# Charles County, Maryland

## Ten-Year Comprehensive Solid Waste Management Plan (2022-2031)

February 9, 2022

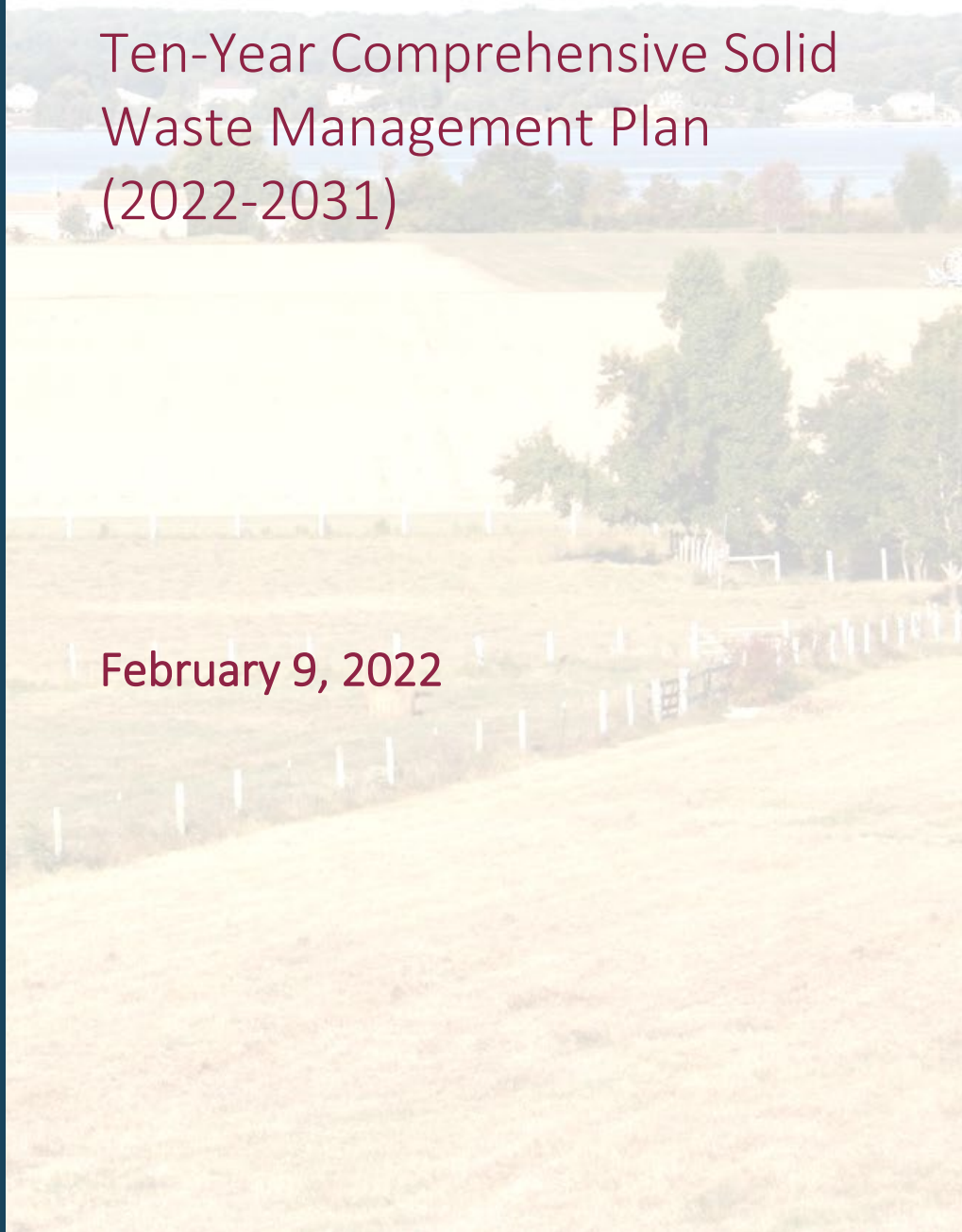

*Photo Credit: Charles County Government's Facebook account*

# Charles County, Maryland

## Comprehensive Solid Waste Management Plan

## (2022-2031)

Submitted by the
Charles County Board of Commissioners
200 Baltimore St.
La Plata, MD 20646

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# Charles County Resolution Adopting Plan

The governing authority in Charles County is the Charles County Commissioners. The *Charles County Comprehensive Solid Waste Management Plan* was approved and adopted by the Charles County Commissioners as stipulated in Resolution 2022-01 dated February 9, 2022. See Appendix B – Amendments

Amendments to County Commissioners of Charles County, Maryland Resolution No. 2022-01 Adoption of the Charles County Comprehensive Solid Waste Management Plan for 2022-2031.

# MDE Approval Letter

The letter approving this *Charles County Comprehensive Solid Waste Management Plan* from the Maryland Department of the Environment follows.

April 6, 2022

Mr. Bernard Cochran, Acting Director
Charles County Department of Public Works
1001 Radio Station Road
La Plata, Maryland 20646

Dear Mr. Cochran:

The Maryland Department of the Environment ("MDE") has completed its review of Charles County's (the "County") adopted Resolution No. 2022-01 for the County's 2022-2031 Solid Waste Management Plan (the "Plan"). The County Commissioners adopted the Plan on February 9, 2022, and the County forwarded the Plan to MDE for its review and approval. MDE received the adopted resolution on February 23, 2022.

Based on this review, MDE determined that the adopted resolution satisfies the requirements of Sections 9-503, 9-505, and 9-1703 of the Environment Article, Annotated Code of Maryland, and Code of Maryland Regulations 26.03.03. In accordance with Section 9-507(a) of the Environment Article, Annotated Code of Maryland, the Plan is approved.

Section 9-506(b)(2) of the Environment Article, Annotated Code of Maryland, requires the County to submit a progress report to MDE at least every two years including any revisions or amendments to the County Plan that have been adopted. Since the County's Plan was adopted on February 9, 2022, the County must submit to MDE its progress report on or before, **February 9, 2024**.

Thank you for your continuing interest and cooperation in providing sound and long-term solid waste management planning for the County. If you have questions or need additional clarification on these matters, please contact me at 410-537-3304 or by email at kaley.laleker@maryland.gov or Mr. David Mrgich, Chief, Waste Diversion Division, at 410-537-4142 or by email at dave.mrgich@maryland.gov.

Sincerely,

Kaley Laleker, Director
Land and Materials Administration

cc: Deborah Carpenter, Charles County Department of Planning and Growth Management
Frances Sherman, Charles County Department of Public Works
Dave Mrgich

# Introduction

## State Regulatory Requirements and Conformity with COMAR

Solid waste management regulations and policies exist at the federal, state, and local government levels. Traditionally, the federal government has provided the overall regulatory direction and minimum national standards for protecting human health and the environment. The implementation of these regulations is the responsibility of the state and local governments.

The Maryland Department of the Environment (MDE) administers and implements federal and state solid waste management regulations. Each county is required to prepare and adopt a solid waste management plan which addresses a 10-year planning period. The plan is to be reviewed and updated, if necessary, by the county every three (3) years. Upon adoption by the county, the plan is then submitted to MDE for approval.

The *Charles County Comprehensive Solid Waste Management Plan 2022 - 2031*, was prepared in accordance with the requirements of the COMAR 26.03.03, a copy of which is provided in Appendix A – COMAR 26.03.03.

## National Trends and Factors Influencing Solid Waste Management

According to the EPA, the total generation of municipal solid waste (MSW) in the United States in 2018 was 292.4 million tons (U.S. short tons, unless specified). Solid waste generation per capita has continuously increased in the last 20 years despite a heightened public awareness of the necessity for waste reduction. This increase is not only the direct effect of increased population, but the effect of an increase in the per capita waste generation. We generated a daily average of 2.6 pounds of trash per person in 1960; today (2018) that amount has increased to an average of 4.9 pounds per person per day.

As a nation, our previous disposal practices underestimated the importance of solid waste management. Improper planning, design, operation, and maintenance of waste dumps and incinerators without air pollution control provided a source of air, water, and soil contamination. Today, we realize that appropriate planning, design, operation, and maintenance are essential to reduce the potential of adverse environmental impacts from solid waste processing, recovery, and disposal facilities.

Recycling is a key method to reduce solid waste disposal. The Maryland Recycling Act (Maryland Environmental Code §9-1703) requires counties with a population over 150,000, which includes Charles County, to reduce their waste 35% through recycling. Counties whose population is under 150,000 are required to recycle 20% of their generated waste. While recycling is characterized by a plethora of challenges, including fluctuating markets, energy intensive processes, and contamination, it continues to provide numerous benefits, including reducing landfilling of materials, conserving energy, and natural resources, creating jobs, and spurring economic development.

In Charles County, the existing landfill currently in operation may reach its capacity depending on a number of variables that will be addressed in subsequent chapters. At the same time, the overall population as well as the population density in Charles County is on the rise. Therefore, Charles County must proactively address the need to minimize the amount of waste that is deposited in the landfill, and it must make plans for the future landfill closure as well as providing for continued access to disposal capacity elsewhere.

# Plan Organization

The *Charles County Comprehensive Solid Waste Management Plan* addresses the management of solid waste including generation, waste reduction, collection, transportation, processing, and disposal. Ultimately, this document will provide Charles County with a plan of action during the 10-year planning period. Topics to be included for discussion in the solid waste management plan are outlined in COMAR 26.03.03.03.

# Methodology

The *Charles County Comprehensive Solid Waste Management Plan* was completed over the course of the 2021 calendar year. The plan was developed by the Charles County Department of Public Works, Environmental Resources Division (DPW) with the assistance of solid waste management consulting firm Gershman, Brickner & Bratton, Inc (GBB). The following elements were part of the data gathering methodology.

## Public Surveys

The public survey was available online and was advertised through Facebook ads as well as posters at solid waste facilities. There were a total of 1,267 responses to the Charles County Recycling survey, regardless of whether the respondent completed the survey or just started and stopped. Of the total responses, 976 were considered completed – those that went through the entire survey and submitted their final response—however, the opinions of those that started and stopped are still valid. Of those that started and stopped (but did not complete) the survey, 168 were counted and the remaining 123 were false starts, duplicate false starts, or terminated by the respondent. In total, 1,144 responses were counted (976 completed + 168 started and stopped). The average time taken to complete the survey was 9 minutes. Findings from the public survey are incorporated throughout this report.

## Influencer Interviews

The GBB team conducted a series of 30- to 45-minute interviews over the phone with County residents, personnel, and business owners who were identified as having a critical stake on the successful implementation of and improvements to the solid waste management system in the County. The interviewees included representatives of public and government offices, private haulers, and environmental groups. While no specific recommendation or points are attributed to an individual interviewee, their insights inform a number of key findings and recommendations.

# Chapter 1: Goals and Regulatory Framework Regarding Solid Waste Management

## 1.1 Goals, Objectives, and Policies

Goals, objectives, and policies are fundamental elements for developing an effective and efficient solid waste management plan. Broad, generalized statements which reflect the values of the County are defined as the goals of the plan. Goals represent the fundamental desires and visions for the management of solid waste within Charles County. The goals are attainable by accomplishing specific objectives.

Goals and objectives for the management of solid waste in Charles County are presented below. The highest priority of this Plan, as established by the Charles County Department of Planning and Growth Management, Charles County Department of Public Works (Environmental Resources Division) and the Charles County Commissioners, is to ensure the conservation of resources and protection of the environment by maximizing waste reduction and recycling, thus minimizing the requirement for disposal capacity and facilities. To meet this goal, efficient planning and management of solid waste infrastructure and disposal facilities is equally important.

### 1.1.1 Goals

The following six goals are critical in developing this Plan:

- Preserve and protect the natural environment
- Protect human health and safety by providing a clean living environment
- Provide a cost-effective, self-sufficient solid waste management program
- Promote recycling, waste reduction, and reuse of materials throughout the County
- Continue to explore the feasibility of the use and/or sale of methane gas at the County's landfill
- Expand commercial recycling activities in the County

In pursuing this strategy, the County affirms its commitment to foster public involvement in solid waste management issues, to protect the environment by developing a state-of-the-art landfill maximizing environmental protection, and to ensure a future source of funding for its solid waste management program.

The planning and decision-making process governing solid waste management issues in Charles County is guided by both regulatory requirements and input from the public. The goals and objectives of this Plan seek to protect the environment and ensure a high quality of life for residents through conservation of natural resources by maximizing waste reduction and recycling, while minimizing costs.

### 1.1.2 Objectives

The following objectives are organized into five categories and are designed to help ensure that the SWMP goals will be met.

#### 1.1.2.1 COLLECTION

- Ensure that adequate solid waste collection services are available to all county citizens and commercial establishments at a reasonable cost.

- Continue to provide curbside collection of recyclables and yard waste to the more densely populated areas of Charles County and expand the program when economically feasible.
- Evaluate the feasibility of providing Municipal Solid Waste (MSW) collection services within the County Development District while reflecting the stipulations on HB 1300.[1]

#### 1.1.2.2 WASTE REDUCTION AND RECYCLING

- Promote the expansion of solid waste reduction, reuse, and recycling through diligent implementation of the approved *Charles County Comprehensive Solid Waste Management Plan*.
- Develop a broader understanding of the growing impact of solid waste on our daily lives.
- Develop an understanding of individual citizen contribution to the generation of solid waste.
- Inform citizens of choices they can make that will minimize waste production.
- Examine the use of innovative technology to reduce the reliance on landfilling solid waste.
- Continue to exceed the state mandated recycling rate of thirty-five (35) percent.
- Utilize public/private partnerships and incentives to expand commercial recycling.

#### 1.1.2.3 LAND DISPOSAL

- Provide continuous disposal capacity within the County for municipal solid waste, in an environmentally protective manner.
- All MSW landfills in Charles County shall be owned and operated by Charles County Government.
- Explore the feasibility of alternate waste disposal technologies in a public/private partnership including transfer facilities. Zoning regulations may need to be adjusted to allow certain types of facilities that are currently not permitted.
- Study potential ways to expand the life of the County's landfill through integrated waste management practices including solid waste composting, waste gasification, waste densification, and alternative disposal sites such as rubble fills and/or recycling facilities.

#### 1.1.2.4 SPECIAL WASTE MANAGEMENT

- Continue the ongoing Charles County Household Hazardous Waste (HHW) Program.
- Explore opportunities for the expansion and improvement of the HHW Program.

#### 1.1.2.5 MISCELLANEOUS

- Eliminate roadside dumps and prevent the establishment of new roadside dumps; continue litter control program and litter abatement practices.
- Pursue regional solutions for solid waste management problems, as feasible.
- Achieve and maintain compliance with all federal, state and county regulatory requirements; develop a monitoring system to ensure continued compliance.
- Continue comprehensive public information and involvement program for solid waste issues, operation, waste reduction, reuse, and recycling.
- Continue to facilitate enterprise financing structure that will adequately fund all required solid waste facility capital construction, operations, and administration expenditures.

[1] *MD House Bill 1300 requires the County Commissioners of Charles County to hold a specified public hearing and provide specified notice before taking any action that results in a specified displacement of a person that has been providing garbage collection, removal, or disposal services; requiring the county commissioners to provide written notice by registered mail at least 3 years before a specified displacement to a specified person.*

- Regularly update the *Charles County Comprehensive Solid Waste Management Plan* to ensure future demands for services are efficiently met per COMAR requirements.
- Encourage public/private partnerships to help meet the demand for solid waste management facilities and services.

### 1.1.3 Policies

Charles County will develop policies to guide the direction of solid waste. Management policies must be recorded, scrutinized, and revised so that they are compatible with the goals and objectives of the solid waste management plan. The County recognizes that in order to implement the goals and objectives of this Plan, policies may need to be developed, which will be added to the Plan by amendment. Policies may also need to be implemented in order to integrate elements of this Plan throughout County Government.

### 1.1.4 Conformance with Land Use Plans

Article 66B, added to the Maryland Code in 1927 and was entitled "Zoning and Planning", delegates basic planning and land use regulatory powers to the State's municipalities, Baltimore City, and non-charter counties. The present organization of the Article is the result of a substantial revision in 1970 and the passage of the Economic Growth, Resource Protection, and Planning Act of 1992.

Article 66B is permissive, that is, it allows but does not require jurisdictions to exercise the powers delegated. If these powers are exercised, however, they must be exercised in accordance with the applicable provisions in the statute. Article 66B authorizes local jurisdictions to prepare comprehensive plans, zoning ordinances (including historic zoning), and subdivision regulations. It also enables them to adopt adequate public facilities ordinances.

In 2000, the General Assembly did a comprehensive revision to Article 66B. It is now called “Land Use” (rather than “Zoning and Planning”). It has also been amended in 1991, 1995 and 2001. The Charles County local provision is expressed in Section 14.05. The Planning Commission annual report is now sent to the Secretary of the Maryland Department of Planning (rather than Director of the Maryland Office of Planning).

In 2012, the Maryland General Assembly repealed Article 66B and Article 28 and replaced it with the Land Use Article of the Maryland Annotated Code.[2] The Land Use Article delegates planning and land use regulatory authority to all non-charter counties and all incorporated municipalities. The goals, objectives, and recommendations contained in this SWMP are consistent with the Charles County 2016 Comprehensive Plan, which complies with the requirements of the Land Use Article.

### 1.1.5 Consistency with Local Planning Goals

In addition to State and federal requirements, new and revised solid waste management policies, programs, and initiatives must be consistent with the vision and goals of County ordinances as well as the Charles County Comprehensive Plan, adopted by the Charles County Board of Commissioners on July 12, 2016.

## 1.2 Structure of County Government

Charles County is governed by elected County Commissioners who enact all County ordinances, establish an annual operating and capital budget, and perform all legislative functions, including the adoption of the *Charles County Comprehensive Solid Waste Management Plan*. The County regulates solid waste

[2] *https://planning.maryland.gov/Pages/OurWork/localplanning.aspx*

management activities through the code of Public Laws, the administrative regulations adopted pursuant to the code, the Charles County Zoning Ordinance, and the resolutions adopted by the County Commissioners. The operation of the landfill and the recycling program is conducted within the Department of Public Works, Environmental Resources Division. The overall County government structure is illustrated in Figure 1-1 below. The Chief of Environmental Resources oversees the operation of the landfill and the recycling program. The Environmental Resources Division organization structure is shown in Figure 1-2.

Figure 1-1 - Charles County Government Structure

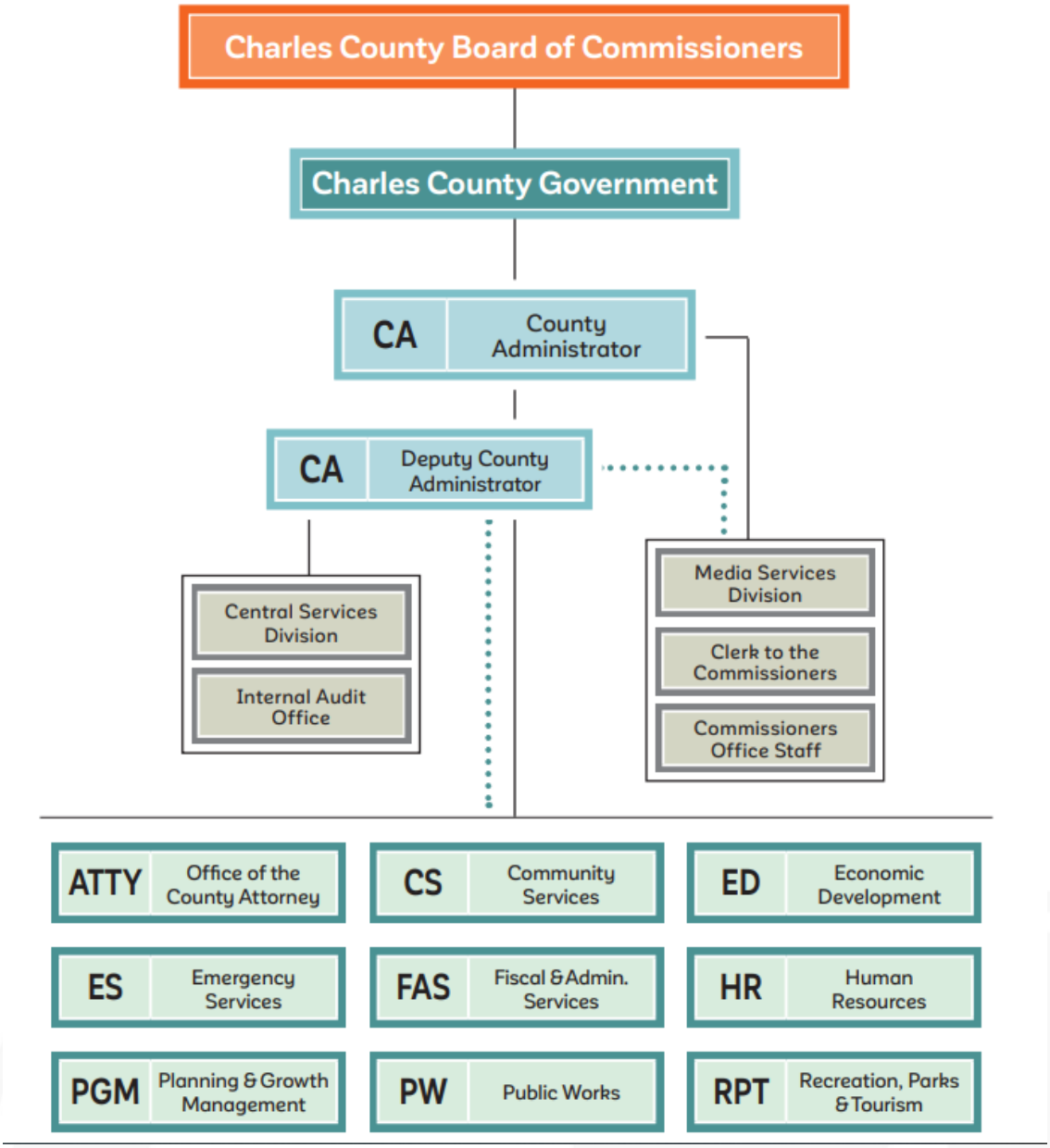
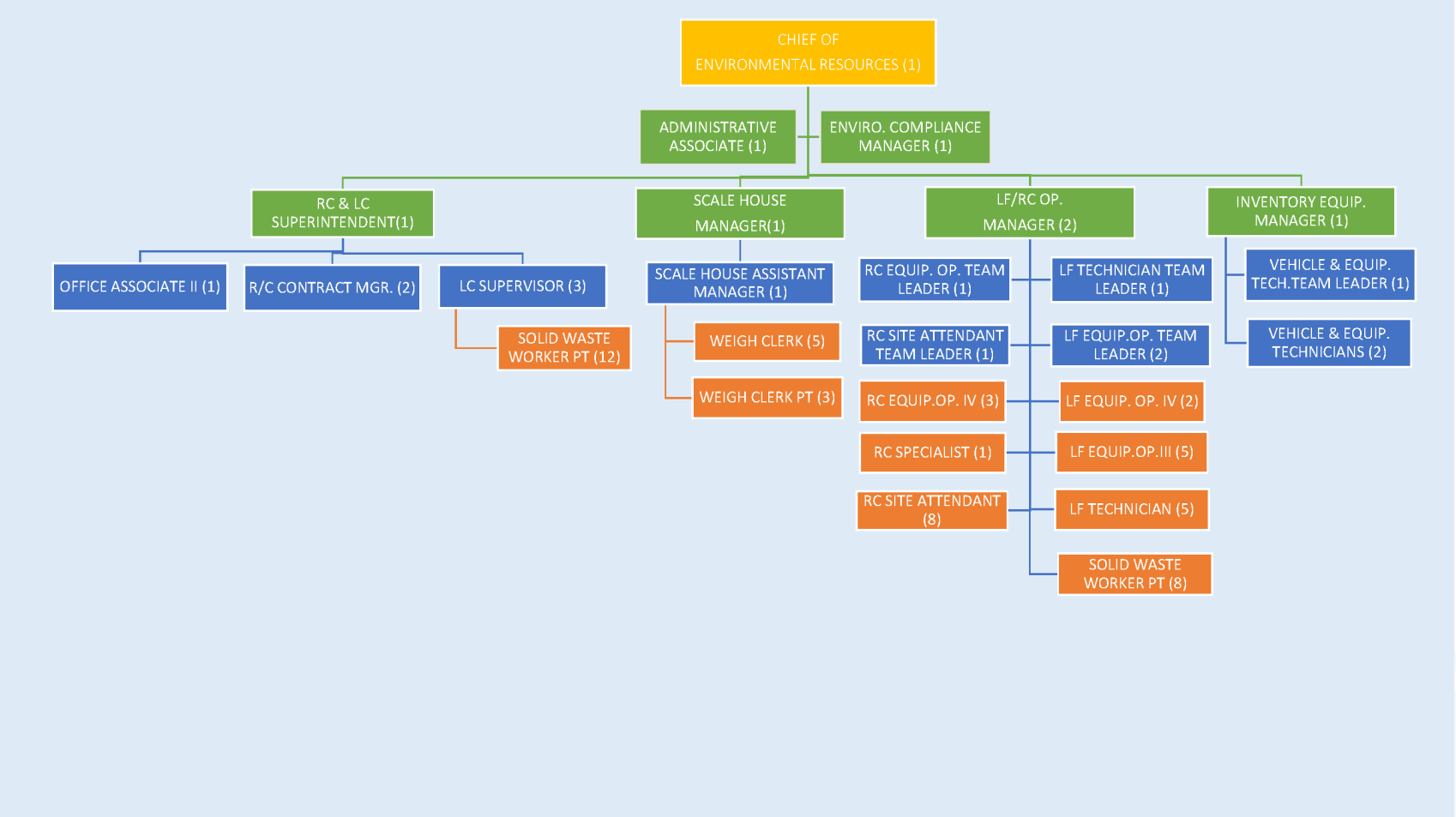


Figure 1-2: Environmental Resources Division organization structure



## 1.3 Agencies, Laws, and Regulations Affecting Solid Waste Management

Solid waste management laws and regulations exist at the federal, state, and county levels. Overall, regulatory direction and minimum nationwide standards for protecting human health and the environment are established at the federal level. State regulations meet or exceed those mandated by federal regulations. State regulations specify minimum design criteria and the permitting, construction, operation, maintenance, and monitoring requirements for many solid waste management facilities. County regulations must be compatible with federal and state laws and regulations. The more specific issues of land use, zoning, procurement, financing, and operation related to solid waste management facilities are left to the County to regulate.

### 1.3.1 Federal Laws and Regulations

Table 1-1 provides a summary of applicable federal laws, judged to be most significant, regulating solid waste. The Solid Waste Disposal Act (SWDA), passed in 1965, was the first of numerous federal solid waste management statutes and regulations. The Resource Conservation and Recovery Act (RCRA) formally established the federal program regulating solid and hazardous waste management. While RCRA amends the SWDA of 1965, the amendments were so comprehensive that the Act is commonly called RCRA. The RCRA of 1976, amended in 1980 and 1984, provides federal guidelines and standards for the environmentally sound reuse, handling, and disposal of solid waste. The act requires that states incorporate these guidelines into their solid waste management programs. Under RCRA provisions, Subtitle D provides federal standards for municipal sanitary landfills. These standards include the location, design, operation, groundwater monitoring, corrective action, closure, post-closure, and financial assurance criteria for all municipal sanitary landfills. A summary of the critical amendments to RCRA are presented in Table 1-2.

