to their residents. The rest of the county is serviced by Apple Valley Waste Services. Recyclable materials are collected at four main drop-off locations operated by the county SWA, as well as, one of the various private recyclers within the county. From 1989 to 2007, the Berkeley County Solid Waste Authority has worked with the DEP's PPOD program in cleaning up 194 open dumps and reclaiming over 88 acres of land.

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 113 open dumps removing over 1,135 tons of material and 35,195 tires.

Region VIII Solid Waste Authority is made up of Grant, Hampshire, Hardy, Mineral, and Pendleton. The Region VIII SWA operates two solid waste transfer stations which 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. The Hampshire County Commission is currently in the process of developing a recycling program to

offer its residents based on the passage of a referendum on recycling in November or 2014.

5.3.5 Wasteshed F

Greenbrier County has four municipalities and four 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 an average of over 11,000 tons of material per year since 2000. The Authority has cleaned up over 100 open dumps within Greenbrier County since 2004 with the assistance of the DEP and various other volunteers.

Nicholas County is home to the Nicholas County Landfill, 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. *Important to note that the Nicholas County Solid Waste Authority is currently under supersedure by the West Virginia Solid Waste Management Board.*

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 1,134 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 3,000 tons of solid waste per month. Solid waste collection is provided to the residents of the county by three private haulers and three municipalities. The Mercer County Solid Waste Authority has been working with the DEP's PPOD and the Mercer County Environmental Restoration Program to clean up the open dumps, roadsides, streams and hollows throughout the county. Since 1989, they have collectively cleaned up over 667 open dumps, removed over 2,206 tons of waste and reclaimed 801 acres of land. 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, the problem of landfill closures and new landfill construction is particularly acute since the landfill closed on September 30, 1994. Mingo County is serviced by two private haulers, Waste Management of WV, Inc., and Morgan Sanitation & Recycling. Williamson is the only public hauler in the county. The county currently produces approximately 52.7 tons of solid waste per day which is being transported to landfills in Kentucky. The Authority has worked closely with the DEP's PPOD program in cleaning up 25 open dumps to date removing almost 700 tons of waste. Mingo County has had a solid waste ordinance in place, yet has enforcement issues in dealing with the county's problems. Recycling facilities are limited in such a rural county. Residents and businesses have two options which are both limited in the items they accept. The Authority has been working with the teachers in the county to include more environmental information into the curriculum.

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 four commercial solid waste haulers who service the county's residential and commercial customers and provide curbside recyclable collection; Union Disposal; Humphrey's Trash 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 the majority 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 five commercial haulers and one municipality providing collection service to the county residents. Since 1994, 1,921 open dumps have been cleared, 844 acres of land reclaimed and over 5,181 tons of material and 67,958 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 Wyoming County Solid Waste Authority, in cooperation with the county commission, operates the only noted recycling center in Wyoming County, and provides a mobile recycling drop-off program. Also, the SWA in conjunction with the DEP have cleaned up over 905 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, who elected to serve as the Solid Waste Authority, owns and operates two transfer stations. Solid waste is transported to the Charleston Landfill in Kanawha County. Boone County provides free solid waste disposal provided residents bring their waste to one of the transfer stations. 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 143 open dumps, removing over 1,124 tons of waste. The County Commission also operates three recycling drop-off locations; Rock Creek, Fosterville, and Foster. In a cooperative effort with two local newspapers, the commission publishes articles relating to solid waste and recycling issues. Also, they have an active education program within the county's elementary schools to help promote recycling. *Important to note, since the current plans were last updated, the Boone County Commission has ceased the operation of their two transfer stations and offering the free solid waste collection service for their residents.*

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 307 open dumps since 1993, with the help of the DEP's PPOD Program. The SWA currently operates a drop-off recycling program where commingled materials are collected within eight locations throughout the county. The Authority estimates they recycle approximately 70 tons of material a month.

Calhoun County is serviced by two waste haulers, one commercial and one residential. All county waste is deposited in the Northwestern Landfill in Wood County. The Town of Grantsville provides service for its residents and has a mandatory collection ordinance. 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. Recycling within the county is served by four commercial recycling companies. Open dumps remain a problem within Logan County. With the hiring of a solid waste inspector, the Authority has focused a majority of their attention on the education and enforcement of mandatory disposal laws aiding in the reduction of those problem areas.

The **Mason** County Solid Waste Authority operates the county's drop-off recycling center along with some assistance from the county commission. 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. To date, the MCSWA and the DEP's PPOD program have eliminated 70 open dumps, reclaimed 105 acres, and removed over 760 tons of waste within the county.

Putnam County, one of the fastest growing counties in the state, is home to two landfills, Disposal Services and Sycamore Landfills. The City of Nitro provides solid waste collection services to its residents while the rest of the county uses one of the two certificated private haulers. It is estimated that curbside collection is available to 98% of county residents. The Solid Waste Authority continues to work with the DEP, DOH, and the DNR in cleaning up open dumps and enforcing mandatory disposal laws. Also, the PCSWA continues to encourage and coordinate the development of an infrastructure that provides county residents with accessible and affordable recycling services.

The **Roane** County SWA operates a drop-off recycling facility in Spencer and has one collection trailer placed at the Roane-Jackson Vocational Technology 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. A media campaign is used to assist in identifying open dumps. There have been a total of 27 dumps cleaned up, which reclaimed 22 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 Contractor's 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 must provide 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, found in 54CSR5, prioritize the purposes for which grants can be awarded.

1. Source Reduction.
2. Reuse.
3. Recycling.
4. Open Dump Cleanup.
5. Transfer Stations.
6. Landfills.
7. Administrative Costs.
8. Projects for Education.

In recent years the SWMB has limited SWA grant requests for salary and wages to no more than 25% of the total allowable amount in an effort to move Authority's towards self-sufficiency.

Chapter 6

West Virginia's Recycling Plan

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. 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 related reporting requirements.

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 more costly 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", 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 also 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. Also, the Act 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 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 most effectively, 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, and identify target audiences and messages for those audiences. Plans 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 77 persons per square mile (2010 US Census). Surrounding states have population densities that are significantly higher; Kentucky, 110; Maryland, 595; Pennsylvania, 284; Ohio, 282, and Virginia, 203. In order for recyclers in West Virginia to make a profit or break-even, they must operate in a highly efficient manner. Costs have to 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, 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 have to market their materials to a middle man, 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.

As of this writing, Caraustar, a large manufacturer of paper products based in Austell, GA, has been splitting loads of paper for small West Virginia recycling centers.

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 by definition 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 processers 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 on a daily basis, leaving facilities short on labor for periods of time; 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, or more 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 can help recyclers find both in-state, and regional markets for recyclable materials.

Some of our smaller recycling centers, unfortunately, find themselves giving materials to transporters free of charge to cover hauling cost. Others pay significant fees to haulers to transport materials to market. This is in part due to the current high prices for fuel. In the FY 2017 Solid Waste Management Board grant-cycle, approximately 24% of all grant funds awarded were for expenses related to transporting materials.

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 otherwise have limited profitability. Private sector firms, in order to stay in business, 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 in bulk easily. This leaves low value, low volume, or hard to market materials in the waste stream and destined for possible 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. One of the unanswered questions about single-stream recycling is; what effects will dumping large volumes of low grade material on the recyclable markets have on recyclable materials long term? 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 at fair market value. Other public programs work in tandem with private recyclers providing education and awareness, while the private sector recycler provides recycling services to the community. 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 will provide 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 Recycling Potential Analysis

According to the 2010 US Census, West Virginia had a population of 1,852,994. When factored into a 4.43 lb. per person, per day municipal solid waste disposal rate established by a 2010 U.S. EPA waste characterization study, West Virginian's dispose of approximately 1,498,099 tons of municipal waste annually. Municipal waste includes household garbage, and non-restricted commercial waste such as paper and cardboard. This measure of the state's waste includes waste going into West Virginia's landfills, waste generated in state but being disposed of out of state, the portion of the waste stream being composted, and that portion being recycled.

Table 6.1 details the amount of the waste stream that could potentially be recycled. Until such a time, a more manageable approach would be to ask what portion of the waste stream is it reasonable to expect to recycle in West Virginia.

Table 6-1
Recycling Potential in West Virginia

Material	Percentage in Waste Stream	Recycling Potential In Tons	Average Market Value - Per Ton*	Potential Market Value
Glass	4.6%	68,913	$13	$895,869
Metals	9.0%	134,829	$84	$11,325,636
Paper	28.5%	426,958	$62	$26,471,396
Plastics	12.4%	185,764	$580	$107,743,120
Total	**54.5%**	**816,464**		**$146,436,021**

*Prices based on average market value for NE USA Region 2 as listed in July 2016 on RecyclingMarkets.net.

Market value for all materials was determined through a market index maintained of the northeastern region of the US by Waste & Recycling News. The price of glass is for clear container glass, the price for metals represents the average prices paid for steel cans and appliances. The price for paper is for mixed paper and the price for plastics is for HDPE type plastics. These values change frequently.

Table 6-2 details possible tonnages with a 50% recycling rate, a 25% rate and a 10% rate. While the state doesn't have a system in place to measure recycling, it is believed that many areas have exceeded the 10% rate and are moving toward higher recycling tonnages. To date, the state has no known food waste recycling programs, and only a few that collect textiles.

Table 6-2
Recycling Potential in West Virginia: Sensitivity Analysis

		Recycling Potential In Tons at…		
Material	**Percentage in Waste Stream**	**50%**	**25%**	**10%**
Glass	4.6%	34,457	17,228	6,891
Metals	9.0%	67,415	33,707	13,483
Paper	28.5%	213,479	106,740	42,696
Plastics	12.4%	92,882	46,441	18,576
Total	**54.5%**	**408,233**	**204,116**	**81,646**

For a look at the volume and market values of recyclable materials on a wasteshed by wasteshed (regional) basis, see Appendix D of this document.

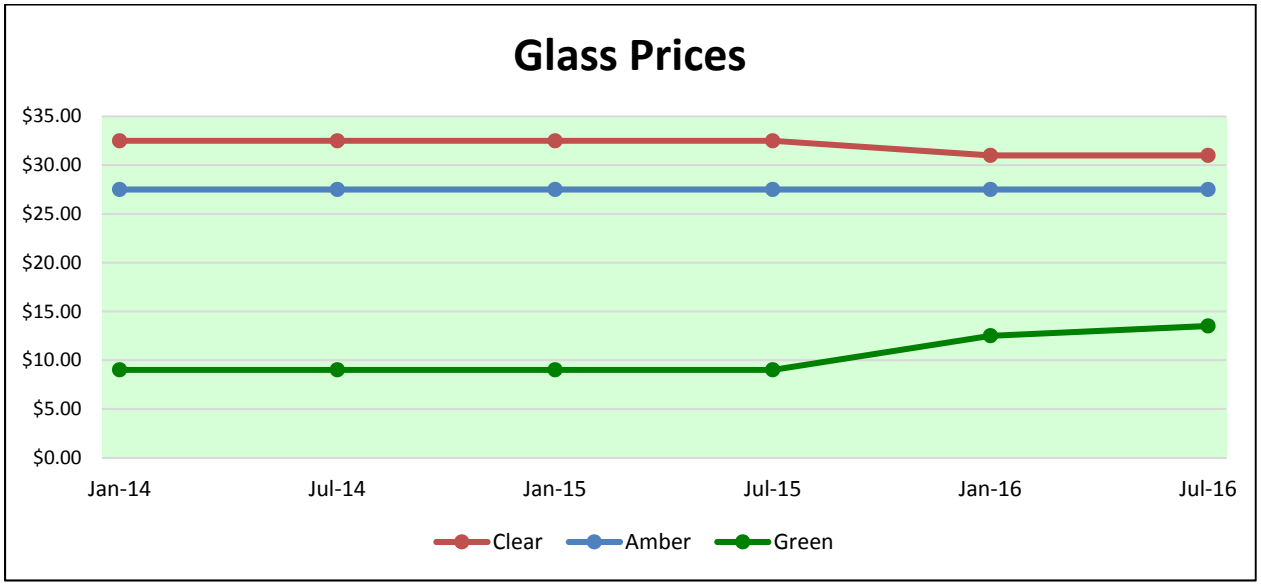
6.3.2 Material Markets

Markets for recyclable materials have traditionally been somewhat volatile. In the fall of 2008, markets experienced a significant and sustained decline. Some paper markets fell by 80% or more, while some paper markets dried up all together. Similar declines were observed in plastics. Metals also experienced significant declines. These price fluctuations were due to a worldwide economic recession. Prices have mostly returned to their pre-recession levels, and in some cases, even higher. It should be noted that markets tend to be cyclical. Following are market summaries for the most commonly recycled material.

Glass: In 2015, West Virginia's Solid Waste Authorities (SWAs) and the 14 municipalities with populations of over 10,000 collected nearly 700 tons of glass for recycling. The market

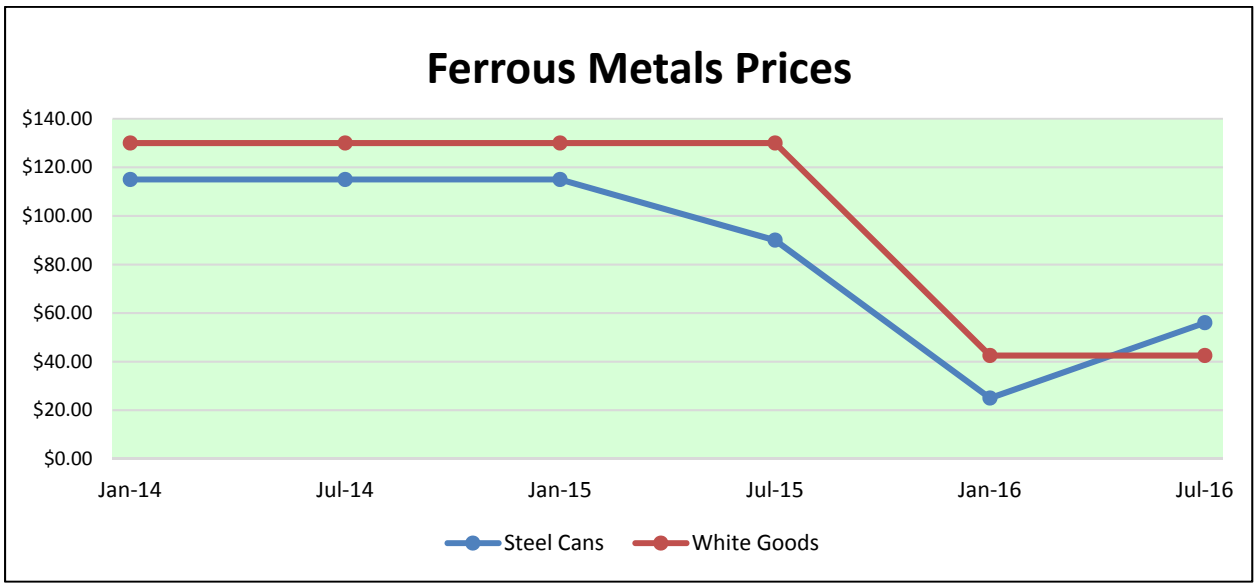
value of glass has been low relative to other recyclables for a long time. Only container glass is considered recyclable, with clear glass, sometimes called flint, bringing the highest price, and brown (amber), or green glass much less. Low market value and significant transportation cost have forced many recyclers to discontinue glass recycling. As of October 2016, 10 of the above mentioned programs were collecting glass. Most of these are located in northern West Virginia in close proximity to markets in Ohio and Pennsylvania. While there are no markets for recyclable container glass in West Virginia, limited markets exist in Pennsylvania, Kentucky, and Ohio. Glass prices have been flat for a long time.

Figure 6-1
Glass Prices – Average Price Per Ton (January 2014 – July 2016)



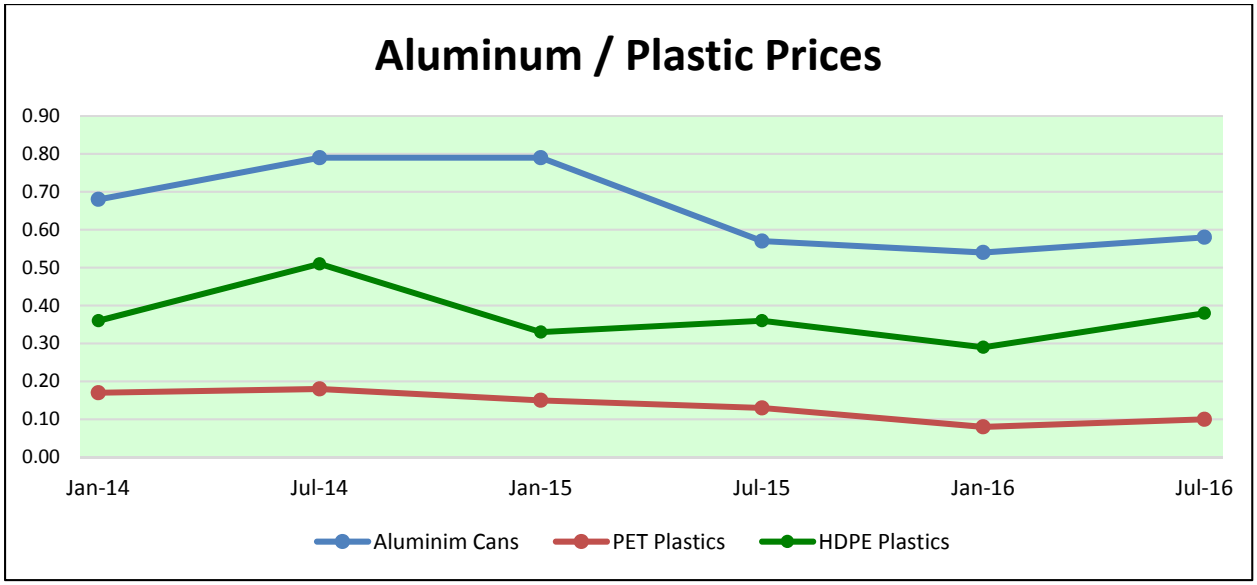
Metals: Solid Waste Authorities (SWAs) and the 14 municipalities with populations over 10,000 recycled at least 1,721 tons of metals in 2015. Materials include aluminum and steel cans, scrap metal, non-ferrous metals and white goods. The most valuable materials are various non-ferrous metals such as 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. Metal prices have been flat since the market disruption in late 2008 and are expected to stay that way until sales of autos and durable goods improve.

Figure 6-2
Ferrous Metal Prices - Average Price Per Ton (January 2014 – July 2016)



Plastics: West Virginia's SWAs and mandated municipalities collected 1,179 tons of plastics in 2015. Most collections were mixed plastics, #1 PET and #2 HDPE with a few collecting plastic film. Commercial Plastics Recycling, and Flying W Plastics, both located in Glenville, WV, use recycled feedstock in their processes. Other markets utilized by WV recyclers include Blue Ridge Plastics, Caraustar, Clearport, Envision, Southern Scrap, and Mondo Polymers.

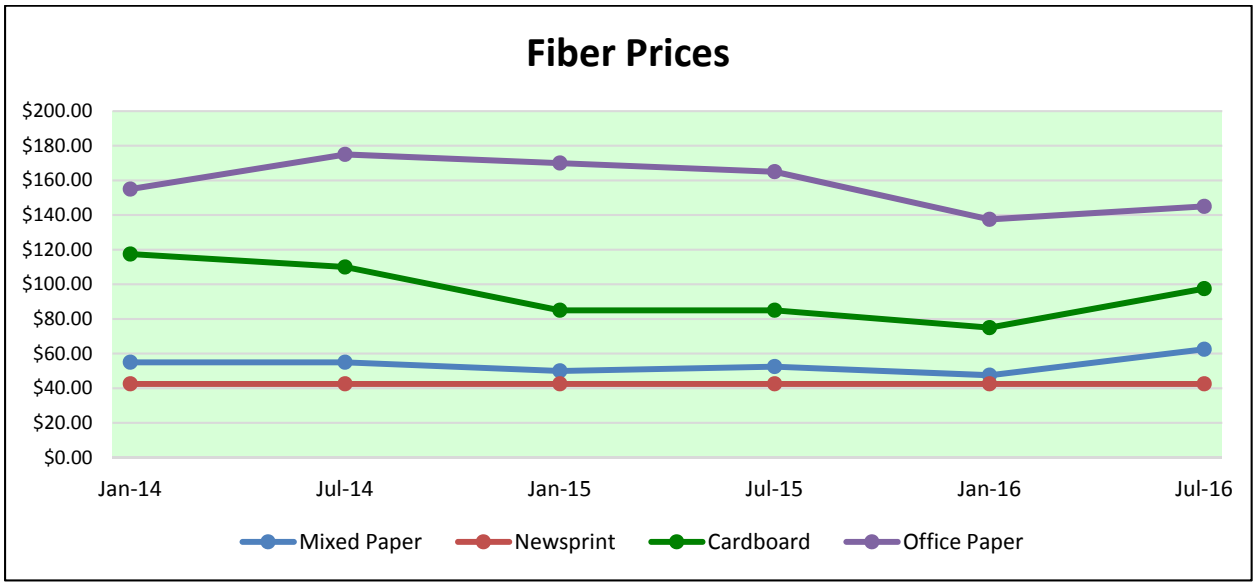
Figure 6-3
Aluminum/Plastic Prices - Average Price Per Pound (January 2014 – July 2016)



Papers: Paper includes newspapers, cardboard, office paper, magazines, and mixed paper. In 2015, Solid Waste Authorities (SWAs) and the 14 municipalities reported recycling 7,990 tons of paper and 6,618 tons of cardboard. Paper makes up over ¼ of the waste stream and can be collected in bulk from commercial sources. West Virginia has three paper mills. Resolute Forest Products, in Fairmont, WV is a large fiber recovery facility which processes around 1,200 tons of recyclable paper per day. Ox Paperboard, former Halltown Paperboard, located in Halltown, WV recently completed a $1.8 million upgrade and expects to produce an estimated 75,000 tons of paper annually from recycled books, newspapers, and other types of recycled paper. West Virginia recyclers also have access to Banner Fiberboard in Wellsburg, WV.

In general, the markets for paper are strong. Other markets in the Eastern U.S., utilized by West Virginia recyclers include Chambersburg Waste Paper, Southeast Paper Company, Valley Converting, Georgia Pacific, Midland Davis, Royal Paper Stock, Bowater, Caraustar Industries, Associated Paper Stock, and Sonoco.

Figure 6-4
Fiber Prices - Average Price Per Ton (January 2014 – July 2016)



In 2015, West Virginia Solid Waste Authorities (SWA) recycled 25,999 tons of material and realized $1,090,077 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 6-3
2015 Top 5 Materials Collected and Revenue Makers for SWAs

Top 5 Materials Collected	
Materials	**Tons**
Yard Waste, Compost	7,010.69
Paper, Mixed	6,298.69
Cardboard	2,995.08
Commingled Material	2,648.78
Electronics	953.58
Total	**19,906.82**

Top 5 Money Makers	
Materials	**Revenue**
Cardboard	$301,156.11
Paper, Mixed	$160,645.54
Aluminum Cans	$158,867.22
Plastics, Mixed	$96,399.26
Metals, Mixed	$74,582.55
Total	**$791,650.68**

6.4 Recycling and Marketing Restricted or Difficult to Manage Materials

6.4.1 Electronic Waste

According to the US EPA, the US discards 30 million computers each year. They estimate that only 15-20% of e-waste is recycled, and 70% of heavy metals in landfills come from discarded electronics. Electronic waste may contain one or more of the following: lead, mercury, cadmium, beryllium, bromated flame retardants, or other hazardous substances. Your local landfill, although built to US EPA standards, may not be able to contain hazardous substances over long periods of time.

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. First, an electronics recycling contractor was chosen with the capability to serve the entire region. State agencies coordinated e-cycling in their areas of responsibility, working with the localities to organized single day collection events. 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 in West Virginia. The program continued through 2003 and 2004 collecting 142 and 160 tons respectively. In 2004, the first electronics recycling business capable of handling significant tonnages on a statewide scope emerged – West Virginia P C Renewal, located near Morgantown, WV.

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 to be 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, the following: 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 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. HHW collection events in West Virginia have been sponsored most often by the Ohio County Solid Waste Authority.

Some entities have 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 florescent 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, both 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 business that provide recycling services. Other programs have developed long term relationships with private sector processing, and marketing services in order 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 government 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, Monongalia SWA Recycling Center, and Raleigh SWA Recycling Center are all publically 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 cost from the SWMB and REAP grant programs.