While U.S. Environmental Protection Agency (EPA) is the lead agency under RCRA, the U.S. Department of Commerce is given several responsibilities for encouraging greater commercialization of resource recovery technology. The Code of Federal Regulations (CFR) provides documentation of the rules established in the Federal Register by the executive departments of the federal government. The Code is divided into 50 titles which are further divided into chapters and subparts thereof. CFR Title 40 is titled Protection of the Environment, which includes Sub-chapter I-Solid Wastes (Parts 240 through 272).

Table 1-1 - Summary of Federal Laws Regulating Solid Waste

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| *Clean Air Act of 1963*<br>Regulates emissions from landfill gas management systems and resource recovery facilities. Landfill operators must comply with requirements of the State implementation plan established under Section 110. The Clean Air Act Amendments of 1990 contained a provision mandating stronger federal standards for solid waste incinerators. |
| *Solid Waste Disposal Act (SWDA) of 1965*<br>The act established a framework for states to better control solid waste disposal and set minimum safety requirements for landfills |
| *Resource Recovery Act of 1970*<br>This legislation addressed the reclamation of energy and materials from solid waste by authorizing funding in the form of grants for resource recovery technologies. It also required annual reports be provided to the EPA summarizing efforts to promote recycling and reducing waste generation. |

*Clean Water Act of 1972*
Section 402 of this act establishes the National Pollutant Discharge Elimination System (NPDES) program which regulates effluent limitations for the discharge of wastewater and runoff from solid waste management facilities into bodies of water. The construction of facilities which may impact rivers, lakes, marshes, swamps, or wetlands is regulated by Section 404 which is administered by the Army Corps of Engineers. Section 405 addresses the disposal of wastewater treatment sludge.

*Endangered Species Act of 1973*
Prohibits construction or operation of facilities that would result in the "taking" of an endangered or threatened wildlife species, or in the destruction of their critical habitat.

*Safe Drinking Water Act of 1974*
Establishes maximum contaminant levels for parameters included in groundwater monitoring programs.

*Resource Conservation and Recovery Act (RCRA) of 1976*
A primary objective of this act is to promote recycling and reuse of recoverable materials. The act also provides guidelines for environmentally-sound handling and disposal of both hazardous and non-hazardous solid waste. Subtitle D of the act specifies criteria for municipal solid waste landfills.

*Comprehensive Environmental Response, Compensation and Liability Act (Superfund) of 1980*
Establishes programs for the identification and remediation of waste disposal sites containing hazardous substances; establishes standards for clean-up efforts and disposal of wastes; and provides a mechanism for assigning liability for contaminated sites.

*Used Oil Recycling Act of 1980*
Amends SWDA to require lubricating oil be labeled with a statement concerning the recycling of used oil. Requires re-refined oil used as lubricating oil to bear a label stating that such oil is a recycled product.

*Medical Waste Tracking Act of 1988*
Federal law concerning the illegal dumping of body tissues, blood wastes and other contaminated biological materials.

*Sanitary Food Transportation Act of 1990*
Created regulations for trucks and rail cars that haul both food and solid waste

*Pollution Prevention Act of 1990*
The measure declared pollution prevention to be the national policy, and directed EPA to undertake a series of activities aimed at preventing the generation of pollutants, rather than controlling pollutants after they are created.

*Indian Lands Open Dump Cleanup Act of 1994*
Required the Indian Health Service (IHS) to provide technical and financial support to inventory and close open dumps on Indian lands, and to maintain the sites after closure.

*Mercury-Containing and Rechargeable Battery Management Act of 1996*
The purpose of the law was to phase out the use of mercury in batteries and to provide for the efficient and cost-effective collection and recycling, or proper disposal, of used nickel cadmium batteries, small sealed lead-acid batteries, and certain other batteries.

Table 1-2 – Amendments to the Resource Conservation and Recovery Act (RCRA)

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|---|
| *Solid Waste Disposal Act Amendments of 1980*<br>Provided EPA tougher enforcement powers to deal with illegal dumpers of hazardous waste |
| *Hazardous and Solid Waste Amendments of 1984*<br>This amendment contained numerous technical requirements and imposed on the EPA a timetable for issuing or denying permits for treatment, storage, and disposal facilities. |
| *Federal Facility Compliance Act of 1992*<br>Clarifies that federal facilities are subject to enforcement actions under RCRA. |
| *Land Disposal Program Flexibility Act of 1996*<br>This act exempts hazardous waste from RCRA regulation if it is treated to a point where it no longer exhibits the characteristic that made it hazardous and is subsequently disposed in a facility regulated under the Clean Water Act or in a Class I deep injection well regulated under the Safe Drinking Water Act. |

### 1.3.2 State of Maryland Laws and Regulations

The State of Maryland has adopted a number of laws that address solid waste management summarized in Table 1-3. State laws are codified under the articles of the Annotated Code of Maryland. Laws addressing solid waste management are included throughout the code; the Title 9 Environment Article contains many of the laws affecting the location, design, and operation of solid waste disposal facilities. These laws are developed into regulation by the agency to which the responsibility is delegated by the State Legislature. Table 1-4 provides an abbreviated summary of the Annotated Code of Maryland titles affecting solid waste management.

Administrative rules and regulations adopted by State agencies pursuant to State laws are compiled into a document entitled Code of Maryland Regulations (COMAR). Title 8 contains the regulations of the Maryland Department of Natural Resources (DNR) which must be considered when siting solid waste facilities. COMAR Title 26 contains the administrative rules and regulations for MDE including solid waste management regulations. The full text of Title 26, Chapter 3 is presented in Appendix A – COMAR 26.03.03. A summary of the regulations which affect solid waste management is provided in Table 1-5.

Table 1-3 - Summary of Maryland Laws Affecting Solid Waste Management

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| *Chesapeake Bay Critical Area Protection Program of 1984*<br>Controls human intervention in the Chesapeake Bay drainage area. |
| *Maryland Recycling Act of 1988, modified 2012*<br>Establishes a requirement for Maryland counties to plan and implement a recycling system by 1994. Charles County was mandated to reduce the County's waste stream by 15 percent in 1994 In 2012, House Bill 929 (Recycling Rate and Waste Diversion – Statewide Goals Act) increased the waste reduction rate to 20% for Maryland counties with populations of less than 150,000 and 35% for Maryland counties with populations of greater than 150,000. The act increased the amount of waste required to be recycled by State agencies to 30 percent in 2014. As part of the implementation process, MDE asked that all State agencies revise their recycling plans to include a recycling goal and steps towards reaching the goal by December 2012. The state legislature anticipated that each Agency's recycling goal would be at least 40 percent in 2015. Additionally, Maryland enacted House Bill 595, State Government-Recycling Program-Aluminum, Glass, Paper, and Plastic on October 1, 2009. The act mandates that state plans shall include a system for recycling aluminum, glass, paper, and plastic generated for disposal by the |

State government, including the placement of collection bins in State-owned or State-operated office buildings in locations in the state where it is determined to be practical and economically feasible.

*Asbestos Control - Asbestos Hazard Emergency Response Act of 1990*
Requires completion of a teaming program by those who do asbestos-related work within schools; deals with asbestos controls.

*Land-clearing Debris Landfills - Amount of Surety of 1990*
Addresses the amount of surety required for each acre of land-clearing debris landfills.

*Newsprint Recycled Content Act of 1991*
Regulates newsprint recycling by imposing specified recycling content percentage requirements on the Maryland newspaper industry.

*Telephone Directory Recycling Act of 1991*
Regulates telephone directory publishers to meet specified recycling content percentage requirements for telephone directories.

*Plastic Material Code of 1991*
Bans rigid plastic containers or bottles from distribution or sale in the State unless appropriately labeled indicating the plastic resin used to produce them.

*Composting Act of 1992*
Includes composting in the definition of recycling. Requires that County recycling plans address composting issues and bans yard waste from landfills effective in 1994.

*Mercury Oxide Battery Act of 1992*
Makes battery manufacturers responsible for collection, transportation, and recycling or disposal of batteries sold or offered for promotional purposes in the State.

*Waste Information and Assessment Program of 1998*
Requires MDE to create a waste information and assessment program and to submit an annual report on the volume of certain types of waste disposed in or exported from Maryland. Requires permitted waste acceptance facilities to provide at least yearly information necessary to MDE.

*Maryland State Senate Joint Resolution 6 of 2000*
Established a voluntary statewide diversion of goal of 40% by the year 2005 in order to reduce the amount of waste going to solid waste disposal facilities.

*Maryland E-Waste Recycling Law (2005, modified 2007, 2012):*
Requires computer manufactures to submit a registration and fee into the Maryland State Recycling Trust Fund, which can be used to give grants to municipalities to implement local electronics and increases registration fee under (HB 488). In 2012 a tiered registration fee and required educational and instructional materials related to material destruction and sanitization of data on covered electronics (HB 879).

*Public School and College Recycling Law of 2009*
Requires recycling in all publicly funded schools with the exception of State Universities and each counties' recycling plan implement a strategy for collection, processing, marketing, and disposing of recyclable materials from its public schools and colleges (under HB 1290).

*Mercury Switch Removal from Vehicle Law of 2009*

Requires motor vehicle manufactures to develop and submit to the Maryland Department of the Environment (MDE), a mercury minimization plan that includes information on mercury switch removal from motor vehicles (HB 1263).

*Fluorescent and Compact Fluorescent Light Recycling Act of 2010*
Requires each county to address the recycling of certain fluorescent and compact fluorescent lights and in an updated recycling plan (HB 685).

*Green Maryland Act of 2010*
The Maryland Green Purchasing Committee was established by the Green Maryland Act of 2010 (Chapter 593 of the 2010 Laws of Maryland) to administer an environmentally preferable purchasing program for the State of Maryland. Maryland has enacted laws and regulations related to environmentally preferable purchasing, including (selected):

| | |
|---|---|
| 01.01.1993.20 | Alternative Fueled Vehicles |
| 01.01.2001.02 | Sustaining Maryland's Future with Clean Power, Green Buildings and Energy Efficiency |
| 21.11.07.08 | Locally Grown Foods |
| 21.11.07.09 | Environmentally Preferable Purchasing |
| 21.11.07.10 | Compost |

*Apartment Buildings and Condominiums Recycling Act of 2012*
An Act requiring a county recycling plan to address the collection and recycling of recyclable materials from residents of apartment buildings and condominiums that contain 10 or more dwelling units by property owners or managers of apartment buildings and councils of units' owners of condominiums.

*Recycling Rate and Waste Diversion-Statewide Goals Act of 2012*
Requires counties to reduce its solid waste stream through recycling by at least 35% (populations over 150,000) or 20% (population under 150,000), by December 31, 2015.

*Organics Recycling and Waste Diversion House Bill of 2013*
The General Assembly of Maryland passed a bill (HB 1440) enabling MDE to establish regulations for composting operation in the state.

*Environment – Recycling – Special Events Act of 2014*
An Act requiring a county recycling plan to address the collection and recycling of recyclable materials from special events by October 1, 2015.

*State Highway Administration - Compost and Compost-Based Products House Bill of 2014*
House Bill 878 directed the State Highway Administration to include the use of compost in its specifications

*Greenhouse Gas Emissions Reduction Act of 2016*
The bill, SB 323/HB 610, renewed the 2009 Maryland law that set a goal to reduce climate-polluting greenhouse gas emissions statewide by 25 % by 2019. The 2016 bill also further extended the goal to a 40% reduction by 2030, requiring long-term cuts in pollution.

*Expanded Polystyrene Ban of 2019*
This Article stipulated that on or after July 1, 2020, a person may not sell or offer for sale in the State an expanded polystyrene food service product; and that a food service business or school may not sell or provide food or beverages in an expanded polystyrene food service product.

*Environmental - Recycling in Office Buildings of 2019*
The bill, SB370, amends Maryland code to necessitate city/county recycling plans to include collection and recycling of recyclable materials from commercial properties that are 150,000 square feet or larger and zoned for office use.

The owner of each office building must provide containers for collection of recyclable materials. SB370 will be enacted on or before 1 October 2021.

*Solid Waste Management - Organics Recycling and Waste Diversion - Food Residuals House Bill of 2021*
Law establishes a source separation requirement for organics based upon the volume of material generated and the availability of capacity within the region.

Additional Legislation:
*Maryland State Implementation Plan (SIP)*
Limits emissions from specific pollutant sources to prevent air quality from falling below National Ambient Air Quality Standards (NAAQS).

*Nontidal Wetland Regulations*
Prevents net loss of nontidal wetlands by establishing a stringent permitting process.

*Sludge Application*
Regulates land application procedures to maintain the public health.

*Medical Waste Legislation*
Regulates identification, record keeping, treatment, transport, and disposal of special medical wastes; infectious wastes are prohibited in solid waste landfills in the State.

Table 1-4 – Summary of Annotated Code of Maryland Titles Affecting Solid Waste Management

*Annotated Code of Maryland*

*Title 3 – Environmental Programs*

*Subtitle 1 Maryland Environmental Service*

*Subtitle 9 Northeast Maryland Waste Disposal Authorities Title 4 - Water Management*
*Title 5 – Forest and Parks*

*Title 6 - Toxic, Carcinogenic, and Flammable Substances Title 7 - Hazardous Materials and Substances*

*Under Title 9 - Water, Ice and Sanitary Facilities*; MDE regulates the location, design, and operation of sanitary landfills through refuse disposal permits issued and enforced under authority of the following sections:

| | |
|---|---|
| Section 204 | Installing, Altering, or Extending Water Supply Systems, Sewerage Systems, or Refuse Disposal Systems |
| Section 204.1 | Installing, Altering, or Extending Incinerators |
| Section 204.2 | Installing, Altering, or Extending Landfill Systems |
| Section 209 | Landfill System Hearings |
| Section 210 | Prerequisites for Issuance of Permit |
| Section 211 | Landfills, Incinerators, and Transfer Stations; Requirements for Security |
| Section 212 | Landfill Systems - Options to Purchase |
| Section 212.1 | Landfill Systems - Options to Purchase |
| Section 213 | Denial of Permit to Non-government Person(s) |
| Section 214 | Revoking or Refusal to Renew a Permit |
| Section 215 | Closure and Cover when Operation Ends |
| Section 225 | Landfills near Hospitals Prohibited (2-mile radius) |

| | |
|---|---|
| Section 226 | Certification of Public Necessity Required for Hazardous Waste Landfill System |
| Section 227 | Infectious Waste in Landfill System Prohibited |
| Section 228 | Scrap Tires |
| Title 9 Subtitle, County Water and Sewerage Plans<br>Section 503/505/506 | County Plan, Content, Reviews, Approvals and Amendments |
| Title 9, Subtitle 17, Office of Recycling | |
| Section 1703/1794 | County Recycling Plan and Content |
| Section 1703 | Fluorescent and Compact Fluorescent Light that Contain<br>Mercury Recycling (House Bill 685) |
| Section 1703 | Public School and Public College Recycling Program (House Bill 1290) |
| Section 1703 | Apartment Buildings and Condominiums Recycling (House Bill 1) |
| Section 1708 | Natural Wood Waste Processing and Recycling |
| Section 1728.1 | Statewide Electronics Recycling Program (House Bill 488) |

Table 1-5 - Summary of Maryland Regulations Affecting Solid Waste Management (COMAR)

*COMAR REGULATIONS*

*Under Title 8* (Department of Natural Resources), the following sections must be considered in the siting solid waste management facilities:

*Subtitle 3, Chapter 8, Threatened and Endangered Species*
*Subtitle 9, Chapters 1-6, Forest Conservation*

*Title 26, Subtitle 3, Water Supply, Sewerage, Solid Waste, and Pollution Control Planning and Funding, Chapter 3, Development of County Comprehensive Solid Waste Management Plans:*
Requires that each county maintain a current solid waste management plan and establishes the format for these plans.

*Title 26, Subtitle 3, Chapter 10, Financial Assistance for the Construction of Processing and Disposal Facilities:*
Stipulates the requirements, priority listing criteria, and ranking system for counties to receive financial assistance from the State of Maryland.

*Title 26, Subtitle 4, Regulation of Water Supply, Sewerage Disposal and Solid Waste, Chapter 7 Solid Waste, Solid Waste Management:*
Regulates permitting, designing, constructing, operating, and closing municipal, land-clearing debris, rubble, and industrial waste landfills, processing facilities, transfer stations, and incinerators.

Other regulations under *Title 26* that are important to solid waste management include:
*Subtitle 4, Chapter 6, Sewage Sludge Management Subtitle 4, Chapter 8, Scrap Tire Regulations*
*Subtitle 4, Chapter 9, Natural Wood Waste Recycling Facilities Subtitle 8, Water Pollution*

*Subtitle 5, Chapter 3, Construction on Nontidal Waters and Floodplains*
*Subtitle 5, Chapter 4, Nontidal Wetlands*
*Subtitle 5, Chapter 7, Wetlands Regulations*
*Subtitle 9, Chapter 1, Erosion and Sediment Control Subtitle 9, Chapter 2, Stormwater Management*
*Subtitle 11, Air Quality*
*Subtitle 13, Disposal of Controlled Hazardous Substances*

### 1.3.2.1 Governing Bodies

#### 1.3.2.1.1 Maryland Department of the Environment (MDE)

The Maryland Department of the Environment (MDE) is the primary agency that has responsibility for solid waste management within the State of Maryland. MDE implements federal and state solid waste regulations and enforces Maryland environmental regulations addressing surface water and groundwater protection, erosion and sediment control, preservation of wetlands, and recycling. MDE reviews solid waste facility plans and management plans, issues permits, and inspects facilities, and also sets the state's waste diversion goals.

The MDE's Annual Statewide Waste Diversion Goal of 40% by 2030 is promoted through a source reduction credit system, which acts as an incentive to counties to boost their waste diversion rate by up to 5%. Maryland achieved a statewide waste diversion rate of 49.68% in 2019. The 49.68% waste diversion rate was composed of a 44.68% Maryland Recycling Act (MRA) recycling rate and a 5% SR credit." See Table 1-6.

Table 1-6 - Charles County Waste Diversion Rates from 2011 to 2018

| SUMMARY OF CHARLES COUNTY WASTE DIVISION RATES (2011-2018) | | | |
|---|---|---|---|
| Year | MRA Rate | Source Reduction Rate | Waste Division Rate |
| 2011 | 53.57% | 5.00% | 58.57% |
| 2012 | 49.12% | 4.00% | 53.12% |
| 2013 | 50.86% | 4.00% | 54.86% |
| 2014 | 51.23% | 5.00% | 56.23% |
| 2015 | 48.01% | 5.00% | 53.01% |
| 2016 | 51.57% | 4.00% | 55.57% |
| 2017 | 46.25% | 4.00% | 50.25% |
| 2018 | 47.77% | 4.00% | 51.77% |

*Source: 2011 through 2018 Data Maryland Annual Report on the Management of Solid Waste, Table 17*

In 1988, the Maryland Recycling Act (MRA) authorized MDE to reduce the disposal of solid waste in Maryland through management, education, and regulation. The MRA requires that:

- Each of Maryland's jurisdictions develop and implement recycling programs. Jurisdictions with populations greater than 150,000 are required to recycle 35% of their waste and jurisdictions with populations less than 150,000 are required to recycle 20% of their waste. State agencies must implement a recycling plan with a 30% recycling rate mandate. (2012)

- If a jurisdiction fails to meet the specified reductions, State and local authorities can prohibit the issuance of building permits for all new construction.
- Each jurisdiction selects materials to be recycled and the manner in which materials are to be separated and processed.
- State agencies participate in recycling programs.
- Newsprint and telephone directories distributed in the State have a recycled content, by weight, of 30% in 2001, increasing to 40% by 2005.

The Maryland Department of the Environment tracks the following MRA materials for the MRA recycling statistics. Please note there are also a wide range of Non-MRA materials being recycled in the State.

Maryland Recycling Act (MRA) materials include:

- **Compostables:** Grass, Leaves, and Mixed Yard Waste; Wood Waste; Food Waste
- **Glass:** Mixed Glass; Fluorescent Light Tubes
- **Metals:** Aluminum Cans; Tin/Steel Cans; White Goods
- **Paper** Corrugated Cardboard; Mixed Paper; Newspaper; Telephone Directories; White Paper
- **Plastic:** Mixed Plastic Bottles
- **Other Materials:** Laser Toner Cartridges; Lead Acid Batteries (e.g., car batteries); Oil Filters; Wood Pallets

Non-Maryland Recycling Act (Non-MRA) Materials include:

- **Automobile Components**: Antifreeze; Motor Oil; Scrap Automobiles
- **Construction/ Building Materials**: Asphalt; Concrete; Wood
- **Other Materials**: Cleaning Fluids; Land Clearing Debris (includes tree stumps and vegetative debris); Scrap Metal; Sewage Sludge

MDE issues permits for the various types of waste facilities that could be sited in Charles County including sanitary landfills, land-clearing debris landfills, rubble landfills, processing facilities (e.g., materials recovery facilities, recycling centers, rubble processing facilities, etc.), transfer stations, incinerators, and industrial and hazardous waste landfills. Industry and the private sector are responsible for permitting and providing industrial and/or hazardous waste facilities for disposal of their wastes, as required. One way that Charles County is able to regulate industrial and hazardous waste facilities is through public review of permit applications for waste management facilities.

All solid waste disposal and processing facilities are required to operate in a manner that reduces health hazards and minimizes environmental impacts. Discharges to water or air are limited to those permitted by solid waste disposal, water pollution control, or air pollution control regulations. The permitting process described in the following paragraphs is for a refuse disposal permit, which is a requirement for all solid waste management facilities. Additional permits are required for constructing and operating these facilities. These permitting requirements are included for use in planning and are not intended to provide a complete description of COMAR permitting requirements. An applicant for a permit must obtain a copy and strictly follow all requirements of the applicable COMAR regulations. The following facilities must be permitted to operate by MDE:

- Municipal Solid Waste Landfill
- Rubble / Construction & Demolition Landfill
- Processing Facility
- Special Medical Waste Processing Facility
- Transfer Station

- Land Clearing Debris Landfill
- Industrial Landfill
- Solid Waste Incinerator
- Processing Facility & Transfer Station
- Waste to Energy / MSW Incinerator
- Medical Waste Incinerator

As of July 2021, the following facilities are permitted to operate in by MDE in Charles County:

- Charles County Municipal Landfill No. 2 (Municipal Solid Waste Landfill)
- Indian Head NSWC Incinerator (Solid Waste Incinerator)

#### 1.3.2.1.2 Maryland Environmental Services (MES)

Maryland Environmental Services (MES) is a Maryland state agency that is also a public utility. MES is managed by a seven-member board appointed by the Secretary of the Department of Natural Resources with approval by the Governor, upon the advice and consent of the Maryland Senate. MES has broad powers, including the ability to: plan, acquire, construct, and operate solid waste projects; institute and charge fees for project services; and create and administer funding authorities, which can issue revenue bonds for project financing.

MES can exert its powers only if requested to do so by a locality that needs help and is willing to enter into an agreement with MES. The Secretary of the Maryland Department of the Environment can also request MES to provide remedial services if an entity or locality has not complied with a Department of the Environment regulation.

Additionally, MES will provide remedial services requested by MDE for a locality which has not complied with regulations. MES has been delegated the responsibility for overseeing Maryland's used oil and scrap tire recycling programs.

### 1.3.3 Charles County Laws and Regulations

Charles County regulates solid waste management activities through the Code of Public Laws, the administrative regulations adopted pursuant to the code, the Charles County Zoning Ordinance, and the resolutions adopted by the County Commissioners. Specific county regulations addressing solid waste management are described in the paragraphs below:

#### 1.3.3.1 Code of Public Laws of Charles County

Section 132 of the Charles County Code of Public Laws enables the County to establish trash disposal areas and regulates the importation of solid waste into the County. Section 49 of the code requires that the County Commissioners establish trash disposal areas. It authorizes them to regulate the use of such disposal areas and to collect reasonable fees for their use.

#### 1.3.3.2 County Commissioners of Charles County, Maryland Resolution No. 92-63. Regulations Governing the Use of Charles County's Sanitary Landfills

These regulations were established and adopted by the County Commissioners on July 2, 1992 and are contained in Chapters 2 through 4, Article II of the Code of Charles County, Maryland. The regulations specify the types of wastes that are and are not accepted, authorized users, permit requirements for commercial haulers, procedures for paying fees to use the landfill, and the penalty structure for bringing out-of-county waste into a county-owned sanitary landfill.

#### 1.3.3.3 County Commissioners of Charles County, Maryland Resolution No. 92-75. Landfill Tipping Fees

Fees for use of the Charles County sanitary landfills shall be paid in advance and shall be in accordance with the Schedule of Fees adopted by Charles County. The Schedule of Fees is on file in the County offices. The landfill tipping fees are subject to change. Currently, the tipping fee charge is $81 per ton. Since the closure of the Pisgah Landfill, the tipping fee is applicable to the Charles County #2 Landfill. Additionally, in emergency situations only, sludge may be disposed of in the landfill for the established municipal solid waste tipping fee upon State approval.

#### 1.3.3.4 Charles County Solid Waste Management Plan

The *Charles County Comprehensive Solid Waste Management Plan* provides a framework for establishing a long-range action plan for solid waste management. The document is a general guidance tool and is not intended to provide specific guidelines regarding solid waste management. Issues included in the comprehensive plan related to solid waste management are land use, general status report of solid waste management issues, policy considerations, and implementation strategies.

#### 1.3.3.5 Charles County Zoning Ordinance

The Charles County Zoning Ordinance implements the planning policies and objectives presented in the Charles County Comprehensive Plan. The *Charles County Comprehensive Solid Waste Management Plan* serves as a policy guide as the Charles County Commissioners consider amendments to the Charles County Zoning Ordinance.

#### 1.3.3.6 Charles County Chesapeake Bay Critical Area Management Program

This program identifies the extent of the Chesapeake Bay Critical Area within Charles County and establishes detailed criteria to protect natural resources and regulate development within the critical area. The critical area is defined as those lands along tidal shorelines extending 1,000 feet landward of mean high tide or the landward boundary of tidal wetlands.

#### 1.3.3.7 Zekiah Watershed Rural Legacy Area

Charles County has established goals for agricultural land preservation and natural resource conservation, including a specific goal to preserve 50% of the land area, or approximately 147,000 acres, in open space. The Zekiah Watershed Rural Legacy Area is home to the largest natural hardwood swamp in Maryland and consists of 60,000 acres, established to protect the watershed from intense development and habitat degradation.

#### 1.3.3.8 Patuxent River Policy Plan

Charles County, along with other counties neighboring the Patuxent River, is striving to protect river resources through land management strategies to control pollution in the watershed.

#### 1.3.3.9 Charles County Floodplain Management Ordinance

This ordinance establishes and delineates a floodplain district within Charles County for issuance of permits and imposes certain regulations on construction and development within floodplain districts.

#### 1.3.3.10 Charles County Recycling Plan, June 1990

The recycling plan fulfills the requirements of the 1988 Maryland Recycling Act, as confirmed by its approval by the MDE. This plan is the foundation of Charles County's recycling program and provides a comprehensive treatment of waste stream composition, markets, collection alternatives, processing alternatives, and implementation.

The Charles County Recycling Plan, which was adopted in 1990, was developed in close consultation with the Recycling Advisory Committee and is the approved basis for meeting mandated recycling goals within the County. Per MDE requirements, the Charles County Recycling Plan has been incorporated into the *Charles County Comprehensive Solid Waste Management Plan*.

Since the adoption of the County's Recycling Plan, the County has continued to respond to legislative intent and new industry technologies by implementing various solid waste reduction, diversion, and recycling programs. These programs include household hazardous waste collection, electronics recycling, florescent light recycling, single stream recycling, public schools and colleges recycling, recycling in County buildings, textile recycling, scrap metal recycling, yard waste composting, mulch give away, used motor oil and antifreeze recycling, automobile and household battery recycling, used cooking oil recycling, oyster shell recycling, scrap tire recycling, community and watershed cleanup events, public outreach and education, and apartment building and condominium recycling.

#### 1.3.3.11 Household Hazardous Waste

Household hazardous waste is collected throughout the year on the first Saturday of the month at the Charles County Department of Public Works in La Plata. The County contracts with a hazardous waste handler to remove the materials from resident's vehicles on collection days, segregate the materials, pack, and arrange for disposal of the materials. The materials are stored in a "90 day" facility on site and handled as if they were regulated waste under COMAR regulations. Shipments are made when there are full drums of material; the building is completely emptied after the December collection. Examples of these wastes would be gasoline, herbicides, pesticides, household cleaners and oil-based paints.

### 1.3.4 Incorporated Towns and Federal Facilities

The Annotated Code of Maryland and the COMAR address the potential for incorporation of subsidiary solid waste plans developed by individual municipalities into the *Charles County Comprehensive Solid Waste Management Plan*. If the Charles County Commissioners determine that incorporation of a subsidiary plan meets the environmental protection goals of the Plan, it can be incorporated by reference. The specific citations from the codes are as follows:

- Annotated Code of Maryland, Title 9-504 - "(a) Required incorporation. - To the extent that the incorporation will promote the public health, safety, and welfare, each county plan shall incorporate all or part of the subsidiary plans of each town, municipal corporation, sanitary district, privately owned facility, or local state, or federal agency that has existing or planned development in that county."

COMAR 26.03.02.B - "Each county plan shall include all or part of the subsidiary plans of the towns, municipal corporations, sanitary districts, privately owned facilities, and local, state and federal agencies having existing, planned or programmed development within the county to the extent that these inclusions shall promote the public health, safety, and welfare. These subsidiary plans may be incorporated by reference into the county plan." As stated above, COMAR provides Maryland municipalities the option to develop their own, or portions of their own solid waste plan and have it incorporated into the Plan. Charles

County developed a cooperative working relationship with the municipalities of Indian Head, La Plata, and Port Tobacco to provide a solid waste management program which benefits the entire County. The special needs and requirements of the municipalities are reflected in the Plan. The incorporated towns of Charles County follow the solid waste management program as detailed within this Plan.

## 1.4 Plan Amendment Procedure

Amendments to the Plan will be required for the establishment of new solid waste facilities, and for revisions or updates to the plan. Amendments to the Plan may occur at any time and may originate from within the Charles County government or from the general public.

The process for amending this Plan is guided by the Charles County Department of Planning and Growth Management to meet the requirements stipulated by Sections 9-503 and 9-507 of the Environment Article, Annotated Code of Maryland and COMAR 26.03.03.05 for revising the Plan. The amendment process includes a public information meeting and a public hearing before the Charles County Commissioners.

This amendment procedure is not intended to provide specific information such as the level of detail in the amendment request, criteria for approval, and types of facilities, which require amendments. The intent is to provide decision-makers with a framework for the amendment procedure. The County recognizes that the specifics for the amendment procedure will need to be developed to ensure the consistency of the amendment procedure.

# Chapter 2: County Background Information

Chapter 2 presents background information, including general historical and geographical information, on Charles County. Current and projected population data, used to develop waste generation projections in Chapter 3, is presented in this chapter. A discussion of the solid waste management practices, policies, as well as intergovernmental and private sector agreements regarding municipalities and federal facilities within the County is also included. The status of zoning requirements and the *Charles County Comprehensive Plan* are also discussed.

## 2.1 Background

### 2.1.1 Location and Geographic Features

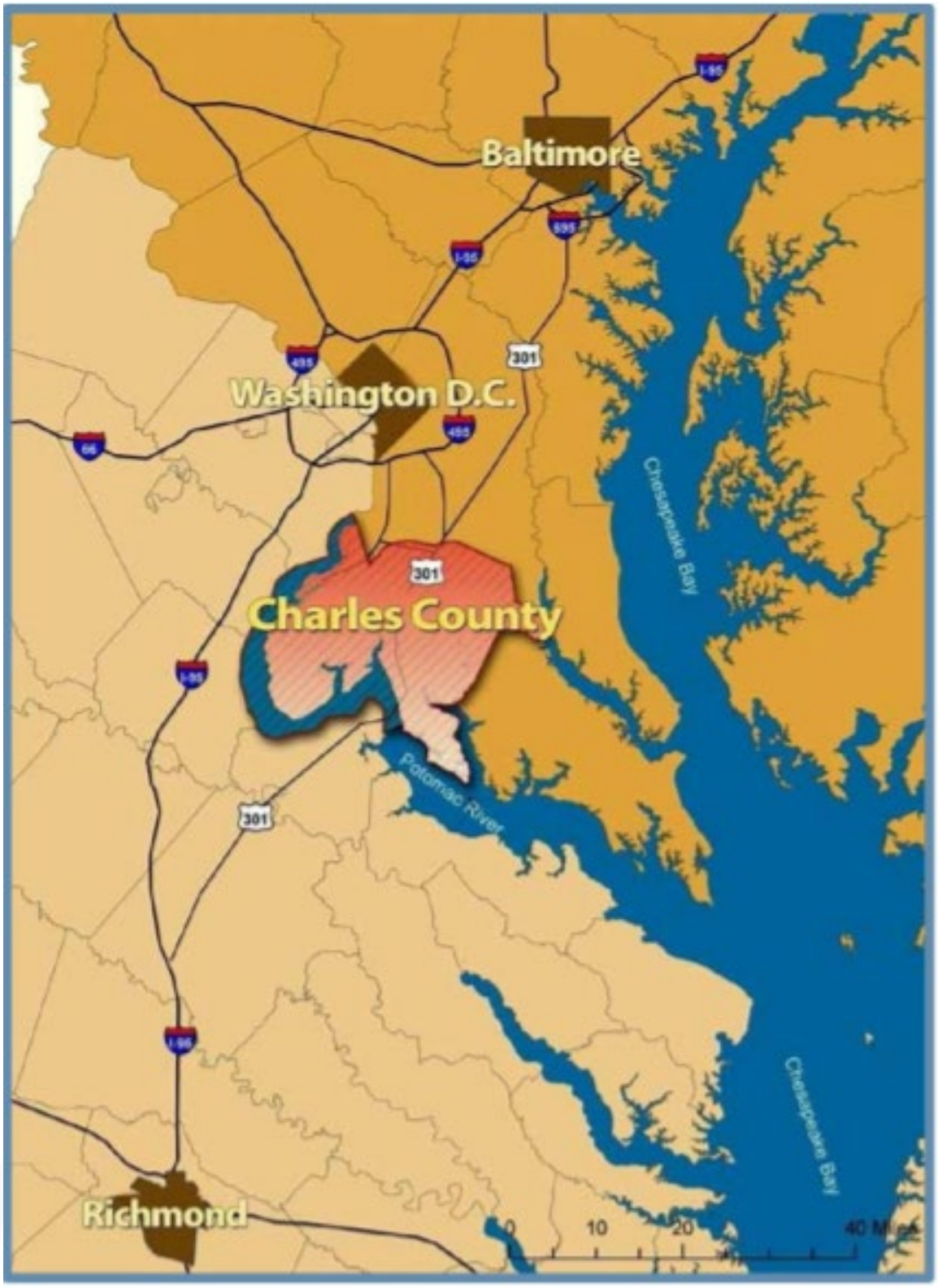
Charles County is a rapidly developing county located about 30 miles south of the Washington, D.C. Metropolitan Area. Charles County is characterized by an extensive waterfront, unique environmental resources, agriculture, woodlands, a rich historical heritage, as well as rural, suburban, and urban areas.

Charles County is located in southern Maryland, bordered by Prince George's County to the north and Calvert and St. Mary's Counties to the east. The County is bordered by the Potomac and Wicomico Rivers to the south, and the Patuxent River to the east (see Figure 2-1).

Most of the land area in Charles County contains elevations ranging from 0 to 230 feet above sea level and is drained by tributaries of the Potomac River. The County is part of the Atlantic Coastal Plain, which forms the western shore of the Chesapeake Bay Region. Charles County is 458 square miles (293,120 acres) in area, with 183 miles of shoreline primarily on the Potomac River.

Growth and economic development are strongly influenced by the Baltimore and Washington highway corridors. Military installations, agriculture, and seafood harvesting industries also contribute to the local economy. As the County continues to urbanize, increasingly built-up areas are concentrating along the major highways (U.S. Route 301 and Maryland Routes 228 and 210). Furthermore, links with other cities in the Washington, D.C. suburban area and beyond are facilitated by Interstates 495 and 95, Maryland Routes 3, and 4, and U.S. Route 50, as well as points south via the Potomac River Bridge on U.S. Route 301.

Figure 2-1 - Map of Charles County



### 2.1.2 History

Prior to European settlement, Charles County was home to the Piscataway Indian Nation, whose traditional homeland also included present-day Prince George's County and St. Mary's County. Piscataway culture was characterized by agriculture, with the growing primarily of maize, beans, squash. After the massive population decline following the European encounter, the Piscataway merged with the neighboring people, known as Conoy. Two major groups representing Piscataway descendants received recognition as Native American tribes in 2012 by the State of Maryland: the Piscataway Indian Nation of the Tayac Territory and the Piscataway Conoy Tribe of Maryland. These groups are both located in Southern Maryland, and neither is currently federally recognized. Today, the Piscataway Indian Nation is emerging as a vocal indigenous presence in its Chesapeake homeland, advocating for sustainability and human rights. The Piscataway Indian Nation members are among the 25,000 self-identified Native Americans in Maryland.

Present-day Charles County was founded in 1658 and is steeped in the traditions of Southern Maryland stemming from the tobacco growing industry dating back three centuries. It is Maryland's fifth oldest county and is unique among the old counties in that it has all its official records. Until 1895 the county seat was Port Tobacco, which also served as the business and cultural center of Southern Maryland in colonial days. By 1890, Port Tobacco was losing its eminence as a port due to the silting of the river and the resulting impacts on the sailing vessels. The burning of the Port Tobacco courthouse in 1892 added to this loss of eminence and, in 1895, the County seat was relocated to La Plata.

The opening of the Potomac River Bridge in 1940 created an important north/south travel corridor on U.S. Route 301. Since 1950, population, housing and commerce have all expanded greatly due in part to the County's proximity to the Washington metropolitan area. The County is now a mixture of suburban development in the north-central and northwest sections of the County, interspersed with older rural and semi-rural development patterns elsewhere throughout the County.

### 2.1.3 Natural Characteristics and Resources

#### 2.1.3.1 Drainage Basins

All streams and water bodies in Charles County empty into the Potomac or Patuxent Rivers, and ultimately the Chesapeake Bay. Major water bodies within the County include the Wicomico River, Zekiah Swamp, Gilbert Swamp, Port Tobacco River, Nanjemoy Creek, Mattawoman Creek, and the Pomonkey Creek. The eastern half of the County is drained by the Zekiah Swamp and its tributaries, including the Gilbert and Jordan Swamp Runs. The northern portion of the County is drained by the Mattawoman and Pomonkey Creeks. The central and southwestern portions of the County are drained by the Port Tobacco River, Nanjemoy Creek, Wards Run, and Mill Run.

#### 2.1.3.2 Water Resources

Although Charles County is bordered by both the Patuxent and Potomac Rivers, their use as surface water supply sources is constrained because of their salinity concentrations. The County also has many smaller rivers and streams which are not capable of any large-scale water supply. There are presently three flood control reservoirs in Charles County with a surface water area of about 12 square miles; none of which are utilized as a water supply source.

Four major water-bearing formations, or aquifers, are found beneath Charles County, sloping from west to east. They are found in the Patuxent, Patapsco, and Magothy formations of the Cretaceous system, and the Aqua Greenstone of the Eocene series. The major water supply sources are the Magothy, Patapsco and

Patuxent aquifers. These aquifers are found at depths ranging from 300 to 1,000 feet below the ground elevations. Groundwater provides most of the drinking water in Charles County, with a supplemental supply of surface water from the Potomac River, via a single connection to the Washington Suburban Sanitary Commission (WSSC) in Waldorf. In a few places, water is available from springs, but in most locations, water is drawn from wells.

#### 2.1.3.3 Topography

Located in the Atlantic Coastal Plain, Charles County is a relatively low-lying area. Elevations range from 10 feet above sea level near the Potomac River to approximately 230 feet near Waldorf. Large portions of the County are exceedingly flat, with a gentle slope toward the Chesapeake Bay, or toward local drainage features. Broad plateau formations with sides dissected by drainage features are common throughout most of the County. The dissections show the easily eroded clays, sands, and gravels underlaying the plateaus. In some areas, dissection is incomplete and flat areas, several miles across, have not yet been reached by headward cutting streams. Stream valleys affect local topography throughout the County.

Adjacent to the Potomac and Patuxent rivers are low-lying flats not more than 10 to 25 feet above sea level. Steeply sided terrace formations are often present in these locations as well. These flats vary in width from a few feet, where the river current of the Potomac River washes strongly against the shoreline (e.g., northern areas near Indian Head and Potomac Heights), to more than a mile in the southern part of the County, such as Allen's Fresh. The interior of the County, along U.S. Route 301 from Faulkner to Prince George's County, is predominately flat. Outward from this plateau, dissection becomes more pronounced, and the land is gently rolling and hilly.

#### 2.1.3.4 Geology and Soils

The geologic formations beneath Charles County are composed of gravel, sand, silt, and clay. These materials were transported by streams, particularly the Potomac River, from the Appalachian and Piedmont regions west and north of the County and were deposited in the form of alluvial fans and deltas. Tidal and marine mud and silt layers overlay dense, hard crystalline, metamorphic, and igneous rocks of the Precambrian Age. The crystalline rocks are deep below the surface. Diatomaceous deposits are unique to this part of Maryland and are found throughout the County.

Near Fairfax County, VA (located to the south of Charles County) are unique surficial sediments which are a relatively young, thin veneer, approximately 30 feet in thickness, occupying elevations of 30 feet above mean sea level and consisting of gravel, sand, and silt. These sediments were deposited by the eastward flowing Potomac River as the river migrated slowly southeastward to its present location. Beneath this granular deposit is the Calvert formation of the Chesapeake Group, which is composed of the Fairhaven and Plum Point Marls. This formation overlies and tends to seal the surficial granular deposit from the older geologic units.

#### 2.1.3.5 Minerals

There are abundant mineral resources throughout Charles County which are found as alluvial deposits, chiefly in the form of construction-grade sand and bank-run gravel found just below ground surface. These minerals are used by the construction industry as aggregate material. Sand and gravel mining operations and processing facilities are found throughout the County. Clay and diatomaceous earth deposits are also prevalent in the Coastal Plain Province but have limited distribution in Charles County. These clays and diatomaceous earth deposits are not currently mined in significant quantities. Mining of these materials may accelerate if market conditions change.

#### 2.1.3.6 Climate

Charles County has a temperate climate, affected to some degree by the water masses of the Potomac and Chesapeake Bay. Situated in the mid-Atlantic, the County has four well-defined seasons. The frost-free growing season typically occurs between April and October. The coldest temperatures usually are in late January and early February. Snowfall may occur from November to April. The warmest temperatures usually occur in late July and early August. Mean temperatures (Fahrenheit) range between 70°F and 85°F degrees in the summer and 26°F to 36°F in the winter. The prevailing wind pattern is from the northwest during October to April and from the south and southwest from May to September. Annual precipitation in Charles County averages 44 inches of rain and 15 inches of snow per year.

## 2.2 Population and Employment

Population distribution reflects the influence of the proximity to Washington, D.C. and surrounding densely populated areas, and the impacts of local employment. The County's development district encompasses the areas of Waldorf and Bryans Road in the northern portion of the County, where the most densely populated areas of the county are located. Since 1990, the County has been achieving the Comprehensive Plan goal of directing 75 percent of new growth in the development district. Other population centers include the incorporated Towns of La Plata and Indian Head.

According to the 2019 Census, Charles County had a population of 163,257 in 2019. This reflects an 11.4% increase since the previous census count in 2010 and makes Charles the second fastest growing county in Maryland. The Metropolitan Washington Council of Governments (MWCOG) considers Charles County among the outer suburbs (outside a 20-mile radius of Washington, D.C.) which will be influenced by the metro area. Employment in Charles County is responding to the increase in residential growth with an increase in retail and commercial services. Industrial and manufacturing sectors generally respond to economic factors rather than residential growth.

### 2.2.1 Population and Employment Projections

The population and employment projections, as provided in Table 2-1, were developed using U.S. Census Data and growth factors derived from the 2019 Charles County Annual Planning Report[3] and MWCOG employment projections[4]. To project the population, the 2019 U.S. Census population number served as the base year, and then GBB factored in a population growth of 1.10% from the County's 2019 Charles County Annual Planning Document. In addition, the MWCOG Cooperative 9.1 figures were used to derive a 25-year growth estimate for the employment. This analysis demonstrates an anticipated population increase to 186,603 by 2032, as well as a projected increase in employment to 39,191 in Charles County in 2032 from the level in 2019 of 33,750.

[3] https://www.charlescountymd.gov/home/showpublisheddocument/6570/637390623198670000
[4] https://www.mwcog.org/documents/2018/10/17/cooperative-forecasts-employment-population-and-household-forecasts-by-transportation-analysis-zone-cooperative-forecast-demographics-housing-population/

Table 2-1 - Population and Employment Projections

| Population and Employment Projections | | | |
|---|---|---|---|
| Year | Population[1,5] | Housing Units[2,6] | Employment[3,4] |
| 2019 | 163,257 | 61,838 | 33,750 |
| 2020 | 166,617 | 62,518 | 34,169 |
| 2021 | 166,849 | 63,198 | 34,587 |
| 2022 | 168,644 | 63,879 | 35,006 |
| 2023 | 170,440 | 64,559 | 35,424 |
| 2024 | 172,236 | 65,239 | 35,843 |
| 2025 | 174,032 | 65,919 | 36,261 |
| 2026 | 175,828 | 66,600 | 36,680 |
| 2027 | 177,624 | 67,280 | 37,098 |
| 2028 | 179,419 | 67,960 | 37,517 |
| 2029 | 181,215 | 68,640 | 37,935 |
| 2030 | 183,011 | 69,320 | 38,354 |
| 2031 | 184,807 | 70,001 | 38,772 |
| 2032 | 186,603 | 70,681 | 39,191 |

*Sources:* *1.US Census Bureau. (2019), unless otherwise noted.*
*2. 2019 Charles County Annual Planning Commission Report. (August 2019). Retrieved from https://www.charlescountymd.gov/home/showpublisheddocument/6570/637390623198670000*
*3. MWCOG Summary of Intermediate Employment Forecasts Final Round 9.1a Cooperative Forecasts. (March 2019). Retrieved from https://www.mwcog.org/documents/2018/10/17/cooperative-forecasts-employment-population-and-household-forecasts-by-transportation-analysis-zone-cooperative-forecast-demographics-housing-population/*

*Notes:* *4. Projections for Employment is based on 2015 to 2040 Projections prepared by MWCOG Forecasts Final Round 9.1a Cooperative Forecasts. These forecasts prepared by the Maryland Department of Planning, Historical and Projected Total Jobs by Place of Work, January 2015. GBB created 25-year growth of 1.236% estimate derived from employment rate figures based on these figures. The firm used 2018 Census data as the base year.*
*5.Population projections are based on Census Data 2019. GBB used 2019 average annual growth from 2019 Annual Planning Commission of 1.10% for the forecast.*
*6.Housing projections are based on Census Data 2019. GBB used 2019 average annual growth from 2019 Planning Commission Annual Report of 1.10% for the forecast. GBB assumes that future housing unit increase will correlate with estimated population growth.*

### 2.2.2 Effects of Growth on Solid Waste Management Services

New development activity within Charles County is primarily located in the Development District and along the U.S. Route 301 corridor. The Development District includes the areas of Waldorf, St. Charles, Bryans Road and White Plains.

Increased residential growth provides for increased building and construction waste (rubble) and increased waste from the commercial sectors of the community. Building and construction waste as well as land-clearing waste comprises a large portion of the waste generated in the County and is making an additional

demand on existing landfill capacity. The disposal of rubble and land- clearing debris in the County landfill is costly, unnecessary, and significantly reduces available landfill capacity. Due to this circumstance, the County has not allowed rubble waste to enter the current landfill. Charles County considers the combined effort of recycling and the diversion of disposing of rubble and land-clearing debris in other appropriately designated landfills, such as the Ritchie Road C&D Landfill in Prince George's County, Maryland, an excellent opportunity to significantly extend the life of the County's sanitary landfill. Furthermore, the proposed Waldorf Recovery Facility and Tri-County Recyclables Depot (described in subsequent sections) may also present a viable opportunity for disposal.

Charles County officials realize that the planning of growth is critical to the provision of efficient and cost-effective solid waste management services. The presence of existing development, infrastructure, and transportation reduce the cost and maximize the efficiency of solid waste and recyclable collection services. Controlled growth within development districts would minimize collection costs and increase the opportunity for modifying collection practices to meet the goals and objectives of this plan. Wide-spread growth, resulting in sparsely populated areas, would increase collection costs, increase vagrant dumping to avoid collection fees or trips to the landfill, and minimize the opportunity for modifying collection practices.

## 2.3 Incorporated Towns

There are three incorporated towns within Charles County: the Town of Indian Head, the Town of La Plata, and the Town of Port Tobacco. The population of the Town of Indian Head is 3,822, the Town of La Plata is 9,376, and there are less than 50 people in the Town of Port Tobacco. Due to its small size, the smallest incorporated town in the State, the Town of Port Tobacco is generally discussed as part of Charles County rather than as an incorporated town. The Town of La Plata serves as the center of the Charles County Government's administrative and institutional services.

## 2.4 Federal Facilities

Federal facilities in Charles County include the Naval Support Facility Indian Head and the Blossom Point Research Facility. In addition, there are two properties owned by the National Parks Service in Charles County: the Thomas Stone Historical Site in Douglas Point and the Piscataway National Park, which includes Marshall Hall and the National Colonial Farm.

## 2.5 Comprehensive Land Use Policies

The County Commissioners adopted the *Charles County Comprehensive Plan* on July 12, 2016. The Plan is the result of a joint effort of elected and appointed officials, professional land use planners, and extensive citizen involvement. This is a 10-year plan for implementation but contains projections to the year 2040 and is intended to guide decisions for that period of time, until it is considered for additional major changes.

The Charles County Comprehensive Plan consists of a land use map, goals, objectives, policies, and recommendations that will guide future land development. The *Charles County Comprehensive Solid Waste Management Plan* coordinates all of its recommendations with the land use goals, objectives, and policies of the Charles County Comprehensive Plan. Topics discussed in the *Charles County Comprehensive Plan* include:

- Land Use
- Water Resources
- Natural Resources
- Energy Conservation
- Economic Development
- Transportation
- Community Facilities & Services
- Community Development
- Agriculture, Forestry and Fisheries
- Mineral Resources

In relation to solid waste management, the Comprehensive Plan presents goals, policies, and implementation strategies for many public services, including the management of solid wastes. Specifically, Chapter 9: Community Facilities & Services, examines the community facilities and services needed to serve development in Charles County including schools, parks, libraries, public safety, fire, rescue, and emergency medical services, and solid waste. The plan notes that County's highest priority is to maximize source reduction and recycling, thus minimizing the requirement for additional solid waste disposal facilities. In the future, alternative facilities such as warehousing facilities, separation and processing facilities, transfer stations, holding and temporary storage facilities, material recovery facilities, and compost facilities may play an important role in solid waste management practices. Currently, County zoning regulations restrict private solid waste facilities.

Policy recommendations pertaining to solid waste included in the Comprehensive Plan include:

- Expand the County's recycling program. Expansion will be needed to continue to meet the County's recycling goals. Special emphasis needs to be on residential, commercial/industrial, and institutional recycling and yard waste composting.
- Explore the feasibility of alternate waste disposal technologies in public/private partnerships including transfer facilities. Zoning regulations may need to be adjusted to allow certain types of facilities that are currently restricted in zoning regulations.
- Study potential ways to expand the life of the County's landfill through integrated waste management practices including solid waste composting, waste densification, and alternative disposal sites such as rubble fills and/or recycling facilities.

## 2.6 Zoning Requirements

The Charles County Zoning Ordinance was adopted by the County Commissioners on August 31, 1992 and has had numerous text and map amendments added since that time. The zoning ordinance is designed to implement the comprehensive plan. The Charles County Zoning Ordinance presents the actual zoning districts, (which are different from land use districts), and can be found in this PGM GIS Interactive Map on the County's website.

The zoning districts derive from a number of inter-related determinants including existing land use patterns; projected growth and development trends; the natural capacity and suitability of the land to support development; the availability or proposed availability and adequacy of development infrastructure (roads, sewer, and water); and the Comprehensive Plan's goals and objectives.

The purpose of the Charles County Zoning Ordinance is to regulate land uses in order to protect and promote the health, safety, morals, comfort, and welfare of the present and future inhabitants of Charles County. Zoning requirements implement the land use objectives of the 2016 *Charles County Comprehensive Plan.* The solid waste management plan is an important component of the *Charles County Comprehensive Plan* and zoning requirements for solid waste management facilities and activities should support the above requirements.

# Chapter 3: Existing Solid Waste Management System

Chapter 3 compiles a database on existing solid waste management facilities and programs. Historic volumes of solid waste and recovered recyclables are used to project solid waste generation for the 10-year planning period. The descriptions of the existing collection system, disposal facilities, and recycling program provide the basis for the evaluation and needs assessment of subsequent chapters.

## 3.1 Existing and Projected Waste Generation in Charles County

In 1994, the Supreme Court passed a ruling commonly known as the "Carbone Decision," which stated that refuse was in fact a commodity, and therefore, subject to laws of the Interstate Commerce Commission. The result was that local jurisdictions could not pass any laws directing the flow of waste to a particular waste acceptance facility. Until this decision, it was common practice for local governments to do so to ensure a revenue source for landfills or waste-to-energy incinerators, particularly in the more densely populated East Coast states.