6.6 Outreach and Public Education

Public education and awareness is 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 2016, about 4% 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 have joined together to form the Recycling Coalition of West Virginia, a fully chartered 501.c.3 nonprofit corporation. The coalition 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 aforementioned 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.

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 fourteen mandated municipalities in West Virginia: 1) Beckley; 2) Bluefield; 3) Charleston; 4) Clarksburg; 5) Fairmont; 6) Huntington; 7) Martinsburg; 8) Morgantown; 9) Parkersburg; 10) St. Albans; 11) South Charleston; 12) Vienna; 13) Weirton; and 14) Wheeling. Many other smaller municipalities have either a drop-off or curbside recycling programs.

6.7.3 Solid Waste Management Board (SWMB)

Along with providing assistance to 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. They have created a website for electronic waste and electronic recycling. www.state.wv.us/swmb/rmdp/ewaste.

Approximately $8.6 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 is comprised 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 $1.9 million per year to government, nonprofit and private sector entities.

In 2008, the WV Covered Electronic Devices Manufacturer Registration, and Takeback Program was established as a result of SB 746. The goal of this bill was to establish a registration process for manufacturers of 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, provide 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 2016 was $2,016. 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.

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 general public. The two programs combined usually release approximately $2.2 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

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 one or more of the above criteria. If a waste is not listed as hazardous, the waste 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 is also the authorized enforcement agency in the regulation of hazardous waste (W.Va. Code §22-18-4). "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 home use chemicals. However, hazardous wastes that are generated in a household are generally accepted in non-hazardous municipal solid waste landfills because Congress did not intend to cover household items in the rigid waste control mechanism of RCRA.[3] 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.

The average U.S. household generates more than 20 pounds of HHW per year. The average home can accumulate as much as 100 pounds of household hazardous waste in the basement or garage and in storage closets.[4]

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.

Educational programs for school age children, civic groups, and the general public should be given a high priority at the local level. 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 they are not long term solutions. 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 general public which briefly 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 to using household chemicals. For example, use soaps instead of detergents, leave vinegar in an open dish instead of using air freshener, use cedar chips for mothballs. The Solid Waste Management Board has a webpage which lists contact information for businesses and collection sites that manage various forms of special waste available to the public and business community: www.state.wv.us/swmb/admn/specialwaste

There are several ways to handle, recycle and dispose of HHW.

DRAIN DISPOSAL - Products which can be poured down the drain with plenty of water. If you have a septic tank, additional caution should be exercised when dumping these items down the drain.

SANITARY LANDFILL - Materials which cannot be poured down the drain, but 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 - Hazardous wastes which 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. If not, encourage local officials to start such a program. Often the best disposal route 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.[5] 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 oil slick an acre in size. Improperly disposed oil can reduce the productivity of soils and have toxic effects on aquatic life, even when only present 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.[6]

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. Test on the sludge for heavy metals, pathogens, toxin and vectors.
2. Reports on the source and amount of sludge actually 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.[7]

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 regulating of these facilities is part of the comprehensive program for managing sludge. Septic tank pumping's 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 2015 amounted to 47,120 tons. This is about 2.36% 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 utilizing mainly land application. However, poultry producers are now being challenged to effectively utilize 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 Conservation 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 aquiculture industry will be accompanied by an increase in the amount of fish carcasses and waste that must be disposed 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. Only air pollution control residuals will be discussed here, since other types of residuals (e.g. sludge) have been discussed in other sections of this plan.

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 gases 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.[8]

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.[9]

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 an 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.[10]

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 primarily in Ohio, South Carolina, and Alabama. The small amount of ash generated from medical incinerators and veterinarians is considered a hazardous waste and also transported out-of-state.[11]

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 it's 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 all of 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 this water is treated if necessary. 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 processes, 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.[12]

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; 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 125,482 tons of industrial waste was disposed of in West Virginia MSW landfills in CY 2016. 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, section 4.2 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 to these appliances 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 re-authorization 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.[13] 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 up the site or reimburse the state for cleanup cost.

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 are three waste tire monofills 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.*

In August 2003, the Public Service Commission (PSC) approved changes to 150CSR9, of which several sections addressed 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.[14]

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 moneys 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 for 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, and is currently administering remediation efforts. 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 very 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*.

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 13.5% of the total U.S. waste stream is composed of yard waste.[15] 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. There are currently 4 composting facilities permitted and 19 composting activities facilities registered with the WV DEP. Rules governing the permitting, design and construction, and closure plans of composting facilities can be found in 33CSR3.

Drop-off sites can be used to a greater extent if they are well advertised. Leaflets or newspaper advertisements with a map and the hours the site is open will enhance public awareness of the new program. Residents of small communities may also be encouraged to empty their own yard waste and save the bags for reuse.

New collection methods and schedules will run more smoothly if residents are well informed and schedules are uniformly followed. Newspaper articles, television and radio spots, and neighborhood promotion prior to collection days will increase the level of compliance. If special bags must be purchased for yard waste, this fact should be advertised along with the purchase locations. Additional information may be found in the SWMB publication, *Program for Handling Yard Waste in West Virginia*.

7.13 Universal Wastes

In 1995, USEPA 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 WV DEP 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.

On 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. [16]

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 WV DEP on specified issues associated with the disposal of the waste and establishing an additional solid waste fee.

HB 107 required an investigation and report by the WV DEP 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. EPA website http://www.epa.gov/wastes/conserve/materials/pubs/manual/r92026.pdf

5. *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.

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

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

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

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

10. *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.

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

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

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

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

15. Basic Facts Page. USEPA.

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

Chapter 8

Solid Waste Disposal Fees

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 are remitted to the Department of Tax and Revenue monthly. The Auditor's Office and the Department of Tax and Revenue have jointly 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 and grants.

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 Conservation 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, 2005.

TABLE 8-1
Dedication Of Proceeds Of The Solid Waste Assessment Fees (Revised July 1, 2005)

Rates Per Ton

$1.75 **1. SOLID WASTE ASSESSMENT FEE - DEP**
W. Va. Code § 22-15-11
Effective 1-1-88, Revised 7-9-93, Revised 7-1-98*

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.

$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 on a monthly basis.

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 § 22-15A-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 project for local governments, municipalities, non-profits, county commissions and private businesses.

B. $0.25 per ton to DNR for personal services and benefit expenses of full-time salaried conservation 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.

$3.50 **4. CLOSURE COST ASSESSMENT FEE - DEP**
W. Va. Code § 22-16-4
Effective 1-1-92, Revised 7-9-93, Revised 7-1-98

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.

$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. Therefore, 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 as well as 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

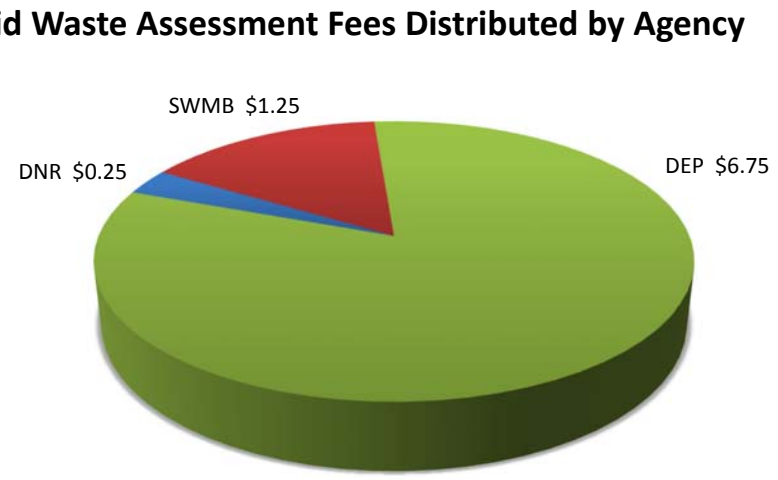
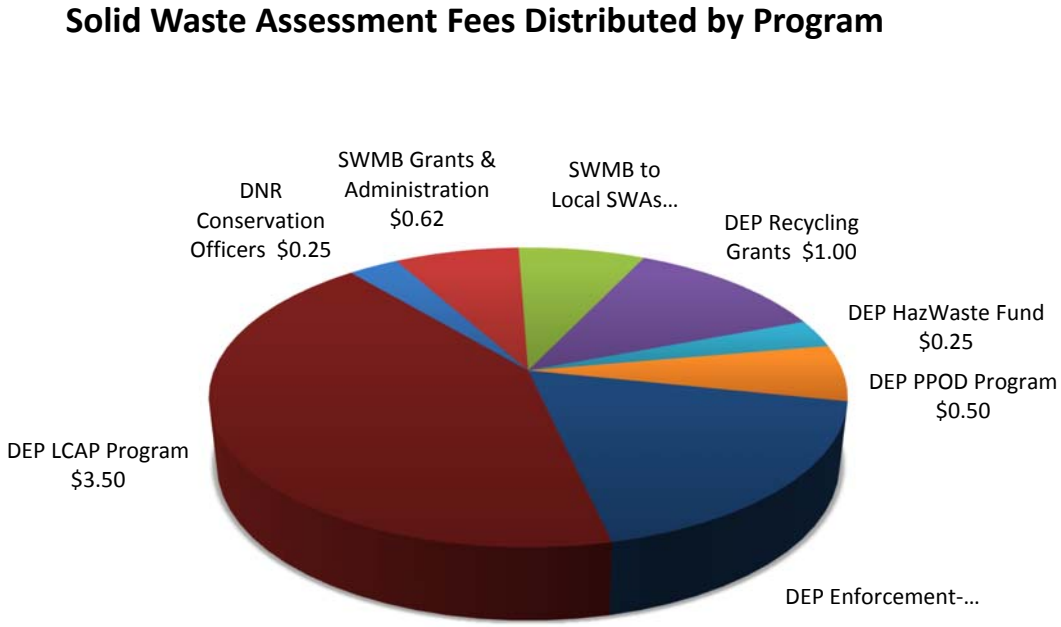


Figure 8-2
Solid Waste Assessment Fees Distributed by Program



8.2.1 Fee Distribution by Program

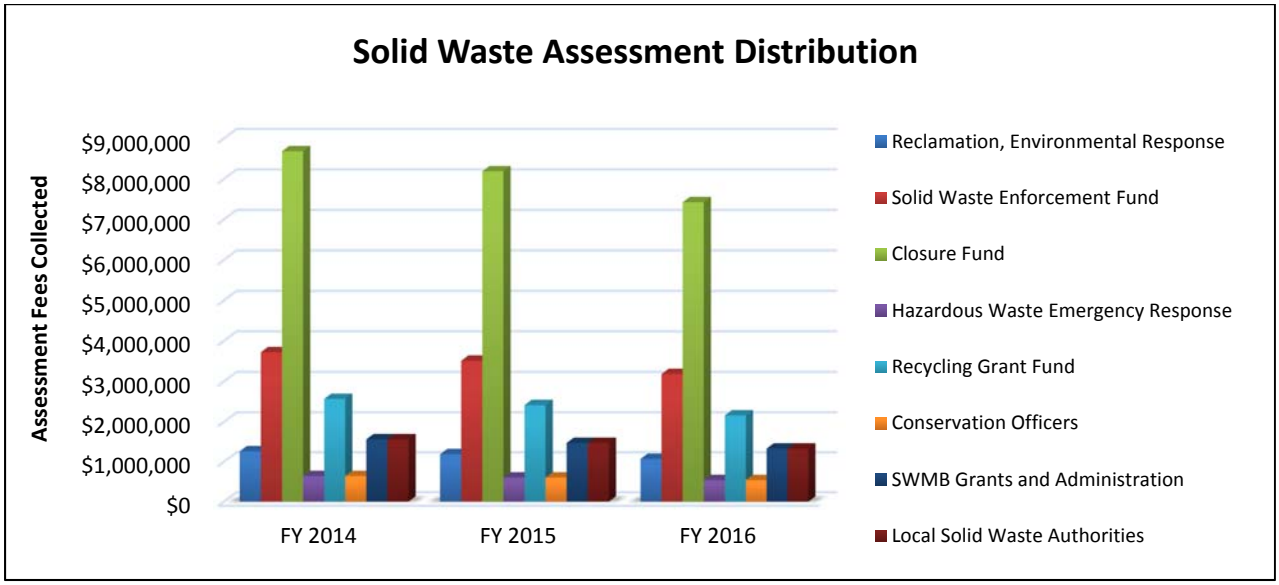
Table 8-2 reflects the actual dollars generated and distributed by Agency and Program for FY 2014 through FY 2016. Program amounts reflect actual dollars received by the agencies during the fiscal year noted. There is a two-month delay from the time the landfill collects the tonnage fees to the time the agency actually 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 2014-2016)

FY 2014 – 2016 Assessment Fee Distribution by Program				
	Fee Per Ton	***FY 2014**	***FY 2015**	***FY 2016**
DEPARTMENT OF ENVIRONMENTAL PROTECTION				
Reclamation, Environmental Response	$0.50	$1,261,719	$1,188,210	$1,070,316
Solid Waste Enforcement Fund	$1.50	$3,720,792	$3,508,935	$3,181,534
Closure Fund	$3.50	$8,681,868	$8,187,533	$7,423,596
Hazardous Waste Emergency Response	$0.25	$641,587	$603,388	$540,061
Recycling Grant Fund	$1.00	$2,566,348	$2,413,552	$2,160,244
	$6.75	**$16,872,314**	**$15,901,618**	**$14,375,751**
DIVISION OF NATURAL RESOURCES				
Conservation Officers	$0.25	$641,587	$603,388	$540,061
	$0.25	**$641,587**	**$603,388**	**$540,061**
SOLID WASTE MANAGEMENT BOARD				
SWMB Grants and Administration	$0.62	$1,561,055	$1,471,342	$1,330,545
Local Solid Waste Authorities	$0.63	$1,561,060	$1,471,336	$1,330,538
	$1.25	**$3,122,115**	**$2,942,678**	**$2,661,083**
Totals	**$8.25**	**$20,636,016**	**$19,447,684**	****$17,576,895**

Source: Office of State Auditor, Solid Waste Tax Special Fund Distribution, Validated Receipts, Monthly Reports, FYs 2014-2016.
*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 to pay operating costs. 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 duties. 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 $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 2015 and FY 2016 were $1,517,384 and $1,853,492 respectively. However, annual expenditures in FY 2015 and FY 2016 were $3,006,937 and $3,193,078. The excess expenditures were funded from the Maintenance Appropriation in the State Road Fund. These programs are typically funded as "Litter Control" within the Division of Highways. Current financial information was not available from the DOH at the time of publication.

Transfer to Department of Environmental Protection (DEP) – The Division of Highways

transfers approximately $1,000,000 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 along the 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 2015 totaled $1,774,574 and expenditures in FY 2016 totaled $1,079,668.

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 Worker's 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 $304,882 in FY 2015 and expenditures totaled $291,048 in FY 2016.

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 as a result of Senate Bill 428 in July of 2005. With the creation of W. Va. Code § 22-15A-3 and W.Va. Code § 22-15A-4 the additional 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 50% of monies collected in the Litter Control Fund must be awarded in the form of Litter Control Grants. This grant program is available to county commissions, local solid waste authorities, and municipalities for the purpose of establishing litter control projects, cleanup projects, or other environmental projects. Litter Control Grants awarded from litter control fines for FY 2016-2017 were $71,676 and $65,662, respectively.

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, 2016, the program had collected $50,409,526, expended $21,281,360 to eliminate tire piles, conducted yearly tire collection programs, and transferred $26,290,742 to the State Road Fund, as allowed by statute.[2]

END NOTES FOR CHAPTER 8

1. Email from David Davidson, WV Department of Transportation, Budget Division, October 2016.

2. Ibid.

Chapter 9

Economic Impact on Municipal Solid Waste Management in West Virginia

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 $67.7 million dollars in wages and salaries in 2015.
- These businesses maintained 1,476 jobs with average weekly wage of $882; compared to an average weekly salary in the retail trades of $492.
- In 2015, the state's public and private waste management infrastructure consisted of 18 landfills, 3 tire monofills, 16 transfer stations, and 24 composting facilities, 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 37 counties. These programs recycled 25,999 tons of material, and brought in over $1 million dollars in recycling revenue during CY 2015.
- According to the US Department of Commerce, the state's recycling and scrap industry exported $19,296,906 worth of recyclable materials in 2015.[1]

9.2 Jobs[2]

In 2015 West Virginia landfills employed approximately 318 people, paying an average weekly wage of $832, with an annual wage and salary payout for the sector of $13,762,569. Positions include equipment operators, laborers, engineers, managers, mechanics, bookkeepers, accountants, clerical, office workers, scale operators, and others.

The state's waste haulers employ at least 1,111 people with an annual payroll of $52,645,802. The average weekly salary per employee was $911. The majority of 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 47 employees in 2015, making an average weekly wage of $566. Wages paid in this industry totaled $1,383,394. Employees of recycling centers include material collectors and processors, drivers, clerical and office workers, managers, and recycling coordinators.

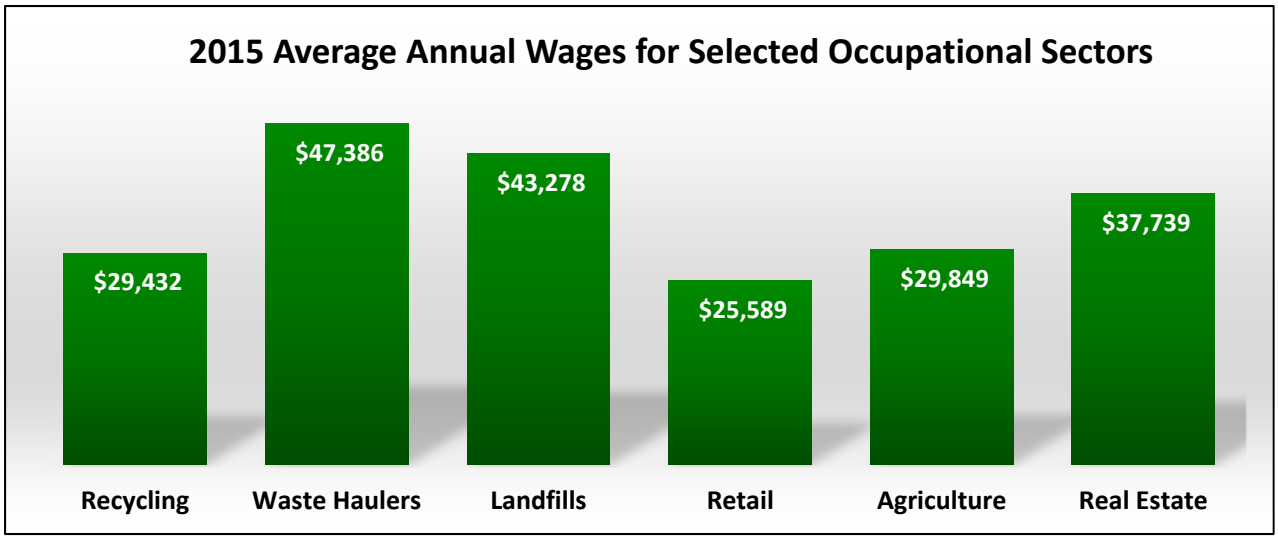
Table 9-1
Employment Data: 2015 West Virginia Municipal Solid Waste Employment Analysis

	Number of Firms*	Average Number of Employees*	Average Weekly Wage*	Average Annual Wage	Total Annual Wages Paid*
Recycling Centers	12	47	$566	$29,432	$1,383,394
Waste Haulers	72	1,111	$911	$47,386	$52,645,802
Landfills	20	318	$832	$43,278	$13,762,569

*Information provided by WorkForce West Virginia, Research, Information and Analysis Division.

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 the following graph.

Figure 9-1
2015 Average Annual Income 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 in excess of $67.7 million in salaries and wages, in 2015, employing an estimated 1,476 individuals. Annual revenue generated by these operations is significant. Based on monthly landfill tonnage reports, with an average landfill tipping fee of $45.76, in FY 2016, West Virginia's landfills processed 2,160,245 tons of taxable waste, and generated $17,576,895 in revenues from tipping fees for the state as well as $1,330,538 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 fifty local solid waste authorities.
6) Partial funding of West Virginia's conservation 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 $7,423,596 available for closure activities for the program in FY 2016. LCAP is currently working on 33 landfill closures most of which are in the post closure monitoring phase. *For more information on LCAP, see Chapter 4 of this document.*

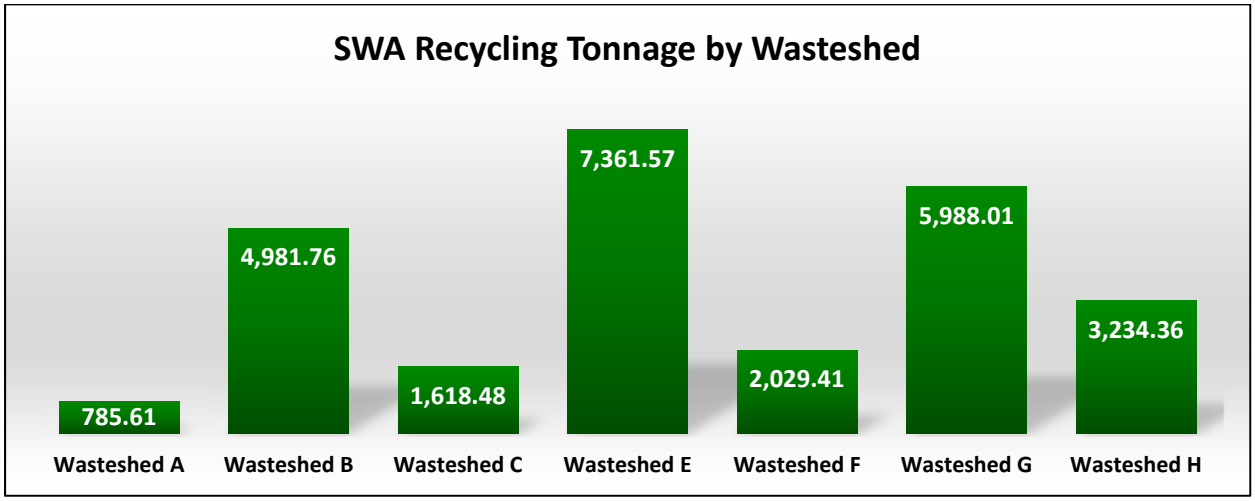
Workforce West Virginia projections indicate waste management and remediation jobs are expected to increase by 11.7% between 2014 and 2024, compared to a 0.7% increase for the total of all industries statewide for the same period.

Between 2013 and 2015, employment in waste management has increased by 4.8%. The average weekly wage has increased by about 8.6%

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 in some fashion. 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 the needs and available resources of the area. Twenty-three 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. Nine authorities 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
Solid Waste Authority Recycling Tonnage by Wasteshed



Solid waste authority recycling programs collected approximately 25,999 tons of material in CY 2015. With an average landfill tipping fee of $45.76 per ton, this represents a savings of $1,189,714 in tipping fees.

Authorities received $1,090,077 in revenues for the sale of recyclables in CY 2015, down from $1,947,397 in 2013. 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 $2.2 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, ground water monitoring, and other professional services. Fifteen of the state's eighteen landfills report current construction, or plans for building over 68 acres of new landfill cells. Estimated construction costs are expected to be well over $26 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 in excess of $250,000. Even a small rural waste hauling business has to have packer trucks, roll-off trucks and containers, dumpsters and other equipment to create and maintain a commercially successful business.

Recycling centers, material processing centers, material collectors, and manufacturers received over $2.2 million from state grant programs in FY 2016. 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 various 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 2015 West Virginia exported over $19.2 million in scrap and other recyclable materials worldwide. In the past, our principle international trading partner was Canada. Currently that seems to have changed to China. In 2015 West Virginia sent $8.3 million in recyclable materials to China and another $1.6 million in the same period to Australia. This change in markets is a likely result of the current worldwide economic slowdown and the slowed but continued growth of the Chinese economy.