Almost immediately the impact was felt in Charles County when a number of large landfills were opened up in Southern Pennsylvania and Central Virginia with disposal rates significantly lower tipping fees ($45 per ton) than Charles County ($57 per ton) in 1994. At the same time a number of private transfer stations opened in neighboring Prince George's County and the District of Columbia which allowed the haulers operating in Charles County to take advantage of dumping at a discounted rate ($35-$45) without driving to Pennsylvania or Virginia. The situation was even more critical in Charles County when one national hauler, Waste Management, Inc., controlled 50 percent of the market and owned a transfer station in D.C. and a mega-fill in Pennsylvania. Their decision to utilize these facilities resulted in an overnight decrease of trash to the Charles County landfill by 50 percent. In 1997, a large landfill opened in King George County which is the neighboring county across the Potomac River Bridge, approximately 30 miles south. The King George County Landfill attracted several small haulers.

In 2007, the Supreme Court, in the Oneida-Herkimer Solid Waste Management Authority v. United Haulers Association, ruled that an ordinance requiring delivery of all solid waste to a publicly owned and operated local facility does not impose a substantial burden on interstate commerce and does not violate the Commerce Clause. This confirms that local jurisdictions such as Charles County can legally direct waste to publicly owned facilities that are located within their boundaries.

### 3.1.1 Waste Projections

In Charles County, solid waste is generated through the activities of residents, businesses, industries, and institutions. Section 26.03.03.03D of COMAR requires that this Plan identify and quantify existing and projected solid waste generated within the County for the following waste categories:

- Residential
- Non-Hazardous Industrial
- Rubble
- Dead Animals
- Tires
- Commercial
- Institutional
- Controlled Hazardous Substances
- Bulky wastes
- Wastewater Treatment Plant Sludge

- Septage
- Other waste (which may be generated in significant quantities.)

Waste generation within Charles County during the period 2021 through 2031 is presented in Table 3-5 and discussed in the following paragraphs. Descriptions of each waste category and the methodology used to estimate quantities are presented in subsequent sections.

Table 3-1 - Charles County Annual Waste Generation and Projections

## Charles County Annual Waste Generation and Projections

| | Actual Tons | | Projections | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Waste Category | 2019 | | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
| MSW Residential | 41,887 | | 47,384 | 50,096 | 52,677 | 55,119 | 57,419 | 59,575 | 61,589 | 63,463 | 65,200 | 66,807 | 68,289 |
| MSW Commercial | 24,685 | | 27,925 | 29,523 | 31,044 | 32,483 | 33,838 | 35,109 | 36,296 | 37,400 | 38,424 | 39,371 | 40,244 |
| MSW Mixed | 5,874 | | 6,004 | 6,070 | 6,137 | 6,205 | 6,273 | 6,342 | 6,412 | 6,483 | 6,554 | 6,626 | 6,699 |
| Industrial (solids, liquid, etc.) | 0 | | | | | | | | | | | | |
| Institutional (schools, hospitals etc.) | 0 | | | | | | | | | | | | |
| Demolition Debris (C&D) | 54,383 | | 61,520 | 65,041 | 68,392 | 71,563 | 74,549 | 77,349 | 79,963 | 82,395 | 84,651 | 86,737 | 88,660 |
| Land Clearing (Soil) | 0 | | | | | | | | | | | | |
| Controlled Hazardous Substance (CHS) | 0 | | | | | | | | | | | | |
| Dead Animals | 0 | | | | | | | | | | | | |
| Bulky or Special Waste | 0 | | | | | | | | | | | | |
| Vehicle Tires | 0 | | | | | | | | | | | | |
| Wastewater Treatment Plant Sludges | 0 | | | | | | | | | | | | |
| Special Medical Waste | 126 | | 143 | 152 | 162 | 172 | 183 | 195 | 207 | 220 | 234 | 249 | 265 |
| Textiles | 0 | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Additional Waste Reported by County on MRA Form, Table A1 | 15,948 | | 16,301 | 16,480 | 16,661 | 16,844 | 17,029 | 17,216 | 17,405 | 17,596 | 17,790 | 17,986 | 18,184 |
| Total MRA & NON MRA Waste | **142,903** | | **159,277** | **167,362** | **175,073** | **182,386** | **189,291** | **195,786** | **201,872** | **207,557** | **212,853** | **217,776** | **222,341** |
| Total MRA and NON MRA Recyclables | **312,131** | | **319,036** | **322,545** | **326,093** | **329,680** | **333,307** | **336,973** | **340,680** | **344,427** | **348,216** | **352,046** | **355,919** |
| Total Waste Generated | **455,034** | | **478,313** | **489,907** | **501,166** | **512,066** | **522,598** | **532,759** | **542,552** | **551,984** | **561,069** | **569,822** | **578,260** |

| | |
|---|---|
| *Sources:* | *MRA Report Details CY 2019 2019 Charles County Planning Commission Annual Report. (August 2019).* |
| *Note:* | *2019 average annual growth rate for population of 1.10%* |

### 3.1.2 Residential Wastes

Residential waste includes wastes generated by households in Charles County, except for dead animals, bulky wastes, and tires which are described in subsequent sections. Residential waste is either collected by commercial (private) haulers, brought to the County landfill by individual residents utilizing tipping fees or the Tag-a-Bag program, or disposed of illegally through dumping and burning. The projected generation of residential solid waste within the County is based on the residential waste delivered to the County landfill plus the amount of residential recyclables recovered. Historic records were used to develop an average baseline residential waste generation for the County: 2.52 pounds per person, per day.

Based on the 2019 population of 163,257 people, and the total waste landfilled in the County landfill in calendar year 2019 (115,312 tons), the average daily residential waste generation in Charles County was 3.87 pounds per person per day.

### 3.1.3 Commercial Wastes

Commercial and non-hazardous industrial waste delivered to the County landfill are not recorded separately, but are reported under a single category, as commercial waste. For the purpose of this Plan, commercial waste is defined as waste generated by private businesses and non-hazardous waste generated by industry and other organizations, e.g., federal government installations.

Commercial waste is collected by private haulers and then taken to the County landfill and out of County solid waste facilities. The projected generation of commercial waste within the County is based on the commercial waste delivered to the County landfill plus the amount of commercial recyclables recovered. In CY 2019, the commercial waste generation for Charles County was estimated to be 24,685 tons. This figure does not include commercial MRA recyclables. (See Table 3-5 and Table 3-3 for more details.)

### 3.1.4 Industrial (nonhazardous) Solids, Liquids, and Sludges

Current industrial waste uses the same generation figures as commercial waste.

### 3.1.5 Institutional (schools, hospitals, government buildings) Waste

Institutional waste includes wastes generated by federal, state, and county government facilities including the military, schools, hospitals, county maintenance, and state highway department, excluding dead animals, bulky wastes, tires, or sludge which are described in subsequent sections. Institutional waste is collected by private haulers and then taken to the County landfill or transfer station of their choice. This methodology is consistent with the figures presented in the MDE report.[5]

The quantity and type of institutional waste is not available through the Charles County Sanitary Landfill records due to commingling of materials with commercial/industrial waste. Haulers collect waste from institutional establishments within the same trip or route to collect commercial/industrial wastes. Therefore, the quantity and type of wastes generated at these establishments is not measurable at the landfill. Institutional waste is combined with commercial/industrial wastes for statistics of quantity and type of waste generated.

Higher institutional recycling participation can be attributed to recycling programs instituted in public schools, County and State government buildings, as well as mandated recycling rates for state agencies.

[5] Maryland Department of Environmental Protection. Maryland Recycling Act (MRA) Maryland Recycling Report Details January 1, 2019 – December 29, 2019.(2019)

The Maryland Department of Environment promotes and encourages waste reduction and recycling throughout the state and partners with public and private sectors to develop markets for recyclable materials and increase the volume of materials diverted from landfills through public education and policies, laws, and regulations such as the requirement of large office buildings to recycle, or the upcoming single-use plastic bag ban in the City of Baltimore. The leadership of the MDE increases recycling participation in Charles County as well as the rest of the state.

### 3.1.6 Land Clearing and Demolition Debris (Rubble)

For the purpose of this Plan, rubble includes land-clearing debris, construction debris, and demolition debris. Specific examples of waste permitted to be disposed of in a rubble landfill according to COMAR 26.04.07.13.B include trees, brush, rock, earthen materials, concrete, bricks, asphalt, wood, structural steel, plaster, insulation, roofing shingles and felt, household appliances, paper, and asbestos.

Reported rubble generation rates are highly variable and are likely influenced by a variety of factors including home construction, business development, employment, reuse and recycling, disposal costs, available disposal space, proximity of generation point to the disposal facility, practices of illegal dumping, the importation of rubble waste generated outside the county for disposal, and exportation of rubble wastes generated within the county for disposal elsewhere. Verifiable historical data on the rubble waste generated within Charles County is not available. The amount of rubble generated in the County remains unknown since Charles County still prohibits large commercial loads from the County landfill.

The average annual rubble waste landfilled in Charles County in 2019 was approximately 48,916 tons. Therefore, residential rubble waste or single-trip commercial loads are the primary contribution of rubble waste to the landfill, not commercial contractors (the latter of which is prohibited from disposing of C&D waste at the landfill). Examples of acceptable rubble waste would be from contractors remodeling a kitchen, residents cleaning out a garage, or residents disposing of an old shed, as opposed to large-scale demolition projects of commercial buildings, bridges, roadways, or other largescale projects. The rubble tonnage does not reflect county generated debris, because the southern Maryland region is void of C&D facilities. C&D does not include identifiable material (i.e., envelopes with addresses) and haulers located in Charles County have a cost incentive to dispose at the landfill rather than driving to the Calvert County Transfer Stations, which has a higher tipping fee. The rubble landfilled in Charles County is not reflective of the rubble generated in the County. This is due in part to the County's self-imposed ban on homogenous loads of rubble from commercial contractors and haulers, and the relatively cost prohibitive tipping fee.

### 3.1.7 Controlled Hazardous Substances (CHS)

The term controlled hazardous substance (CHS), also referred to as hazardous waste, is defined in the Maryland Code of Regulations, Section 26.13.02.03, with solid waste exclusions listed in COMAR 26.13.02.04 and hazardous waste exclusions contained in COMAR 26.13.02.04-1. The regulatory agency overseeing hazardous waste is the MDE Land Management Administration.

To be regulated as a hazardous waste, a substance must either have the potential to cause or contribute to an increase in mortality or serious illness or threaten human health or the environment if mismanaged. As a practical matter, a substance is regulated as a hazardous waste if it is specifically listed as such in State regulations, is mixed with or derived from one of those "listed" wastes, or exhibits certain characteristics defined in the regulations. The characteristics of hazardous waste include ignitability, corrosivity (strong acids or caustics), reactivity (explosives or items which can release toxic gases when mixed with water), and toxicity (substances which will release certain levels of toxics when subjected to a test simulating conditions in a landfill).

Hazardous waste generators must arrange for shipment of their hazardous waste to a facility permitted to accept it or, with the appropriate permits, treat it themselves. A person who ships hazardous waste off-site must use a hauler certified by MDE and the waste must be accompanied by a document that tracks it from generation to disposal (the hazardous waste manifest). A person must comply with regulations on the storage of the waste and must follow specified procedures to prevent the occurrence of circumstances which would threaten human health or the environment.

Persons who generate hazardous waste are required by law to have a program in place to reduce the volume and toxicity of the hazardous waste they produce. The Hazardous Waste Program has a pollution prevention/waste minimization group which assists generators who are attempting to reduce the amount of waste they create. They provide technical assistance and serve as a clearing house for information.

CHS is not permitted to be disposed of in a municipal landfill, but must be handled, stored, collected, transported, processed, and/or disposed of in a specific manner that meets stringent state and federal regulations and guidelines. As of June 30, 2018, the U.S. EPA implemented a national electronic manifest tracking system called eManifest. Since the EPA took over, the state of Maryland no longer collects copies of manifests from individual counties and therefore does not have an internal database in place to track generated CHS waste. However, manifests are available for public viewing online at no charge. This can be done by visiting the EPA's eManifest website and searching by city or zip code. The data is updated and published within 90 days after shipment is received from large quantity generators. The EPA manifest includes a listing of CHS generators and corresponding types and volumes of CHS reported.

#### 3.1.7.1 MDE Hazardous Waste Generator Regulations Updates

On January 29, 2021, MDE proposed significant amendments to the state's hazardous waste generator regulations. The regulation title is "Hazardous Waste Generators Improvements Rule and Treatability Study Revisions", and the proposed changes affect anyone who generates hazardous waste in Maryland. The proposal would implement, at the state level, changes that the EPA made to federal hazardous waste regulations. The changes made by EPA are referred to as the "Hazardous Waste Generator Improvements Rule". The state is required to keep Maryland's hazardous waste regulations consistent with federal regulations.

Major changes being proposed include:

1. Changes intended to improve the understandability of the regulations
    - Reorganizing the regulations so that they appear in a more logical order
    - Stating requirements directly rather than relying on references to other sections of the regulations
    - More clearly defining Maryland's hazardous waste generator categories
    - Explaining the relationship between Maryland's generator categories and the generator categories under the federal regulations,
    - Explaining when a Maryland generator's federal generator category matters for compliance purposes
2. Changes to adopt new, more stringent requirements adopted at the federal level
    - Periodic renotification requirement for generators
    - Additional labeling/marking requirements to better indicate the hazards of wastes being managed
    - Record keeping requirements for hazardous waste determinations notification of closure by generators

3. Changes allowing greater flexibility
    - "Episodic" generation provisions, allowing Maryland-defined small quantity generators to maintain that generator status under certain conditions despite a temporary increase in waste generation
    - Relaxation of a 50-foot setback requirement for ignitable wastes for generators who would not be categorized as a large quantity generator under federal regulations
    - Allowance for additional time for waste to be kept in a "satellite accumulation area" at or near the point of generation of the waste
    - Subject to certain requirements, allowing consolidation of waste from off-site generators without having to obtain a hazardous waste facility permit if the off-site generators are Maryland-defined small quantity generators under the control of the person operating the consolidation point

The public comment period closed on March 1, 2021, and it is anticipated that the changes would become effective in late spring or early summer 2021.[6]

#### 3.1.7.2 Special Medical Waste (SMW)

Also known as biohazardous, infectious, or regulated medical waste, special medical waste is waste that is likely to have been contaminated by an organism capable of causing disease in healthy humans. The Maryland Department of Health (MDH) regulations, Code of Maryland Regulations 10.06.06, define special medical waste and the criteria by which treatment methods are evaluated (as to whether the treatment creates a regulated or non-regulated waste product). The Maryland Department of the Environment is responsible for permitting and regulation of all aspects of special medical waste transportation and also requires medical waste handlers to notify MDE of medical waste activity. SMW generators are only required to file a notification if they generate 50 pounds or more special medical waste in a calendar month or have more than 50 pounds of special medical waste on site at any time. Currently, the Maryland Department of Health is reviewing and updating its regulations for Special Medical Waste at COMAR 10.06.06.

A Special Medical Waste (SMW) is classified as a CHS by the Maryland Department of the Environment (MDE) and is defined in Section 26.13.11.02 of COMAR as a solid waste that is composed of anatomical material, blood, blood-soiled articles, contaminated material, microbiological laboratory wastes, or sharps (e.g., syringes, needles, surgical instruments, etc.) and otherwise not excluded under Section 26.13.11.03 of COMAR. SMW is typically generated by hospitals and clinics, nursing facilities, doctor and dentist offices, and veterinary clinics. SMWs do not include household wastes, ash from authorized medical waste incinerators, and wastes from animals not suspected of carrying diseases infectious to humans.

In Maryland, the Department of the Environment is responsible for regulations related to solid waste and hazardous waste generation, transportation, and disposal, while the Department of Health defines medical waste and whether treatment of medical waste converts that waste to regular (non-infectious) waste.

SMW includes items such as[7]:

- Cultures and stocks of microorganisms and biologicals
- Blood and blood products
- Pathological wastes

[6] *https://mde.state.md.us/programs/Regulations/land/Documents/Fact%20Sheet%20-%20Generator%20rule%20revisions%20-%20COMAR%20-%202-4-21.pdf*
[7] *https://phpa.health.maryland.gov/OEHFP/EH/SiteAssets/SitePages/special-medical-waste/What%20is.docx.pdf*

- Sharps
- Animal carcasses
- Body parts
- Bedding and related wastes
- Isolation wastes
- Any residue resulting from a spill cleanup
- Any waste mixed with or contaminated by infectious medical waste

Infectious medical waste does not include:

- Human remains and body parts being used or examined for medical purposes
- Human remains lawfully interred in a cemetery or in preparation by a licensed mortician for interment or cremation
- Used personal hygiene products such as, diapers, facial tissues, and sanitary napkins
- Gauze and dressing material, containing small amounts of blood or other body secretions
- Hair, nails, and extracted teeth
- Most waste generated by veterinary hospitals
- Radioactive waste or wastes classified as hazardous are not infectious medical waste

In November of 2019, MDE published a report entitled "Managing Highly Pathogenic Medical Waste: Finding a Way Forward," which identified the need for improved technologies for packaging and transporting highly pathogenic medical waste. Standards applicable to transporters of SMW can be found in COMAR 26.13.13.

### 3.1.8 Household Hazardous Waste (HHW)

From a regulatory perspective, household hazardous wastes (HHW) are not the same as CHS discussed earlier. HHW are wastes classified as hazardous wastes that are generated in small quantities by residential users, whereas CHS are produced in larger quantities by businesses, industry, and institutions. Examples of HHW are paints, prescriptive drugs, fluorescent light bulbs, organic solvents such as paint thinner, gasoline, and lighter fluid; household cleaners; lead acid batteries; and pesticides. It is permissible, under current state and federal regulations, to dispose of many HHWs in a municipal landfill. While these wastes can be disposed of legally in a municipal landfill, it is encouraged to bring these materials to the monthly HHW acceptance day at the landfill. HHW can be properly stored until the next county HHW collection day. HHW collected during these events is handled and disposed of in a similar fashion as CHS.

Residential household hazardous waste (HHW) collection is held the first Saturday of each month from 9:00 a.m. to 3:00 p.m. at the Department of Public Works in La Plata. The Town does not collect any HHW and will leave it at the residence if it is spotted in the curbside waste stream. HHW represents 0.05% of the total MSW stream.

The County accepts these materials as part of Household Hazardous Waste:

- Automotive fluids (transmission fluids, brake fluid, etc.)
- Cleaning supplies
- Compact Fluorescent Light Bulbs (CFLs)
- Degreasers
- Diesel Fuel
- Gasoline
- Herbicides
- Mercury
- Oil-based paint
- Pesticides
- Pool chemicals

- Fertilizer
- Fluorescent tubes
- Rust removers
- Other poisons that are around your home

Items not accepted include:

- Ammunition
- Bio/Medical wastes (e.g., sharps, needles, body fluids)
- Commercial hazardous waste
- Latex paint (Latex Paint is not toxic and once solidified can be disposed of in your household trash.)
- Prescription and non-prescription drugs (Prescription and non-prescription drugs can be dropped off at a participating "Drug Take Back" pharmacy, the Charles County Sheriff's La Plata and Waldorf Stations, 24 hours a day and at the Charles County Sheriff's Bryans Road Station by appointment for safe disposal. Liquids or syringes will not be accepted).

### 3.1.9 Dead Animals

Dead animals generated within Charles County include unwanted and dying animals that are euthanatized at the Animal Shelter and by local veterinarians, animals killed by vehicles along county roadways, and farm animals that die or are euthanized. The Tri-County Animal Shelter reported that approximately 13 tons of dead cats, dogs and other small animals were handled in 2019 at the shelter. This facility accepts animals from residents, animal clinics, veterinarians, and the highway department. Animals are cremated on-site at the shelter.

### 3.1.10 Bulky or Special Waste (automobiles, large appliances, etc.)

Bulky wastes are primarily metal wastes contained in large items such as major appliances (i.e., white goods) and other scrap metals. In Charles County, bulky wastes are processed and recycled by out-of-County commercial scrap metal dealers. White goods (i.e., major household appliances such as stoves and refrigerators that are typically finished in white enamel) and other appliances are collected and processed for recycling by county personnel, commercial scrap metal dealers, and appliance dealers. Prior to disposal of white goods, refrigerant gases are vented and collected. White goods delivered to the County landfill and recycling centers by residents and private haulers are segregated, compacted, and stored for pick-up by a local scrap-metal dealer. All scrap metal is transported to Joseph Smith and Sons located in Capital Heights, MD. The freon is recovered from the appropriate white goods before transport.

Traditionally, the scrap metal industry has provided adequate recycling opportunities and economic incentives to recycle the majority of scrap metal and old automobiles. In 2019, there were 6,791 tons of white goods disposed of and recycled in Charles County (see Table 3-3)

### 3.1.11 Vehicle Tires (scrap tires)

The majority of scrap tires generated in the County are taken to a recycling or storage facility directly from the retailers who change tires. Currently, MDE prohibits the disposal of scrap tires at a landfill; however, a scrap tire collection location is provided at the County landfill. Scrap tires collected at the landfill are recycled. A statewide “tire recycling fee” of $0.80 per new tire sold in Maryland was established in 2005. This fee is assessed to fund the clean-up and recycling of used tires. Charles County residents can dispose of two free tires per visit to the County Landfill. Charles County handled 1,533 tons of scrap tires in 2019 through its recycling centers (see Table 3-3).

Table 3-2 - Recovered Materials and Projections (MSW)