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

	2010	2011	2012	2013	2014	2015
World	**18,051,220**	**24,763,418**	**14,888,790**	**13,036,169**	**15,057,727**	**19,296,906**
China	7,232,759	5,769,086	4,388,921	8,960,829	10,958,931	8,383,722
Australia	1,085,134	1,027,975	188,171	1,493,295	864,579	1,648,443
Canada	8,514,706	12,720,494	5,313,335	918,076	1,703,543	2,445,509
United Kingdom	222,782	2,869,821	3,017,919	626,721	0	0
India	14,526	80,828	430,683	383,994	341,043	700,902
Mexico	7,562	0	0	167,941	20,139	25,490
Turkey	0	55,979	0	159,400	22,000	0
Thailand	0	0	0	159,313	0	0
Spain	0	162,451	0	130,000	0	86,525
Taiwan	0	12,005	34,168	28,800	0	0
Indonesia	19,000	7,500	7,500	7,800	15,600	0
Belgium	3,955	987,565	679,597	0	0	0
El Salvador	0	15,482	26,335	0	0	0
France	161,388	244,886	133,457	0	139,000	5,252,719
Germany	5,180	227,088	0	0	0	0
Hong Kong	508,540	69,456	87,256	0	303,290	399,000
Japan	43,441	0	135,603	0	476,532	0
Pakistan	0	0	17,000	0	0	44,275
South Korea	232,247	0	0	0	0	0
Sweden	0	0	0	0	0	139,171
Maylaysia	0	339,898	0	0	168,537	0
Greece	0	172,904	0	0	0	0
Switzerland	0	0	98,176	0	0	0
Honduras	0	0	19,261	0	0	0
Austria	0	0	311,408	0	0	0
Guatemala	0	0	0	0	42,000	0
Columbia	0	0	0	0	2,533	0
United Arab Emirates	0	0	0	0	0	21,150
Netherlands	0	0	0	0	0	150,000

Source: International Trade Administration, US Department of Commerce

End Notes for Section 9

1. US Department of Commerce, International Trade Administration, 2015 NAICS Waste and Scrap Exports from West Virginia Report.

2. WorkForce West Virginia, Research, Information and Analysis Division, Joseph Jarvis, Assistant Director, October, 2016.

Appendix A

Solid Waste Management Board Grants

Appendix A: Solid Waste Management Board Grant Overview

FY 2017 SWMB GRANTS

SWA	Amount	Purpose
Boone	$11,500.00	Wages and countywide advertising campaign.
Braxton	$10,635.00	Equipment & vehicle maintenance, fuel, insurance, educational conference and financial examination expense.
Brooke	$9,500.00	Insurance costs associated with HHW event.
Calhoun	$12,765.00	Purchase recycling equipment and insurance.
Clay	$7,810.00	Assist with conducting a countywide cleanup.
Greenbrier	$6,290.00	Purchase a grapple bucket and sea container.
Hancock	$8,996.00	Container rental and transportation of recyclable materials.
Harrison	$7,000.00	Assist with conducting a HHW event.
Jackson	$10,000.00	Equipment & vehicle maintenance and repairs and laborer wages.
Kanawha	$7,500.00	Laborer wages and fuel.
Lincoln	$13,615.00	Wages and hauling fees.
Logan	$6,000.00	Fuel expenses for litter control program.
Marion	$15,000.00	Purchase a skid steer.
McDowell	$11,300.00	Wages, fuel, educational conference and a financial examination.
Mercer	$9,500.00	Upgrades to scale house and purchase an intercom system.
Monongalia	$5,950.00	Purchase office equipment, rent and educational conference.
Monroe	$8,000.00	Purchase cargo trailers.
Morgan	$11,070.00	Equipment maintenance, utilities, insurance, software updates, educational conference and hauling fees.
Nicholas	$6,000.00	Paving roadway to facility.
Ohio	$10,000.00	Assist with conducting a HHW event.
Pleasants	$11,052.00	Fuel, insurance, operating supplies, and educational conference.
Pocahontas	$12,000.00	Purchase an aerator for leachate pond and landfill cover tarp.
Putnam	$8,150.00	Educational conference and contractual fees for demolition project.
Region VIII	$8,600.00	Purchase attachments for skid steer.
Roane	$14,500.00	Equipment & vehicle maintenance, wages, educational conference and property improvements for new recycling facility.
Taylor	$3,042.00	Liability insurance and educational conference.

SWA	Amount	Purpose
Tucker	$9,150.00	Purchase a propane generator and installation expenses.
Upshur	$8,450.00	Liability insurance, office supplies, field trips, advertising and a countywide direct mail campaign.
Wayne	$12,228.00	Wages, fuel and a financial examination.
Wetzel	$8,440.00	Truck tires, cargo trailer and trailer ramp, recycling supplies and aid with educational conference expense.
Wood	$7,000.00	Purchase double stream containers.
Wyoming	$8,957.00	Truck tires, wages and financial examinations.
32 Recipients	**$300,000.00**	

FY 2016 SWMB GRANTS

SWA	Amount	Purpose
Barbour	$11,900.00	Equipment maintenance/repairs, insurance, garage door replacement and financial examinations.
Berkeley	$2,820.00	Recycling bags.
Boone	$16,536.00	Tires and fuel.
Braxton	$12,150.00	Equipment maintenance, tires, fuel, insurance, educational conference and a financial examination.
Brooke	$14,000.00	Equipment repairs, wages, utilities, insurance and recycling containers.
Cabell	$12,250.00	Equipment maintenance, wages, fuel, insurance, educational conference and hauling services.
Calhoun	$15,405.00	Vehicle maintenance, wages, utilities, fuel and insurance.
Greenbrier	$7,070.00	Purchase a roll-off container.
Hancock	$13,600.00	Roll-off charges, wages, and scrap metal hauling fees.
Harrison	$10,000.00	Household hazardous waste collection event.
Jackson	$5,5000.00	Fuel and equipment/vehicle maintenance.
Jefferson	$5,750.00	Used oil collection tanks and signage.
Kanawha	$10,500.00	Equipment maintenance, wages, utilities and fuel.
Lincoln	$18,900.00	County cleanup hauling fees, wages and financial exams.
Marion	$12,885.00	Educational conference expenses, building improvements, forklift hoppers and torch kit & mig welder.
McDowell	$15,000.00	Financial exam, educational conference expenses and expenses associated with demolition project.
Mercer	$15,684.00	Mobile loading dock and roll-off containers.
Monongalia	$7,050.00	Rent, educational conference and a financial exam.
Monroe	$3,700.00	Fuel, baling wire and a financial examination.
Morgan	$12,000.00	Hauling fees, wages and insurance.
Nicholas	$10,000.00	Assist with purchase of a scale.
Ohio	$10,000.00	Household hazardous waste collection event.
Pleasants	$9,100.00	Educational conference expenses, wages and equipment/vehicle maintenance.
Pocahontas	$14,351.00	Educational conference expenses, replacement of dozer undercarriage, FM radio units and drum containment units.
Putnam	$9,000.00	Educational conference expenses, contractor and testing fees.
Raleigh	$10,000.00	Electrical upgrades.
Region VIII	$13,980.00	Recycling bins and commercial electrical services.

SWA	Amount	Purpose
Ritchie	$3,300.00	Fuel, propane, equipment maintenance, safety equipment and gravel for recycling center lot.
Roane	$11,500.00	Educational conference expenses, equipment maintenance and a baler.
Summers	$9,275.00	Wages, insurance, a financial exam and educational conference expenses.
Upshur	$6,900.00	Insurance, field trips, advertising, educational conference expenses, paper shredding event and a canopy for the event.
Wayne	$7,044.00	Truck maintenance and insurance.
Wetzel	$7,125.00	Portable ramp, wages, safety equipment and educational conference expenses.
Wood	$5,725.00	Recycling trailer and recycling containers.
Wyoming	$10,000.00	Purchase a pickup truck.
35 Recipients	**$360,000.00**	

FY 2015 SWMB GRANTS

SWA	Amount	Purpose
Barbour	$13,436.00	Repairs, fuel, operating supplies and improvements to facility property.
Berkeley	$1,000.00	Comprehensive Plan supplies.
Brooke	$15,000.00	Maintenance, container lids, transportation and assistance with a Household Hazardous Waste event and advertising.
Calhoun	$5,407.00	Insurance and operating supplies.
Greenbrier	$19,860.00	Roll-off containers.
Hancock	$12,635.00	Wages, carport, container rental and transportation costs.
Jackson	$10,500.00	Maintenance, utilities and fuel.
Jefferson	$1,961.98	Battery recycling fees and paint hardener packets.
Kanawha	$2,086.98	Laptop computer and projector, and educational conference attendance.
Lincoln	$15,000.00	Wages and hauling fees for community cleanups.
Marion	$14,045.00	Hook-lift recycling container, loading dock and educational conference attendance.
Mason	$11,467.50	Maintenance, tires, utilities, fuel, office supplies, educational conference attendance and financial examination.
McDowell	$6,450.00	Make McDowell Proud event, advertising, educational conference attendance and a financial examination.
Mercer	$20,000.00	Maintenance, computer workstations, safety railing and educational conference attendance.
Monroe	$8,740.00	Maintenance, fuel, insurance, operating supplies, advertising, educational conference attendance and a financial examination.
Morgan	$13,690.00	Insurance, equipment rental, office rent, shredding event and hauling fees.
Ohio	$20,000.00	Assistance with a countywide Household Hazardous Waste event.
Pleasants	$17,000.00	Wages, insurance, educational conference attendance and financial examinations.
Pocahontas	$2,500.00	Green box repairs.
Putnam	$17,800.00	Advertising, educational conference attendance, contractor's fees, landfill fees and financial examinations.
Raleigh	$17,343.00	Roll-off boxes and leachate pumps.
Region VIII	$20,000.00	Assist with the purchase of axle scales.
Roane	$19,600.00	Purchase a box trailer, maintenance, wages, fuel, rent, insurance, educational conference attendance, bookkeeping service and assistance with a county cleanup event.
Summers	$8,860.00	Wages, insurance and a financial examination.
Taylor	$2,442.54	Insurance and a computer.

SWA	Amount	Purpose
Tucker	$12,500.00	Hot water pressure washer trailer.
Upshur	$12,483.00	Insurance, field trips and three countywide educational mailings.
Wayne	$18,192.00	Wages, fuel, insurance baling wire and financial examinations.
Wood	$20,000.00	Recycling containers and popper roll-offs.
29 Recipients	**$360,000.00**	

Appendix B

DEP-REAP Recycling Assistance Grant Overview

Appendix B: DEP-REAP Recycling Assistance Grant Overview

2017 DEP-REAP Recycling Assistance Grants

Entity	Amount	Purpose
Berkeley County SWA	$89,350.00	Purchase of skid loader and forklift, scale system, and an open top roll-off for county's recycling drop-off program.
Cabell County SWA	$147,652.00	Assist with wages, fuel, maintenance, purchase of recycling trailers, vertical balers, forklift, pallet jacks, floor scales, baling wire, utilities, public outreach, and aid with set up and delivery of equipment for a new county recycling program.
Jackson County SWA	$97,483.86	Wages and payroll taxes, replace garage doors, vehicle fuel and repairs, equipment tires and repairs, utilities, baling wire, collection bins, cardboard collection shelter and gravel for ongoing county-wide program.
Jefferson County SWA	$74,194.00	Assist with trommel screen maintenance and yard waste grinding expenses for county program.
Lincoln County SWA	$23,100.00	Recycling bin pulls, wages & employer taxes, advertisement and annual educational conference attendance for coordinator.
Mercer County SWA	$124,640.00	Purchase of a horizontal baler and conveyor system and wages.
Morgan County SWA	$17,580.00	Wages, POD rental for storage, porta potty rental, advertising and educational brochures for ongoing county-wide program.
Nicholas County SWA	$60,160.00	Assist with purchase of a new recycling & maintenance building and purchase of a skid steer.
Raleigh County SWA	$150,000.00	Purchase of a roll-off truck, hoist and fuel for county-wide program.
Ritchie County SWA	$20,105.00	Equipment and vehicle maintenance, dock plate, forklift forks, purchase two utility trailers, replacement heater, building maintenance and fuel & propane for ongoing recycling operations.
Roane County SWA	$126,200.00	Assistance with completion of new recycling center, labor wages, vehicle and equipment maintenance, fuel and utilities for county-wide program.
Wayne County SWA	$19,474.16	Wages, fuel, utilities, maintenance and repairs and office supplies for ongoing county-wide program.
Mercer County Commission	$97,588.00	Coordinator wages and employee taxes, educational conference attendance, purchase of a recycling truck, trailers, recycling stations and liners, advertising, fuel and maintenance for truck and printing costs for flyers for a county-wide program.
Roane County Commission	$80,000.00	Purchase a truck, yard ramp, forklift and recycling trailer for the county's recycling program.
Wayne County Commission	$92,441.82	Installation of new ceiling and door insulation to improve building for county's recycling program.

Entity	Amount	Purpose
Bluefield, City of	$19,500.00	Assist with wages, fuel, vehicle expenses, purchase of recycling bags, office supplies and other operational supplies.
Parkersburg, City of	$98,000.00	Purchase of a skid loader, materials to build and purchase storage containers, asphalt for road pavement and updates to program's website.
Terra Alta, Town of	$24,350.00	Assist with the purchase of a box truck, fuel, bale ties and utilities.
WV State University R&D Corp	$28,883.00	Purchase of a vertical baler, installation of three-phase power and gator to transport materials for campus-wide recycling program.
Goodwill of KYOWVA Area, Inc.	$72,228.84	Purchase of vertical baler and installation, bulk delivery trucks, cube trucks, pallet trays, Gaylord sleeves and boxes, baling wire, fuel, educational conference attendance, and truck wraps for ongoing county-wide program.
H&G Enterprises / Metal Center	$14,931.07	Assist with purchase of forklift and self-dumping hoppers.
Lusk Disposal Service, Inc.	$75,000.00	Purchase of dumpsters for cardboard collection program.
Mountain Pride Recycling, Inc.	$40,000.00	Purchase of a skid steer for recycling program.
North Fork Disposal, LLC	$53,999.71	Replacement of three-phase power system, construct garage door and outside shed, purchase forklift, baler, pallet jack and scales.
PACE Enterprises of WV, Inc.	$69,840.00	Wages and employer taxes, vehicle expenses and purchase office and operational supplies.
Recycling Coalition of WV, Inc.	$49,500.00	Assist with WV Recycles Day Educational Insert and advertising.
Urps Metal Company	$17,768.00	Purchase torching supplies, repairs and improvements to warehouse and yard and ticket boos for scrap purchases.
Zanesville Welfare Organization	$72,240.00	Purchase electric forklift and horizontal baler and conveyor system.
28 Recipients	**$1,856,210.36**	

2016 DEP-REAP Recycling Assistance Grants

Entity	Amount	Purpose
Boone County SWA	$18,200.00	Assist with fuel for recycling trucks, utilities for recycling center, baling wire and annual conference attendance for the county-wide program.
Braxton County SWA	$25,800.00	Utilities for the recycling center, recycling bins, a vertical baler, educational materials, advertising and part-time driver/labor wages for the county-wide program.
Brooke County SWA	$50,600.00	Wages, transportation costs, truck maintenance, utilities for recycling center, fuel for recycling truck, kerosene, advertising, conference attendance, supplies and recycling totes for the county-wide program.
Calhoun County SWA	$98,631.00	Assist with net wages, utilities for the recycling center, a baler, box dumper, equipment maintenance, lettering for box truck and printing for the county-wide program.
Greenbrier County SWA	$150,000.00	Assist with building expansion for the recycling drop-off and storage for the county-wide program.
Hancock County SWA	$50,200.00	Assist with site attendant's wages, site improvements and to install a sprinkler system for the recycling facility.
Marion County SWA	$149,657.00	Purchase of a horizontal baler with conveyor, sort line conveyor and recycling containers for the county-wide program.
Monroe County SWA	$134,897.00	Wages, building construction and vehicle expenses for the county-wide program.
Pleasants County SWA	$85,800.00	Wages, purchase a recycling truck, equipment maintenance, fuel/vehicle expenses, office equipment/supplies, utilities, legal ads and a security light for the ongoing program.
Pocahontas County SWA	$150,000.00	Purchase a skid steer, a portable loading dock, roll-off containers with covers, recycling costs, labor, transportation, conference attendance and educational pamphlets for the county-wide program.
Putnam County SWA	$145,900.00	Assist with recycling roll-off box pulls, mobile home recycling, a pre-recyclable chopper and conveyor, a sorting conveyor, picking station, a magnetic separator, recycling roll-off boxes, recycling advertising and education, floor scales and self-dumping hoppers for the county program.
Region VIII SWA	$141,100.00	Purchase a baler, storage building, forklift, materials and supplies and to assist with labor and the electrical contractor for the county program.
Upshur County SWA	$9,025.00	Assist with purchase of recycling bins, the school "Bounty" program, attendance for annual conference, telephone expenses and paper shredding event for the county.

Entity	Amount	Purpose
Wetzel County SWA	$36,400.00	Personnel, insurance for vehicles, signage for building, fuel, advertising for recycling and special events, storage sheds, stone for parking area and a new roof for the WCSWA building.
Wood County SWA	$19,925.00	Purchase a recycling trailer for the county program.
Hampshire Co. Commission	$120,500.00	Assist with site preparation, fencing, containers and signage for the new county-wide recycling initiative.
Buckhannon, City of	$75,000.00	Assist with skid loaders, self-dumping recycling bins, a self-dumping front loader, a grapple tine attachment, and a truck and lift gate for the ongoing city-wide program.
Charleston, City of	$12,000.00	Quarterly educational mailings for the ongoing city-wide program.
Kingwood, City of	$75,000.00	Assist with installation of three-phase electric, a recycling truck, a skid steer loader, floor scales and printer, a loading ramp, tires for skid steer and recycling truck and recycling bins for ongoing city-wide program.
South Charleston, City of	$91,000.00	Purchase a recycling collection truck for the ongoing program.
Glenville State College	$31,133.00	Purchase recycling bins with compartments, a concrete pad for bins and collection bins for offices and dorms for the recycling program.
Marshall University Sustainability Department	$2,652.00	Purchase recycling containers with lids for the ongoing program.
Almost Heaven Habitat for Humanity	$16,110.02	Assist with personnel, employee benefits, mailings, pallet jacks and a convertible hand truck for the ongoing program.
Charleston Main Streets	$47,177.50	Purchase solar recyclers, solar recycling bags and wraps for compactors for ongoing program.
Empire Salvage and Recycling	$75,000.00	Purchase a material handler for the ongoing program.
Goodwill Industries of Kanawha Valley	$39,795.00	Purchase a floor scale, stretch wrap machine with ramp, shrink wrap, Gaylord boxes, pallets, a forklift and a pallet jack.
Habitat for Humanity of Kanawha and Putnam	$59,708.98	Assist with construction costs and a building survey for the ongoing operation.
HAM Sanitary Landfill	$50,000.00	Purchase a compact track loader for ongoing operation.
Harrison County Recycling Center	$75,000.00	Purchase a horizontal baler for the ongoing operation.
Latrobe Street Mission	$26,700.00	Assist with personnel, fuel for vehicle, bins for collection of clothes, baling wire, and the public information and educational campaign for ongoing program.
Randolph County Recycling Center	$48,300.00	Assist with the purchase of a recycling truck, advertising, fuel and insurance for ongoing operation.

Entity	Amount	Purpose
Sunrise Sanitation Services	$13,768.40	Purchase single stream recycling containers and baling wire.
Vance Trading	$75,000.00	Purchase a trailer and shear for the ongoing operation.
West Virginia Cashin Recyclables	$75,000.00	Purchase a wire granulator plant for ongoing operation.
Wheeling Area Training Center for the Handicapped	$13,163.00	Assist with personnel for ongoing program.
35 Recipients	**$2,288,142.90**	

2015 DEP-REAP Recycling Assistance Grants

Entity	Amount	Purpose
Berkeley County SWA	$105,362.00	To assist with yard abutment wall improvement, storm water management improvements, dual stream building improvement, tire placement, roll-off container purchase and repairs, purchase of a road trailer, gravel and stone, battery and CFL recycling services/supplies, media recycling services/supplies and concrete pad repairs.
Cabell County SWA	$61,542.00	Assist with recycling coordinator and laborer wages, recycling program expansion, recycling hauler expenses, educational outreach, purchase a small pickup truck, and fuel and insurance on truck.
Jackson County SWA	$107,290.00	Assist with fuel, tire and parts, repairs and maintenance, building utilities, baling wire, skid steer loader, downstroke baler, employee salary and wages, insurance for recycling vehicles, CED disposal costs, educational conference registration and blacktop for outside work area.
Jefferson County SWA	$18,000.00	Assist with the yard waste grinding program.
Lincoln County SWA	$20,560.00	Assist with the recycling coordinator wages, recycling bin pulls, conference attendance and promotional items.
Mercer County SWA	$100,000.00	To assist with the recycling facility expansion.
Raleigh County SWA	$91,844.00	To assist with the recycling building expansion and crane rental.
Roane County SWA	$150,000.00	Assist with a new recycling facility structure, labor wages, fuel and insurance for vehicle fleet.
Wayne County SWA	$44,599.84	Assist with labor wages, downstroke baler, fuel, workers compensation, utilities and office supplies.
Monroe Co. Commission	$48,977.00	Assist with the recycling building foundation and concrete slab.
Wayne Co. Commission	$78,250.00	Purchase metal siding and interior insulation, lighting and 12 x 12 insulated garage door for the recycling center.
Bluefield, City of	$21,500.00	Assist with recycling coordinator salary, fuel, recycling bags, promotional items, vehicle expenses, office supplies and operational supplies.
Fayetteville, Town of	$75,000.00	To assist with paving at the recycling center, wages and educational conference registration.
Parkersburg, City of	$89,407.00	Assist with part-time recycling assistant wages and employer contributions, recycling truck, website update, educational materials, promotional/advertising, baler purchase and educational conference/events.
Mountwest Community & Technical College	$26,760.25	Purchase classroom and exterior recycling receptacles, recycling tilt truck, shipping costs, recycling compactor and collection, printing and advertising of educational materials.

Entity	Amount	Purpose
WVU Research Corp.	$13,000.00	Purchase 60 recycling bins for campus buildings.
Coffman's Metals	$35,000.00	Purchase a can densifier.
D & D Recycling	$37,439.00	Purchase a mini excavator, drive on scale, steel storage building and lifting magnet.
Empire Waste Systems	$30,878.61	Purchase a truck chassis.
Goodwill Industries of KYOWVA Area	$74,984.00	Purchase a rollback truck, mobile bins, roll-off recycling containers, bulk truck, fuel for recycling trucks, baling wire and Gaylord boxes.
Greenworks Recycling	$14,233.92	Purchase a mid-sized pickup truck, lining and specialized truck rack.
Huntington WV Area Habitat for Humanity	$41,646.00	Assist with latex paint recycling program equipment, materials handling equipment, maintenance/repairs, fuel and insurance for recycling trucks, advertising campaign, printed brochures, educational conference attendance and utilities.
Lusk Disposal	$52,500.00	Purchase dumpsters for cardboard recycling.
Metal Center Recycling	$43,563.00	Purchase a skid steer for recycling operation.
Nicholas Sanitation	$75,000.00	Purchase two self-contained, 36 yard compactors and a new skid steer loader.
PACE Enterprises of WV	$48,096.00	Assist with recycling laborer wages and employer taxes, recycling container purchases, fuel for trucks, baling wire, office supplies, uniforms and safety equipment.
Reclaim Company	$75,000.00	Purchase a pre-shredder/granulator.
Recycling Coalition of WV, Inc.	$49,500.00	Assist with WV Recycles Day Educational insert and advertising.
YMCA of Kanawha Valley	$22,640.85	Assist with recycling coordinator salary and employer contributions, purchase various sized recycling containers, labeling of containers, and recycling bags.
Zanesville Welfare Organization	$70,000.00	Purchase a new horizontal baler with conveyor.
30 Recipients	**$1,722,573.47**	

Appendix C

DEP-REAP Covered Electronics Devices (CED) Grant Overview

Appendix C: DEP-REAP Covered Electronic Devices (CED) Grant Overview

2017 DEP-REAP CED Grants

Entity	Amount	Purpose
Berkeley County SWA	$9,652.00	Fund labor and fuel expenses for the ongoing county-wide recycling program.
Braxton County SWA	$8,000.00	Labor expenses, fuel for trucks and forklift and the CED recycling fees for the ongoing county-wide program.
Brooke County SWA	$10,000.00	Labor wages, contracted recycling services, advertising and supplies for a collection event for the ongoing county-wide program.
Cabell County SWA	$3,678.00	Fund a CED recycling public education campaign for the county-wide program.
Fayetteville, Town of	$8,000.00	Fund contracted recycling services and advertising for a CED collection event.
Jackson County SWA	$20,000.00	Fund roof construction for the ongoing CED collection event.
Kanawha Co. Commission	$10,000.00	Fund CED collection events for a county-wide program.
Kingwood, City of	$8,000.00	Fund E-Cycle vendor and advertising for the city wide program.
Pleasants County SWA	$7,000.00	Fund CED recycling and transportation fees for the ongoing county-wide program.
Pocahontas County SWA	$4,300.00	Fund a steel storage container, electronics shipping supplies, electronics recycling and transportation expenses for the county-wide program.
Putnam County SWA	$8,000.00	Fund fork truck rental and contracted CED recycling services for the ongoing county-wide program.
Ritchie County SWA	$7,000.00	Fund CED recycling fees, workers, legal ads and advertising for the ongoing county-wide program.
Summers County SWA	$2,210.00	Fund personnel, forklift and operator, Gaylord boxes, freight and newspaper advertising for the county-wide CED collection program.
Wayne County SWA	$2,500.00	Fund CED recycling fees for the ongoing county-wide program.
14 Recipients	**$108,340.00**	

2016 DEP-REAP CED Grants

Entity	Amount	Purpose
Berkeley County SWA	$10,000.00	Fund supplies for the ongoing Electronic Collection Program.
Braxton County SWA	$6,000.00	Fund advertising, promotional items, labor, supplies and transportation costs for a collection event.
Brooke County SWA	$10,000.00	Fund labor, contracted recycling services, advertising and supplies for a collection event and the ongoing program.
Cabell County SWA	$8,000.00	Fund contracted recycling services, advertising, forklift rental charges and signage for a collection event.
Clay County SWA	$5,550.00	Fund contracted recycling services charges, advertising, forklift rental charges and labor for a collection event.
Fayetteville, Town of	$8,000.00	Contracted recycling services and advertising for a collection event.
Grafton, City of	$8,000.00	Collection handling, transportation, processing and electronic recycling fees for the ongoing collection program.
Greenbrier County SWA	$10,000.00	Fund advertising, a storage container and shipping supplies for the ongoing collection program.
Hancock County SWA	$7,000.00	Fund site attendant labor and recycling fees for the ongoing program.
Kanawha Co. Commission	$10,000.00	Fund electronic recycling service fees and advertising for collection events.
Kingwood, City of	$8,000.00	Fund electronic recycling service fees and advertising for a collection event.
Lincoln County SWA	$7,000.00	Fund contracted recycling services for a collection event.
McDowell County SWA	$6,600.00	Fund rental equipment, collection handling, labor, personnel, recycling fees and advertising for a collection event.
Monongalia Co. Commission	$10,000.00	Fund advertising, supplies, labor and transportation fees for collection events.
Monroe County SWA	$5,530.00	Fund electronic recycling fees, advertising, labor, fuel and roll-off rental for a collection event.
Pleasants County SWA	$8,000.00	Recycling transportation fees for a collection event.
Pocahontas County SWA	$10,000.00	Recycling transportation, Gaylord boxes and a flat-bed trailer for the ongoing collection program.
Putnam County SWA	$8,600.00	Fund electronic recycling services, advertising and forklift rental charges for a collection event.
Raleigh County SWA	$10,000.00	E-Waste recycling fees for the ongoing collection program.