| | 2019 | | | 2021 | | | 2022 | | | 2023 | | | 2024 | | | 2025 | | | 2026 | | | 2027 | | | 2028 | | | 2029 | | | 2030 | | | 2031 | | | 2032 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) | Residential (Tons) | Commercial (Tons) | Total (Tons) |
| **Commingled Containers** | 0 | 303 | 303 | 0 | 310 | 310 | 0 | 314 | 314 | 0 | 317 | 317 | 0 | 321 | 321 | 0 | 324 | 324 | 0 | 328 | 328 | 0 | 331 | 331 | 0 | 331 | 331 | 0 | 339 | 339 | 0 | 342 | 342 | 0 | 346 | 346 | 0 | 350 | 350 |
| **Metal** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Aluminum Cans** | 0 | 90 | 90 | 0 | 92 | 92 | 0 | 93 | 93 | 0 | 94 | 94 | 0 | 95 | 95 | 0 | 96 | 96 | 0 | 97 | 97 | 0 | 98 | 98 | 0 | 99 | 99 | 0 | 100 | 100 | 0 | 101 | 101 | 0 | 102 | 102 | 0 | 104 | 104 |
| **Front End Scrap** | 1,272 | 0 | 1,272 | 1,301 | 0 | 1,301 | 1,315 | 0 | 1,315 | 1,329 | 0 | 1,329 | 1,344 | 0 | 1,344 | 1359 | 0 | 1359 | 1301 | 0 | 1301 | 1389 | 0 | 1389 | 1404 | 0 | 1404 | 1419 | 0 | 1419 | 1435 | 0 | 1435 | 1451 | 0 | 1,451 | 1467 | 0 | 1,467 |
| **White Goods** | 0 | 5,837 | 5,837 | 0 | 5,967 | 5,967 | 0 | 6,032 | 6,032 | 0 | 6,099 | 6,099 | 0 | 6,166 | 6,166 | 0 | 6233 | 6233 | 0 | 6302 | 6302 | 0 | 6371 | 6371 | 0 | 6441 | 6441 | 0 | 6512 | 6512 | 0 | 6584 | 6,584 | 0 | 6656 | 6,656 | 0 | 6730 | 6,730 |
| **Lead Acid Batteries** | 30 | 542 | 572 | 31 | 554 | 585 | 31 | 560 | 591 | 32 | 566 | 598 | 32 | 572 | 604 | 32 | 579 | 611 | 31 | 585 | 616 | 33 | 591 | 624 | 33 | 598 | 631 | 34 | 604 | 638 | 34 | 611 | 645 | 34 | 618 | 652 | 35 | 625 | 660 |
| **Mixed Cans (Al, Sn, Steel)** | 570 | 0 | 570 | 576 | 0 | 576 | 589 | 0 | 589 | 595 | 0 | 595 | 602 | 0 | 602 | 608 | 0 | 608 | 576 | 0 | 576 | 622 | 0 | 622 | 629 | 0 | 629 | 636 | 0 | 636 | 643 | 0 | 643 | 650 | 0 | 650 | 657 | 0 | 657 |
| **Other (Oil Filters)** | 6 | 10 | 15 | 6 | 10 | 16 | 6 | 10 | 16 | 6 | 10 | 16 | 6 | 11 | 17 | 6 | 11 | 17 | 6 | 11 | 17 | 6 | 11 | 17 | 6 | 11 | 17 | 6 | 11 | 17 | 6 | 11 | 17 | 6 | 11 | 17 | 6 | 11 | 17 |
| **Other: Lithographs** | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 8 | 8 | 0 | 9 | 9 | 0 | 9 | 9 | 0 | 9 | 9 | 0 | 9 | 9 | 0 | 9 | 9 | 0 | 9 | 9 | 0 | 9 | 9 | 0 | 9 | 9 | 0 | 9 | 9 |
| **Tin (Sn)/Steel Cans** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Back-End Scrap** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Other: Metals with Mercury** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Other: Batteries** | 0 | 15 | 15 | 0 | 16 | 16 | 0 | 16 | 16 | 0 | 16 | 16 | 0 | 16 | 16 | 0 | 16 | 16 | 0 | 17 | 17 | 0 | 17 | 17 | 0 | 17 | 17 | 0 | 17 | 17 | 0 | 17 | 17 | 0 | 18 | 18 | 0 | 18 | 18 |
| **Paper** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Newspaper** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Corrugated Cardboard** | 0 | 9,623 | 9,623 | 0 | 9,836 | 9,836 | 0 | 9,944 | 9,944 | 0 | 10,054 | 10,054 | 0 | 10,164 | 10,164 | 0 | 10276 | 10276 | 0 | 10389 | 10389 | 0 | 10504 | 10504 | 0 | 10619 | 10619 | 0 | 10736 | 10,736 | 0 | 10854 | 10,854 | 0 | 10973 | 10,973 | 0 | 11094 | 11,094 |
| **Office / Computer** | 0 | 881 | 881 | 0 | 901 | 901 | 0 | 910 | 910 | 0 | 921 | 921 | 0 | 931 | 931 | 0 | 941 | 941 | 0 | 951 | 951 | 0 | 962 | 962 | 0 | 972 | 972 | 0 | 983 | 983 | 0 | 994 | 994 | 0 | 1005 | 1005 | 0 | 1016 | 1016 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Magazines** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Mixed Paper** | 5,026 | 179 | 5,206 | 5,082 | 183 | 5,265 | 5,194 | 185 | 5,379 | 5,251 | 187 | 5,438 | 5,309 | 190 | 5,499 | 5082 | 192 | 5274 | 5367 | 194 | 5561 | 5486 | 196 | 5682 | 5546 | 198 | 5744 | 5608 | 200 | 5,808 | 5669 | 202 | 5,871 | 5732 | 205 | 5,937 | 5795 | 207 | 6,002 |
| **Other: Books** | 0 | 81 | 81 | 0 | 83 | 83 | 0 | 84 | 84 | 0 | 85 | 85 | 0 | 86 | 86 | 0 | 87 | 87 | 0 | 88 | 88 | 0 | 89 | 89 | 0 | 90 | 90 | 0 | 91 | 91 | 0 | 92 | 92 | 0 | 93 | 93 | 0 | 94 | 94 |
| **Compost / Mulch** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Mixed Yard Waste** | 9,849 | 8,640 | 18,489 | 9,958 | 8,831 | 18,789 | 10,178 | 8,928 | 19,106 | 10,290 | 9,026 | 19,316 | 10,403 | 9,126 | 19,529 | 9958 | 9226 | 19184 | 9958 | 9328 | 19286 | 10750 | 9430 | 20180 | 10290 | 9534 | 19824 | 10988 | 9639 | 20,627.00 | 11109 | 9745 | 20,854 | 11231 | 9852 | 21,083 | 11355 | 9960 | 21,315 |
| **Brush and Branches** | 0 | 1,493 | 1,493 | 0 | 1,526 | 1,526 | 0 | 1,543 | 1,543 | 0 | 1,560 | 1,560 | 0 | 1,577 | 1,577 | 0 | 1594 | 1594 | 0 | 1,612 | 1612 | 0 | 1,630 | 1630 | 0 | 1647 | 1647 | 0 | 1666 | 1,666.00 | 0 | 1684 | 1,684 | 0 | 1,702 | 1,702 | 0 | 1,721 | 1,721 |
| **Grass** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Leaves** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Food Waste** | 0 | 350 | 350 | 0 | 358 | 358 | 0 | 362 | 362 | 0 | 366 | 366 | 0 | 370 | 370 | 0 | 374 | 374 | 0 | 378 | 378 | 0 | 382 | 382 | 0 | 386 | 386 | 0 | 390 | 390.00 | 0 | 395 | 395 | 0 | 399 | 399 | 0 | 403 | 403 |
| **MSW Compost (2)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Wood Materials (3)** | 0 | 96 | 96 | 0 | 98 | 98 | 0 | 99 | 99 | 0 | 100 | 100 | 0 | 101 | 101 | 0 | 102 | 102 | 0 | 103 | 103 | 0 | 105 | 105 | 0 | 106 | 106 | 0 | 107 | 107.00 | 0 | 108 | 108 | 0 | 109 | 109 | 0 | 110 | 110 |
| **Other: Bark** | 0 | 5,000 | 5,000 | 0 | 5,111 | 5,111 | 0 | 5,167 | 5,167 | 0 | 5,224 | 5,224 | 0 | 5,281 | 5,281 | 0 | 5339 | 5339 | 0 | 5,398 | 5398 | 0 | 5,457 | 5457 | 0 | 5517 | 5517 | 0 | 5578 | 5,578 | 0 | 5639 | 5,639 | 0 | 5,701 | 5,701 | 0 | 5,764 | 5,764 |
| **Other: Sawdust** | 0 | 5,443 | 5,443 | 0 | 5,563 | 5,563 | 0 | 5,625 | 5,625 | 0 | 5,686 | 5,686 | 0 | 5,749 | 5,749 | 0 | 5812 | 5812 | 0 | 5,876 | 5876 | 0 | 5,941 | 5941 | 0 | 6006 | 6006 | 0 | 6072 | 6,072 | 0 | 6139 | 6,139 | 0 | 6,207 | 6,207 | 0 | 6,275 | 6,275 |
| **Plastic** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Mixed Plastic** | 936 | 8 | 944 | 946 | 9 | 955 | 967 | 9 | 976 | 977 | 9 | 986 | 988 | 9 | 997 | 946 | 9 | 955 | 946 | 9 | 955 | 1021 | 9 | 1030 | 977 | 9 | 986 | 1044 | 9 | 1053 | 1055 | 9 | 1,064 | 1067 | 10 | 1,077 | 1079 | 10 | 1,089 |
| **Plastic #1 PET** | 0 | 47 | 47 | 0 | 48 | 48 | 0 | 49 | 49 | 0 | 49 | 49 | 0 | 50 | 50 | 0 | 50 | 50 | 0 | 51 | 51 | 0 | 51 | 51 | 0 | 52 | 52 | 0 | 53 | 53 | 0 | 53 | 53 | 0 | 54 | 54 | 0 | 54 | 54 |
| **Plastic #2 HDPE** | 112 | 0 | 112 | 113 | 0 | 113 | 116 | 0 | 116 | 117 | 0 | 117 | 118 | 0 | 118 | 119 | 0 | 119 | 113 | 0 | 113 | 122 | 0 | 122 | 117 | 0 | 117 | 125 | 0 | 125 | 127 | 0 | 127 | 128 | 0 | 128 | 129 | 0 | 129 |
| **Other: Film Plastic** | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| **Other: Shrink Wrap** | 0 | 34 | 34 | 0 | 35 | 35 | 0 | 35 | 35 | 0 | 35 | 35 | 0 | 36 | 36 | 0 | 36 | 36 | 0 | 36 | 36 | 0 | 37 | 37 | 0 | 37 | 37 | 0 | 38 | 38 | 0 | 38 | 38 | 0 | 39 | 39 | 0 | 39 | 39 |
| **Other: Plastic Hangers** | 0 | 14 | 14 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 15 | 15 | 0 | 16 | 16 | 0 | 16 | 16 | 0 | 16 | 16 | 0 | 16 | 16 | 0 | 16 | 16 | 0 | 17 | 17 |
| **Glass** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Brown Glass** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Clear Glass** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Green Glass** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Mixed Glass** | 1,497 | 0 | 1,497 | 1,530 | 0 | 1,530 | 1,547 | 0 | 1,547 | 1,564 | 0 | 1,564 | 1,581 | 0 | 1,581 | 1513 | 0 | 1513 | 1513 | 0 | 1513 | 1634 | 0 | 1634 | 1564 | 0 | 1564 | 1670 | 0 | 1670 | 1688 | 0 | 1,688 | 1707 | 0 | 1,707 | 1726 | 0 | 1,726 |
| **Fluorescent Bulbs** | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 5 | 5 | 0 | 6 | 6 | 0 | 6 | 6 |
| **Other** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Animal Protein / Fat (Solid)** | 0 | 172 | 172 | 0 | 175 | 175 | 0 | 177 | 177 | 0 | 179 | 179 | 0 | 181 | 181 | 0 | 183 | 183 | 0 | 185 | 185 | 0 | 187 | 187 | 0 | 189 | 189 | 0 | 191 | 191 | 0 | 193 | 193 | 0 | 196 | 196 | 0 | 198 | 198 |
| **MSW-to-Energy Ash** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Electronics** | 128 | 197 | 325 | 129 | 202 | 331 | 132 | 204 | 336 | 134 | 206 | 340 | 135 | 208 | 343 | 129 | 211 | 340 | 129 | 213 | 342 | 132 | 215 | 347 | 134 | 218 | 352 | 143 | 220 | 363 | 144 | 222 | 366 | 146 | 225 | 371 | 147 | 227 | 374 |
| **Pallets** | 0 | 141 | 141 | 0 | 144 | 144 | 0 | 146 | 146 | 0 | 147 | 147 | 0 | 149 | 149 | 0 | 151 | 151 | 0 | 152 | 152 | 0 | 154 | 154 | 0 | 156 | 156 | 0 | 157 | 157 | 0 | 159 | 159 | 0 | 161 | 161 | 0 | 163 | 163 |
| **Textiles / Cloth** | 31 | 396 | 427 | 31 | 400 | 431 | 32 | 409 | 441 | 32 | 413 | 445 | 33 | 418 | 451 | 31 | 423 | 454 | 31 | 427 | 458 | 32 | 432 | 464 | 32 | 437 | 469 | 35 | 441 | 476 | 35 | 446 | 481 | 35 | 451 | 486 | 36 | 456 | 492 |
| **Tires (Recycled)** | 343 | 1,190 | 1,533 | 347 | 1,203 | 1,550 | 355 | 1,229 | 1,584 | 359 | 1,243 | 1,602 | 363 | 1,256 | 1,619 | 347 | 1270 | 1617 | 347 | 1284 | 1631 | 355 | 1298 | 1653 | 359 | 1313 | 1672 | 383 | 1327 | 1710 | 387 | 1342 | 1729 | 391 | 1356 | 1747 | 396 | 1371 | 1767 |
| **Tires (Retread)** | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| **Other: Toner Cartridges** | 0 | 39 | 39 | 0 | 40 | 40 | 0 | 41 | 41 | 0 | 41 | 41 | 0 | 41 | 41 | 0 | 42 | 42 | 0 | 42 | 42 | 0 | 43 | 43 | 0 | 43 | 43 | 0 | 44 | 44 | 0 | 44 | 44 | 0 | 45 | 45 | 0 | 45 | 45 |
| **Other: No Rechargeable Batteries** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Other: Rechargeable Batteries** | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2.00 | 0 | 2 | 2 | 0 | 2 | 2 | 0 | 2 | 2 |
| **Other: Household Hazardous Waste** | 29 | 0 | 29 | 30 | 0 | 30 | 30 | 0 | 30 | 31 | 0 | 31 | 31 | 0 | 31 | 30 | 0 | 30 | 30 | 0 | 30 | 30 | 0 | 30 | 31 | 0 | 31 | 33 | 0 | 33 | 33 | 0 | 33 | 33 | 0 | 33 | 34 | 0 | 34 |
| **Tire-to-Cement Kilns** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total:** | **19,830** | **40,842** | **60,672** | **20,080** | **41,418** | **61,498** | **20,492** | **41,891** | **62,383** | **20,717** | **42,350** | **63,067** | **20,945** | **42,818** | **63,763** | **20,160** | **43,288** | **63,448** | **20,348** | **43,763** | **64,111** | **21,612** | **44,246** | **65,858** | **21,122** | **44,731** | **65,853** | **22,124** | **45,222** | **67,346** | **22,365** | **45,718** | **68,083** | **22,611** | **46,225** | **68,836** | **22,862** | **46,733** | **69,595** |

Source: *1. 2019 average annual growth rate for population = 1.10%*

*2.2019 Charles County Planning Commission Report*

*3.MRA Recycling Report Details CY 2019*

Notes: *MRA Recycling Report Details CY 2019 Data is expressed in tons and rounded to no more than four significant figures.*

## 3.1.12 Wastewater Treatment Plant Sludges

A Sewage Sludge Utilization Permit is required for the activities of sewage sludge treatment, composting, transportation, storage, distribution, application on agricultural land or marginal land, energy generation or incineration, marketing, conducting innovative or research projects, or disposal or alternative utilization at a municipal landfill.

### 3.1.12.1 Wastewater Treatment Plant Sludge

Charles County Resolution No. 92-75 bans the disposal of sludge in the landfill, except in emergency situations. In the event of an emergency situation, which is defined by the MDE, sludge may be disposed in the Charles County landfill for the established tipping fee. Generally, sludge is used as a soil conditioner and land-applied to permitted agricultural or reclaimed gravel mine sites throughout Charles County.

There are five (5) major ways that sewage sludge produced in Maryland is managed:

1. Applied to agricultural land
2. Composted or pelletized and made into a commercial soil supplement
3. Used for land reclamation such as restoring surface mines
4. Disposed in landfills, or
5. Used as combustion for energy

Ideally, sewage sludge will be utilized by farmers as it is a nutrient-rich fertilizer that is beneficial to crops, and by applying sewage sludge on farmland, nutrients are recycled into living plants, which reduces pollution. In 2019, approximately 320 dry tons of sewage sludge were generated in Charles County for agricultural land application from MDE approved treatment plants. Utilization of treated sewage sludge for land application is regulated and permitted by the Maryland Department of the Environment.

### 3.1.12.2 Water Treatment Sediments

Water treatment systems that use surface water as their source (e.g., streams, rivers, reservoirs) produce sediments or sludge as a waste by-product of the treatment process. There are no water treatment systems currently operating in Charles County and no water treatment sediment is imported into the County for land disposal.

## 3.1.13 Septage

Septage is the material removed from chemical toilets, septic tanks, seepage pits, privies, or cesspools. Since 1992, MDE regulations require that septage be treated as raw sewage at a permitted wastewater treatment plant. The disposal of raw septage directly on land surfaces is illegal in Maryland. In Charles County, septage is accepted for treatment at the Mattawoman Waste Water Facility.

Records from the Mattawoman Waste Water Facility indicated that a total of 26,427,197 gallons of septage was delivered to the wastewater treatment facility during Fiscal Year 2019.

## 3.1.14 Other Waste

### 3.1.14.1 Yard Waste

Grass, leaves, bundled brush, and branches are collected curbside April through December from households that are serviced by the curbside recycling program. Residents must place materials in paper yard waste bags or containers with handles and marked with a large “X” facing the street. Residents within

the subscription service area schedule collection online on an as-needed basis. The deadline to sign up for service is midnight before the collection day.

Residents can also drop-off yard waste at the following facilities:

- Breeze Farm Recycling Center
- Charles County Landfill Recycling Center
- Gilbert Run Park Recycling Center
- Piney Church Road Mulch Facility
- Pisgah Recycling Center

Accepted materials are grass, leaves, brush, branches, logs, and cut wood (not to exceed four feet in length). Commercial haulers are subject to fees. In 2019, there were 18,489 tons of residential and commercial mixed yard waste collected in the County.

#### 3.1.14.2 Food Waste

Evaluating food waste would require a waste composition study and a report solely focused on residential and commercial food waste. According to the EPA, food waste comprises 24% of the municipal waste stream. According to the Northeast Maryland Waste Disposal Authority report, on behalf of MDE, entitled "2016 Maryland Statewide Waste Characterization Stud," food waste accounted for 22.2% of the total waste at the Charles County Landfill.

As food waste is currently not being collected in large amounts through large scale programs, 22-24% of the total MRA waste generated in-County and disposed in and out of Charles County (142,904 tons), food waste may account for approximately 34,000 tons.

#### 3.1.14.3 Asbestos

Prior to 1970, asbestos was frequently used as insulation for boilers, heating systems, and piping in buildings and as structural material in floor and ceiling tile and exterior siding. The discovery that asbestos is carcinogenic when inhaled prompted the EPA and MDE to require its removal from certain structures (e.g., schools) and to regulate its handling and disposal. Thus, asbestos waste is generated from the demolition and rehabilitation of structures containing asbestos materials. Municipal and rubble landfills can accept asbestos waste provided that it is allowed by the MDE refuse disposal permit and specific handling procedures are followed to prevent fibers from becoming airborne. At present, the Charles County accepts non-friable asbestos only (friable asbestos is prohibited).

Asbestos is not classified as a controlled hazardous substance; therefore, no tracking records are available for asbestos waste generated within the County. There is no substantial demand or requests for asbestos disposal from Charles County residents and agencies. The absence of significant quantities of asbestos is largely due to the development history of the County. In 1950, the population was approximately 23,415 which grew to approximately 47,683 in 1970 and to 101,154 in 1990. Therefore, the vast majority of development and construction occurred after 1970 when asbestos was no longer used as a building material. In addition, asbestos has already been removed from the facilities operated by the Charles County Board of Education and the Charles County Government. There has been no friable asbestos accepted at the Charles County Landfill during the past ten years, and there is projected to be very little in the pending 10 years covered in this solid waste management plan.

#### 3.1.14.4 County Maintenance Debris

County operations generate small quantities of debris from cleaning streets, litter, and catch basins. The quantities of debris generated from Charles County maintenance operations are accounted for in the institutional (commercial/industrial) portion of the waste stream projections.

#### 3.1.14.5 Agricultural Waste

Agricultural wastes include organic residues from crop production, livestock manure, and used containers from pesticides and herbicides. Generally, agricultural wastes are reused on the farm. For example, manure is used as fertilizer and organic debris is plowed into the land. Although not identified as such, small quantities of agricultural waste entering the Charles County Sanitary Landfill are accounted for as commercial waste. Because most of these wastes are recycled on-site, agricultural wastes are not a significant solid waste management issue within the County.

#### 3.1.14.6 Recreational Waste

Waste from parks and other recreational facilities including solid waste and septage are accounted for in the institutional projections, which are part of commercial and industrial projections, or septage waste calculations and projections.

#### 3.1.14.7 Mining Waste

Several sand, gravel, and clay surface mines are operated in Charles County. The primary solid waste associated with quarrying operations is overburden (soil) which is usually stockpiled on-site or sold as clean fill to the construction industry. Although quantities of this material are significant, it does not currently impact solid waste management in the County.

#### 3.1.14.8 Used Oil and Antifreeze

The Maryland Used Oil Recycling Program is administered by the Maryland Environmental Service (MES) through a memorandum of understanding with the MDE. MES is responsible for the construction, operation, and the routine maintenance of used oil collection facilities; providing public education and outreach programs related to the disposal of used motor oil; and maintaining an information center to educate citizens regarding the proper disposal of used motor oil. Additionally, MES utilizes these used motor oil collection sites for the collection of related recyclables including used antifreeze and used oil filters.

Since 1988, the Maryland Used Oil Recycling Program has resulted in the collection and recycling of over 17.2 million gallons of used motor oil in the State of Maryland. Similarly, the program has accomplished the collection and recycling of almost 911,000 gallons of used antifreeze. According to the most recent "Maryland Used Oil Recycle Program Report," published by MDE in August 2019, 359,100 gallons of used oil and 30,686 gallons of used antifreeze were collected from Program-sponsored locations in 2019. Additionally, during this period, 166 drums of used oil filters were collected for recycling.

Charles County also offers several oil and antifreeze recycling locations. Used motor oil and antifreeze can be disposed of on a regular basis at one of the recycling centers or oil and antifreeze drop off sites in the County. The following facilities accept used motor oil and antifreeze:

- Breeze Farm Recycling Center
- Charles County Landfill Recycling Center
- Department of Public Works - Facilities

- Gilbert Run Park Recycling Center
- Pinefield Subdivision
- Pisgah Recycling Center
- Ruth B. Swann Collection Site

## 3.2 Waste Imported and Exported

In CY 2019, Charles County disposed of 142,904 tons of MRA and Non - Waste in solid waste facilities. From this figure, 115,312 tons of MRA and Non-MRA Waste, approximately 80%, were disposed at the Charles County Landfill, and 27,592 Tons of MRA Waste and Non - MRA Waste were disposed of in 19 out-of-County facilities. Using the 10-Year Tag-A-Bag Convenience Center figures provided by the DPW, private and public haulers collected an estimated 141,064 tons of MRA Waste and Non - MRA Waste (MSW and C&D Waste) from the County through residential curbside collection performed in incorporated towns, Town of Indian Head and Town of La Plata, and private collection from the unincorporated areas as well as commercial entities in the County. GBB estimated that 1,840 tons of MRA Waste, Residential MSW, were disposed of by Charles County residents at four (4) convenience centers through the Tag-A-Bag Program. These convenience centers include Breeze Farm Recycling Center, Gilbert Run Recycling Center, Pisgah Recycling Center, and Charles County Recycling Center.

The waste flow chart (Figure 3-1) displays MRA Waste and Non – MRA Waste movement from residential and commercial entities to in–system and out-of-system waste facilities in CY 2019. GBB used the MRA Recycling Details Report 2019 - Annual Maryland Recycling Reporting Form, Waste Disposed of Table, and the Tag-A-Bag Convenience Center spreadsheet provided by DPW as references for the waste flow chart calculations. GBB also reviewed the tons a 2019 Waste Accepted by Facility Spreadsheet, provided by MDE, to understand the type of materials sent to Maryland facilities in CY 2019. MRA Waste primarily includes Commercial and Residential MSW and Mixed Waste, and Non-MRA Waste includes C&D and Special Medical Waste.

According to the MRA Recycling Details Report 2019, the remaining 27,592 tons of MRA and Non – MRA waste went to out-of-system solid waste facilities, including processing facility/ transfer station, Rubble/ C&D Landfill, MSW Landfill, Other, and Medical Waste Incinerator facilities. The following description further summarized the flow of waste tonnage from Charles County in CY 2019.

- Haulers transported 10,319 tons of MRA and Non to in-state and out-of-state processing facilities and transfer stations –8,733 tons of MRA Waste and 1,587 tons of Non-MRA Waste. Charles County waste was delivered to the following facilities: Appeal Municipal Landfill, Biomedical Waste Services, Inc., Recycle One, Sheriff Rd Processing and Transfer Station, Southern Maryland Processing Facility, Stericycle, Inc, Sun Services Processing and Recycling Center, Veolia ES Tech Solutions, Tradebe, Northeast Transfer Station, Benning Road Transfer Station, and Fort Totten Transfer Station.
- Haulers delivered 4,689 tons of Non-MRA Waste, C&D, to Honeygo Run Reclamation Center Inc and Ritchie Land Reclamation Rubblefill.
- Haulers transferred 11,852 tons of Non-MRA Waste to Amelia Landfill and Waste Management American Landfill.
- Haulers transported 726 tons of Non-MRA Waste to Veolia ES Tech Solutions.
- Haulers delivered five (5) tons of Non-MRA Waste, Special Medical Waste, to Curtis Bay Energy.

### 3.2.1 Imported Wastes

The Charles County landfill does not allow other counties' trash to be imported.

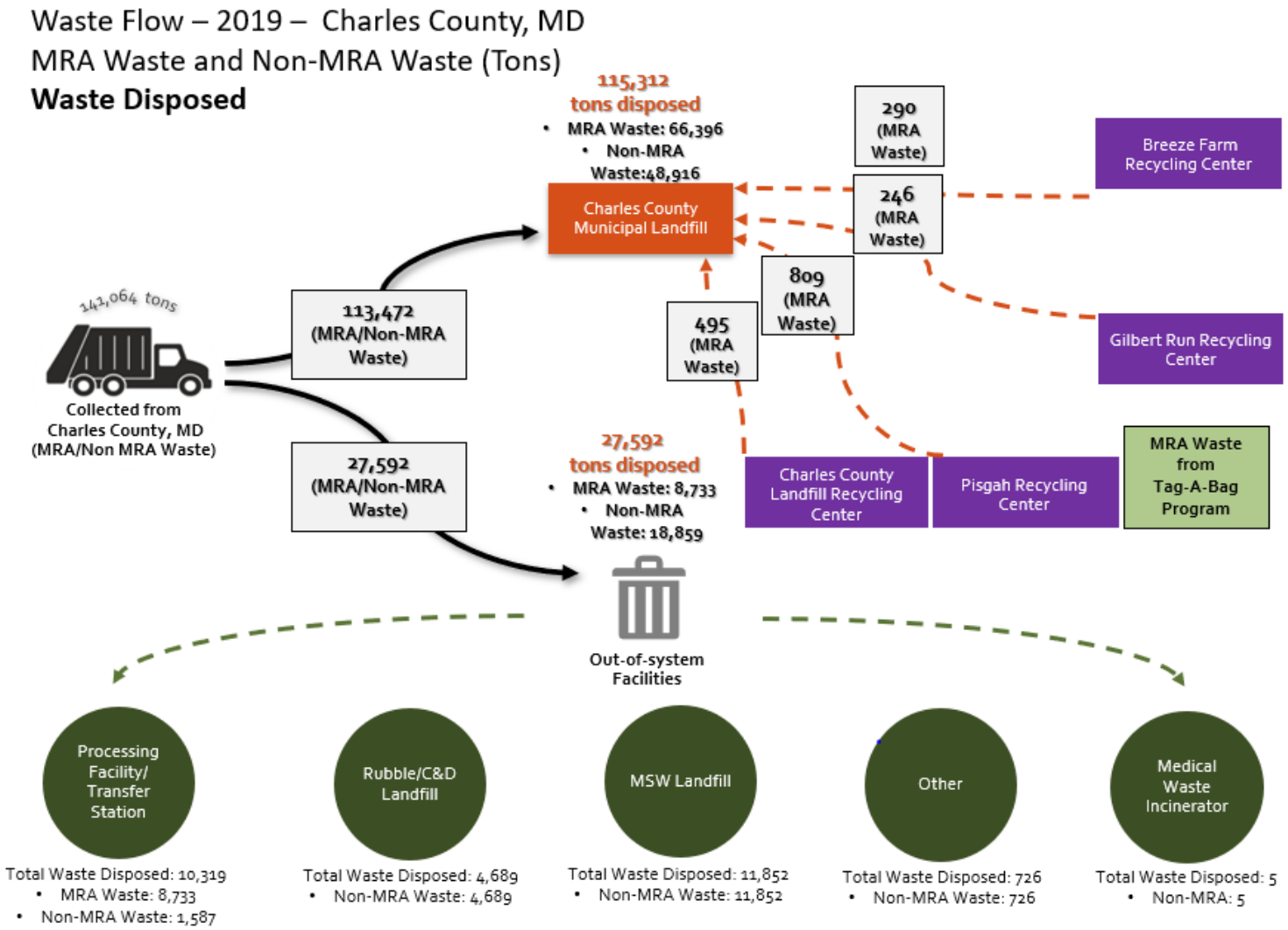
#### 3.2.1.1 Wastewater Sludge

The MDE issues Sewage Sludge Utilization permits for land application in Maryland. In 2019 approximately 320 dry tons of bio-solids were processed and disposed of at the Mattawoman WWTP for agricultural application in Charles County.

## 3.3 Exported Waste

Charles County exports approximately 20% of the waste disposed. As previously discussed, recyclables, rubble, controlled hazardous substances, dead animals, and asbestos are exported out-of-county for processing and disposal. Please see the Waste Flow Chart in Figure 3-1 for more details.

Figure 3-1 - Waste Flow Chart




*Sources: 2019 MRA Annual Recycling Reports (Waste Disposed Table)*
*10-year Convenience Center FY Tag-A-Bag Comparison (DPW)*

### 3.3.1 Rubble

In 2019, 5,467 tons of rubble/C&D waste were disposed of outside the County.

### 3.3.2 Medical Waste

In 2019, 126 tons of special medical waste were disposed of outside the County.

## 3.4 Recycling

A combination of public and private programs serve the two main sectors of potential recyclers: residents and commercial businesses (commercial, industry, and institutions). Recycling programs for each of these sectors are described in the following sections. In 2019, approximately 60,671 tons of recyclable material were recovered from the waste stream. These recyclables were transported out-of-county for processing. The following items were recycled in Charles County in 2019:

- Aluminum Cans
- Front End Scrap
- White Goods
- Lead Acid Batteries
- Oil Filters
- Lithographs
- Steel Cans
- Batteries
- Newspaper
- Corrugated Cardboard
- Office Paper
- Mixed Paper
- Books
- Yard Waste
- Brush and Branches
- Food Waste
- Wood Materials
- Bark
- Sawdust
- Mixed Plastic
- Plastic #1 PET
- Plastic #2 HDPE
- Film Plastic
- Shrink Wrap
- Plastic Hangers
- Mixed Glass
- Fluorescent Bulbs
- Animal Protein Fat (solid)
- Electronics
- Pallets
- Textiles
- Tires (Recycled)
- Tires (Retread)
- Toner Cartridges
- Rechargeable Batteries
- Household Batteries

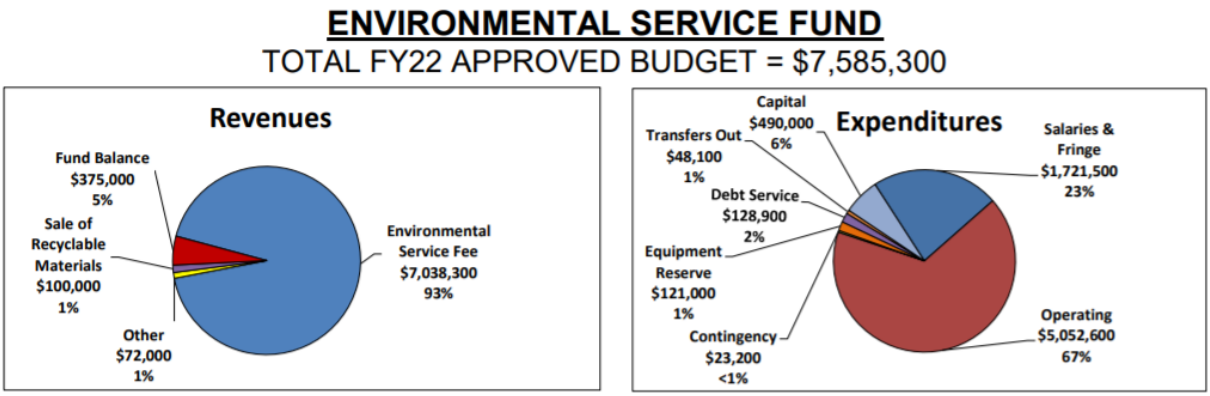
### 3.4.1 Funding for Recycling

Recycling in the County is funded through the Environmental Service Fund. The total approved FY 2022 budget for the ESF is $7,585,300. Recycling and environmental programs are paid with revenues generated primarily by the Environmental Service Fee (ESF), which is charged annually to each improved property within the County. The fee is established annually based on the estimated cost of various programs divided by the number of improved properties. The towns of Indian Head and La Plata have their own recycling program and pay a reduced ESF fee. The fee increase is mainly to cover the cost of the Curbside Collection/Material Recycling Fee contract changes. The funds also support the costs associated with the popular Septic Pump Out Reimbursement and Riser Reimbursement programs. The approved budget changes the annual ESF fee from $124 to $130 per improved property for property owners outside of Indian Head and La Plata. The approved annual fee for properties located within these municipalities is to increase from $19 to $20 per improved property. The approved budget changes the Septic Pump Out and Riser Reimbursements to a flat $100 reimbursement for FY2022. To provide an

added convenience to citizens, a Recycling Center Bulk Rate of $15 was approved for the various recycling centers. Also, there will be a flat rate for Commercial Yard Waste once operations are relocated. These Commercial Yard Waste fees were approved at $30 for Trucks and Trailers, and $60 for Stake Body Trucks.

At the end of FY2021, 48,139 households received curbside collection of recyclable materials. The residential recycling program also consists of four Recycling Centers, and five 24-Hour Used Motor Oil and Antifreeze Collection Sites. The permanent centers are located at Gilbert Run Park in Dentsville, Breeze Farm in Cobb Island, the Landfill in Waldorf, and the old Landfill in Pisgah. (For more details about the Environmental Service fund approved budget, see Figure 3-2.)

Figure 3-2 - Approved Environmental Service Fund Budget (FY2022)




## 3.4.2 Residential Recycling

Residential recycling programs are provided by Charles County through either curbside residential collection or delivery by residents to recycling centers. The curbside residential collection program provided for the unincorporated areas of the County differs from the curbside programs for the Towns of Indian Head and La Plata. The County operates four (4) recycling centers which accept recyclable materials from county residents. These recycling centers are identified and detailed in Table 3-8.

### 3.4.2.1 Curbside Recycling Collection in Unincorporated Areas

The County currently contracts with a privately owned waste collection company to provide curbside residential of recyclables and yard waste in unincorporated areas of the County. Curbside collection is currently available to 48,139 households throughout the County. Due to the growing number of homes within the County, annual Route Audits are conducted to identify new growth and determine the expansion of the program. Collection services for residential recyclables and yard waste in the unincorporated area of the County are paid through an environmental service fee. There are approximately 60,000 households paying the ESF of which approximately 1,500 homes are not being serviced by the County's curbside residential recycling program.

Each household within the collection area is provided with a 95-gallon recycling cart to collect their recyclables and to place at the curb for every-other-week collection. Recyclables collected include metal containers, plastic bottles and containers, glass bottles and jars, paper, and cardboard. The collection company collects the single stream recyclables and hauls it to the Tri-County Recyclables Depot in Hughesville, and then transferred to Olive Street Processing Facility located in Capitol Heights, MD. Records of all materials processed at the facility is provided to the County and is incorporated in the annual MRA report. Yard Waste consisting of grass, leaves, and small branches is also collected on a weekly basis nine (9) months a year from the same households. The County currently contracts with

Calvert Wood Recycling in La Plata, a privately owned company. The facility processes the yard waste into mulch that is then available for purchase to be used in garden and landscape projects throughout the community.

The residential recycling program in unincorporated areas currently has a 66% set-out rate (see Table 3-4). Additionally, In Calendar Year 2019, Charles County's Maryland Recycling Act (MRA) recycling was 44.68 percent. The MRA recycling rate exceeds the mandated State recycling goal of 35 percent for a county with more than 150,000. The County recovered 60,672 tons of MRA Recyclables and 251,459 of Non-MRA Recyclables. The MRA calculation only includes MRA Recyclables recovered from MRA Waste.

Table 3-3 - Curbside Recycling Participation

| Curbside Recycling Participation | | | |
|---|---|---|---|
| Year | House Count | Set Out | Percentage |
| 2019 | 46,479 | 26,278 | 57% |
| 2020 | 47,554 | 29,329 | 62% |
| 2021 | 48,139 | 31,925 | 66% |

#### 3.4.2.2 Curbside Collection in Incorporated Areas

The Town of Indian Head provides approximately 1,400 households with curbside collection of recyclables. The recyclables collected include metal containers, plastic bottles and containers, glass bottles and jars, paper, and cardboard. The residents of Indian Head place commingled materials in their recycling bin once a week for collection. A contracted hauler collects the recyclables. Recyclable collection in Indian Head is paid for by individuals as part of solid waste collection services.

The Town of La Plata provides curbside collection of recyclables to approximately 3,000 households. Collected recyclables includes metal containers, plastic bottles and containers, glass bottles and jars, paper, and cardboard. Residents place the commingled recyclables in their recycling bin for weekly curbside collection. Recycling is offered through a contract with a private contractor. Residential curbside collection in La Plata is also paid by the individual as part of the quarterly bill for waste collection services.

The Town of La Plata and Indian Head staff collect yard-waste and delivers the material to either Calvert Wood Recycling and the Piney Church Mulch Facility on a year-round basis.

#### 3.4.2.3 Recycling Centers

Charles County provides the Piney Church Mulch Facility and four (4) permanent recycling centers with a range of materials accepted at each center. Table 3-8 identifies these recycling centers, their locations, hours of operation, and materials accepted. Figure 3-3 shows the locations of the various acceptance facilities throughout the County.

#### 3.4.2.4 Other Residential Recycling Opportunities

The County provides a number of specialized recycling programs for residents. These additional recycling opportunities are:

- Christmas Tree collection sites

- Scrap metal such as old appliances and bicycles may be taken to the Charles County Landfill Recycling Center, Pisgah Recycling Center, Gilbert Run Recycling Center, or the Breeze Farm Recycling Center.
- Lead-acid batteries may be taken to any of the above-mentioned facilities or Waldorf Metal, Inc. in Bryantown, Maryland. Batteries may also be taken to auto parts retail stores for recycling.
- Used motor oil may be taken to one of the four (4) recycling centers or four (4) used motor oil recycling drop-off locations.
- Used cooking oil may be taken to one of the four (4) recycling centers.
- Rigid or bulky plastics may be taken to one of the four (4) recycling centers.
- Oyster shells are accepted at the four (4) recycling centers through a partnership with Oyster Recovery Partnership.
- Propane cylinders or tanks are accepted at the four (4) recycling centers.
- Plastic grocery bags may be returned to grocery stores and select retail stores.
- Electronics which include computers, monitors, peripherals, televisions, telephones, cellular phones & PDA's, printers, copiers, stereos, VCR & DVD players, camcorders, CD players, fax machines, projection equipment, calculators, scanners, electronic typewriters, consumer electronics, electronic toys, and microwaves. Accepted items also include "covered electronic items," which are defined by MDE as "a computer or video display device with a screen that is greater than 4 inches measured diagonally." See Table 3-8 for a list of locations that accept electronic waste.
- Textiles consisting of clothing, linens, and leather goods are collected at four (4) recycling centers by Mid-Atlantic Clothing Recyclers (MAC) who make annual donations to the Drug Abuse Resistance Education (D.A.R.E.) Program; the donation amount is $100 per collection container utilized. In 2019, a total of 427 tons of textiles were recycled, and in July 2019, the County Environmental Resources Division received a rebate of $2,721.53, which is part of a state program and is based on textile tons received.

### 3.4.3 Apartment Building and Condominium Recycling

In April 2012, the Maryland General Assembly passed House Bill 1, Environmental-Recycling-Apartment Buildings and Condominiums requiring recycling in all apartment buildings and condominiums that contain 10 or more dwelling units. The law took effect on October 1, 2012 (amending Section 9-1703 of the Environment Article, Annotated Code of Maryland). Accordingly, the County revised its recycling plan, and the Apartment Building and Condominium Recycling Program was implemented in.

Through the cooperation of the Charles County Department of Public Works, Environmental Resources Division and owners or managers of apartment buildings or councils of unit owners of condominiums ("apartment and condominium officials"), and other stakeholders involved in the implementation of this law, the County has identified all of the apartment buildings and condominiums that fall under the scope of the law within Charles County, and relayed the requirements of the law, including the materials that must be recycled; to the apartment and condominium officials.

The apartment and condominium officials must ensure collection and transportation of recyclable materials from apartment and condominium locations to markets, or other legal recycling destinations, and are responsible for the marketing or other legal recycling and waste disposition of their recyclables.

The Charles County Department of Public Works, Environmental Resources Division ensures that the recycling at apartments and condominiums will be implemented in accordance with Section 9-1703 and

9-1711 of the Environment Article, Annotated Code of Maryland and enforcement will be performed in accordance with the County Code. Upon receiving a complaint or report of violation, the Charles County Department of Public Works, Environmental Resources Division institutes an investigation, and if a violation exists, a notice shall be issued, in writing, to the responsible party requiring them to correct all deficiencies and perform any other tasks necessary to achieve compliance with the Environment Article.

Any person, firm, or corporation who or which fails to correct, within thirty (30) days from notice from Charles County, as cited in said violation notice shall be subject to citation for a civil infraction, in accordance with 9-1711 of the Environment Article of the Annotated Code of Maryland, punishable by a fine of not exceeding $50 for each day on which the violation occurs, and each day said violation shall be permitted to exist shall constitute a separate offense. If the citation is not timely paid, Charles County may enforce the fine by an action in a Maryland court of competent jurisdictions.

Apartment and condominium complexes are required to complete the reporting form annually. The forms are mailed and sent electronically. There are typically a few locations that are slow to respond due to frequent management turnover. Once a complex submits their form, the Environmental Resources Division conducts a site visit to confirm their report. If the information is incorrect or inaccurate, the Environmental Resources Division communicates with the company to clarify. The reports are due by April 1 each year. If not submitted, or if recycling services are not provided as required by the State, a $50 a day fine could be assessed until compliant. The Environmental Resources Division has not had to assess any fines.

### 3.4.4 Commercial, Industrial, Institutional Programs

Numerous commercial, industrial, and institutional establishments are collecting recyclables such as office paper, corrugated cardboard, aluminum cans, glass, plastics, newspapers, oil, and antifreeze for recycling. Most businesses contract for collection and/or marketing of their recyclables. Some larger organizations, such as grocery store chains, department stores and paper companies, generate quantities of recyclables that make it practical to provide their own collection and marketing.

Recycling programs are in operation at several local institutions including the Naval Surface Weapons Center, University of Maryland Charles Regional Medical Center, County Board of Education (including all Public Schools), as well as County and State offices. The recyclables recovered by commercial, industrial, and institutional sources are transported outside the County for processing.

#### 3.4.4.1 Charles County Public Schools Recycling Program

In July 2009, the Maryland General Assembly passed House Bill 1290, Environmental- Recycling – Public School Plans requiring recycling in all publicly-funded schools, with the exception of State Universities. The law took effect on October 1, 2009 (amending 9-1703 of Environment Article, Annotated Code of Maryland). This bill requires each county's recycling plan to implement a strategy for collecting, processing, marketing, and disposing of recyclable materials from county public schools.

##### 3.4.4.1.1 Program Details

Since 1994, the Charles County Board of Education (CCBOE) has administered a recycling program in all County public schools. The program initially began with collecting and recycling white paper and corrugated cardboard. The DPW provided in classroom collection containers and pick-up service was contracted through a private vendor.

In November 2008, the Charles County Government initiated a new contract with a private collection vendor, which expanded the accepted recyclable materials for both curbside collection and transfer

facilities., which expanded the variety of materials recycled within the School and Administrative facilities. All public-school facilities recycle paper, paperboard, cardboard, plastics (nos. 1-7), metal containers, electronics, rigid plastic containers, and books. Many also recycle their used motor oil from equipment.

Collection bins are located throughout each school and administrative facility for staff and students to place recyclable materials. Students and staff are instructed to place all recyclable materials in these designated receptacles. Within the elementary school facilities, CCBOE staff empty these collection bins into dumpsters provided by the private vendor. At some middle and high school locations, students and staff collect and empty the collection bins into the appropriate dumpsters located on their school campus. These materials are collected by the vendor for hauling and processing. After collection has been made, all recyclables are taken to a Materials Recovery Facility (MRF) outside of the County.

#### 3.4.4.1.2 Materials

The following materials must be included in the Program:

- Plastic resin code # 1-7 (including bottles, jugs, wide-mouth containers)
- Metal Cans and Beverage Containers
- Glass bottles and jars
- Paper
- Cardboard

The following materials may also be recycled on a voluntary basis.

- Rigid plastics which include plastic milk/soda crates, plastic buckets with metal handles, plastic laundry baskets, plastic lawn furniture, plastic totes, plastic drums, plastic coolers, plastic flowerpots, plastic drinking cups/glasses, plastic 5-gallon water bottles, plastic pallets, plastic toys, and empty plastic garbage/recycling bins
- Printer cartridges, when applicable
- Electronics, when applicable

Additional items may be added to the recycling collection program as markets become available or as collection vendor contracts allow.

#### 3.4.4.1.3 Collection of Materials

While Charles County DPW is responsible for providing all in classroom collection containers, the contractor is responsible for all labor and equipment necessary to fulfill necessary recycling container removal services for Charles County Public Schools on a scheduled basis (non-emergency), throughout the County's school system. Recycling containers with distinctive colors and markings are provided to avoid cross contamination with general waste (non-recyclable) materials. The work consists of collecting, transporting, and disposing recyclable materials from schools, office and learning locations considered as property of the Charles County Public School System. All material that is set out in designated recycling areas for each of these facilities is collected.

#### 3.4.4.1.4 Marketing of Materials

The contractor submits annual reports and a route schedule on all recycling tonnage removed from the CCPS facilities to the CCPS Supervisor of Operations. Recycling data is to include tonnage and market outlets.

#### 3.4.4.1.5 Stakeholders

Stakeholders include the Charles County Public School System (CCPSS) including the, the Board of Education, Charles County DPW, and all the students and staff. The CCPS stakeholders are responsible for ensuring all publicly funded schools are participating in the School Recycling Program. The Supervisor of Operations ensures the contractor is providing the recycling services to each facility including collection boxes and regularly scheduled pick-up service. The Board of Education submits every three years to DPW any changes and updates to the School Recycling Program to be included in the *Charles County Comprehensive Solid Waste Management Plan*.

All Charles County Public Schools that receive county public funding must participate in the Charles County Public School Recycling Plan. All new school facilities will be included in the School Recycling Program within three months of opening.

#### 3.4.4.1.6 Schedule for the Development and the Program

The recycling program for CCPS was started in 1994 and continues to evolve with the recycling industry as new materials are added to the recycling stream. The current funding source for this program is the CCPS Operation Funds Operating Budget.

#### 3.4.4.1.7 Program Monitoring

The school system conducts inspections, reviews service levels, investigates reported or unreported pick-up and disposal complaints, meets with CCPS and Contractor staff to educate or review practices, and reviews Contractor compliance with the school recycling contract. Any issues that arise from these visits that are deemed deficiencies on the part of the Contractor are documented in writing and reported to the contractor. The contractor is responsible to keep CCPS current on new regulations, laws, and mandates affecting recycling in the State of Maryland. The Contractor, throughout the life of the contract, is also required to work with the school system to further develop, implement and expand the system's existing recycling program. The Charles County Public School System Supervisor of Operations monitors the Public School Recycling Program to ensure participation.

### 3.4.4.2 College of Southern Maryland

The College of Southern Maryland (CSM) has an extensive recycling program. The Executive Director of Facilities Management leads the waste and recycling program and has been recognized as a Maryland Green Registry Member since 2009.

CSM launched its current waste and recycling program in 2009. This program recycles all paper products (cardboard, newspaper, books, and periodicals/magazines), aluminums, glass, and plastics. The contractor collects all recyclables as single stream and is collected in one 8 cubic yard container, at least once a week. The one 8 cubic yard containers provided to the school by the contracted collection company. As collections are single stream, there is no specific breakdown for amounts of materials recycled.

In 2019, CSM initiated an additional program in support of the current waste and recycling program. The Recycling and Waste Mini-Bin Program resulted in the installation of centralized waste and recycling collection receptacles on every floor in each building for faculty and staff to empty their individual office bins. Each office space contains a recycling receptacle with a mini bin that sits on the side of it for waste. The program successful increased and encouraged mindful intention regarding personal waste and recycling habits for all CSM employees.

CSM also collects and recycles on a voluntary basis small electronics communication device (cellphones, PDAs, and pagers), maintained through the Student Government Association (SGA), and is collected through a separate entity.

1. (b) Materials that must be included in the Program

- Plastic bottles, jugs, and wide-mouth containers
- Metal Cans and Beverage Containers
- Glass bottles and jars
- Paper
- Cardboard

The following materials may also be recycled on a voluntary basis.

- Rigid Plastics which include plastic milk/soda crates, plastic buckets with metal handles, plastic laundry baskets, plastic lawn furniture, plastic totes, plastic drums, plastic coolers, plastic flowerpots, plastic drinking cups/glasses, plastic 5-gallon water bottles, plastic pallets, plastic toys, and empty plastic garbage/recycling bins
- Bagged Plastic Film (for example: grocery bags contained within 1 bag, or stretch film and/or shrink/wrap contained within 1-bag
- Printer Cartridges
- Electronics
- Food Waste Program Monitoring

The Facilities Management Department oversees all recycling procedures for the college. The College of Southern Maryland's implementation of this plan is student and staff driven.

### 3.4.5 Office Building Recycling

In 2019, the Maryland General Assembly passed Senate Bill 370, Environmental-Recycling – Office Buildings requiring all office buildings that have 150,000 square feet or greater of office space provide separate collection of recyclable materials by October 1, 2021. The law took effect on October 1, 2019, amends Sections 9-1703 and 9-1714 of the Environmental Article, Annotated Code of Maryland, which required Charles County to revise its recycling plan within the *Charles County Comprehensive Solid Waste Management Plan* by October 1, 2020.

The Charles County Department of Public Works, Environmental Resources Division has relayed the requirements of the law, including the materials that must be recycled; at a minimum, recyclables must include paper and cardboard, metal, and plastic materials to the applicable office building officials. There are currently zero (0) applicable office buildings in the County with 150,000 square feet or greater office space.

Office building officials shall complete and send to the Charles County Department of Public Works, Environmental Resources Division a Maryland Recycling Act (MRA) Survey Form, reporting to the County on an annual basis, details on the required recycling activities. Office building officials directly, or through contracting with a private sector company, are responsible for providing all containers, labor, and equipment necessary to fulfill recycling requirements throughout their buildings. Distinctive colors and/or markings of recycling containers should be provided to avoid cross contamination. The office building officials must ensure collection and transportation of recyclable materials from office building

locations to markets, or other legal recycling destinations. Tenants will be responsible for placing recyclables in recycling containers prior to their removal on the scheduled pick-up day.

Office building officials identified how the materials will be stored, collected, and transported to the recycling markets for the collected materials. Office building officials must report to the County on an annual basis details on the required recycling activities. Office building officials are responsible for the marketing or other legal recycling and waste disposition of their recyclables. The office building officials shall submit annual reports detailing the recycling and waste tonnage removed from the office building and the markets for the materials or legal recycling destinations for the materials. New office buildings that will fall under the requirements of the law will begin participating in the Office Building Recycling program within three months of being notified by the Charles County Department of Public Works, Environmental Resources Division.

Office building officials shall recycle the following materials:

- Plastic material (bottles and containers)
- Metal (cans)
- Paper
- Cardboard

### 3.4.6 Electronic Recycling (E-Cycling)

Currently the Pisgah, Breeze Farm, Gilbert Run, and Landfill Recycling Centers accept electronic equipment and items for recycling. These facilities accept items in a closed top roll-off box for customers to place unwanted electronics. These items are then consolidated onto pallets and shrink wrapped and our vendor collects the pallets. Items accepted for e-cycling include:

- Computers
- Monitors
- Televisions
- Cellular Phones & PDAs
- Printers & Copiers
- Stereos
- VCR & DVD players
- CD Players
- Fax Machines
- Calculators
- Scanners
- Microwave Ovens
- Consumer Electronics
- Toys
- Electronic Typewriters

An additional item that is accepted is “covered electronics”, which the MDE classifies as “a computer or video display device with a screen that is greater than four (4) inches measured diagonally”. All collected electronics are collected from the recycling centers and loaded into vendor provided covered trailers. Electronics are recycled for any precious metals within the material and are reused to produce new electronic equipment. Recycling helps in preservation of the environment and helps conserve landfill space. The County does not currently track the end-markets of the recycled electronics that are disposed of in the County.

### 3.4.7 Special Events Recycling

Special Events Recycling, Senate Bill 781 of 2014
Amendment to the Charles County Comprehensive Solid Waste Management Plan

In 2014, the Maryland General Assembly passed Senate Bill 781, *Environment – Recycling – Special Events*. The law requires organizers of special events meeting certain criteria to provide a recycling receptacle adjacent to each trash receptacle, ensure recycling receptacles are clearly distinguished from trash receptacles, and ensure that recyclable materials are collected for recycling. Special event organizers must conduct recycling in accordance with Charles County’s Comprehensive Solid Waste Management

Plan (CCCSWMP). The law also requires each county to update its plan by October 2015, to address the collection and recycling of recyclable materials from special events.

Special Events Subject to the Recycling Program

Environment Article, §9-1712, Annotated Code of Maryland, requires special events organizers to provide for recycling at special events that meet the following three criteria:

1. Includes temporary or periodic use of a public street, publicly owned site or facility, or public park;
2. Serves food or drink; and
3. Is expected to have 200 or more persons in attendance.

Projected attendance may be estimated based on past attendance, number registered to attend, the venue's seating capacity, or other similar methods.

In consultation with municipalities, the County has identified the following public sites within the County that host or may host special events meeting the above criteria. In addition to the sites listed individually, special events taking place on any local, State, or Federally owned streets are also included in the Special Events Recycling Program (SERP).

Municipally owned sites:

1. Indian Head Village Green - 100 Walter Thomas Road, Indian Head, MD 20640
2. Mattingly Park - Mattingly Ave, Indian Head, MD 20640
3. Town Hall La Plata - 305 Queen Anne Street La Plata, MD
4. Tilghman Lake Park & Water Plant - 10598 Box Elder Road, La Plata, MD 20646
5. Wills Memorial Park - 500 St. Mary's Avenue La Plata, MD

County-owned sites:

1. Charles County Public Schools, as listed in section 3.10.2.1.3 of the CCCSWMP
2. Bensville Park - 6980 Bensville Road, White Plains, MD 20695
3. Bryantown Sports Complex - 5665 Bryantown Road, Waldorf, MD 20601
4. Capital Clubhouse - 3033 Waldorf Market Place Waldorf, MD 20603
5. Charles County Government Building - 200 Baltimore Street, La Plata, MD 20646
6. Charlie Wright Community Park - 101 Dr. Mitchell Lane, Indian Head, MD 20640
7. Cobb Island Park - Cobb Island MD
8. Community Services Port Tobacco - 8190 Port Tobacco Port Tobacco, MD 20677
9. Courthouse Soccer Field - 200 Baltimore Street, La Plata, MD 20646
10. Friendship Farm Park - 4705 Friendship Landing Road, Nanjemoy, MD 20662
11. Gilbert Run Park - 13140 Charles Street, Charlotte Hall, MD 20622
12. Indian Head Community Center - 100 Cornwallis Square Indian Head, MD 20640
13. Laurel Springs Park - 5940 Radio Station Road, La Plata, MD 20646
14. Maxwell Hall House - 6680 Maxwell Hall Drive, Hughesville, MD 20637
15. Nanjemoy Community Center - 4375 Port Tobacco Road, Nanjemoy, MD 20662
16. Oak Ridge Park - 13675 Oaks Road, Hughesville, MD 20637
17. Pinefield Park - Pinefield Road, Waldorf, MD 20601 (Pinefield Neighborhood)
18. Pisgah Park - 6645 Mason Springs Road, La Plata, MD 20646
19. Pomonkey Sports Complex - 3395 Metropolitan Church Road, Indian Head, MD 20640
20. Port Tobacco Park - South of Port Tobacco Village on Chapel Point Road
21. Robert Stethem Park - 4250 Piney Church Road, Waldorf, MD 20602

22. Regency Furniture Stadium - 11765 Saint Linus Drive Waldorf, MD 20602
23. Ruth B. Swann Memorial Park - 3100 Ruth B. Swann Drive, Bryans Road, MD 20616
24. Turkey Hill Park - 9430 Turkey Hill Road, La Plata, MD 20646
25. Waldorf Gym and Dance Studio - 2745 Old Washington Road Waldorf, MD 20601
26. Waldorf Jaycees Community Center - 3090 Crain Highway Waldorf, MD 20601
27. White Plains Park & Golf Course - 1015 St. Charles Parkway, White Plains, MD 20695

State-owned sites:

1. Cedarville State Forest - 10201 Bee Oak Road, Brandywine, MD 20613
2. Chapel Point State Park - South of Port Tobacco - Chapel Point Road - Port Tobacco River
3. Chapman State Park - 3452 Ferry Place, Indian Head, MD 20640
4. Mallows Bay Area - 1440 Wilson Landing Road, Nanjemoy, MD 20662
5. Maxwell Hall Natural Resource Management Area - 6680 Maxwell Hall Drive, Hughesville, MD 20637
6. Purse State Park - South of Nanjemoy - MD 224 Riverside Road - Wades Bay (Potomac River)
7. Smallwood State Park - 2750 Sweden Point Road, Marbury, MD 20658

Federally owned sites:

1. Marshall Hall Boat Launch Facility - 1005 Marshall Hall Road, Bryans Road, MD 20616
2. Piscataway Park - 1005 Marshall Hall Road, Bryans Road, MD 20616 - Marshall Hall area of Piscataway Park
3. Thomas Stone National Landmark - 6655 Rose Hill Road, Port Tobacco, MD 20677

### A. Materials and Obligations:

Special events organizers are responsible for:

1. Providing and placing recycling receptacles adjacent to each trash receptacle at the event, where the existing on-site recycling is not sufficient;
2. Ensuring that recycling receptacles are clearly distinguished from trash receptacles by color or signage;
3. Providing any other labor and equipment necessary to carry out recycling at the event;
4. Ensuring that materials placed in recycling receptacles are collected and delivered for recycling; and
5. Paying any costs as the result of deviations to the existing on-site recycling program at your special event;

Special events organizers may fulfill the requirement to ensure materials are collected and delivered for recycling through one or more of the following methods:

1. Self-hauling the materials to one of the County's recycling drop-off centers;
2. Contracting with a recycling hauler to collect the materials and deliver them for recycling; or
3. Receiving prior agreement from the site owner to use an existing recycling collection system available at the site.