Entity	Amount	Purpose
Region VIII SWA	$10,000.00	Recycling expenses for the ongoing collection program.
Summers County SWA	$1,565.00	Personnel, including fork lift operator, and supplies for a collection event.
Wayne County SWA	$3,000.00	Advertisement and recycling fees for the ongoing collection program.
Wood County SWA	$6,245.00	Fund a pallet truck and Gaylord boxes for the ongoing collection program.
23 Recipients	**$177,090.00**	

2015 DEP-REAP CED Grants

Entity	Amount	Purpose
Barbour County SWA	$5,000.00	Electronic transportation fees and supplies for the ongoing collection program.
Berkeley County SWA	$10,000.00	Fund the ongoing electronic collection program.
Brooke County SWA	$10,000.00	Labor, contracted recycling services, advertising and supplies for a collection event and the ongoing program.
Cabell County SWA	$5,000.00	Contracted services, advertising, forklift rental and signage for a collection event.
Clay County SWA	$4,050.00	Contracted services, advertising, forklift rental and labor for a collection event.
Fayetteville, Town of	$5,000.00	Contractor services, advertising, labor and equipment for a collection event.
Grafton, City of	$4,800.00	Collection, transportation, processing and electronic recycler fees for the ongoing collection program.
Greenbrier County SWA	$3,550.00	Advertising and shipping supplies for the ongoing collection program.
Hancock County SWA	$5,000.00	Fund electronic recycling fees for the ongoing collection program.
Harrison County SWA	$5,000.00	Fund electronic recycling fees and advertising for a collection event.
Jackson County SWA	$10,000.00	Fund electronic recycling fees, power installation, lighting, security lights and roll-up door installation for the ongoing collection program.
Jefferson County SWA	$10,000.00	Electronic recycling fees and supplies for the ongoing program.
Kanawha Co. Commission	$10,000.00	Fund electronic recycling fees for cleanup events.
Kingwood, City of	$5,000.00	Electronic recycling fees and advertising for collection event.
Lincoln County SWA	$5,000.00	Electronic recycling services for a collection event.
Marion County SWA	$5,000.00	Fund contracted electronic recycling services, advertising and signage for a collection event.
McDowell County SWA	$5,000.00	Fund collection handling labor, event labor, loading equipment rental, advertising and contracted electronic recycling services for a collection event and the ongoing collection program.
Monroe County SWA	$8,400.00	Electronic recycling services, advertising, labor and a skid steer loader bucket for a collection event.
Morgan County SWA	$5,000.00	Contracted electronic recycling services and advertising for a collection event.
Nicholas County SWA	$10,000.00	Fund electronic recycling fees for the ongoing collection program.
Pleasants County SWA	$5,000.00	Electronic recycling/transportation fees and advertising for a collection event and the ongoing collection program.
Pocahontas County SWA	$5,000.00	Electronic recycling services and equipment rental for the ongoing collection program.

Entity	Amount	Purpose
Putnam County SWA	$5,000.00	Electronic recycling services and equipment rental for the ongoing collection program.
Region VIII SWA	$10,000.00	Contracted electronic recycling services, advertising and fork truck rental for a collection event.
Summers County SWA	$3,116.00	Advertising, forklift rental/operator and electronic recycling fees for a collection event.
Terra Alta, Town of	$5,000.00	Electronic recycling services, supplies and advertising for the ongoing collection program.
Tucker County SWA	$5,000.00	Electronic recycling and transportation fees for the ongoing collection program.
Wayne County SWA	$4,500.00	E-cycling fees and tires for the ongoing collection program.
Wetzel County SWA	$5,000.00	Electronic recycling services for a collection event.
Wood County SWA	$5,000.00	Electronic recycling services, supplies and advertising for a collection event.
30 Recipients	**$183,416.00**	

Appendix D

Solid Waste Authority Recycling Survey/Analysis

CY 2015

Appendix D: Solid Waste Authority Recycling Survey/Analysis: CY 2015

Following are the results of CY 2015 surveys of the states 50 Solid Waste Authorities (SWAs) and 14 mandated municipalities. 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. When 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 2015 West Virginia Solid Waste Management Plan.

The number of drop-off and curbside collection programs was obtained from the Solid Waste Authority CY 2015 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.

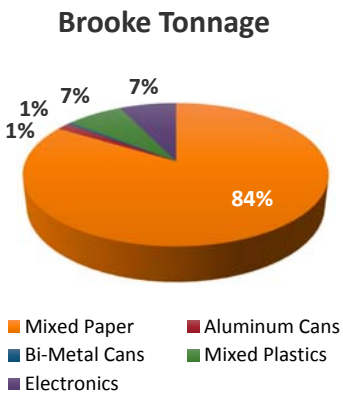
Most of the tonnage numbers are for Solid Waste Authority or municipal collection programs. Tonnages were also listed in cases where Solid Waste Authorities work closely with private or public sector programs. In addition to tonnage and other information, the SWA's were asked to estimate the percentage 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 more easily identify programs with revenue problems, assistance can be rendered by municipal, county and state entities.

WASTESHED A: RECYCLING SURVEY

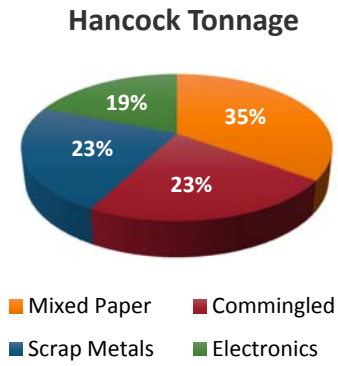
Brooke

Drop-Offs:	5	Materials Collected: Not reported	
Curbside Programs:	0	Geographic Area of Responsibility: 80%	
	Tons	Income	Markets
Mixed Paper	168.66	$10,803.00	Valley Converting
Aluminum Cans	3.10	$2,885.90	All American Recycling
Bi-Metal Cans	1.17	$374.55	Six Recycling
Mixed Plastics	14.23	$654.30	Waste Management
Electronics	14.47	$640.00	E-Scrap Solutions
	201.63	**$15,357.75**	



Hancock

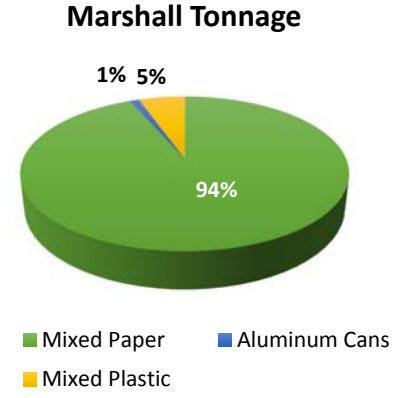
Drop-Offs:	1	Materials Collected: Commingled	
Curbside Programs:	1	Geographic Area of Responsibility: 50%	
	Tons	Income	Markets
Mixed Paper	54.85	$3,291.00	Valley Converting
Commingled	35.84	$784.54	Greenstar
Scrap Metals	36.60	$2,777.10	Six Recycling
Electronics	29.63	$592.58	E Scrap Solutions
	156.92	**$7,445.22**	



Commingled materials include: aluminum and bi-metal cans, plastics #1 & #2, and clear, green and amber glass.

Marshall

Drop-Offs:	5	Materials Collected: Source Separated	
Curbside Programs:	0	Geographic Area of Responsibility: 40%	
	Tons	Income	Markets
Mixed Paper	25.72	$1,600.00	Valley Converting
Aluminum Cans	0.30	$260.00	Quigleys Recycling
Mixed Plastic	1.50	$1,000.00	None Reported
	27.52	**$2,860.00**	

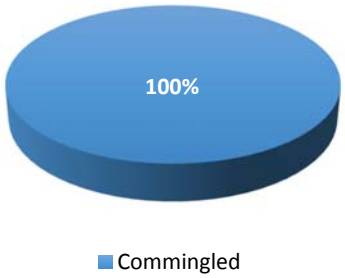


Ohio

Drop-Offs:	4	Materials Collected: Commingled	
Curbside Programs:	1	Geographic Area of Responsibility: 20%	
	Tons	Income	Markets
Commingled	179.00	$0.00	Greenstar
	179.00	**$0.00**	

Commingled Materials Include: Newspapers, cardboard, office paper, mixed paper, aluminum cans, steel cans, and mixed plastics.

Ohio Tonnage



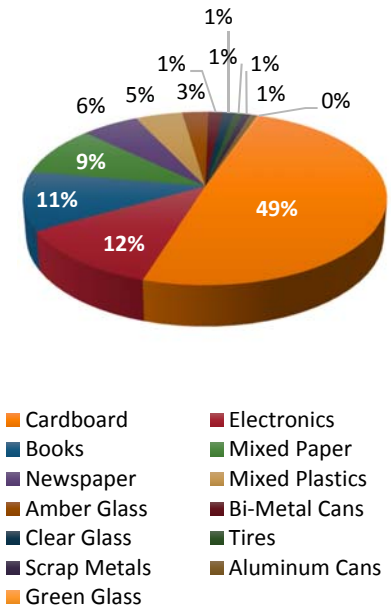
Tyler

Tyler County does not own, operate, or participate in a recycling program.

Wetzel

Drop-Offs:	2	Materials Collected: Source Separated	
Curbside Programs:	0	Geographic Area of Responsibility: 95%	
	Tons	Income	Markets
Newspaper	12.82	$0.00	Pleasants Co. SWA
Cardboard	108.72	$0.00	Pleasants Co. SWA
Mixed Paper	20.54	$0.00	Goodwill Industries
Books	24.18	$0.00	Pleasants Co. SWA
Aluminum Cans	1.59	$0.00	Local Schools
Bi-Metal Cans	3.14	$0.00	Pleasants Co. SWA
Scrap Metals	1.80	$0.00	------
Mixed Plastics	10.50	$0.00	Pleasants Co. SWA
Clear Glass	2.63	$0.00	Braddish Glass
Amber Glass	5.84	$0.00	Braddish Glass
Green Glass	0.57	$0.00	Braddish Glass
Electronics	26.36	$0.00	------
Tires	1.85	$0.00	------
	220.54	**$0.00**	

Wetzel Tonnage



WASTESHED A: RECYCLING ANALYSIS

Recycling Facilities

Drop-Offs	**17**
Curbside	**2**

Recycling Tonnage/Revenue

Total Recycled	**785.61**
Total Recycling Income	**$25,662.97**

Recycling Materials Collected and Marketed in Wasteshed A: 2013 & 2015 Comparison

	TONNAGE			INCOME		
MATERIAL	**2013**	**2015**	**Change**	**2013**	**2015**	**Change**
Metals						
Aluminum Cans	5.98	4.99	(0.99)	$1,959.10	$3,145.90	$1,186.80
Bi-Metals Cans	4.73	4.31	(0.42)	$1,071.25	$374.55	($696.70)
Steel Cans	0.00	0.00	0.00	$0.00	$0.00	$0.00
Scrap Metals	41.00	38.40	(2.60)	$4,500.00	$2,777.10	($1,722.90)
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	9.10	12.82	3.72	$0.00	$0.00	$0.00
Cardboard	11.10	108.72	97.62	$0.00	$0.00	$0.00
Office Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Paper	265.88	269.77	3.89	$14,826.60	$15,694.00	$867.40
Other Paper	0.00	0.00	0.00	$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	15.20	26.23	11.03	$2,356.14	$1,654.30	($701.84)
Other Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
Glass						
Clear	0.00	2.63	2.63	$0.00	$0.00	$0.00
Amber	0.00	5.84	5.84	$0.00	$0.00	$0.00
Green	0.00	0.57	0.57	$0.00	$0.00	$0.00
Mixed Glass	4.80	0.00	(4.80)	$0.00	$0.00	$0.00
Other Materials						
Commingled	127.00	214.84	87.84	$4,600.00	$784.54	($3,815.46)
Yard Waste / Brush	1,300.00	0.00	(1,300.00)	$0.00	$0.00	$0.00
Electronics	81.03	70.46	(10.57)	$0.00	$1,232.58	$1,232.58
Tires	10.00	1.85	(8.15)	$0.00	$0.00	$0.00
Other Materials	11.00	24.18	13.18	$0.00	$0.00	$0.00
	1,886.82	**785.61**	**(1,101.21)**	**$29,313.09**	**$25,662.97**	**($3,650.12)**

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.

2010 US Census Population and Waste Projections for One Month

Wasteshed A Population	**158,086**
Municipal Solid Waste Tonnage, One Month	**10,650**

Sensitivity Analysis: Monthly Recycling Tonnage Potential

Tons Per Month At:

Material	Percent of Material in Waste Stream*	100% Recycled	50% Recycled	25% Recycled	10% Recycled
Cardboard	11.6%	1,235.40	617.70	308.85	123.54
Mixed Paper	13.4%	1,427.10	713.55	356.78	142.71
Mixed Plastics	5.5%	585.75	292.88	146.44	58.58
Aluminum Cans	0.6%	63.90	31.95	15.98	6.39
Steel Cans	0.9%	95.85	47.93	23.96	9.59

*Percentages were taken from US EPAs *Municipal Solid Waste Generation, Recycling, and Disposal in the United States Tables and Figures for 2010* report.

Sensitivity Analysis: Monthly Recycling Revenue Potential

Revenue Potential At:

Material	Average Price Per Ton/lb.*	100% Recycled	50% Recycled	25% Recycled	10% Recycled
Cardboard	$97.50	$120,451.50	$60,225.75	$30,112.88	$12,045.15
Mixed Paper	$62.50	$89,193.75	$44,596.88	$22,298.44	$8,919.38
Mixed Plastics*	$0.03	$35,145.00	$17,572.50	$8,786.25	$3,514.50
Aluminum Cans*	$0.58	$74,124.00	$37,062.00	$18,531.00	$7,412.40
Steel Cans	$112.50	$10,783.13	$5,391.56	$2,695.78	$1,078.31

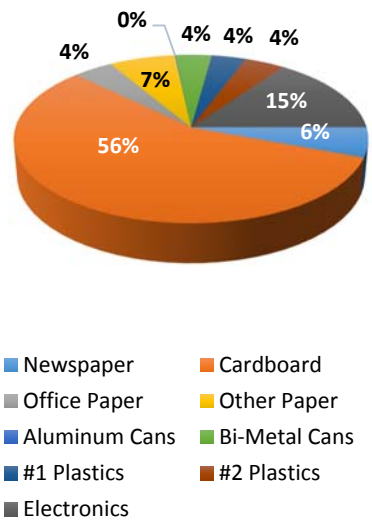
*Mixed plastics and aluminum cans are priced by the pound, all other commodities are priced by ton. Average price for each commodity was based on the regional average for Northeast US Region 2 as listed on RecyclingMarkets.net for July 2016. Numbers and calculations may vary due to rounding.

WASTESHED B: RECYCLING SURVEY

Barbour

Drop-Offs:	2	Materials Collected: Source Separated	
Curbside Programs:	1	Geographic Area of Responsibility: 100%	
	Tons	Income	Markets
Newspaper	4.53	$135.90	Randolph Recycling Center
Cardboard	45.01	$1,350.30	Randolph Recycling Center
Office Paper	3.32	$166.00	Randolph Recycling Center
Other Paper	5.48	$164.40	Randolph Recycling Center
Aluminum Cans	0.07	$93.60	RRHAMCO
Bi-Metal Cans	2.98	$542.40	RRHAMCO
#1 Plastics	2.86	$136.16	Randolph Recycling Center
#2 Plastics	3.32	$799.68	Randolph Recycling Center
Electronics	12.00	($5,000.00)	E-Scrap Metals
	79.57	**($1,611.56)**	

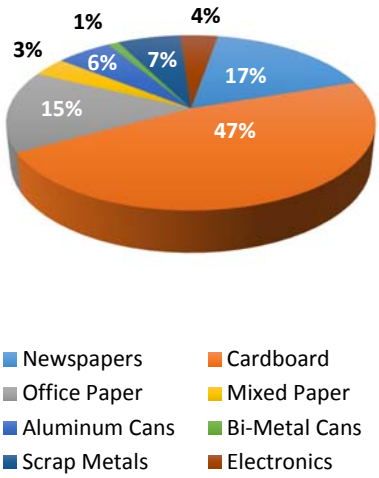
Barbour Tonnage



Braxton

Drop-Offs:	2	Materials Collected: Source Separated	
Curbside Programs:	1	Geographic Area of Responsibility: 75%	
	Tons	Income	Markets
Newspapers	36.61	$102.23	WV Cashin Recyclables
Cardboard	101.46	$1,778.83	WV Cashin Recyclables
Office Paper	32.38	$1,668.02	WV Cashin Recyclables
Mixed Paper	7.47	$350.08	WV Cashin Recyclables
Aluminum Cans	12.26	$11,946.11	WV Cashin Recyclables
Bi-Metal Cans	2.35	$98.47	WV Cashin Recyclables
Scrap Metals	13.95	$16,511.84	WV Cashin Recyclables
Electronics	8.30	$0.00	Greenbrier Recycling
	214.78	**$32,455.58**	

Braxton Tonnage



Clay

Clay County does not own, operate, or participate in a recycling program.

Doddridge

Doddridge County does not own, operate, or participate in a recycling program.

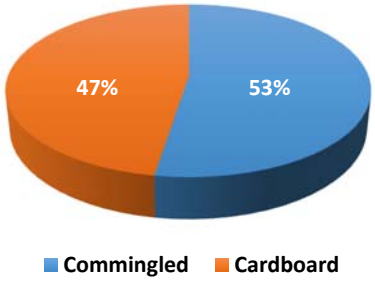
Lewis/Gilmer

Drop-Offs:	**3**	**Materials Collected: Commingled & Separated**
Curbside Programs:	**2**	**Geographic Area of Responsibility: Not Reported**

	Tons	Income	Markets
Commingled	360.00	$0.00	Harrison Co Recycling Center
Cardboard	325.00	----	Not Reported
	685.00	**$0.00**	

Commingled Materials Include: Newspaper, cardboard, office paper, mixed paper, aluminum & bi-metal cans and all plastics.

Lewis/Gilmer Tonnage

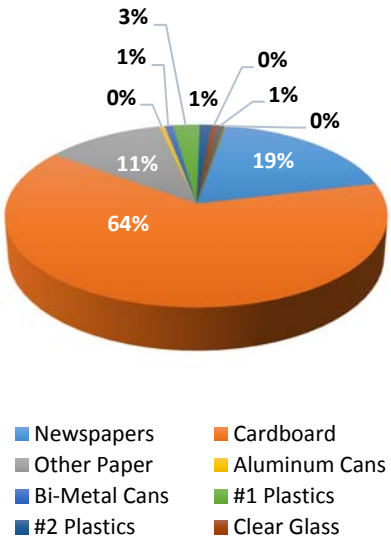


Harrison

Drop-Offs:	**2**	**Materials Collected: Commingled**
Curbside Programs:	**3**	**Geographic Area of Responsibility: 5%**

	Tons	Income	Markets
Newspapers	357.34	$0.00	North Central Co-Op
Cardboard	1,229.65	$0.00	North Central Co-Op
Other Paper	220.00	$0.00	North Central Co-Op
Aluminum Cans	9.00	$0.00	North Central Co-Op
Bi-Metal Cans	15.17	$0.00	North Central Co-Op
#1 Plastics	49.45	$0.00	North Central Co-Op
#2 Plastics	22.00	$0.00	North Central Co-Op
Clear Glass	10.00	$0.00	North Central Co-Op
Amber Glass	12.00	$0.00	North Central Co-Op
Green Glass	4.00	$0.00	North Central Co-Op
	1,928.61	**$0.00**	

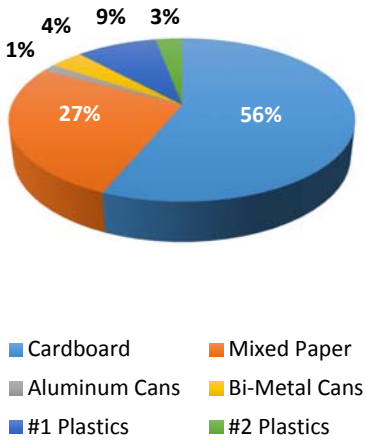
Harrison Tonnage



Marion

Drop-Offs:	10	Materials Collected: Source Separated	
Curbside Programs:	1	Geographic Area of Responsibility: 40%	
	Tons	Income	Markets
Cardboard	147.27	$11,203.41	Caraustar / Randolph Recycling
Mixed Paper	69.45	$7,020.90	Resolute Paper Mill
Aluminum Cans	3.89	----	Randolph Recycling / Bates Recycling
Bi-Metal Cans	9.57	$6,743.70	Randolph Recycling / Bates Recycling
#1 Plastics	23.51	$0.00	Randolph Recycling
#2 Plastics	7.81	$0.00	Randolph Recycling
	261.50	**$24,968.01**	

Marion Tonnage



Monongalia

Monongalia County does not own, operate, or participate in a recycling program.

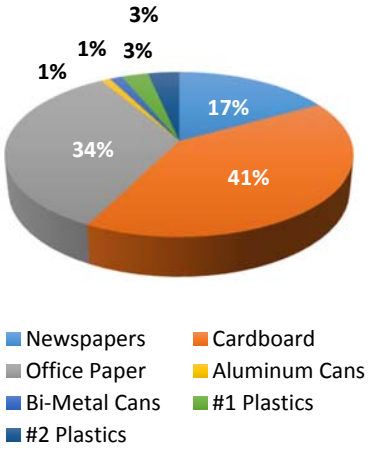
Preston

Did Not File A Report.

Randolph

Drop-Offs:	20	Materials Collected: Commingled & Separated	
Curbside Programs:	0	Geographic Area of Responsibility: 50%	
	Tons	Income	Markets
Newspapers	100.00	$6,000.00	Caraustar
Cardboard	240.00	$21,000.00	Fox Run
Office Paper	200.00	$24,000.00	Forest Resort
Aluminum Cans	6.00	$1,800.00	Elkins Iron & Metal
Bi-Metal Cans	8.00	$175.00	Elkins Iron & Metal
#1 Plastics	17.00	$2,380.00	Caraustar
#2 Plastics	20.00	$6,000.00	Caraustar
	591.00	**$61,355.00**	

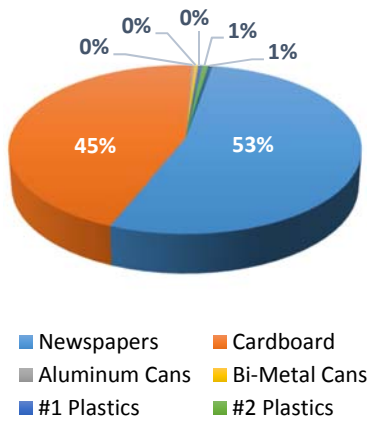
Randolph Tonnage



Taylor

Drop-Offs:	2	Materials Collected: Source Separated	
Curbside Programs:	1	Geographic Area of Responsibility: 20%	
	Tons	Income	Markets
Newspapers	261.50	$0.00	Refuse Control Systems
Cardboard	218.00	$0.00	Refuse Control Systems
Aluminum Cans	1.20	$0.00	Refuse Control Systems
Bi-Metal Cans	1.95	$0.00	Refuse Control Systems
#1 Plastics	2.13	$0.00	Refuse Control Systems
#2 Plastics	2.90	$0.00	Refuse Control Systems
Tires	2.20	$0.00	Refuse Control Systems
	489.88	**$0.00**	

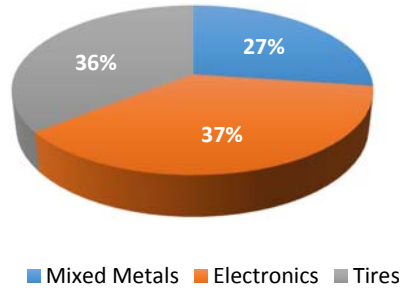
Taylor Tonnage



Tucker

Drop-Offs:		Materials Collected: Not Reported	
Curbside Programs:		Geographic Area of Responsibility:	
	Tons	Income	Markets
Mixed Metals	16.44	$846.00	3-D Salvage
Electronics	22.46	$427.48	E-Scrap Solutions
Tires	21.56	$0.00	Preston Tire
	60.46	**$1,273.48**	

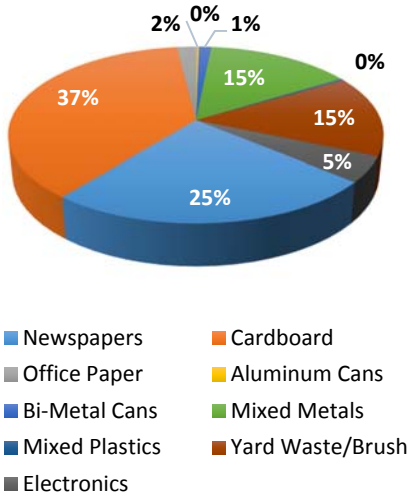
Tucker Tonnage



Upshur

Drop-Offs:	2	Materials Collected: Source Separated	
Curbside Programs:	1	Geographic Area of Responsibility: 90%	
	Tons	Income	Markets
Newspapers	165.71	$0.00	Not Reported
Cardboard	250.25	$0.00	Not Reported
Office Paper	13.35	$0.00	Not Reported
Aluminum Cans	1.36	$0.00	Not Reported
Bi-Metal Cans	8.34	$0.00	Not Reported
Mixed Metals	98.59	$0.00	Not Reported
Mixed Plastics	2.51	$0.00	Not Reported
Yard Waste/Brush	99.75	$0.00	Not Reported
Electronics	31.10	$0.00	Not Reported
	670.96	**$0.00**	

Upshur Tonnage



Recycling program is a cooperative effort between UCSWA and the City of Buckhannon.

WASTESHED B: RECYCLING ANALYSIS

Recycling Facilities

Drop-Offs	**43**
Curbside	**10**

Recycling Tonnage/Revenue

Total Recycled	**4,981.76**
Total Recycling Income	**$118,440.51**

Recycling Materials Collected and Marketed in Wasteshed B: 2013 & 2015 Comparison

	TONNAGE			INCOME		
MATERIAL	**2013**	**2015**	**Change**	**2013**	**2015**	**Change**
Metals						
Aluminum Cans	46.44	33.78	(12.66)	$48,337.17	$13,839.71	($34,497.46)
Bi-Metals Cans	78.31	48.36	(29.95)	$8,631.97	$7,559.57	($1,072.40)
Steel Cans	0.00	0.00	0.00	$0.00	$0.00	$0.00
Scrap Metals	20.51	13.95	(6.56)	$10,438.77	$16,511.84	$6,073.07
White Goods	11.27	0.00	(11.27)	$231.39	$0.00	($231.39)
Other Metals	151.09	115.03	(36.06)	$19,260.71	$846.00	($18,414.71)
Paper						
Newspapers	195.00	925.69	730.69	$3,900.00	$6,238.13	$2,338.13
Cardboard	2,900.23	2,556.64	(343.59)	$243,673.06	$35,332.54	($208,340.52)
Office Paper	53.92	249.05	195.13	$8,540.28	$25,834.02	$17,293.74
Mixed Paper	1,376.15	76.92	(1,299.23)	$50,746.10	$7,370.98	($43,375.12)
Other Paper	0.00	225.48	225.48	$0.00	$164.40	$164.40
Plastics						
#1 PET	128.22	94.95	(33.27)	$39,015.06	$2,516.16	($36,498.90)
#2 HDPE	137.11	56.03	(81.08)	$37,520.57	$6,799.68	($30,720.89)
Mixed Plastics	127.09	2.51	(124.58)	$30,995.41	$0.00	($30,995.41)
Other Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
Glass						
Clear	0.00	10.00	10.00	$0.00	$0.00	$0.00
Amber	0.00	12.00	12.00	$0.00	$0.00	$0.00
Green	0.00	4.00	4.00	$0.00	$0.00	$0.00
Mixed Glass	329.19	0.00	(329.19)	$2,693.11	$0.00	($2,693.11)
Other Materials						
Commingled	280.00	360.00	80.00	$13,089.08	$0.00	($13,089.08)
Yard Waste / Brush	0.00	99.75	99.75	$0.00	$0.00	$0.00
Electronics	160.65	73.86	(86.79)	$504.37	($4,572.52)	($5,076.89)
Tires	21.72	23.76	2.04	$5,371.50	$0.00	($5,371.50)
Other Materials	0.00	0.00	0.00	$0.00	$0.00	$0.00
	6,016.90	**4,981.76**	**(1,035.14)**	**$522,948.55**	**$118,440.51**	**($404,508.04)**

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.

2010 US Census Population and Waste Projections for One Month

Wasteshed B Population	**406,686**
Municipal Solid Waste Tonnage, One Month	**27,400**

Sensitivity Analysis: Monthly Recycling Tonnage Potential

		Tons Per Month At:			
Material	**Percent of Material in Waste Stream***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	11.6%	3,178.40	1,589.20	794.60	317.84
Mixed Paper	13.4%	3,671.60	1,835.80	917.90	367.16
Mixed Plastics	5.5%	1,507.00	753.50	376.75	150.70
Aluminum Cans	0.6%	164.40	82.20	41.10	16.44
Steel Cans	0.9%	246.60	123.30	61.65	24.66

*Percentages were taken from US EPAs *Municipal Solid Waste Generation, Recycling, and Disposal in the United States Tables and Figures for 2010* report.

Sensitivity Analysis: Monthly Recycling Revenue Potential

		Revenue Potential At:			
Material	**Average Price Per Ton/lb.***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	$97.50	$309,894.00	$154,947.00	$77,473.50	$30,989.40
Mixed Paper	$62.50	$229,475.00	$114,737.50	$57,368.75	$22,947.50
Mixed Plastics*	$0.03	$90,420.00	$45,210.00	$22,605.00	$9,042.00
Aluminum Cans*	$0.58	$190,704.00	$95,352.00	$47,676.00	$19,070.40
Steel Cans	$112.50	$27,742.50	$13,871.25	$6,935.63	$2,774.25

*Mixed plastics and aluminum cans are priced by the pound, all other commodities are priced by ton. Average price for each commodity was based on the regional average for Northeast US Region 2 as listed on RecyclingMarkets.net for July 2016. Numbers and calculations may vary due to rounding.

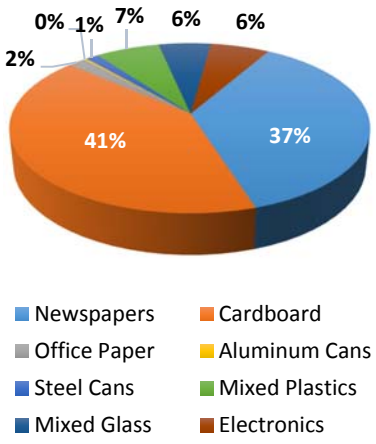
WASTESHED C: RECYCLING SURVEY

Jackson

Drop-Offs:	1	Materials Collected: Source Separated
Curbside Programs:	0	Geographic Area of Responsibility: 50%

	Tons	Income	Markets
Newspapers	421.42	$27,071.01	Caraustar
Cardboard	475.11	$43,846.92	Fox Run Recycling
Office Paper	20.54	$2,875.60	Caraustar
Aluminum Cans	3.31	$3,315.24	DP Metals
Steel Cans	15.64	$1,104.67	DP Metals
Mixed Plastics	76.98	$17,174.80	Mondo Polymers
Mixed Glass	63.15	$791.90	Strategic Materials
Electronics	71.13	$711.30	E-Scrap Solutions
	1,147.28	**$96,891.44**	

Jackson Tonnage

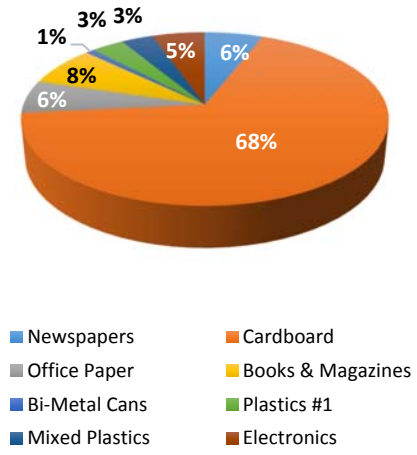


Pleasants

Drop-Offs:	2	Materials Collected: Source Separated (Some)
Curbside Programs:	0	Geographic Area of Responsibility: 100%

	Tons	Income	Markets
Newspapers	20.10	$1,205.00	Ace Paper Recycling
Cardboard	226.20	$19,146.00	Ace Paper Recycling
Office Paper	20.60	$2,777.00	Ace Paper Recycling
Books & Magazines	24.90	$727.00	Resolute Forest Products
Bi-Metal Cans	3.00	$210.00	RJ Recycling
Plastics #1	11.20	$2,016.00	Caraustar
Mixed Plastics	11.10	$2,227.00	Mondo Polymers
Electronics	18.10	$0.00	ECS Refining
	335.20	**$28,308**	

Pleasants Tonnage

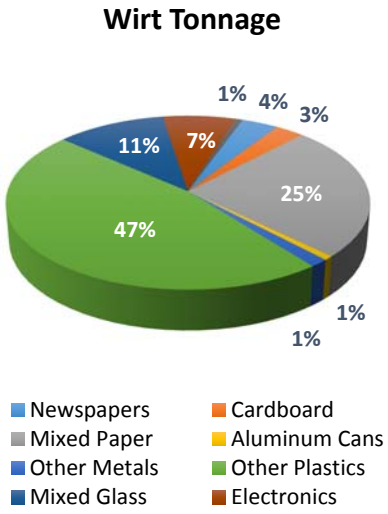


Ritchie

Did Not File A Report.

Wirt

Drop-Offs:	1	Materials Collected: Commingled & Separated	
Curbside Programs:	1	Geographic Area of Responsibility: 100%	
	Tons	Income	Markets
Newspapers	5.00	$830.00	River Valley
Cardboard	4.00	$1,067.00	River Valley
Mixed Paper	34.00	$436.00	River Valley
Aluminum Cans	1.00	$695.00	Ashley's
Other Metals	2.00	$193.00	Ashley's
Other Plastics	64.00	$4,527.00	Mondo Polymer / Legacy
Mixed Glass	15.00	$133.00	Strategic Glass
Electronics	10.00	$712.00	E-Scrap Solutions
Tires	1.00	$0.00	WVDEP
	136.00	**$8,593**	



Wood

Program is operated in cooperation with the City of Parkersburg.

WASTESHED C: RECYCLING ANALYSIS

Recycling Facilities	
Drop-Offs	**4**
Curbside	**0**

Recycling Tonnage/Revenue	
Total Recycled	**1,618.48**
Total Recycling Income	**$133,792.44**

Recycling Materials Collected and Marketed in Wasteshed C: 2013 & 2015 Comparison

	TONNAGE			INCOME		
MATERIAL	**2013**	**2015**	**Change**	**2013**	**2015**	**Change**
Metals						
Aluminum Cans	2.79	4.31	1.52	$1,685.45	$4,010.24	$2,324.79
Bi-Metals Cans	7.05	3.00	(4.05)	$1,269.00	$210.00	($1,059.00)
Steel Cans	0.00	15.64	15.64	$0.00	$1,104.67	$1,104.67
Scrap Metals	1.24	0.00	(1.24)	$0.00	$0.00	$0.00
White Goods	28.76	0.00	(28.76)	$2,185.99	$0.00	($2,185.99)
Other Metals	0.00	2.00	2.00	$0.00	$193.00	$193.00
Paper						
Newspapers	40.51	446.52	406.01	$2,533.15	$29,106.01	$26,572.86
Cardboard	638.61	705.31	66.70	$61,436.05	$64,059.92	$2,623.87
Office Paper	42.14	41.14	(1.00)	$7,330.10	$5,652.60	($1,677.50)
Mixed Paper	412.66	34.00	(378.66)	$30,908.31	$436.00	($30,472.31)
Other Paper	37.75	24.90	(12.85)	$566.35	$727.00	$160.65
Plastics						
#1 PET	0.00	11.20	11.20	$0.00	$2,016.00	$2,016.00
#2 HDPE	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Plastics	50.23	88.08	37.85	$15,186.55	$19,401.80	$4,215.25
Other Plastics	0.00	64.00	64.00	$0.00	$4,527.00	$4,527.00
Glass						
Clear	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Glass	91.87	78.15	(13.72)	$751.70	$924.90	$173.20
Other Materials						
Commingled	1,082.16	0.00	(1,082.16)	$0.00	$0.00	$0.00
Yard Waste / Brush	43.38	0.00	55.85	$0.00	$0.00	$1,423.30
Electronics	0.00	99.23	1.00	$0.00	$1,423.30	$0.00
Tires	0.00	1.00	24.90	$0.00	$0.00	$727.00
Other Materials	0.00	0.00	0.00	$0.00	$0.00	$0.00
	2,479.15	**1,618.48**	**(835.77)**	**$123,852.65**	**$133,792.44**	**$10,666.79**

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.

2010 US Census Population and Waste Projections for One Month

Wasteshed C Population	**139,938**
Municipal Solid Waste Tonnage, One Month	**9,428**

Sensitivity Analysis: Monthly Recycling Tonnage Potential

		Tons Per Month At:			
Material	**Percent of Material in Waste Stream***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	11.6%	1,093.65	546.82	273.41	109.36
Mixed Paper	13.4%	1,263.35	631.68	315.84	126.34
Mixed Plastics	5.5%	518.54	259.27	129.64	51.85
Aluminum Cans	0.6%	56.57	28.28	14.14	5.66
Steel Cans	0.9%	84.85	42.43	21.21	8.49

*Percentages were taken from US EPAs *Municipal Solid Waste Generation, Recycling, and Disposal in the United States Tables and Figures for 2010* report.

Sensitivity Analysis: Monthly Recycling Revenue Potential

		Revenue Potential At:			
Material	**Average Price Per Ton/lb.***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	$97.50	$106,630.68	$53,315.34	$26,657.67	$10,663.07
Mixed Paper	$62.50	$78,959.50	$39,479.75	$19,739.88	$7,895.95
Mixed Plastics*	$0.03	$31,112.40	$15,556.20	$7,778.10	$3,111.24
Aluminum Cans*	$0.58	$65,618.88	$32,809.44	$16,404.72	$6,561.89
Steel Cans	$112.50	$9,545.85	$4,772.93	$2,386.46	$954.59

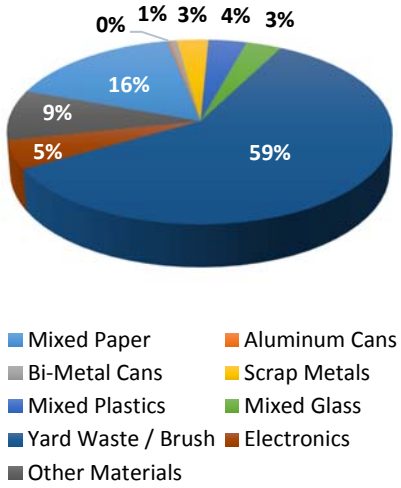
*Mixed plastics and aluminum cans are priced by the pound, all other commodities are priced by ton. Average price for each commodity was based on the regional average for Northeast US Region 2 as listed on RecyclingMarkets.net for July 2016.
Numbers and calculations may vary due to rounding.

WASTESHED E: RECYCLING SURVEY

Berkeley

Drop-Offs:	3	Materials Collected: Commingled & Separated	
Curbside Programs:	1	Geographic Area of Responsibility: 95%	
	Tons	Income	Markets
Mixed Paper	858.16	$13,692.93	Chambersburg Waste Paper, Southern Scrap, Apple Valley
Aluminum Cans	12.27	$6,236.94	Zuckerman's, Apple Valley
Bi-Metal Cans	30.89	$0.00	Zuckerman's, Apple Valley
Scrap Metals	154.07	$11,499.69	Potomac Metals, Ernies, Conservit
Mixed Plastics	186.67	$4,140.00	Southern Scrap
Mixed Glass	174.09	$0.00	Zuckerman's
Yard Waste / Brush	3090.00	$13,597.50	Tabb and Sons Composting
Electronics	260.80	$4,187.78	E-Scrap
Other Materials	463.03	$4,585.88	Various
	5,229.98	**$57,940.72**	

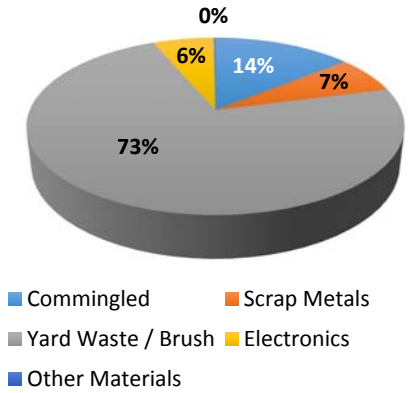
Berkeley Tonnage



Jefferson

Drop-Offs:	2	Materials Collected: Commingled	
Curbside Programs:	1	Geographic Area of Responsibility: 40%	
	Tons	Income	Markets
Commingled	175.21	$0.00	Apple Valley Waste
Scrap Metals	83.90	$7,230.65	Conservit / Winchester Scrap Metal
Yard Waste / Brush	897.36	$5,945.26	Local Residents / Businesses
Electronics	77.29	$0.00	UNICOR / Federal Prison Ind.
Other Materials	2.00	$0.00	Various
	1,235.76	**$13,175.91**	

Jefferson Tonnage



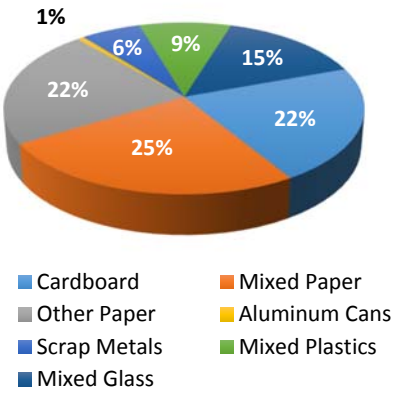
Commingled Materials Include: Newspaper, cardboard, office paper, mixed paper, aluminum cans, bi-metal cans, scrap metals, mixed plastics, all glass.

Morgan

Drop-Offs:	**0**	**Materials Collected: Source Separated**
Curbside Programs:	**0**	**Geographic Area of Responsibility: 100%**

	Tons	Income	Markets
Cardboard	102.73	$2,512.23	Southern Scrap
Mixed Paper	118.12	$1,632.43	Southern Scrap
Other Paper	105.34	$3,160.20	MD Paper
Aluminum Cans	3.35	$2,341.50	Southern Scrap
Scrap Metals	28.94	$1,788.80	Conservit
Mixed Plastics	44.10	$0.00	Southern Scrap
Mixed Glass	69.25	$0.00	Southern Scrap
	471.83	**$11,435.16**	

Morgan Tonnage

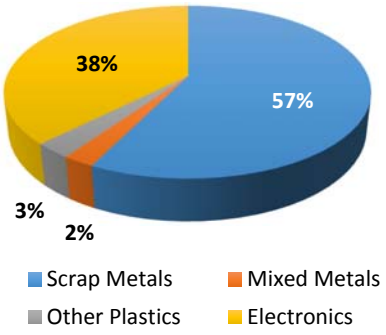


Region VIII

Drop-Offs:	**12**	**Materials Collected: Commingled & Separated**
Curbside Programs:	**0**	**Geographic Area of Responsibility: 25-30%**

	Tons	Income	Markets
Scrap Metals	243.00	$15,938.00	C&K Recycling
Mixed Metals	10.00	$7,275.00	C&K Recycling
Other Plastics	12.00	$0.00	Preston Tire
Electronics	159.00	$318.00	E-Scrap Solutions
	424.00	**$23,531.00**	

Region VIII Tonnage



WASTESHED E: RECYCLING ANALYSIS

Recycling Facilities

Drop-Offs	**17**
Curbside	**2**

Recycling Tonnage/Revenue

Total Recycled	**7,361.57**
Total Recycling Income	**$106,082.79**

Recycling Materials Collected and Marketed in Wasteshed E: 2013 & 2015 Comparison

	TONNAGE			INCOME		
MATERIAL	**2013**	**2015**	**Change**	**2013**	**2015**	**Change**
Metals						
Aluminum Cans	16.70	15.62	(1.08)	$14,176.91	$8,578.44	($5,598.47)
Bi-Metals Cans	32.00	30.89	(1.11)	$4,800.00	$0.00	($4,800.00)
Steel Cans	0.00	0.00	0.00	$0.00	$0.00	$0.00
Scrap Metals	0.00	509.91	509.91	$0.00	$36,457.14	$36,457.14
White Goods	339.56	0.00	(339.56)	$75,676.77	$0.00	($75,676.77)
Other Metals	0.00	10.00	10.00	$0.00	$7,275.00	$7,275.00
Paper						
Newspapers	0.00	0.00	0.00	$0.00	$0.00	$0.00
Cardboard	120.00	102.73	(17.27)	$3,200.00	$2,512.23	($687.77)
Office Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Paper	1,250.01	976.28	(273.73)	$32,038.46	$15,325.36	($16,713.10)
Other Paper	0.00	105.34	105.34	$0.00	$3,160.20	$3,160.20
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	255.53	230.77	(24.76)	$4,410.80	$4,140.00	($270.80)
Other Plastics	0.00	12.00	12.00	$0.00	$0.00	$0.00
Glass						
Clear	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Glass	307.34	243.34	(64.00)	$0.00	$0.00	$0.00
Other Materials						
Commingled	2,698.00	175.21	(2,522.79)	$0.00	$0.00	$0.00
Yard Waste / Brush	3,361.49	3,987.36	625.87	$33,933.95	$19,542.76	($14,391.19)
Electronics	444.31	497.09	52.78	$0.00	$4,505.78	$4,505.78
Tires	17.50	0.00	(17.50)	$0.00	$0.00	$0.00
Other Materials	8.16	465.03	456.87	$705.85	$4,585.88	$3,880.03
	8,850.60	**7,361.57**	**(1,489.03)**	**$168,942.74**	**$106,082.79**	**($62,859.95)**

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

2010 US Census Population and Waste Projections for One Month

Wasteshed E Population	**261,041**
Municipal Solid Waste Tonnage, One Month	**17,587**

Sensitivity Analysis: Monthly Recycling Tonnage Potential

		Tons Per Month At:			
Material	**Percent of Material in Waste Stream***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	11.6%	2,040.09	1,020.05	510.02	204.01
Mixed Paper	13.4%	2,356.66	1,178.33	589.16	235.67
Mixed Plastics	5.5%	967.29	483.64	241.82	96.73
Aluminum Cans	0.6%	105.52	52.76	26.38	10.55
Steel Cans	0.9%	158.28	79.14	39.57	15.83

*Percentages were taken from US EPAs *Municipal Solid Waste Generation, Recycling, and Disposal in the United States Tables and Figures for 2010* report.