The special events recycling program must include collection of at least plastic containers, metal containers, glass containers, paper, and cardboard. The special events organizer must assess the availability of food scraps recycling services for the event. If services are available, the special events

organizer must provide for food scraps recycling, including provision of separate containers for organic and non-organic recyclables.
Recycling at a State-owned site must follow the State agency's recycling plan. Recycling at a federally owned site must follow any applicable federal recycling plan. If no State or federal recycling program is available for the site, the special event organizer must set up a recycling program in accordance with the SERP. Recycling at municipally owned sites must follow any additional regulations established by the municipality.

### B. Stakeholders:

The following stakeholders will be involved in the SERP:

1. Charles County Department of Public Works: Responsible for overseeing the Division of Environmental Resources and recycling programs and activities in the County and assuring that all properties that potentially host events falling under the recycling mandate in §9-1712 are included in the SERP.
2. Charles County Environmental Resources Division: Responsible for communicating the requirements of the law to prospective special events organizers and owners/operators of publicly owned sites in the County. This office will also assist special events organizers in facilitating recycling programs; monitor the progress and performance of the SERP; and develop and communicate any additional requirements for recycling under the SERP at publicly owned sites. Ensuring that all publicly owned sites and facilities included in the SERP plan have an existing recycling program in place. The Environmental Resources Division oversees recycling programs in County-owned spaces and will assist special event organizers if additional recycling receptacles are needed at publicly owned sites and facilities. This office will also assist special events organizers in developing and communicating any additional requirements for recycling under the SERP.
3. Special Events Organizer: Responsible for ensuring recycling bins are available and ensuring collection for recycling in accordance with the requirements in §B, beginning October 1, 2015. Organizers are responsible for ensuring the existing recycling receptacles are sufficient for their event. Request additional recycling receptacles through the Division of Environmental Resources as needed for publicly owned sites and facilities. At least one recyclable receptacle must be adjacent to each trash receptacle at the event. Ensuring recycling receptacles are clearly distinguished from trash receptacles by color or signage. Must ensure that the collected recyclables are in accordance with the on-site recycling program. Finally, Event Organizers are responsible for any costs and labor to carry out any deviations to the existing on-site recycling program at your event. Recycling receptacles will not be available from the Division of Environmental Resources for events held on public streets, where a recycling program is not already established.

### C. Program Monitoring:

The Charles County Department of Public Works, Environmental Resources Division and special events organizers will monitor progress and performance of the SERP.
Recycling at events subject to the SERP will be ensured as follows:

1. The publicly owned sites and facilities included in the SERP plan have existing recycling programs in place.
2. Special events organizers are responsible to identify when the existing recycling program is not sufficient to meet the needs of their event. If the event is held on a public street or the existing recycling program is not sufficient, then the organizer is required to self-hauling the materials

to one of the County's recycling drop-off centers, contract with a recycling hauler to collect and deliver the materials for recycling.

3. A fact sheet or other informational document outlining the requirements of the SERP will be distributed to each site and facility manager where special events could take place. Site and facility managers will distribute information to special event organizers utilizing their site and/or facility.

The special event organizer is responsible for monitoring the implementation of recycling at the special event. Special event organizers must oversee placement and labeling of recycling receptacles and collection and recycling of recyclables. Performance of any recycling contractor engaged for compliance with the SERP must be monitored by the special event organizer. The special event organizer must promptly take action to correct any deficiencies in the contractor's performance.

A special event organizer is responsible for maintaining the following records:

1. If any additional receptacles were used to supplement the existing recycling receptacles at the site;
2. Any contracts for recycling service if needed;
3. A list of any additional types of recyclables accepted during the event including food scrap recycling.

**D. Program Enforcement:**

The Charles County Environmental Resources Division or the equivalent office of the municipality in which the event is located may conduct inspections of the event to ensure compliance with the SERP. If a violation of the SERP is detected, the County or municipality may pursue an enforcement action against the special event organizer. A person that violates the SERP is subject to a civil penalty not exceeding $50 for each day the violation exists. Any penalties collected for violation of the SERP must be paid to the County, municipality, or other local government that brought the enforcement action.

## 3.5 Refuse Collection System

### 3.5.1 Waste Sources and Types

There were 455,034 total tons of waste generated in Charles County in CY 2019. Of this total, 142,904 tons represented the total MRA and Non-MRA waste disposed in solid waste facilities, and 312,131 represented the total MRA and Non-MRA recyclables. The latter figure is inclusive of the 60,671 tons of materials recovered of MSW (MRA recyclables). See Table 3-5 and Table 3-7).

### 3.5.2 Municipal Waste Composition

The County also estimates waste stream composition through monthly reports of waste received at the landfill and recycling centers. The estimated municipal waste composition at the Charles County Sanitary Landfill is shown in Table 3-6.

Table 3-4 Municipal Waste Stream Composition

| Percent of Municipal Waste Stream | |
|---|---|
| **Component** | **Total Municipal** |
| Newsprint | 1% |
| Corr. Cardbd/Kraft Pap. (Uncoated) | 13% |
| Other Paper | 16% |
| Glass | 2% |
| Aluminum | 1% |
| Ferrous | 4% |
| Plastics | 13% |
| Food Waste | 19% |
| Yard Waste | 2% |
| Textiles/Leather | 5% |
| Tire | 1% |
| Bulky Items | 1% |
| Household Hazardous Waste | 0% |
| C&D Debris | 14% |
| Electronics | 0% |
| Other Wastes | 7% |
| **Total** | **100%** |

The data for the municipal waste stream composition table was retrieved from the 2016 Maryland Statewide Waste Characterization Study, a statewide analysis created by MSW Consultants and published by Maryland Department of Environment in partnership with the Northeast Maryland Waste Disposal Authority (NMWDA). As a component of this study, MSW Consultants conducted a facility-level waste composition study at Charles County Landfill on July 20, 2016, and October 10 - 11, 2016 that included the collection and analysis of twenty-nine (29) representative samples of wastes originating from the Residential and Institutional/ Commercial/Industrial (ICI) sectors. This study has a few material limitations, such as the detailed Charles County Montgomery table having subtotals presented in tables that do not sum precisely

### 3.5.3 Rubble Composition

Composition of the rubble waste stream has not been well documented and may vary significantly with location, season, and economy. According to a recent EPA report entitled "Construction and Demolition Debris Management in the United States, 2015" the following represents the estimated C&D debris composition with a landfill as the end destination:

- Concrete – 50%
- Wood – 20%
- Gypsum Drywall – 8%
- Metal – 1%
- Brick and Clay Tole – 8%
- Asphalt Shingles – 9%
- Asphalt Pavement – 4%

This data may not reflect the exact composition of the Charles County rubble waste but could serve as an approximation for preliminary consideration and discussion of the possible rubble processing requirements.

## 3.6 Solid Waste Acceptance Facilities

A list of all active solid waste acceptance facilities in Charles County is presented in Table 3-7. The locations of all the solid waste and recycling acceptance facilities are presented in Figure 3-3.

Figure 3-3 - Map of Charles County Waste Facilities

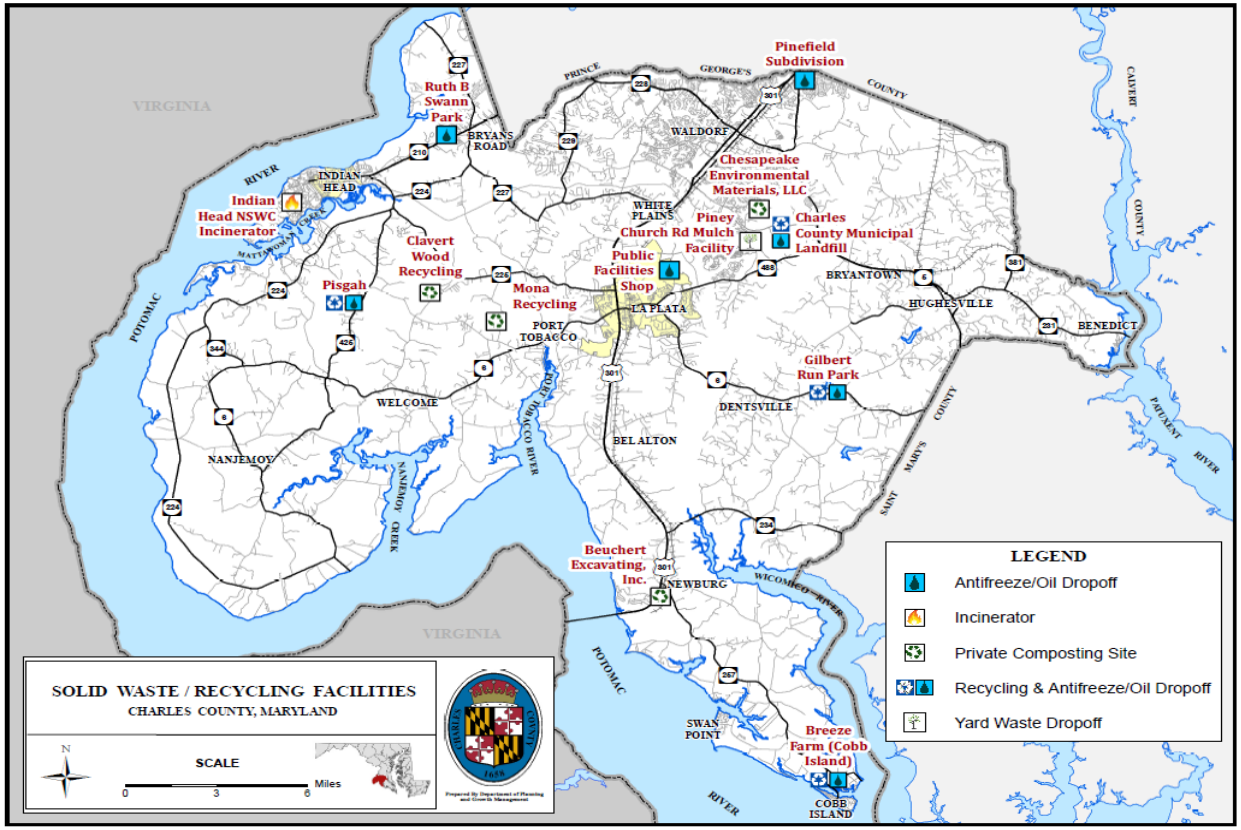


Table 3-5 - Active Solid Waste, Natural Wood Waste, and Composting Acceptance Facilities

## Active Solid Waste, Natural Wood Waste, and Composting Acceptance Facilities

| Facility | Location | Size | Maryland Grid Coordinates | Waste Accepted | Type of Quantity | Owner | Permit Status | Service Life Remaining |
|---|---|---|---|---|---|---|---|---|
| Charles County Landfill | 12305 Billingsley Road, Waldorf | 70/114 Acres | 329330 N/1345552 E | Municipal Solid Waste Landfill | - | Charles County | 2019-WMF-0076A | 17 Years* |
| Naval Support Facility Indian Head Incinerator | Naval Surface Weapons Center | Classified | 335265 N/1260573 E | Classified Documents | One Ton per year | Federal Government | 2019-WIN-0529 | Greater than 10 years |
| Charles County Landfill Recycling Center | 12305 Billingsley Road, Waldorf | N/A | 329330 N/1345552 E | Bagged Trash and Recyclables | | Charles County | Not Required | Not Applicable |
| Calvert Wood Recycling | 6585 Ripley Road, La Plata | 8.5 Acres | 317340 N/1284541 E | Tier I: Yard Trimmings | 10,000 tons per year | Calvert Wood Recycling, LLC | 2021-GCF-0008 | Not Applicable |
| Beuchert Excavating, Inc. | 12340 Crain Hwy, Newburg, MD 20664 | 12.5 Acres | 257130 N/1324706 E | NWW: Tree and other natural vegetative refuse | | Beuchert Excavating, Inc | 2019-NWW-GP01 | Not Applicable |
| Mona Recycling | 6970 Our Place, Port Tobacco, MD 20677 | 7.6 Acres | 311724 N/1296094 E | NWW: Tree and other natural vegetative refuse | | Mona Contracting, LLC. | 2019-NWW-0002 | Not Applicable |
| Chesapeake Environmental Materials, LLC | 12110 Forgotten Farm Place, St. Charles, MD 20602 | 11.7 Acres | 333928 N/1341814 E | NWW: Tree and other natural vegetative refuse | | Chesapeake Environmental Materials | 2017-NWW-GP01 | Not Applicable |
| Pisgah Recycling Center | 6645 Mason Springs, Pisgah | N/A | 315282 N/1269660 E | Bagged Trash and Recyclables | | Charles County | Not Required | Not Applicable |
| Gilbert Run Recycling Center | 13140 Charles Street, Charlotte Hall | N/A | 297709 N/1353688 E | Bagged Trash and Recyclables | | Charles County | Not Required | Not Applicable |
| Breeze Farm Recycling Center | 15950 Cobb Island Road, Cobb Island | N/A | 220922 N/1353800 E | Bagged Trash and Recyclables | | Charles County | Not Required | Not Applicable |

*Sources*:

*FISCAL YEAR 2019 Landfill Operations.2019. https://www.boarddocs.com/md/chrlsco/Board.nsf/files/BA9TU56AEC2D/$file/1_Landfill.pdf*
*MDE Composting Facilities with Capacities. April 2019*
*MDE Permitted Solid Waste Facilities. April 2019*
*MDE Natural Wood Waste Permits. April 2019*
*Maryland Grid Coordinates are 1983 MD State Plane (Feet).*

Table 3-6 - Charles County Recycling Centers – Hours & Acceptable Items

| Charles County Recycling Centers – Hours & Acceptable Items | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Location | Hours | HHW | CFLs | Batteries | News-paper | Tag-a-Bag | Aluminum Cans | Tin Can | Plastics | Glass | Oil & Antifreeze | Scrap Metal | Yard Waste | Electronics | Textiles | Cardboard |
| **County Landfill Recycling Center (Billingsley Road)** | Mon – Sat 7:30 am-5:00 pm | | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Pisgah Park (Masons Springs Road)** | Mon – Sat 7:30 am-5:00 pm | | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Gilbert Run Park** | Monday, Wednesday, & Saturday 9am - 5pm | | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Cobb Island / Breeze Farm** | Monday, Wednesday, & Saturday 9am - 5pm | | | X | X | X | X | X | X | X | X | X | X | X | X | X |
| **Pinefield** | 24 Hours Per Day | | | | | | | | | | X | | | | | |
| **Piney Church Mulch Facility** | Mon – Sat 7:30 am-4:00pm | | | | | | | | | | | | x | | | |
| **Ruth B. Swann Park** | 24 Hours Per Day | | | | | | | | | | X | | | | | |
| **Department of Public Works (10430 Audie Lane)** | 24 Hours Per Day | | | | | | | | | | X | | | | | |

*Sources:*

*1. Recycling Centers & Drop-off Facilities. Charles County Website. Received from: https://www.charlescountymd.gov/services/environmental-resources/recycling-centers-drop-off-facilities*

*2. Charles County Government. Public Works Department*

### 3.6.1 Charles County Landfill #2 – Active

The Charles County Sanitary Landfill #2 (County Landfill) is located on Billingsley Road, about 3/4 of a mile west of the intersection of Maryland Route 5 and Billingsley Road. MDE issued a Refuse Disposal Permit for the purpose of establishing the facility in 1994. Since then, the permit has been renewed every five (5) years. See Figure 3-4 for current operating hours, fees, and holiday schedule.

The County Landfill is designed with four cells with a total disposal capacity of approximately 5,289,400 cubic yards once the 4th cell has been built. Cell 4a is currently under construction and scheduled to open in 2022. See Table 3-9 for more details.

The base liner consists of a two-foot bentonite-amended soil layer (permeability, k = 1x10-7 = 1x10-7 centimeters per second) overlain by a high-density polyethylene (HDPE) geomembrane. A drainage layer, geotextile, and protective soil layer was placed over the liner. Leachate is collected by a perforated pipe network within the drainage layer; and collected leachate is trucked to a sanitary sewer.

Ancillary facilities at the site include a public refuse disposal area, a recycling area, scale house and platform scale, a guard house, and a maintenance building including administration facilities. New software programs that maintain billing and waste records have significantly improved record keeping methods. The landfill operates Monday through Saturday, 7:30 am to 4:00 pm, the convenience center operates from 7:30 a.m. to 5 p.m., six days a week.

The County Landfill is owned by the County and is funded through tip fees and the pay-as-you-throw program. The FY 2019 residential flat rate fees were $5 per load for cars, vans, and SUVs; $15 per load for pick-up trucks; $75 per ton with a $15 minimum fee for vehicles with a trailer, and yard waste and scrap metal are accepted at no charge. For those participating in the tag-a-bag program, the cost was $2.25 per 32-gallon bag. The commercial vehicle bulk rate was $15 per load as well.

Table 3-7 - Charles County Landfill Capacity in Cubic Yards

| Charles County Landfill Capacity in Cubic Yards | | |
|---|---|---|
| **Cell #** | **Acres** | **Baseline of Capacity Cu. Yd** |
| **1** | 16.2 | 863,800 |
| **2A** | 9.7 | 759,000 |
| **2B** | 7.2 | 432,500 |
| **3A** | 7.7 | 632,000 |
| **3B** | 9.9 | 1,083,900 |
| **4** | 18.1 | 1,518,200 |
| **Total** | **69** | **5,289,400** |
| | Estimated Cu. Yd. from Proposed Vertical Expansion | 1,836,800 |
| | **Total Landfill Capacity with Vertical Expansion** | **7,126,200** |

*Sources:* *Baseline capacity based on Addendum No. 1B*
*Estimate provided by Charles County's Shawnee McHenry via email*

Figure 3-4 - Landfill Operating Hours, Fees, and Holiday Schedule

CHARLES COUNTY GOVERNMENT
**Department of Public Works**
Facilities Division
**Bill Shreve**
Director

Phone | 301-932-3440
Fax | 301-932-3449
Email | DPF@CharlesCountyMD.gov

## LANDFILL OPERATING HOURS, FEES AND HOLIDAY SCHEDULE

**Effective July 1, 2021 – June 30, 2022**

***We only accept waste and recycling from within Charles County***

Please have proof of residency available, such as Driver's License, Tax/Water Bill, Mortgage Statement, Rental Agreement or SMECO Bill.

**Charles County Landfill**
(301) 932-9038 or (301) 870-5481
12305 Billingsley Road, Waldorf, MD 20602
Monday – Saturday 7:30 a.m. – 4 p.m.

*Any vehicle weighing over 10,000 pounds must weigh-in by 3:30 p.m.*

**Residential Flat Rates:**
Car/Van/SUV - $5 per load
Pick-Up Truck - $15 per load
Vehicles w/ Trailer - $81 per ton/$15 min fee
Yard Waste/Scrap Metal - FREE/advise clerk of material

**Tag-A-Bag:**
$2.25 per 32-gallon capacity
**Purchase online at: CharlesCountyMD.gov/RC Store**
Non-hazardous waste that fits within a 32-gallon trash can; Diameter 22" Height 27"

**Commercial Vehicle Bulk Rates:**
Commercial vehicles classified by; Out of County ID, Vehicles with Trailers, Ladder Racks, Side Boards, Stake/Utility Body, Box Truck, Signs, Logos/Lettering, Business Check or Credit Card
Bulk Waste - $81 per ton/$15 minimum
Roll-Off Container - $88 per ton/$15 minimum

**Commercial Vehicle Recycling Bulk Rates:**
Clean Soil - $0 per ton
Scrap Metal - $10 per ton
*Yard Waste - $30 per ton
*Dump Trailers/Uniformed Crew/Loaded Lawn Equipment are considered commercial yard waste haulers.

**Scrap Tire Fees:**
**On or Off Rim, Bias and Radial**
Charles County Residents can dispose of 2 tires per visit at no charge. Additional tires must go over the scales.
10+ Tires - $200 per ton *
Farm Tractor/Off Road - $200 per ton *
Car/Pick-Up Truck - $2 per tire
Dump Truck/Tractor Trailer - $10 per tire

**Piney Church Road Mulch Facility**
5370 Piney Church Road, Waldorf, MD 20602
Open Year Round
Monday – Saturday 7:30 a.m. – 4 p.m.

*Any commercial vehicle unloading yard waste must weigh in by 3:30 p.m.*

*Mulch is FREE for Non-Commercial County Residents*

**Landfill Recycling Center**
12305 Billingsley Road, Waldorf, MD 20602
Monday – Saturday 7:30 a.m. – 5 p.m.

**Pisgah Recycling Center**
6645 Mason Springs Road, Pisgah, MD 20640
Monday – Saturday 7:30 a.m. – 5 p.m.

**Breeze Farm Recycling Center**
15950 Cobb Island Road, Cobb Island, MD 20625
Monday, Wednesday & Saturday 9 a.m. – 5 p.m.

**Gilbert Run Park Recycling Center**
13140 Charles Street, Charlotte Hall, MD 20646
Monday, Wednesday & Saturday 9 a.m. – 5 p.m.

**The Landfill, Mulch Facility & Recycling Centers are CLOSED for the following holidays:**
New Year's Day
Dr. MLK Jr.'s Birthday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

**When hauling more than 5 tires you will need a Scrap Tire Haulers License. To receive a temporary waiver, please email Abagail.pascual@maryland.gov, or contact the Maryland Department of the Environment at (410) 537-3315 or (800) 633-6101, extension 3315*

1001 Radio Station Road | La Plata, Maryland 20646
Maryland Relay: 7-1-1 (TDD: 1-800-735-2258)

Equal Opportunity Employer
www.CharlesCountyMD.gov

#### 3.6.1.1 Landfill Budget

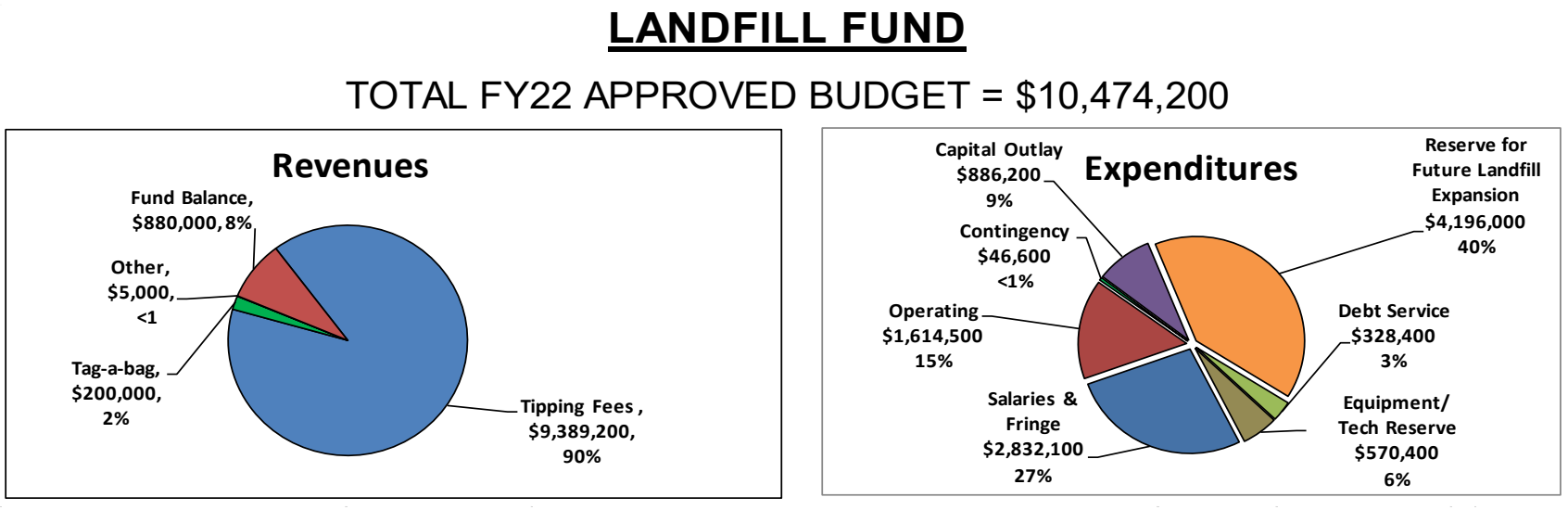
The total revenue for the Charles County Landfill in FY 2019 was $9,008,206. The total cost (operating and non-operating) was $8,436,151 in FY 2019 (see Table 3-10). Major operating revenue sources consisted of the tipping fees and the Tag-A-Bag program, which generated 95% landfill operating revenues. Significant expenses included salaries and fringe expenses, making up approximately 66% of operating expenses. Operating expenses accounted for approximately 41% of landfill total expenses.

The approved Charles County Landfill Fund Budget for FY 2022 includes a total projected revenue of $10,474,200 and expenditure of $10,474,200, representing a 2.4% change from the previous year (see Figure 3-5). A tipping fee per ton for commercial and residential refuse is collected to cover the cost of operating the current landfill, future landfill cell expansion, and post closure costs. The tipping fee was approved to increase from $78 per ton to $81 per ton for FY22. The Open Top Roll-Off Container fee will increase from $85 per ton to $88 per ton. The increase in the fee is to cover cost of operating and maintaining the Landfill which includes purchasing needed equipment. This fee is the primary revenue source for the Landfill operation. Citizens also have the option of paying a flat rate tipping fee of $5 for cars or $15 for pick-up trucks. Citizens may also purchase Tag-A-Bag tickets for $2.25. Bagged trash is accepted at the landfill on Billingsley Road and at the recycling centers in the County (Gilbert Run, Pisgah, or Breeze Farm). Additional funding for the landfill is allocated through the FY2022-FY2026 Capital Improvement Program (CIP). Through the Enterprise Fund Project, there is $3,018,000 allocated for Landfill Cell #4 Expansion; $1,348,000 allocated for the Landfill Leachate Management System; and $3,567,000 allocated for Landfill Gas to Energy for the aforementioned CIP 5-year period.