Sensitivity Analysis: Monthly Recycling Revenue Potential

		Revenue Potential At:			
Material	**Average Price Per Ton/lb.***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	$97.50	$198,908.78	$99,454.39	$49,727.19	$19,890.88
Mixed Paper	$62.50	$147,291.25	$73,645.63	$36,822.81	$14,729.13
Mixed Plastics*	$0.03	$58,037.40	$29,018.70	$14,509.35	$5,803.74
Aluminum Cans*	$0.58	$122,403.20	$61,201.60	$30,600.80	$12,240.32
Steel Cans	$112.50	$17,806.50	$8,903.25	$4,451.63	$1,780.65

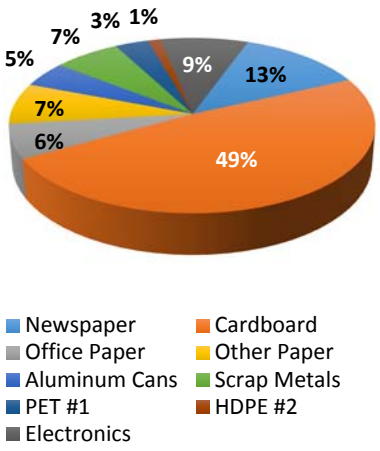
*Mixed plastics and aluminum cans are priced by the pound, all other commodities are priced by ton. Average price for each commodity was based on the regional average for Northeast US Region 2 as listed on RecyclingMarkets.net for July 2016.
Numbers and calculations may vary due to rounding.

WASTESHED F: RECYCLING SURVEY

Greenbrier

Drop-Offs:	3	Materials Collected: Source Separated	
Curbside Programs:	3	Geographic Area of Responsibility: 75%	
	Tons	Income	Markets
Newspaper	211.00	$12,856.87	Caraustar
Cardboard	814.00	$85,885.68	GP
Office Paper	106.00	$12,584.20	Caraustar
Other Paper	127.00	$5,968.41	GP
Aluminum Cans	79.00	$99,874.42	WV Cashin
Scrap Metals	111.00	$91,420.45	WV Cashin
PET #1	56.00	$7,562.31	Caraustar - GP
HDPE #2	21.00	$10,563.35	Caraustar - GP
Electronics	147.00	$15,551.85	Green Wave
	1,672.00	**$342,267.54**	

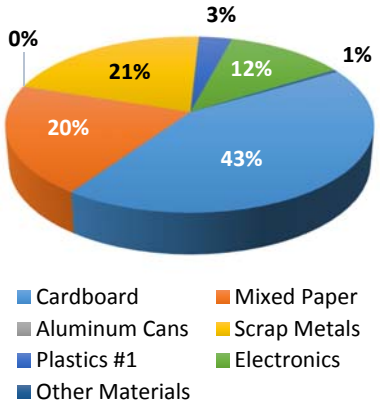
Greenbrier Tonnage



Nicholas

Drop-Offs:	1	Materials Collected: Commingled	
Curbside Programs:	0	Geographic Area of Responsibility: 50%	
	Tons	Income	Markets
Cardboard	42.33	$0.00	Not Reported
Mixed Paper	19.92	$0.00	Not Reported
Aluminum Cans	0.03	$0.00	Not Reported
Scrap Metals	20.51	$0.00	Not Reported
Plastics #1	3.28	$0.00	Not Reported
Electronics	11.82	$0.00	Not Reported
Other Materials	0.46	$0.00	Not Reported
	98.35	**$0.00**	

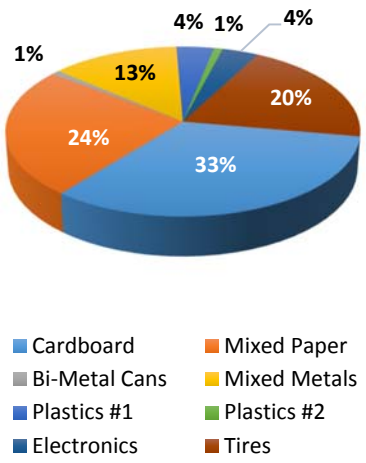
Nicholas Tonnage



Pocahontas

Drop-Offs:	2	Materials Collected: Source Separated	
Curbside Programs:	0	Geographic Area of Responsibility: 80%	
	Tons	Income	Markets
Cardboard	85.54	$0.00	Greenbrier Co Recycling Center
Mixed Paper	63.82	$0.00	Greenbrier Co Recycling Center
Bi-Metal Cans	2.16	$0.00	Allegheny Disposal
Mixed Metals	33.89	$0.00	Allegheny Disposal
Plastics #1	9.90	$0.00	Greenbrier Co Recycling Center
Plastics #2	2.33	$0.00	Greenbrier Co Recycling Center
Electronics	9.60	$0.00	Greenbrier Co Recycling Center
Tires	51.82	$0.00	Emanuel Tire
	259.06	**$0.00**	

Pocahontas Tonnage



Webster

Webster County does not own, operate, or participate in a recycling program.

WASTESHED F: RECYCLING ANALYSIS

Recycling Facilities

Drop-Offs	**6**
Curbside	**3**

Recycling Tonnage/Revenue

Total Recycled	**2,029.41**
Total Recycling Income	**$342,267.54**

Recycling Materials Collected and Marketed in Wasteshed F: 2013 & 2015 Comparison

	TONNAGE			INCOME		
MATERIAL	**2013**	**2015**	**Change**	**2013**	**2015**	**Change**
Metals						
Aluminum Cans	188.00	79.03	(108.97)	$275,700.77	$99,874.42	($175,826.35)
Bi-Metals Cans	1.25	2.16	0.91	$0.00	$0.00	$0.00
Steel Cans	0.00	0.00	0.00	$0.00	$0.00	$0.00
Scrap Metals	0.00	131.51	131.51	$0.00	$91,420.45	$91,420.45
White Goods	997.40	0.00	(997.40)	$0.00	$0.00	$0.00
Other Metals	0.00	33.89	33.89	$0.00	$0.00	$0.00
Paper						
Newspapers	213.00	211.00	(2.00)	$17,908.55	$12,856.87	($5,051.68)
Cardboard	998.84	941.87	(56.97)	$107,905.40	$85,885.68	($22,019.72)
Office Paper	106.00	106.00	0.00	$14,140.80	$12,584.20	($1,556.60)
Mixed Paper	98.21	83.74	(14.47)	$0.00	$0.00	$0.00
Other Paper	126.00	127.00	1.00	$10,651.75	$5,968.41	($4,683.34)
Plastics						
#1 PET	0.00	69.18	69.18	$0.00	$7,562.31	$7,562.31
#2 HDPE	0.00	23.33	23.33	$0.00	$10,563.35	$10,563.35
Mixed Plastics	70.50	0.00	(70.50)	$23,798.98	$0.00	($23,798.98)
Other Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
Glass						
Clear	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green	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	140.50	168.42	27.92	$1,702.69	$15,551.85	$13,849.16
Tires	34.92	51.82	16.90	$0.00	$0.00	$0.00
Other Materials	0.00	0.46	0.46	$0.00	$0.00	$0.00
	2,974.62	**2,029.41**	**(945.21)**	**$451,808.94**	**$342,267.54**	**($109,541.40)**

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.

2010 US Census Population and Waste Projections for One Month

Wasteshed F Population	**79,586**
Municipal Solid Waste Tonnage, One Month	**5,362**

Sensitivity Analysis: Monthly Recycling Tonnage Potential

		Tons Per Month At:			
Material	**Percent of Material in Waste Stream***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	11.6%	621.99	311.00	155.50	62.20
Mixed Paper	13.4%	718.51	359.25	179.63	71.85
Mixed Plastics	5.5%	294.91	147.46	73.73	29.49
Aluminum Cans	0.6%	32.17	16.09	8.04	3.22
Steel Cans	0.9%	48.26	24.13	12.06	4.83

*Percentages were taken from US EPAs *Municipal Solid Waste Generation, Recycling, and Disposal in the United States Tables and Figures for 2010* report.

Sensitivity Analysis: Monthly Recycling Revenue Potential

		Revenue Potential At:			
Material	**Average Price Per Ton/lb.***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	$97.50	$60,644.03	$30,322.01	$15,161.01	$6,064.40
Mixed Paper	$62.50	$44,906.88	$22,453.44	$11,226.72	$4,490.69
Mixed Plastics*	$0.03	$17,694.60	$8,847.30	$4,423.65	$1,769.46
Aluminum Cans*	$0.58	$37,317.20	$18,658.60	$9,329.30	$3,731.72
Steel Cans	$112.50	$5,429.25	$2,714.63	$1,357.31	$542.93

*Mixed plastics and aluminum cans are priced by the pound, all other commodities are priced by ton. Average price for each commodity was based on the regional average for Northeast US Region 2 as listed on RecyclingMarkets.net for July 2016.
Numbers and calculations may vary due to rounding.

WASTESHED G: RECYCLING SURVEY

Fayette

Fayette County does not own, operate, or participate in a recycling program.

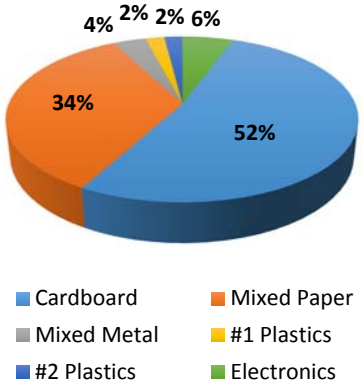
McDowell

McDowell County does not own, operate, or participate in a recycling program.

Mercer

Drop-Offs:	**5**	**Materials Collected: Commingled**	
Curbside Programs:	**2**	**Geographic Area of Responsibility: Unknown**	
	Tons	**Income**	**Markets**
Cardboard	287.33	$18,977.25	Southwest
Mixed Paper	187.97	$5,772.80	Southwest
Mixed Metal	19.59	$4,419.83	WV Recycle
#1 Plastics	11.26	$0.00	Clear Path
#2 Plastics	10.88	$6,854.40	Green Line Polymers - ADS
Electronics	30.51	$739.73	E-Scrap Solutions
	547.54	**$36,764.01**	

Mercer Tonnage



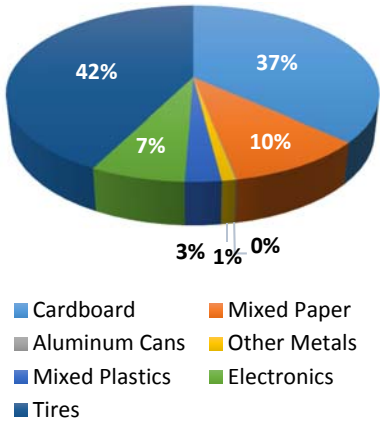
Mingo

Did Not File A Report.

Monroe

Drop-Offs:	5	Materials Collected: Not Reported	
Curbside Programs:	0	Geographic Area of Responsibility: 90%	
	Tons	Income	Markets
Cardboard	94.51	$3,965.60	Southwest Sanitation
Mixed Paper	26.28	$412.00	Southwest Sanitation
Aluminum Cans	0.25	$290.20	HAM Landfill
Other Metals	2.56	$0.00	HAM Landfill
Mixed Plastics	6.75	$0.00	Leigh Co. Landfill
Electronics	17.78	$0.00	Greenbrier Co. SWA
Tires	109.47	$0.00	WV Tire
	257.60	**$4,667.80**	

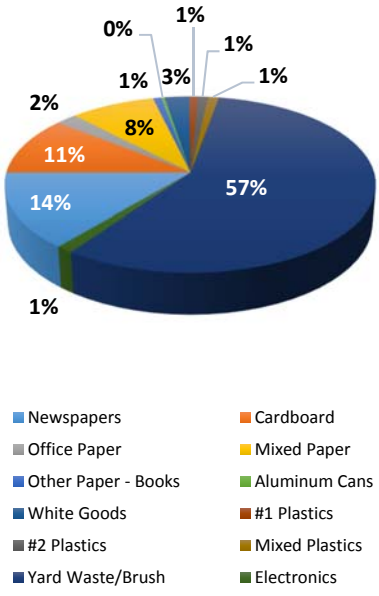
Monroe Tonnage



Raleigh

Drop-Offs:	85	Materials Collected: Commingled	
Curbside Programs:	1	Geographic Area of Responsibility: 70-80%	
	Tons	Income	Markets
Newspapers	686.68	$43,395.50	Caraustar
Cardboard	534.29	$51,875.06	Greif
Office Paper	104.38	$15,249.05	Caraustar
Mixed Paper	417.27	$14,249.39	Caraustar
Other Paper - Books	40.43	$831.60	Caraustar
Aluminum Cans	16.40	$18,607.10	Anheuser Busch
White Goods	121.60	$13,800.80	Barker's Junk
#1 Plastics	41.52	$4,982.22	Clear Path
#2 Plastics	50.78	$24,187.70	Envision
Mixed Plastics	51.17	$6,971.40	Mondo Polymer
Yard Waste/Brush	2824.35	$29,410.22	*Mulched on Site
Electronics	65.00	-----	JVS
	4,953.87	**$223,560.04**	

Raleigh Tonnage



Summers

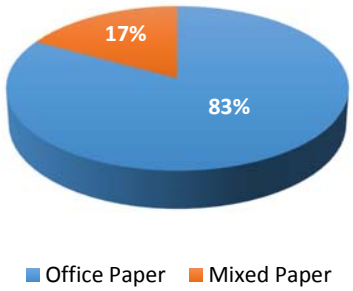
Did Not File A Report.

Wyoming

Drop-Offs:	**0**	**Materials Collected: Commingled**
Curbside Programs:	**0**	**Geographic Area of Responsibility: 2%**

	Tons	Income	Markets
Office Paper	190.00	$14,582.63	Beckley Waste Paper
Mixed Paper	39.00	$1,176.80	Raleigh Co SWA
	229.00	**$15,759.43**	

Wyoming Tonnage



WASTESHED G: RECYCLING ANALYSIS

Recycling Facilities

Drop-Offs	**95**
Curbside	**3**

Recycling Tonnage/Revenue

Total Recycled	**5,988.01**
Total Recycling Income	**$280,751.28**

Recycling Materials Collected and Marketed in Wasteshed G: 2013 & 2015 Comparison

	TONNAGE			INCOME		
MATERIAL	**2013**	**2015**	**Change**	**2013**	**2015**	**Change**
Metals						
Aluminum Cans	42.21	16.65	(25.56)	$2,817.52	$18,897.30	$16,079.78
Bi-Metals Cans	0.00	0.00	0.00	$0.00	$0.00	$0.00
Steel Cans	1.00	0.00	(1.00)	$291.54	$0.00	($291.54)
Scrap Metals	17.23	0.00	(17.23)	$4,407.68	$0.00	($4,407.68)
White Goods	135.94	121.60	(14.34)	$24,358.00	$13,800.80	($10,557.20)
Other Metals	132.69	22.15	(110.54)	$65,586.94	$4,419.83	($61,167.11)
Paper						
Newspapers	0.00	686.68	686.68	$0.00	$43,395.50	$43,395.50
Cardboard	524.24	916.13	391.89	$51,807.86	$74,817.91	$23,010.05
Office Paper	0.00	294.38	294.38	$0.00	$29,831.68	$29,831.68
Mixed Paper	3,185.66	670.52	(2,515.14)	$302,157.77	$21,610.99	($280,546.78)
Other Paper	0.00	40.43	40.43	$0.00	$831.60	$831.60
Plastics						
#1 PET	34.97	52.78	17.81	$11,422.20	$4,982.22	($6,439.98)
#2 HDPE	12.20	61.66	49.46	$9,849.04	$31,042.10	$21,193.06
Mixed Plastics	270.94	57.92	(213.02)	$84,597.50	$6,971.40	($77,626.10)
Other Plastics	0.00	0.00	0.00	$0.00	$0.00	$0.00
Glass						
Clear	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green	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	55.90	0.00	(55.90)	$0.00	$0.00	$0.00
Yard Waste / Brush	3,016.00	2,824.35	(191.65)	$0.00	$29,410.22	$29,410.22
Electronics	197.46	113.29	(84.17)	$1,552.52	$739.73	($812.79)
Tires	79.43	109.47	30.04	$0.00	$0.00	$0.00
Other Materials	8.00	0.00	(8.00)	$428.23	$0.00	($428.23)
	7,713.87	**5,988.01**	**(1,725.86)**	**$559,276.80**	**$280,751.28**	**($278,525.52)**

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.

2010 US Census Population and Waste Projections for One Month

Wasteshed G Population	**287,339**
Municipal Solid Waste Tonnage, One Month	**19,359**

Sensitivity Analysis: Monthly Recycling Tonnage Potential

		Tons Per Month At:			
Material	**Percent of Material in Waste Stream***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	11.6%	2,245.64	1,122.82	561.41	224.56
Mixed Paper	13.4%	2,594.11	1,297.05	648.53	259.41
Mixed Plastics	5.5%	1,064.75	532.37	266.19	106.47
Aluminum Cans	0.6%	116.15	58.08	29.04	11.62
Steel Cans	0.9%	174.23	87.12	43.56	17.42

*Percentages were taken from US EPAs *Municipal Solid Waste Generation, Recycling, and Disposal in the United States Tables and Figures for 2010* report.

Sensitivity Analysis: Monthly Recycling Revenue Potential

		Revenue Potential At:			
Material	**Average Price Per Ton/lb.***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	$97.50	$218,949.90	$109,474.95	$54,737.48	$21,894.99
Mixed Paper	$62.50	$162,131.88	$81,065.94	$40,532.97	$16,213.19
Mixed Plastics*	$0.03	$63,885.00	$31,942.50	$15,971.25	$6,388.50
Aluminum Cans*	$0.58	$134,734.00	$67,367.00	$33,683.50	$13,473.40
Steel Cans	$112.50	$19,600.88	$9,800.44	$4,900.22	$1,960.09

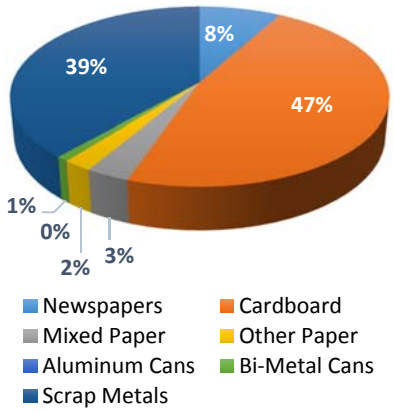
*Mixed plastics and aluminum cans are priced by the pound, all other commodities are priced by ton. Average price for each commodity was based on the regional average for Northeast US Region 2 as listed on RecyclingMarkets.net for July 2016.
Numbers and calculations may vary due to rounding.

WASTESHED H: RECYCLING SURVEY

Boone

Drop-Offs:	15	Materials Collected: Source Separated	
Curbside Programs:	0	Geographic Area of Responsibility: 100%	
	Tons	Income	Markets
Newspapers	38.56	$61.57	WV Cashin Recyclables
Cardboard	225.26	$11,273.11	WV Cashin Recyclables
Mixed Paper	15.37	$1,148.47	WV Cashin Recyclables
Other Paper	10.24	$0.00	WV Cashin Recyclables
Aluminum Cans	0.11	$70.20	WV Cashin Recyclables
Bi-Metal Cans	4.09	$230.12	WV Cashin Recyclables
Scrap Metals	183.14	$11,067.00	Benders Salvage
	476.77	**$23,850.47**	

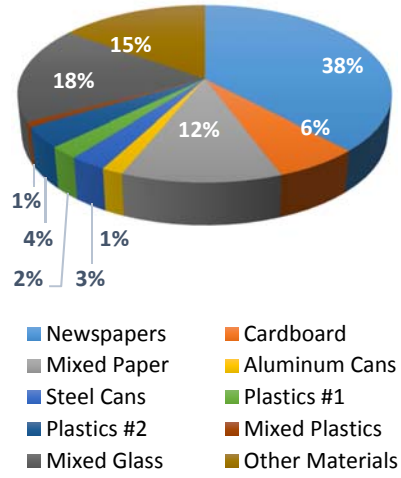
Boone Tonnage



Cabell

Drop-Offs:	1	Materials Collected: Commingled	
Curbside Programs:	0	Geographic Area of Responsibility: 50%	
	Tons	Income	Markets
Newspapers	507.37	$0.00	Rumpke
Cardboard	84.25	$0.00	Rumpke
Mixed Paper	158.89	$0.00	Rumpke
Aluminum Cans	21.23	$0.00	Rumpke
Steel Cans	36.72	$0.00	Rumpke
Plastics #1	29.77	$0.00	Rumpke
Plastics #2	50.47	$0.00	Rumpke
Mixed Plastics	10.01	$0.00	Rumpke
Mixed Glass	236.20	$0.00	Rumpke
Other Materials	200.18	$0.00	Rumpke
	1,335.09	**$0.00**	

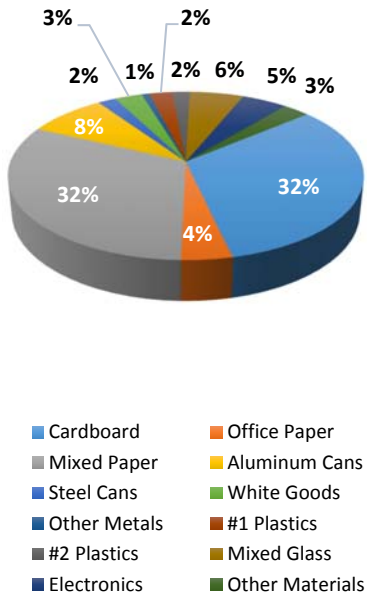
Cabell Tonnage



Calhoun

Drop-Offs:	1	Materials Collected: Source Separated	
Curbside Programs:	0	Geographic Area of Responsibility: 100%	
	Tons	Income	Markets
Cardboard	43.50	$3,568.70	Caraustar RFG
Office Paper	5.30	$514.00	Caraustar RFG
Mixed Paper	42.40	$0.00	Caraustar RFG
Aluminum Cans	11.20	$9,567.45	Ashley's Recycling
Steel Cans	2.60	$0.00	RJ Recycling
White Goods	3.90	$6,888.25	Ashley's Recycling
Other Metals	1.10	$0.00	Local Individuals
#1 Plastics	3.30	$0.00	Caraustar RFG
#2 Plastics	2.50	$0.00	Caraustar RFG
Mixed Glass	7.70	$0.00	Braddish Glass
Electronics	6.50	$0.00	-----
Other Materials	3.80	$1,829.82	Ashley's Recycling
	133.80	**$22,368.22**	

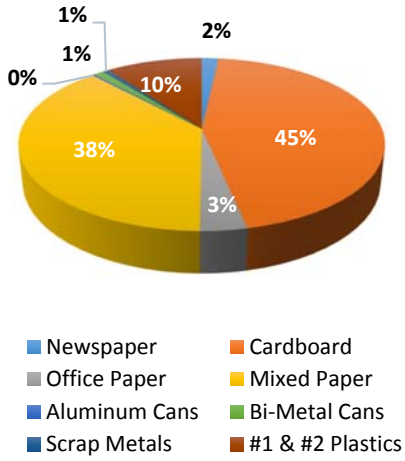
Calhoun Tonnage



Kanawha

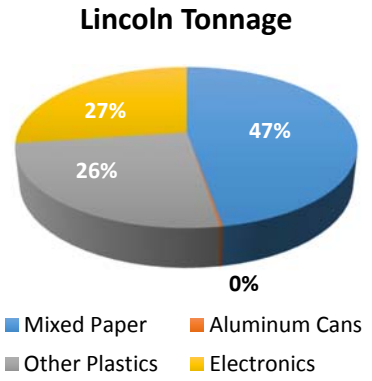
Drop-Offs:	3	Materials Collected: Source Separated	
Curbside Programs:	6	Geographic Area of Responsibility: 10%	
	Tons	Income	Markets
Newspaper	11.03	-----	WV Cashin Recyclables
Cardboard	280.10	-----	WV Cashin Recyclables
Office Paper	21.91	-----	WV Cashin Recyclables
Mixed Paper	236.16	-----	WV Cashin Recyclables
Aluminum Cans	1.94	-----	WV Cashin Recyclables
Bi-Metal Cans	6.38	-----	WV Cashin Recyclables
Scrap Metals	4.08	-----	WV Cashin Recyclables
#1 & #2 Plastics	62.86	-----	WV Cashin Recyclables
	624.46	**$0.00**	

Kanawha Tonnage



Lincoln

Drop-Offs:	2	Materials Collected: Not Reported	
Curbside Programs:	0	Geographic Area of Responsibility: 25%	
	Tons	Income	Markets
Mixed Paper	26.00	$0.00	Rt. 2 Recycling
Aluminum Cans	0.11	$0.00	Rt. 2 Recycling
Other Plastics	14.00	$0.00	Rt. 2 Recycling
Electronics	14.96	$0.00	Rt. 2 Recycling
	55.07	**$0.00**	

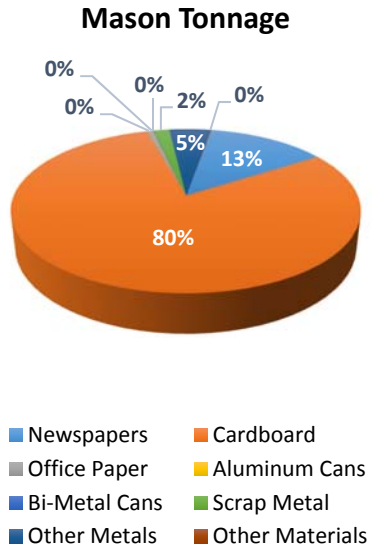


Logan

Logan County does not own, operate, or participate in a recycling program.

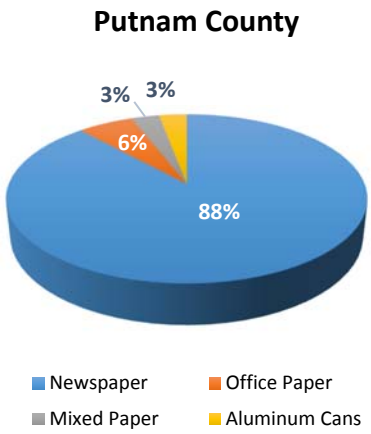
Mason

Drop-Offs:	0	Materials Collected: Commingled (except Cardboard)	
Curbside Programs:	0	Geographic Area of Responsibility: 60%	
	Tons	Income	Markets
Newspapers	35.41	$1,141.18	Jackson Co Solid Waste Authority
Cardboard	215.69	$19,764.50	FoxRun Recycling
Office Paper	1.47	$166.05	Jackson Co Solid Waste Authority
Aluminum Cans	0.22	$144.18	L&L Scrap Metals
Bi-Metal Cans	0.33	$131.40	L&L Scrap Metals
Scrap Metal	4.64	$523.69	L&L Scrap Metals
Other Metals	12.34	$876.66	L&L Scrap Metals
Other Materials	0.22	$39.34	L&L Scrap Metals
	270.32	**$22,787.00**	



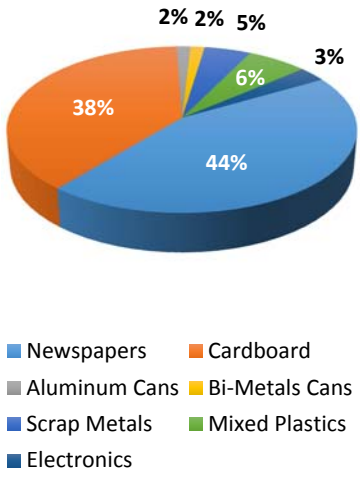
Putnam

Drop-Offs:	3	Materials Collected: Source Separated	
Curbside Programs:	1	Geographic Area of Responsibility: 10%	
	Tons	Income	Markets
Newspaper	30.00	-----	WV Cashin Recyclables
Office Paper	2.00	-----	WV Cashin Recyclables
Mixed Paper	1.00	-----	WV Cashin Recyclables
Aluminum Cans	1.00	-----	WV Cashin Recyclables
	34.00	**$0.00**	



Roane

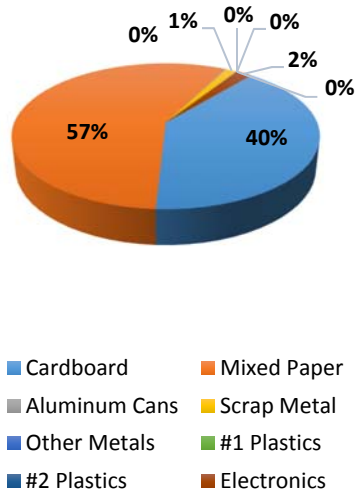
Drop-Offs:	4	Materials Collected: Not Reported	
Curbside Programs:	0	Geographic Area of Responsibility: 90%	
	Tons	Income	Markets
Newspapers	90.00	$3,600.00	Jackson Co. SWA
Cardboard	78.00	$3,120.00	Jackson Co. SWA
Aluminum Cans	3.00	$2,400.00	Local Recycling / Jackson Co. SWA
Bi-Metals Cans	3.00	$1,874.64	Local Recycling / Jackson Co. SWA
Scrap Metals	10.00	$0.00	Local Recycling / Jackson Co. SWA
Mixed Plastics	13.00	$1,157.46	Marietta, OH
Electronics	6.00	$224.60	Jackson Co. SWA
	203.00	**$12,376.70**	



Wayne

Drop-Offs:	85	Materials Collected: Commingled	
Curbside Programs:	1	Geographic Area of Responsibility: 70-80%	
	Tons	Income	Markets
Cardboard	40.49	$821.52	Caraustar / Rumpke Recycling
Mixed Paper	57.73	$618.60	Caraustar / Rumpke Recycling
Aluminum Cans	0.18	$117.70	Taylor Iron & Metal
Scrap Metal	1.4	$110.00	Taylor Iron & Metal
Other Metals	0.05	$30.10	Taylor Iron & Metal
#1 Plastics	-----	$0.00	Rumpke Recycling
#2 Plastics	-----	$0.00	Rumpke Recycling
Electronics	2.00	$0.00	*None marketed in 2015
	101.85	**$1,697.92**	

Wayne Tonnage



WASTESHED H: RECYCLING ANALYSIS

Recycling Facilities	
Drop-Offs	**26**
Curbside	**8**

Recycling Tonnage/Revenue	
Total Recycled	**3,234.36**
Total Recycling Income	**$83,080.31**

Recycling Materials Collected and Marketed in Wasteshed H: 2013 & 2015 Comparison

	TONNAGE			INCOME		
MATERIAL	**2013**	**2015**	**Change**	**2013**	**2015**	**Change**
Metals						
Aluminum Cans	13.38	38.99	25.61	$16,549.08	$12,299.53	($4,249.55)
Bi-Metals Cans	9.17	13.80	4.63	$629.35	$2,236.16	$1,606.81
Steel Cans	0.00	39.32	39.32	$0.00	$0.00	$0.00
Scrap Metals	6.13	203.26	197.13	$10,622.61	$11,700.69	$1,078.08
White Goods	8.38	3.90	(4.48)	$948.00	$6,888.25	$5,940.25
Other Metals	131.93	13.49	(118.44)	$4,112.15	$906.76	($3,205.39)
Paper						
Newspapers	52.88	712.37	659.49	$0.00	$4,802.75	$4,802.75
Cardboard	661.12	967.29	306.17	$40,827.95	$38,547.83	($2,280.12)
Office Paper	0.00	30.68	30.68	$0.00	$680.05	$680.05
Mixed Paper	1,179.50	537.55	(641.95)	$12,919.51	$1,767.07	($11,152.44)
Other Paper	17.31	10.24	(7.07)	$0.00	$0.00	$0.00
Plastics						
#1 PET	0.00	33.07	33.07	$0.00	$0.00	$0.00
#2 HDPE	0.00	52.97	52.97	$0.00	$0.00	$0.00
Mixed Plastics	27.30	85.87	58.57	$1,578.90	$1,157.46	($421.44)
Other Plastics	0.00	14.00	14.00	$0.00	$0.00	$0.00
Glass						
Clear	0.00	0.00	0.00	$0.00	$0.00	$0.00
Amber	0.00	0.00	0.00	$0.00	$0.00	$0.00
Green	0.00	0.00	0.00	$0.00	$0.00	$0.00
Mixed Glass	0.00	243.90	243.90	$0.00	$0.00	$0.00
Other Materials						
Commingled	775.33	0.00	(775.33)	$80.00	$0.00	($80.00)
Yard Waste / Brush	418.63	0.00	(418.63)	$0.00	$0.00	$0.00
Electronics	131.07	29.46	(101.61)	$122.40	$224.60	$102.20
Tires	17.85	0.00	(17.85)	$0.00	$0.00	$0.00
Other Materials	4.54	204.20	199.66	$2,864.48	$1,869.16	($995.32)
	3,454.52	**3,234.36**	**(220.16)**	**$91,254.43**	**$83,080.31**	**($8,174.12)**

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.

2010 US Census Population and Waste Projections for One Month

Wasteshed H Population	**520,318**
Municipal Solid Waste Tonnage, One Month	**35,055**

Sensitivity Analysis: Monthly Recycling Tonnage Potential

		Tons Per Month At:			
Material	**Percent of Material in Waste Stream***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	11.6%	4,066.38	2,033.19	1,016.60	406.64
Mixed Paper	13.4%	4,697.37	2,348.69	1,174.34	469.74
Mixed Plastics	5.5%	1,928.03	964.01	482.01	192.80
Aluminum Cans	0.6%	210.33	105.17	52.58	21.03
Steel Cans	0.9%	315.50	157.75	78.87	31.55

*Percentages were taken from US EPAs *Municipal Solid Waste Generation, Recycling, and Disposal in the United States Tables and Figures for 2010* report.

Sensitivity Analysis: Monthly Recycling Revenue Potential

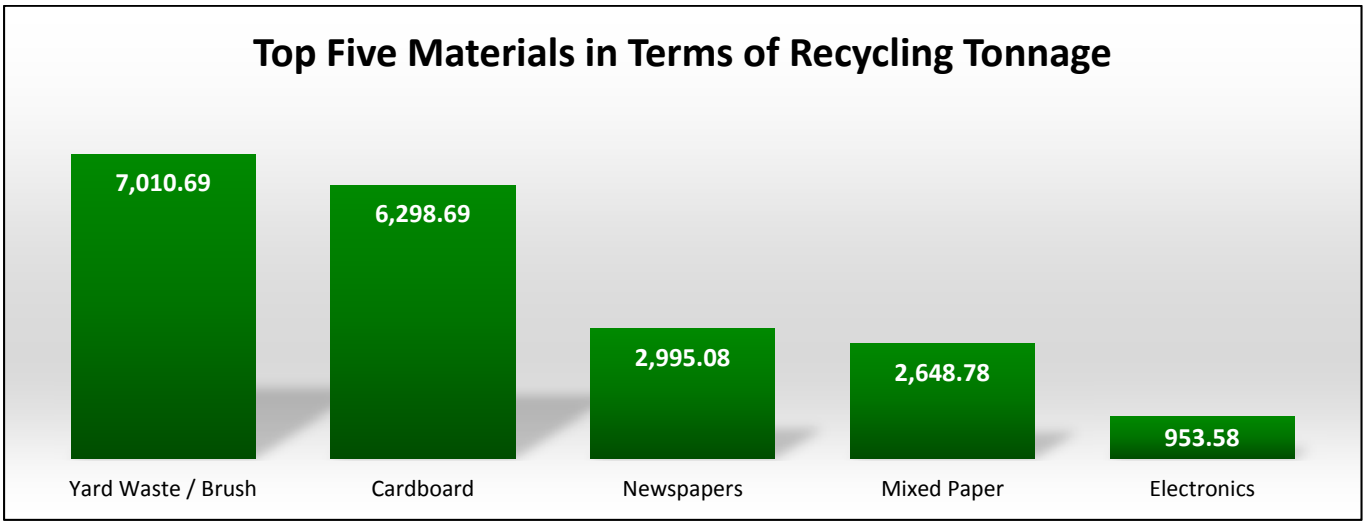
		Revenue Potential At:			
Material	**Average Price Per Ton/lb.***	**100% Recycled**	**50% Recycled**	**25% Recycled**	**10% Recycled**
Cardboard	$97.50	$396,472.05	$198,236.03	$99,118.01	$39,647.21
Mixed Paper	$62.50	$293,585.63	$146,792.81	$73,396.41	$29,358.56
Mixed Plastics*	$0.03	$115,681.80	$57,840.90	$28,920.45	$11,568.18
Aluminum Cans*	$0.58	$243,982.80	$121,991.40	$60,995.70	$24,398.28
Steel Cans	$112.50	$35,493.75	$17,746.88	$8,873.44	$3,549.38

*Mixed plastics and aluminum cans are priced by the pound, all other commodities are priced by ton. Average price for each commodity was based on the regional average for Northeast US Region 2 as listed on RecyclingMarkets.net for July 2016.
Numbers and calculations may vary due to rounding.

SOLID WASTE AUTHORITY 2015 RECYCLING SURVEY SUMMARY

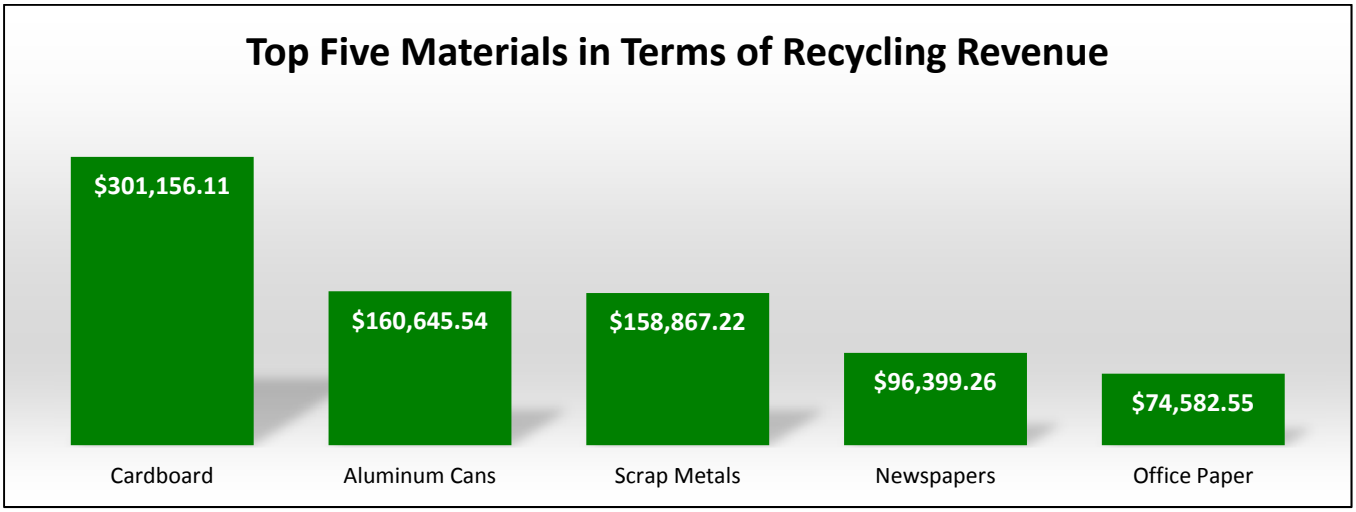
Tonnages Collected by Solid Waste Authority Recycling Programs: 2015

MATERIAL	WSA	WSB	WSC	WSE	WSF	WSG	WSH	TOTALS
Yard Waste / Brush	0.00	99.75	99.23	3,987.36	0.00	2,824.35	0.00	7,010.69
Cardboard	108.72	2,556.64	705.31	102.73	941.87	916.13	967.29	6,298.69
Newspapers	12.82	925.69	446.52	0.00	211.00	686.68	712.37	2,995.08
Mixed Paper	269.77	76.92	34.00	976.28	83.74	670.52	537.55	2,648.78
Electronics	70.46	73.86	1.00	497.09	168.42	113.29	29.46	953.58
Scrap Metals	38.40	13.95	0.00	509.91	131.51	0.00	203.26	897.03
Commingled	214.84	360.00	0.00	175.21	0.00	0.00	0.00	750.05
Office Paper	0.00	249.05	41.14	0.00	106.00	294.38	30.68	721.25
Other Materials	0.00	0.00	0.00	465.03	0.46	0.00	204.20	669.69
Mixed Glass	0.00	0.00	78.15	243.34	0.00	0.00	243.90	565.39
Other Paper	24.18	225.48	24.90	105.34	127.00	40.43	10.24	557.57
Mixed Plastics	26.23	2.51	88.08	230.77	0.00	57.92	85.87	491.38
#1 PET	0.00	94.95	11.20	0.00	69.18	52.78	33.07	261.18
Other Metals	0.00	115.03	2.00	10.00	33.89	22.15	13.49	196.56
#2 HDPE	0.00	56.03	0.00	0.00	23.33	61.66	52.97	193.99
Aluminum Cans	4.99	33.78	4.31	15.62	79.03	16.65	38.99	193.37
Tires	1.85	23.76	0.00	0.00	51.82	109.47	0.00	186.90
White Goods	0.00	0.00	0.00	0.00	0.00	121.60	3.90	125.50
Bi-Metals Cans	4.31	48.36	3.00	30.89	2.16	0.00	13.80	102.52
Other Plastics	0.00	0.00	64.00	12.00	0.00	0.00	14.00	90.00
Steel Cans	0.00	0.00	15.64	0.00	0.00	0.00	39.32	54.96
Amber Glass	5.84	12.00	0.00	0.00	0.00	0.00	0.00	17.84
Clear Glass	2.63	10.00	0.00	0.00	0.00	0.00	0.00	12.63
Green Glass	0.57	4.00	0.00	0.00	0.00	0.00	0.00	4.57
Wasteshed Totals	**785.61**	**4,981.76**	**1,618.48**	**7,361.57**	**2,029.41**	**5,988.01**	**3,234.36**	**25,999.20**



Revenue Earned by Solid Waste Authority Recycling Programs: 2015

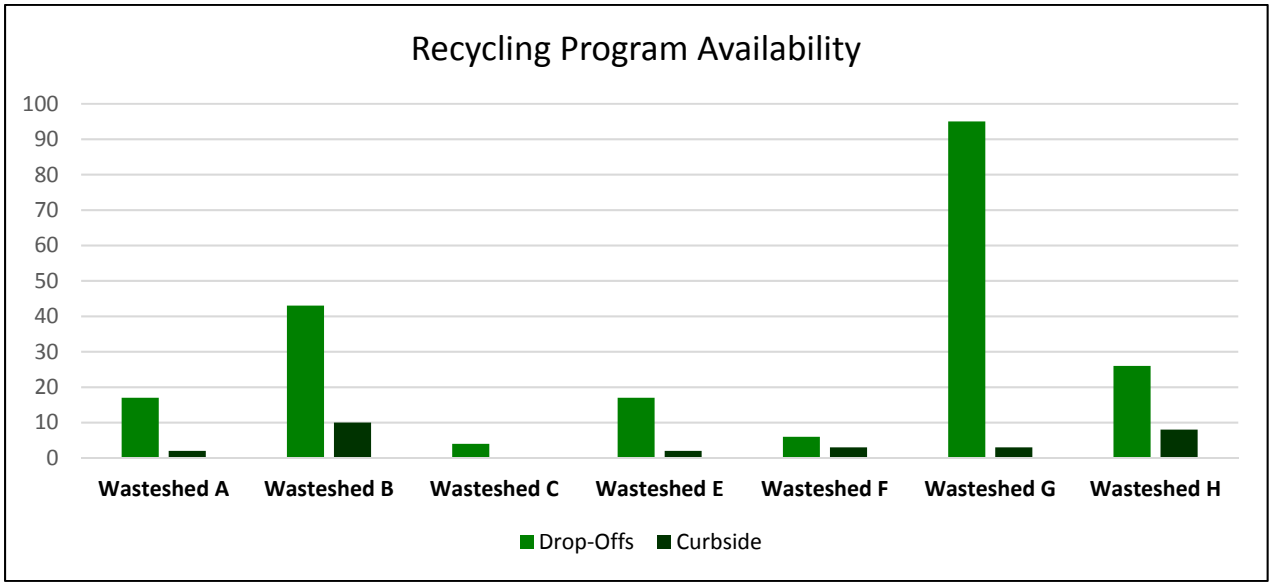
MATERIAL	WSA	WSB	WSC	WSE	WSF	WSG	WSH	TOTALS
Cardboard	$0.00	$35,332.54	$64,059.92	$2,512.23	$85,885.68	$74,817.91	$38,547.83	$301,156.11
Aluminum Cans	$3,145.90	$13,839.71	$4,010.24	$8,578.44	$99,874.42	$18,897.30	$12,299.53	$160,645.54
Scrap Metals	$2,777.10	$16,511.84	$0.00	$36,457.14	$91,420.45	$0.00	$11,700.69	$158,867.22
Newspapers	$0.00	$6,238.13	$29,106.01	$0.00	$12,856.87	$43,395.50	$4,802.75	$96,399.26
Office Paper	$0.00	$25,834.02	$5,652.60	$0.00	$12,584.20	$29,831.68	$680.05	$74,582.55
Mixed Paper	$15,694.00	$7,370.98	$436.00	$15,325.36	$0.00	$21,610.99	$1,767.07	$62,204.40
Yard Waste / Brush	$0.00	$0.00	$1,423.30	$19,542.76	$0.00	$29,410.22	$0.00	$50,376.28
#2 HDPE	$0.00	$6,799.68	$0.00	$0.00	$10,563.35	$31,042.10	$0.00	$48,405.13
Mixed Plastics	$1,654.30	$0.00	$19,401.80	$4,140.00	$0.00	$6,971.40	$1,157.46	$33,324.96
White Goods	$0.00	$0.00	$0.00	$0.00	$0.00	$13,800.80	$6,888.25	$20,689.05
Electronics	$1,232.58	-$4,572.52	$0.00	$4,505.78	$15,551.85	$739.73	$224.60	$17,682.02
#1 PET	$0.00	$2,516.16	$2,016.00	$0.00	$7,562.31	$4,982.22	$0.00	$17,076.69
Other Metals	$0.00	$846.00	$193.00	$7,275.00	$0.00	$4,419.83	$906.76	$13,640.59
Bi-Metals Cans	$374.55	$7,559.57	$210.00	$0.00	$0.00	$0.00	$2,236.16	$10,380.28
Other Paper	$0.00	$164.40	$0.00	$3,160.20	$5,968.41	$831.60	$0.00	$10,124.61
Other Materials	$0.00	$0.00	$0.00	$4,585.88	$0.00	$0.00	$1,869.16	$6,455.04
Other Plastics	$0.00	$0.00	$4,527.00	$0.00	$0.00	$0.00	$0.00	$4,527.00
Steel Cans	$0.00	$0.00	$1,104.67	$0.00	$0.00	$0.00	$0.00	$1,104.67
Mixed Glass	$0.00	$0.00	$924.90	$0.00	$0.00	$0.00	$0.00	$924.90
Commingled	$784.54	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$784.54
Tires	$0.00	$0.00	$727.00	$0.00	$0.00	$0.00	$0.00	$727.00
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
Wasteshed Totals	**$25,662.97**	**$118,440.51**	**$133,792.44**	**$106,082.79**	**$342,267.54**	**$280,751.28**	**$83,080.31**	**$1,090,077.84**



SWA Recycling Data Per Wasteshed*

	Drop-Offs	Curbside	Tonnage	Revenue
Wasteshed A	17	2	785.61	$25,662.97
Wasteshed B	43	10	4,981.76	$118,440.51
Wasteshed C	4	0	1,618.48	$133,792.44
Wasteshed E	17	2	7,361.57	$106,082.79
Wastecheed F	6	3	2,029.41	$342,267.54
Wasteshed G	95	3	5,988.01	$280,751.28
Wasteshed H	26	8	3,234.36	$83,080.31
	208	**28**	**25,999.20**	**$1,090,077.84**

*Drop-off recycling programs include school programs and public countywide programs. Recycling tonnage and income are collected by SWA recycling centers.



Beckley, City of

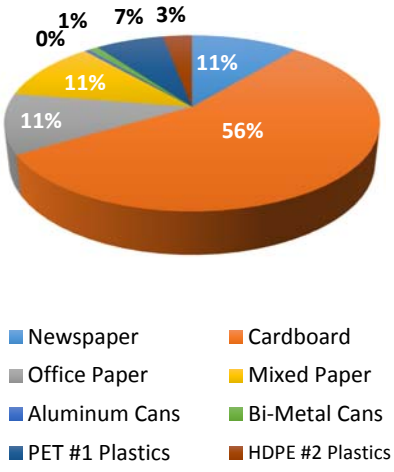
Did Not File a Report.

Bluefield, City of

Outsourced:	**No**	**Materials Collected: Commingled**
Process Materials:	**No**	**Compost Brush/Yard Waste: N/A**

	Tons	Income	Markets
Newspaper	26.03	$0.00	Mercer Co. SWA
Cardboard	131.34	$0.00	Mercer Co. SWA
Office Paper	26.03	$0.00	Mercer Co. SWA
Mixed Paper	26.03	$0.00	Mercer Co. SWA
Aluminum Cans	1.18	$0.00	Mercer Co. SWA
Bi-Metal Cans	2.37	$0.00	Mercer Co. SWA
PET #1 Plastics	16.57	$0.00	Mercer Co. SWA
HDPE #2 Plastics	7.10	$0.00	Mercer Co. SWA
	236.65	**$0.00**	

Bluefield Tonnage



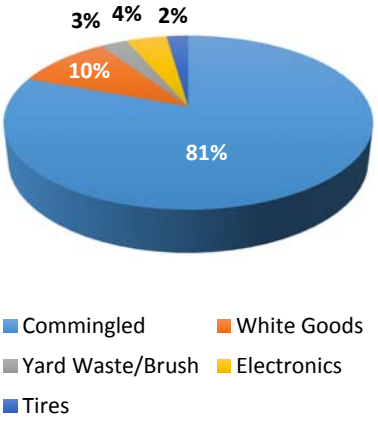
Charleston, City of

Outsourced:	**No**	**Materials Collected: Commingled**
Process Materials:	**No**	**Compost Brush/Yard Waste: Yes**

	Tons	Income	Markets
Commingled	604.00	$0.00	Raleigh Co Landfill
White Goods	75.00	$4,974.00	Allens Recycling
Yard Waste/Brush	21.00	$1,070.00	Copenhaver Compost Facility
Electronics	32.00	$0.00	JVS Environmental
Tires	17.00	$0.00	WV Tire Disposal
	749.00	**$6,044.00**	

Commingled materials include: Newspaper, office paper, mixed paper, cardboard, aluminum & bi-metal cans and plastics #1 & #2.

Charleston Tonnage



Clarksburg, City of

Outsourced:	Yes	Materials Collected: Commingled	
Process Materials:	No	Compost Brush/Yard Waste: Yes	
	Tons	Income	Markets
Yard Waste/Brush	520.50	$17,337.00	Locally Marketed
	520.50	**$17,337.00**	

Fairmont, City of

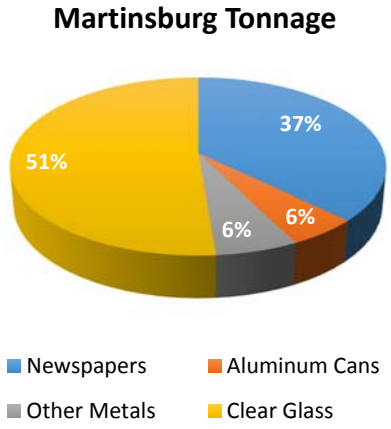
Did Not File a Report.

Huntington, City of

Did Not File a Report.

Martinsburg, City of

Outsourced:	No	Materials Collected: Source Separated	
Process Materials:	No	Compost Brush/Yard Waste: No	
	Tons	Income	Markets
Newspapers	21.06	$0.00	Not Reported
Aluminum Cans	3.00	$0.00	Not Reported
Other Metals	3.51	$0.00	Not Reported
Clear Glass	29.04	$0.00	Not Reported
	56.61	**$0.00**	

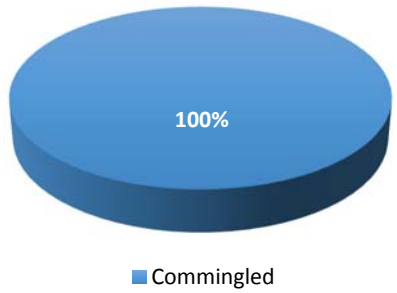


Morgantown, City of

Outsourced:	Yes	Materials Collected: Commingled	
Process Materials:	No	Compost Brush/Yard Waste: No	
	Tons	Income	Markets
Commingled	900.11	------	Not reported
	900.11	**$0.00**	

Commingled materials include: Newspaper, cardboard, office paper, mixed paper, other paper, aluminum and bi-metal cans, plastics #1-#7, and clear, green and amber glass.

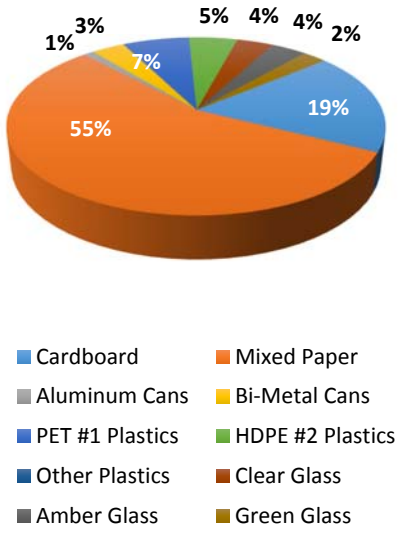
Morgantown Tonnage



Parkersburg, City of

Outsourced:	No	Materials Collected: Commingled	
Process Materials:	No	Compost Brush/Yard Waste: N/A	
	Tons	Income	Markets
Cardboard	188.43	$0.00	Caraustar
Mixed Paper	563.66	$15,857.97	Caraustar
Aluminum Cans	10.85	$1,186.22	Ashleys Recycling
Bi-Metal Cans	34.04	$4,886.37	RJ Recycling/Ashleys Recycling
PET #1 Plastics	68.80	$18,656.80	Caraustar/Mondo Polymer
HDPE #2 Plastics	50.05	$7,117.50	Mondo Polymer
Other Plastics	------	$8,364.50	Caraustar
Clear Glass	37.63	$104.51	Braddish Glass
Amber Glass	36.14	$64.46	Braddish Glass
Green Glass	25.09	------	Braddish Glass
	1014.69	**$56,238.33**	

Parkersburg Tonnage

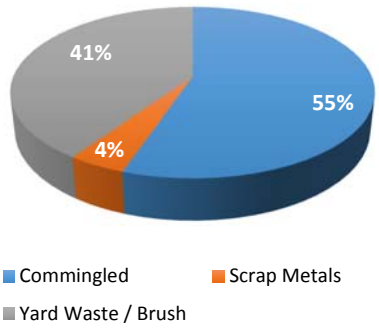


South Charleston, City of

Outsourced:	No	Materials Collected: Commingled	
Process Materials:	No	Compost Brush/Yard Waste: Yes	
	Tons	Income	Markets
Commingled	225.37	$0.00	Raleigh Co SWA
Scrap Metals	17.80	$1,227.00	R&J Recycling
Yard Waste / Brush	164.75	$0.00	Donated
	407.92	**$1,227.00**	

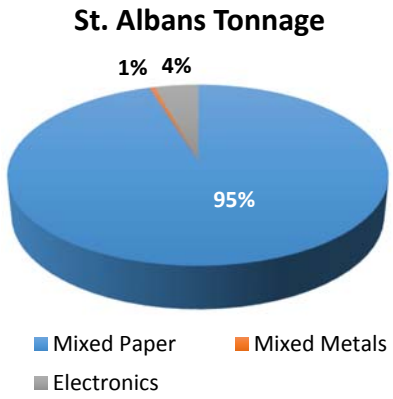
Commingled materials include: Mixed paper, aluminum & bi-metal cans and mixed plastics.

South Charleston Tonnage



St. Albans, City of

Outsourced:	No	Materials Collected: Commingled & Separated	
Process Materials:	No	Compost Brush/Yard Waste: Yes	
	Tons	Income	Markets
Mixed Paper	205.76	------	Not Reported
Mixed Metals	1.07	------	Not Reported
Electronics	9.38	------	Not Reported
	216.21	**$0.00**	



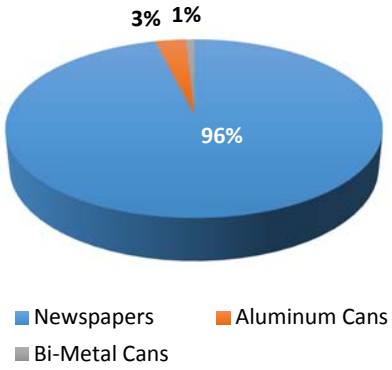
Mixed paper include: newspaper, cardboard, office paper and mixed paper.
Mixed metals include: aluminum cans, bi-metal cans and scrap metals.

Vienna, City of

Did Not File a Report.

Wheeling, City of

Outsourced:	No	Materials Collected: Source Separated	
Process Materials:	No	Compost Brush/Yard Waste: Yes	
	Tons	Income	Markets
Newspapers	220.00	$0.00	Not Reported
Aluminum Cans	7.00	$0.00	Not Reported
Bi-Metal Cans	2.00	$0.00	Not Reported
	229.00	**$0.00**	



MANDATED MUNICIPALITY RECYCLING SUMMARY

Total Materials and Revenue

Total Recyclable Materials	**4,328.08**
Total Recycling Revenue	**$72,481.83**

Recycling Materials Collected and Marketed by Mandated Municipalities: 2013 & 2015 Comparison

	TONNAGE			INCOME		
MATERIAL	**2013**	**2015**	**Change**	**2013**	**2015**	**Change**
Metals						
Aluminum Cans	18.40	19.03	0.63	$23,037.72	$1,186.22	($21,851.50)
Bi-Metals Cans	46.12	38.41	(7.71)	$13,056.74	$4,886.37	($8,170.37)
Steel Cans	0.00	0.00	0.00	$0.00	$0.00	$0.00
Scrap Metals	0.00	18.87	18.87	$0.00	$1,227.00	$1,227.00
White Goods	33.91	75.00	41.09	$5,705.30	$4,974.00	($731.30)
Other Metals	0.43	0.00	(0.43)	$0.00	$0.00	$0.00
Paper						
Newspapers	156.69	246.03	89.34	$0.00	$0.00	$0.00
Cardboard	702.88	319.77	(383.11)	$18,686.58	$0.00	($18,686.58)
Office Paper	60.00	26.03	(33.97)	$0.00	$0.00	$0.00
Mixed Paper	1,707.30	795.45	(911.85)	$32,913.05	$15,857.97	($17,055.08)
Other Paper	0.00	0.00	0.00	$0.00	$0.00	$0.00
Plastics						
#1 PET	89.03	85.37	(3.66)	$16,542.05	$18,656.80	$2,114.75
#2 HDPE	154.27	57.15	(97.12)	$16,542.05	$7,117.50	($9,424.55)
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	65.32	37.63	(27.69)	$233.55	$104.51	($129.04)
Amber	48.94	36.14	(12.80)	$0.00	$64.46	$64.46
Green	61.55	25.09	(36.46)	$0.00	$0.00	$0.00
Mixed Glass	0.00	0.00	0.00	$0.00	$0.00	$0.00
Other Materials						
Commingled	3,076.21	1,729.48	(1,346.73)	$20,932.80	$0.00	($20,932.80)
Yard Waste / Brush	871.34	760.25	(111.09)	$1,954.00	$18,407.00	$16,453.00
Electronics	62.81	41.38	(21.43)	$0.00	$0.00	$0.00
Tires	26.44	17.00	(9.44)	$0.00	$0.00	$0.00
Other Materials	0.00	0.00	0.00	$0.00	$0.00	$0.00
	7,181.64	**4,328.08**	**(2,853.56)**	**$149,603.84**	**$72,481.83**	**($77,122.01)**

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.

Appendix E

Recycle Infrastructure and Market Development in Other States

Appendix E: Recycle Infrastructure and Market Development in Other States

West Virginia: Recycle 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	The state, in accordance with WV Code §22C-4-30(e)(4), 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) Recycling, Market Development & Planning Section provides recycling, market development and other technical assistance to the 50 local solid waste authorities, businesses, government entities and others through grants, 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 Recycling, Market Development & Planning Section manages one of the state's grant programs, and assists with special projects such as electronics recycling.
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. Senate Bill 746, mandating manufacturers of covered electronic devices, doing business in West Virginia, register with the WV DEP, became effective April 15, 2010. 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 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 disposed of in a West Virginia landfill unless, a county or regional solid waste authority in the county that the landfill is located determines there is a cost effective recycling alternative for handling electronic devices.
Landfill Bans	West Virginia bans yard waste, lead acid batteries, tires, and covered electronic devices if a county or regional solid waste authority in which the landfill is located determines that there is a cost effective recycling alternative for handling the electronic devices which was changed by HB 4540 during the 2016 Legislative Session.
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 events and programs. SWMB grant program is available to local solid waste authorities only.
Recycling Budget	West Virginia's FY 2016 & CY 2016 recycling grant programs distributed $2.8 million.
Recycling Goals	West Virginia has no mandated recycling goals. It had a mandated 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.

West Virginia: Recycle Market Development

Recycling Reporting Requirements	West Virginia has no recycling reporting requirements for community recycling centers, commercial recyclers, materials processing centers, or scrap yards. West Virginia's 50 local Solid Waste Authorities are required to submit a Recycling Plan to the Solid Waste Management Board, and to update that plan every 5 years. The state's Covered Electronic Devices program requires manufacturers to file annual recycling reports with the Secretary of the Department of Environmental Protection and to post the information on the internet.

Kentucky: Recycle 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 have primary responsibility for solid waste management within their borders and authority to place a surcharge on property taxes to pay for waste management services. Most of the responsibility for recycling in Kentucky lies with 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 that exempts purchases from state and local sales and use tax that processes postconsumer waste and compost.
Recycling Programs	The DEP - Division of Waste Management operates a scrap paper and cardboard recycling program for all state government offices located in Frankfort/Franklin County (the capital) and averages over 1,500 tons per year. Some form of recycling program exists in most Kentucky counties ranging from convenience and drop-off centers to curbside single stream collection. The Recycling Assistance Section in the DWM provides technical assistance in designing and evaluating recycling programs and provides monthly 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 statues that require all state agencies and state supported institutions of higher learning to recycle paper and cardboard, and requires 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, fund Kentucky's recycling grant program. For 2015-2016, the grant total was $4,519,210.33; this is divided between HHW ($661,928.14) Recycling ($3,728,101.33), and Composting ($129,180.86).
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. In 2002, HB 174 and in 2007, SB 50 amended various parts of the state's waste management statutes but did not include new waste reduction goals.
Recycling Rate	Kentucky's common household material (aluminum, cardboard, steel, plastic, newspaper, glass and paper) recycling rate for 2014 decreased from 37.7% to 36.6% in 2015.
Recycling Reporting	It is required for counties to report in the Annual Solid Waste Update.

Maryland: Recycle Market Development

Funding Sources	State funding for recycling comes from the State's General Fund and from the State Recycling Trust Fund. The Trust Fund is financed through electronic manufacturer registration fees, and telephone directory and newspaper publisher fines, as well as a $1 per mercury vehicle switch recovered by vehicle recyclers and scrap recyclers as partial compensation to the Department from manufacturers for the oversight of the Mercury Vehicle Switch Recovery Program. 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 from the State 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.
Recycling Programs	Local recycling programs, required as a result of the 1988 Maryland Recycling Act, are run by 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 (MDE) 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. Modified in 2012, 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 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.
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.

Maryland: Recycle Market Development

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.
Recycling Budget	Maryland's FY 2011 recycling budget was approximately $2.67 million. This amount is the state budget only and does not include local input.
Recycling Goals	Maryland has a voluntary waste diversion goal of 60%. The waste diversion goal is comprised of a recycling percentage, plus a source reduction credit of up to 5%.
Recycling Rate	Maryland's 2014 MRA Waste Diversion Rate was 47.6% and was comprised of a 43.5% Recycling Rate and a 4.1% Source Reduction Credit.
Recycling Reporting Requirements	Maryland Counties are required to report by April 1st, annually, to MDE on 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, tires and mercury switches.

North Carolina Recycle Market Development

Funding Sources	North Carolina funds its recycling programs through appropriations from the General Fund budget.
Recycling Incentives	A tax incentive for recycling and resource recovery facilities and equipment was adopted in 1976 and amended in 1991. Under this provision, recycling businesses may be entitled to special tax treatment for real and personal property tax, corporate state income tax and franchise tax on domestic and foreign corporations. They have an accelerated depreciation option for recycling equipment to encourage the purchase of new equipment and use a franchise exemption for recycling businesses.
Recycling Programs	The Division of Environmental Assistance and Customer Service (EACS) is a non-regulatory Division in the Department of Environmental Quality that houses the Recycling and Materials Management Section (RMMS). RMMS provides technical assistance to local government recycling programs, recycling businesses, and waste generators to reduce and recycle materials. RMMS has grant programs for both local governments and for recycling businesses, maintains a directory of markets for recyclable materials, and recycling markets assistance partnerships with the Department of Commerce and Economic Development Partnership.
Recycling Mandates	Computer equipment and televisions manufacturers are required to register with the state and participate in the state's electronics recycling program. Computer manufacturers pay a large registration fee, which is used to help fund local programs; TV manufacturers have to recover a portion of all TV tonnage each year equivalent to their market share. North Carolina also has a law requiring holders of certain Alcoholic Beverage Commission permits to implement a program to separate, store, and recycle all beverage containers generated at their establishments.

North Carolina Recycle Market Development

Landfill Bans	More than any state in the region, North Carolina uses landfill bans to stimulate the recycling sector. Statewide they ban aluminum cans, lead-acid batteries, used motor oil and filters, antifreeze, whole tires, white goods, wood pallets, plastic bottles, oil filters, beverage containers, oyster shells, and yard waste. Effective July 1, 2011, North Carolina also bans electronic waste and fluorescent lights and thermostats that contain mercury. In addition to statewide bans many of the state's 100 counties have "disposal diversion ordinances" on certain recyclable materials such as newspaper, plastic, office paper, wood, steel and glass and enforce the ordinances through surcharges on loads with heavy fractions of these recyclables.
Recycling Grants/Loans	Recycling grants are offered in two main programs: one for local government recycling programs and one for recycling businesses. General funding levels for each program each year is $500,000.
Budget	The budget for recycling, including appropriations and the solid waste trust fund for FY 2016, was $2.5 million (note: this does not include funds from the tire and white goods taxes that go directly to the counties to help them manage those materials.)
Recycling Goals	North Carolina does not have a current formal recycling goal.
Recycling Rate	Local governments submit annual reports to the state detailing their recovery of various materials. In FY 2015, local programs recycled a total of 1,576,000 tons of materials ranging from paper to plastic, electronics, glass, yard waste, and metals.
Recycling Reporting Requirements	Localities report by Sept 1 each year. Private firms do not report unless they are under a Division of Waste Management permit. This would include a C&D landfill that recycles or a composting firm. These facilities also report by Sept 1st.

Ohio: Recycle Market Development

Funding Sources	The Ohio Department of Environmental Protection (ODEP), Division of Recycling & Litter Prevention is funded by a Construction & Demolition Debris (CDD) statewide fee enacted on July 1, 2005. The portion of the fee, which is dedicated to the division amounts to $0.60 per ton of CDD material disposed in Ohio facilities. In addition, the division receives $1 million dollars annually for the purpose of scrap tire market development. These funds originate from Ohio's fee on the purchase of tires ($1.00 per tire at the point of sale).
Recycling Incentives	Not Applicable.
Recycling Programs	ODEP manages Ohio's grant programs including the Market Development Grant and Scrap Tire Grant. Additionally, the division provides grants (Community Development Grant) for the establishment and operation of community based recycling projects and litter control grants. Other services include technical guidance to state agencies and colleges/universities in the implementation of local recycling programs.
Recycling Mandates	Not Applicable.
Landfill Bans	Ohio bans scrap tires, lead acid batteries and yard waste.
Recycling Grants/Loans	Ohio EPA offers grants to Ohio cities, counties and Ohio solid waste management districts or authorities to implement recycling, litter collection and recycling market development projects. Businesses or non-profit organizations seeking market development funding must secure a sponsor to serve as the grant applicant. Market Development Grants funding is targeted at processors and manufacturers seeking to purchase equipment, which allows them to utilize recyclable materials collected in Ohio. The Scrap Tire Grant Program targets scrap tire processors, tire derived fuel facilities, rubberized mulch and crumb rubber operations, research and development firms and other entities for expenses related to the use of scrap tires or scrap tire material.

Ohio: Recycle Market Development

Budget	Ohio's FY 2017 market development, community development and scrap tire grant budget was about $4.25 million.
Recycling Goals	Ohio's *2009 State Solid Waste Management Plan* established the following goals: • **Goal 1, Recycling Infrastructure**: Solid Waste Management Districts (SWMD) must make recycling opportunities available to 90% of their residents and must ensure that commercial generators have opportunities to recycle. Goal 1 is called the "Infrastructure Goal." • **Goal 2, Waste Reduction and Recycling**: SWMDs must reduce and/or recycle at least 25 percent of the residential/commercial solid waste and 66 percent of the industrial solid waste generated. • **Goal 3, Outreach and Education, Minimum Required Programs**: As minimum requirements, each SWMD must make available; a website, provide a comprehensive resource guide, provide an inventory of available infrastructure and provide a speaker/presenter. • **Goal 4, Outreach and Education**: The SWMD must provide education, outreach, marketing and technical assistance to identified target audiences. • **Goal 5, Restricted Solid Waste, Household Hazardous Waste, Electronics**: The SWMD shall provide strategies for managing scrap tires, yard waste, lead-acid batteries, HHW and electronics. • **Goal 6, Economic Incentives**: The SWMDs shall explore how to incorporate economic incentives into source reduction and recycling programs. • **Goal 7, Measure Greenhouse Gas Reduction**: The SWMDs will measure greenhouse gas reductions using the EPA Waste Reduction Model (or an equivalent model). • **Goal 8, Market Development**: The SWMDs have the option of providing market development strategy. • **Goal 9, Reporting:** Each SWMD shall report annually to the Ohio EPA regarding implementation of its solid waste management plan.
Recycling Rate	For 2014, Ohio EPA estimates that Ohio's statewide residential/commercial reduction and recycling rate was 27%, that the industrial rate was 56%, and that the overall rate was 43%.
Recycling Reporting Requirements	Ohio's SWMDs shall report annually to the Ohio EPA regarding implementation of its solid waste management plan.

Pennsylvania: Recycle 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.
Recycling Incentives	As incentives to municipalities, Pennsylvania provides recycling performance grants based on quantity of materials recycled. They also believe the widespread availability of curbside recycling is an incentive to recycle. Over 900 communities provide curbside collection.
Recycling Programs	PADEP financially supports the PA Recycling Markets Center (PARMC) which is able to work 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 into 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.

Pennsylvania: Recycle Market Development	
Recycling Grants/Loans	According to the PA's FY 2016/2017 budget, dated September 27, 2016, PA DEP will make about $46~~.4~~ million available for recycling programs in general, and allocate $42.65 million of that for grants to local governments. Of that amount, $19.6 million will go for municipal Recycling Grants, $19.0 million for municipal recycling performance grants, $2 million for county planning grants, $1.6 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 and yard waste 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 2016 recycling budget is $56.6 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.
Recycling Reporting Requirements	Counties are required to report annually to PA DEP on all of their recycling efforts.

Virginia: Recycle Market Development	
Funding Sources	1) The Virginia Department of Environmental Quality (DEQ) provides supplemental funding to locality-based litter and recycling programs from various forms of business taxation (litter/recycling tax). Each business owner pays a $10 "owner's fee" type of litter control tax, and an additional $15 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 from the state to levee a consumer utility tax to cover the cost of solid waste management, which 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. 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 the two tiered recycling rate based upon 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.

Virginia: Recycle Market Development	
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 the CRTs. A new law in 2010 will allow jurisdictions to ban mercury thermostats from the landfill if they have a program to otherwise manage the thermostats.
Recycling Grants/Loans	Virginia's recycling grant programs distribute 95% of available funds to localities for litter prevention and recycling programs, and the remaining 5% is used for administrative expenses by the Virginia Department of Environment Quality (DEQ).
Recycling Budget	For SFY 2017, recycling and litter prevention related funding available for local grants and grant administration totaled $1,812,330.
Recycling Goals	All localities (counties, cities and towns or regional program units) are required to recycle at least 15% or 25% of their MSW. There are possible civil and permitting penalties involved for those that do not meet the goals.
Recycling Rate	For CY 2015, Virginia's recycling rate was 44.2%.

Endnotes for Appendix E

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