Table 3-8 - Charles County Landfill Cost (FY 2019 Actual)

| Charles County Landfill Cost (FY 2019 Actual) | |
|---|---|
| **Expense Category** | **Actual Expense (FY 2019)** |
| Personal Services | $1,710,816 |
| Fringe Benefits | $588,482 |
| Operating Costs | $1,162,770 |
| Debt Service | $97,447 |
| Operating Contingency | $29,000 |
| Landfill Expansion/Closure | $3,858,500 |
| Capital Outlay | $418,736 |
| Transfer to Capital Projects | $0 |
| Equipment/Tech Reserve | $570,400 |
| Total Expenses | $8,436,151 |

Figure 3-5 - Approved Landfill Budget (FY 2022)




Solid Waste Fund (Landfill Operations):

The County charges a fee per ton to all users disposing solid waste (trash) into the publicly owned and operated 16-acre landfill. The user fee recovers the direct operating cost of waste disposal and provides a capital budget reserve for the construction of the next cell and for future closing costs of the current cell. The Landfill operation has been very unpredictable due to legislative changes that have allowed commercial trash companies to transport waste across State lines. Local trash haulers now have more choices. Changes in routes or price of gas impacts which Landfill they decide to utilize.

Multi-year planning has allowed us to foresee the funding levels needed for the operating costs and capital construction within the fund. Although unpredictable, the growth rate for trash tons is directly proportional to our population growth rate with the assumption more people create more solid waste. Included in the capital budget reserve are funds for future construction, closure of the landfill cells, and post closure costs for monitoring.

Our financial model allows for the fluctuating revenues caused by sharp increase/decrease in waste tons by adjusting the useful life of the landfill, thereby requiring more or less capital budget reserve. A new cell expansion was completed in 2015 and it is estimated that it will be full during FY2022. The FY2021-FY2025 Capital Improvement Program includes funding to construct a Waste Transfer Station at the landfill which will allow for disposal options outside of our jurisdiction. This should extend the life of the landfill beyond Fiscal Year 2038. The landfill is approximately 67% filled.

The five-year model takes a conservative view and assumes a slight increase to the current waste stream. The tipping fee revenues is assumed to

remain constant at $78. The FY2021-FY2025 billable tonnage received at the Landfill is estimated to range between 118,000 tons and 123,000 tons. Billable tons exclude tonnage related to items that charge a reduced fee such as tons resulting from the tag-a-bag program. The tag-a-bag program allows an individual to purchase a tag for each trash bag regardless of the weight and is currently set at $2.25 per tag. It is anticipated that the growth rate in tonnage will equal the population growth of approximately one percent in the out years. A fee increase generally will be needed in this fund as expenses are estimated to grow faster than estimated revenues. Additionally, the landfill has a healthy fund balance which could be used to fund small operating deficits if needed.

| | FY2020 Adopted | FY2021 Adopted | FY2022 Estimated | FY2023 Estimated | FY2024 Estimated | FY2025 Estimated |
|---|---|---|---|---|---|---|
| **Revenues** | | | | | | |
| Operating Revenues | $8,339,500 | $9,098,100 | $9,044,200 | $9,091,300 | $9,180,100 | $9,268,800 |
| Fund Balance Reserves | 1,278,000 | 1,134,000 | 141,800 | 114,000 | 240,100 | 208,300 |
| **Total Revenues** | **$9,617,500** | **$10,232,100** | **$9,186,000** | **$9,205,300** | **$9,420,200** | **$9,477,100** |
| | | | | | | |
| **Expenses:** | | | | | | |
| Operating Expenses | 8,357,300 | 8,998,900 | 9,162,600 | 9,309,200 | 9,513,700 | 9,729,000 |
| Capital Outlay | 1,073,000 | 984,000 | 141,800 | 114,000 | 240,100 | 208,300 |
| Debt Service | 187,200 | 249,200 | 359,200 | 811,400 | 782,900 | 729,900 |
| **Total Expenses** | **$9,617,500** | **$10,232,100** | **$9,663,600** | **$10,234,600** | **$10,536,700** | **$10,667,200** |
| | | | | | | |
| **Surplus\Deficit:** | **$0** | **$0** | **($477,600)** | **($1,029,300)** | **($1,116,500)** | **($1,190,100)** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Estimated Tipping Fee:** | $75 | $78 | $79 | $84 | $84 | $85 |
| *Increase over FY2021 Adoption* | | | *$1* | *$5* | *$0* | *$1* |
| *% rate change* | | | *1.3%* | *6.3%* | *0%* | *1.2%* |

#### 3.6.1.2 Landfill Gas to Energy

The Charles County Landfill #2 has a capacity to accept 5,289,400 cubic yards of refuse. The landfill currently has a passive landfill gas (LFG) system that flares off LFG. While the current system is within regulation, it is the least effective system for capturing methane. LFG to Energy projects help curtail global climate change by reducing methane emissions, a greenhouse gas more potent than CO2. This Capital Improvement Plan will evaluate possible Landfill gas extraction, assess projects' feasibilities, and prepare cost analyses during Phase 1. During Phase 2, this project will design, permit, and install a landfill gas to energy system. Landfill Gas to Energy was approved for $3,567,000 for FY 22-26 Capital Improvement Program, all of which is consistent with the comprehensive solid waste management plan.

#### 3.6.1.3 Landfill Cell 4 Expansion

Cell 4 has already been permitted for use as a landfill by the MDE. It is to be constructed at the southwest corner of the current landfill. The current construction schedule plan is as follows: Cell 4 will be constructed in three (3) phases: Cell 4A will be constructed as Phase I first (estimated completion in 2022), then Cell 4B as phase II next in two years, and finally Cell 4C as phase III a few years later. In the FY 2022 approved budget, there is $4,196,000 set aside for Future Landfill Expansion, which refers to the construction of Cell 4, and makes up 40% of the Expenditure Landfill budget. (See Figure 3-5 for more details about the solid waste fund (landfill operations) five-year plan, FY 2020-25.)

#### 3.6.1.4 Vertical Expansion

Charles County has recently submitted a permit modification to MDE to allow for a vertical expansion without any additional construction. If approved, this would result in an additional 1,836,800 cubic yards of air space.

#### 3.6.1.5 Historic Waste to Landfill

Between 2011 and 2019, the annual waste disposed of at the Charles County landfill has ranged from 74,000 tons to just over 115,000 tons (see Table 3-1). The tonnage coming to the Charles County Landfill in the past decade did not necessarily match the growth of the population and businesses within the County. The reasons are multiple and not easily tracked so some assumptions on growth had to be made. First, the previous annual tonnages coming into the County landfill were averaged over time to estimate the growth from the last decade. The average of the annual tonnage disposed at the Charles County Landfill, calculated by assessing tonnages between the year 2007 and 2019, results in a 6.36% growth rate. This average growth rate[8] over the measured period nearly doubles the incoming tonnage from 2007. See Table 3-1.

Table 3-9 - Historic Waste to Landfill Growth

| Historic Waste to Landfill Growth | | |
|---|---|---|
| Year | Tons | % Growth |
| 2007 | 59,319 | |
| 2008 | 57,352 | -3% |
| 2009 | 54,451 | -5% |
| 2010 | 71,821 | 32% |

[8] *Average growth is used to get a sense of the future growth of the tonnage. Compound growth averages focus more on the final number, which would put more emphasis in the 2019 data point.*

| | | |
|---|---|---|
| **2011** | 85,762 | 19% |
| **2012** | 90,355 | 5% |
| **2013** | 75,533 | -16% |
| **2014** | 75,277 | 0% |
| **2015** | 84,963 | 13% |
| **2016** | 94,901 | 12% |
| **2017** | 101,149 | 7% |
| **2018** | 110,587 | 9% |
| **2019** | 115,312 | 4% |
| **Average Annual Growth** | | 6.36% |

Because of this and the assumption that the southern counties are likely nearing a waste equilibrium after multiple changes in the last decade, it is assumed that this growth may slow down in the future. To account for other slowing of the growth from incoming tonnages (from waste reduction initiatives, light-weight packaging, changing streams, and a lower population growth) and the slowing due to equilibrium, a growth factor reduction rate is utilized to "level off" or slow the growth rate over time. A reduction factor of 10% per year was chosen as a reasonable lessening of the tonnage growth over time. This reduction rate helps to incorporate the current waste growth trajectories and the likely leveling of the tonnages in the future into the planning for the landfill needs.

Table 3-10 – Waste Landfilled in Charles County (2011-2019)

| Waste Landfilled (2011-2019) | | | | |
|---|---|---|---|---|
| | Fiscal Year | | Calendar Year | |
| Year | Waste (Tons) | Average Monthly (Tons) | Waste (Tons) | Average Monthly (Tons) |
| 2011 | 86,760 | 7,230 | 103,234 | 8,603 |
| 2012 | 96,121 | 8,010 | 82,658 | 6,888 |
| 2013 | 73,566 | 6,131 | 74,000 | 6,167 |
| 2014 | 74,497 | 6,208 | 78,317 | 6,526 |
| 2015 | 84,192 | 7,016 | 94,842 | 7,904 |
| 2016 | 94,901 | 7,908 | 96,665 | 8,055 |
| 2017 | 101,152 | 8,429 | 99,272 | 8,273 |
| 2018 | 102,152 | 8,512 | 110,587 | 9,216 |
| 2019 | 114,669 | 9,556 | 115,312 | 9,609 |

*Sources:* *2011 through 2018 Data Maryland Annual Report on the Management of Solid Waste, Table 4*

*2019 Data Maryland Solid Waste Tonnage Report for CY 2019*

### 3.6.1.6 Landfill Lifespan Projections

The growth rate for the different incoming waste streams is a complex issue as there is less data from the past that is broken down into the various streams. Some recent historical data for Residential, Commercial and Bulky (C&D) landfilled waste is available by month and was used to calculate the percentage growth of the different wastes per month. While the total tonnage landfilled at Charles County has generally risen between 2017 and 2019, the percentage of the different incoming streams were relatively steady. Taking the averages of these three streams, Residential accounted for 40%, Commercial 15%, and Bulky 45%.

The Commercial waste for 2019 was higher at 21% than for the previous two (2) years, which may indicate a shift in the waste flows in the region. It is possible that Commercial waste may begin to grow faster than the other two streams, but as this is difficult to predict, it was assumed that the waste percentage stays relatively unchanged from the 2019 numbers and will all grow, on average, at the same rate.[9] Starting with the 2019 tonnage numbers to estimate the tons disposed in 2020 and beyond, the growth for the next year is assumed be the growth rate of 6.36% less 10%, the reduction factor, or 5.7%. Then the next year, the total tonnage would grow by a factor of 5.7% less a factor of 10%, or 5.2%. The growth rates and the total tonnages estimated to be landfilled are shown in Table 3-11.

[9] *Commercial may continue to outpace the growth of the other waste streams, but it is assumed that they would grow at a lesser rate, making the overall growth still approximately the same as indicated.*

Table 3-11 - Landfill Waste Composition and Projections

| Actual Tons | | | | | Projections | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Waste Category** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** |
| MSW Residential | 41,857 | 44,253 | 46,533 | 48,690 | 50,722 | 52,627 | 54,405 | 56,060 | 57,595 | 59,014 | 60,323 | 61,527 | 62,632 | 63,645 |
| MSW Commercial | 24,539 | 25,944 | 27,280 | 28,545 | 29,736 | 30,853 | 31,896 | 32,866 | 33,766 | 34,598 | 35,365 | 36,071 | 36,719 | 37,312 |
| Bulky (non-MRA, mostly C&D) | 48,916 | 51,716 | 54,380 | 56,901 | 59,276 | 61,502 | 63,581 | 65,515 | 67,308 | 68,967 | 70,496 | 71,903 | 73,195 | 74,378 |
| Total Landfilled MSW | 66,396 | 70,197 | 73,813 | 77,235 | 80,458 | 83,480 | 86,301 | 88,926 | 91,361 | 93,612 | 95,688 | 97,598 | 99,351 | 100,957 |
| Total Landfilled Non-MRA | 48,916 | 51,716 | 54,380 | 56,901 | 59,276 | 61,502 | 63,581 | 65,515 | 67,308 | 68,967 | 70,496 | 71,903 | 73,195 | 74,378 |
| Landfill Diversion Tonnages | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Landfilled at Charles (Tons)** | 115,312 | 121,912 | 128,193 | 134,136 | 139,734 | 144,981 | 149,882 | 154,441 | 158,669 | 162,579 | 166,184 | 169,501 | 172,546 | 175,335 |

*Notes: Factor rate estimated from changes in average growth rate.*

This seems like a reasonable progression of the tonnages at the landfill. It may end up being less, but it would likely not be much more than predicted. If no regression of the growth were used (6.36% for all 10 years from 2022-2032, the total landfilled tons would be estimated at nearly 1.5 times (150%) more than currently landfilled, which seems unlikely.

The question of how fast the County Landfill will completely fill its permitted capacity is another question of interest given the tonnage input estimates. There are two main factors to consider when looking at the fill rate of a landfill, the remaining permitted air space in cubic yards ($Yd^3$) and the tonnage compaction of the materials landfilled (lbs. or tons per $Yd^3$). The permitted airspace of the landfill is 5,289,400 $Yd^3$ over 4 cells, of which an estimated 2,057,068 $Yd^3$ was left remaining in 2019. There is a proposal to increase the vertical limitations of the airspace permit to increase the tonnages that could be accepted at the County Landfill. This proposed expansion would increase the overall permitted airspace by 1,836,800 $Yd^3$, effectively doubling the remaining capacity of the landfill. As the expansion is not yet completely permitted, both scenarios are modeled. See Table 3-12 and Table 3-13 for more details. Remaining airspace in Cells 1, 2, and 3 were taken from the 2020 airspace letter report provided to Charles County by Golder, which uses 2019 data.

The other aspect of calculating the remaining landfill life is the density of the compaction of the material in the landfill. There are two different compaction rates, the effective compaction, which is a calculation for how much airspace the average incoming ton will take up in the landfill, and the in-place density, which measures the actual tonnage per cubic yard in the actual landfill. The effective compaction takes in to account that alternative daily cover (ADC) and fill/stabilization dirt is also added to the landfill face before more layers are added. All of these materials combined are measured for the in-place density calculations, while the effective density looks at the tons of incoming waste divided by the airspace used over a period of time. This means the effective density is nearly always less than the measured density.

The latest average effective density for the Charles County Landfill was measured in a 2017 in a study by AECOM and was measured to be approximately 0.55 tons per $Yd^3$ (1,100 lbs./$Yd^3$). There may be some fluctuations in this density over time depending on the incoming waste and variations in landfill practices, but this should provide a solid average for predicting the life of the current landfill.

The fill tonnages for both scenarios are shown in Table 3-12, with the remaining airspace calculated to be filled at the end of 2028, while the vertical expansion would allow the landfill to remain open past 2031. The vertical expansion will have a significant effect on the life of the County Landfill. If the current estimated growth rate continues for the next decade instead of tapering off as expected, the effect on the life of the County Landfill does not change greatly. Over the years to 2028, where the non-expanded landfill will be estimated to become full, there is little difference between the reduced tonnage increase and a linear growth rate. The non-reduced growth does begin to significantly increase as time goes on, showing more of a difference between the estimated reducing growth rate.

The other scenario modeled was with a landfill diversion rate resulting from the Waldorf Recovery Facility and Mudd Resource Recovery Complex coming online. This model accounts for a 50% diversion rate of MSW and C&D/ Bulky waste to these facilities away from the County Landfill. In this scenario, the County Landfill would reach capacity in 2030 with no vertical expansion, and its use life would be extended beyond the 10-year scope of this report if the vertical expansion were to take place. See Table 3-13.

Table 3-12 - Landfill Remaining Lifespan Projections

| | Actual Tons | | Projections | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Waste Category** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** |
| MSW Residential | 41,857 | 44,253 | 46,533 | 48,690 | 50,722 | 52,627 | 54,405 | 56,060 | 57,595 | 59,014 | 60,323 | 61,527 | 62,632 | 63,645 |
| MSW Commercial | 24,539 | 25,944 | 27,280 | 28,545 | 29,736 | 30,853 | 31,896 | 32,866 | 33,766 | 34,598 | 35,365 | 36,071 | 36,719 | 37,312 |
| Bulky (non-MRA, mostly C&D) | 48,916 | 51,716 | 54,380 | 56,901 | 59,276 | 61,502 | 63,581 | 65,515 | 67,308 | 68,967 | 70,496 | 71,903 | 73,195 | 74,378 |
| Total Landfilled MSW | 66,396 | 70,197 | 73,813 | 77,235 | 80,458 | 83,480 | 86,301 | 88,926 | 91,361 | 93,612 | 95,688 | 97,598 | 99,351 | 100,957 |
| Total Landfilled Non-MRA | 48,916 | 51,716 | 54,380 | 56,901 | 59,276 | 61,502 | 63,581 | 65,515 | 67,308 | 68,967 | 70,496 | 71,903 | 73,195 | 74,378 |
| Landfill Diversion Tonnages | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Landfilled at Charles** | **115,312** | **121,912** | **128,193** | **134,136** | **139,734** | **144,981** | **149,882** | **154,441** | **158,669** | **162,579** | **166,184** | **169,501** | **172,546** | **175,335** |
| Cubic Yards of Airspace Used | 209,658 | 221,659 | 233,078 | 243,885 | 254,061 | 263,603 | 272,512 | 280,802 | 288,490 | 295,598 | 302,153 | 308,184 | 313,720 | 318,791 |
| **Remaining Permitted Airspace** | **2,057,068** | **1,847,410** | **1,614,332** | **1,370,447** | **1,116,386** | **852,784** | **580,271** | **299,469** | **10,979** | **-284,619** | **-586,772** | **-894,956** | **-1,208,675** | **-1,527,467** |
| **Remaining Permitted Airspace with Vertical Expansion** | | **3,684,210** | **3,451,132** | **3,207,247** | **2,953,186** | **2,689,584** | **2,417,071** | **2,136,269** | **1,847,779** | **1,552,181** | **1,250,028** | **941,844** | **628,125** | **309,333** |

*Sources:*

| | | |
|---|---|---|
| *Tons per Cu. Yd. Landfilled* | *0.55* | *From AECOM letter report to Charles County, Nov. 2017* |
| *Remaining Airspace Cells 1, 2, & 3* | *329,210* | *From Golder airspace letter report to Charles County, Sept. 2020 - Table 6* |
| *Cell 4 Permitted Airspace* | *1,518,200* | *Permitted Airspace from Addendum No. 1B* |
| *Total Remaining Permitted Airspace (Yd³)* | *1,847,410* | *Total from above Volumes* |
| *Est. Expansion Airspace (Yd³) in Addition to Permitted Space* | *1,836,800* | *Estimate from Charles County's Shawnee McHenry* |

*Notes:*

*It is assumed that the ADC and fill dirt also used in the landfill is already calculated into the Tons per Cubic Yard ratio*

*The average annual growth of waste landfilled from 2007 to 2019 is 6.36%. This rate with a 10% reduction per year was used for residential & commercial MSW, as well as C&D/Non MRA waste to calculate these projections.*

Table 3-13 - Landfill Fill Rate with Diversion

| Actual Tons | | | | | Projections | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Waste Category** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** | **2031** | **2032** |
| MSW Residential | 41,857 | 44,253 | 46,533 | 48,690 | 50,722 | 52,627 | 54,405 | 56,060 | 57,595 | 59,014 | 60,323 | 61,527 | 62,632 | 63,645 |
| MSW Commercial | 24,539 | 25,944 | 27,280 | 28,545 | 29,736 | 30,853 | 31,896 | 32,866 | 33,766 | 34,598 | 35,365 | 36,071 | 36,719 | 37,312 |
| Bulky (non-MRA, mostly C&D) | 48,916 | 51,716 | 54,380 | 56,901 | 59,276 | 61,502 | 63,581 | 65,515 | 67,308 | 68,967 | 70,496 | 71,903 | 73,195 | 74,378 |
| Total Landfilled MSW | 66,396 | 70,197 | 73,813 | 77,235 | 80,458 | 83,480 | 86,301 | 88,926 | 91,361 | 93,612 | 95,688 | 97,598 | 99,351 | 100,957 |
| Total Landfilled Non-MRA | 48,916 | 51,716 | 54,380 | 56,901 | 59,276 | 61,502 | 63,581 | 65,515 | 67,308 | 68,967 | 70,496 | 71,903 | 73,195 | 74,378 |
| Landfill Diversion (50% MSW & 50% Bulky) | 0 | 0 | 0 | 0 | 54,999 | 57,064 | 58,993 | 60,788 | 62,452 | 63,991 | 65,410 | 66,715 | 67,914 | 69,011 |
| **Total Landfilled at Charles** | **115,312** | **121,912** | **128,193** | **134,136** | **84,735** | **87,917** | **90,889** | **93,654** | **96,218** | **98,588** | **100,775** | **102,786** | **104,632** | **106,324** |
| Cubic Yards of Airspace Used | 209,658 | 221,659 | 233,078 | 243,885 | 154,063 | 159,849 | 165,252 | 170,279 | 174,941 | 179,251 | 183,227 | 186,883 | 190,240 | 193,316 |
| **Remaining Permitted Airspace w/ Cell 4** | **2,057,068** | **1,847,410** | **1,614,332** | **1,370,447** | **1,216,384** | **1,056,535** | **891,282** | **721,003** | **546,062** | **366,811** | **183,584** | -3,299 | -193,539 | -386,855 |
| **Remaining Permitted Airspace with Vertical Expansion** | | **3,684,210** | **3,451,132** | **3,207,247** | **3,053,184** | **2,893,335** | **2,728,082** | **2,557,803** | **2,382,862** | **2,203,611** | **2,020,384** | **1,833,501** | **1,643,261** | **1,449,945** |

*See Sources and Notes from Table 3-12*

*The average annual growth of waste landfilled from 2007 to 2019 is 6.36%. This rate with a 10% reduction per year was used for residential & commercial MSW, as well as C&D/Non MRA waste to calculate these projections.*

#### 3.6.1.7 Landfill Closure

The sinking fund reserve for future landfill expansion/landfill closure was estimated to have ended the 2021 year at $26.7 million. Of the $26.7 million in the landfill expansion/closure fund, $9 million is set aside for landfill closure. This calculation is based on SWANA FY2016 industry closure rate of $122,539 per acre[10].

### 3.6.2 Calvert Wood Recycling Composting Facility

Calvert Wood Recycling is a 23-acre facility located at 6585 Ripley Road, La Plata. The facility is privately owned and operated. The facility is permitted by the Maryland Department of the Environment for Tier 1 composting operations and for natural wood waste operations. The Facility services residents and businesses within Charles County. The County's curbside yard waste is currently delivered to Calvert Wood for processing into compost.

### 3.6.3 Piney Church Road Mulch Processing Facility

Charles County owns and operates a wood mulching site located at 5370 Piney Church Road. The facility processes clean wood into mulch. Residents can deliver wood waste or yard waste at no charge. Residents can also deliver yard waste to the other four (4) recycling centers. Dump trailers and commercial vehicles can deliver wood waste or yard waste to the Piney Church Road but must pay yard waste fees prior to dumping. The mulch produced at the site is available to residents for self-loading at no charge.

### 3.6.4 Naval Surface Weapons Center Incinerator

The incinerator at the Naval Surface Weapons Center processes about 1 ton of classified documents annually at the facility. Personnel at the facility indicate that the documents are increasingly being shredded into fine elements and then collected by a recycler. Metals collected from the facility which are potentially explosive (e.g., spent shells) are burned on-site prior to being sent to a recycler.

### 3.6.5 Sludge Land Application Sites

Approximately 3,220 acres of privately held land within Charles County is permitted for the land application of sludge. Currently, there are five (5) reclaimed mine sites and 35 farms which are eligible to receive de-watered, treated sludge for land application.

### 3.6.6 Mattawoman Waste Water Facility

The Mattawoman Waste Water Facility is owned and operated by Charles County. The facility is located near the intersection of Maryland Routes 224 and 225. Wastewater generated from the public water and sewerage system within the Charles County Development District flows to the Mattawoman facility for treatment. In addition to wastewater, the waste water facility accepts approximately 25,000 wet tons of septage for treatment from private septic service contractors.

### 3.6.7 Recycling Centers

Recycling centers are located throughout Charles County that accept recyclable materials from county residents. These facilities have been identified and detailed in Table 3-8. Locations of these facilities are also shown in Table 3-14.

[10] *Benchmarking the Performance and Costs of MSW Landfills, SWANA Applied Research Foundation, May 2018.*

## 3.7 Illegal Dumping and Litter

The problem of illegal dumping was consistently mentioned during the influencer interviews, and occurs frequently throughout the County, as evident in the photos taken by County staff (see Figure 3-6). As seen in Table 3-15, litter control is an issue within the County that seemed to decline slightly in 2019, perhaps as a result of the COVID-19 pandemic and appears to be set to exceed 2019 tonnage in 2021. The County has implemented litter control programs to reduce and prevent littering and illegal dumping. The programs are:

- Anti-Litter Billboards
- Presentations at Area Schools
- Exhibits at Trade Fairs/County Fairs
- Distribution of Anti-Litter Promotional Items
- Anti-Litter "Theme" Contests with Schools
- Press Releases
- Space Ads in the Printed Media
- Signage on County Vehicles
- Adopt-A-Road Program
- Charles County Employee Litter Crews
- Watershed Cleanups
- Community Cleanups

Three (3) full-time crews work to remove debris from County maintained right of ways. Additionally, the Division of Environmental Resources maintains an active phone line for residents to call and report litter debris found in the roadway, roadside and/or illegal dumping, as well as an online form that residents can complete to report litter concerns. In spite of this aggressive litter control effort, illegal dumping remains a consistent problem in Charles County that needs to be continually addressed.

Figure 3-6 - Photographs of Illegal Dumping in Charles County

Illegal dumping of tires on Chapman's Landing Road and Chaney Substation:

Litter throughout the County, including bulky as well as C&D:


Table 3-14 - Litter Control (Tons)

| Litter Control (Tons) | | | | |
|---|---|---|---|---|
| | ***Tires/Bulk*** | ***Metal*** | ***All Other*** | ***TOTAL*** |
| **FY 2019** | NA | NA | 152.12 | 152.12 |
| **FY 2019** | 3.57 | NA | 121.61 | 125.18 |
| **FY 2021** | 25.07 | 9.58 | 155.56 | 198.20 |

*Source: Charles County DPW*

## 3.8 Special Waste Management

Special waste management requirements for asbestos, special medical waste, hazardous waste, household hazardous waste, emergency response for hazardous waste spillage or leakage, and procedures for handling non-hazardous contaminated soils will be discussed in this section.

### 3.8.1 Asbestos

The Charles County Landfill is only permitted to receive non-friable asbestos. Asbestos disposed at the site must be packaged and labeled in accordance with COMAR. Procedures for disposal are as specified in COMAR 02.04.07.13 and include:

- A minimum 24-hour notice to the landfill supervisor to provide information regarding delivery time, source, and quantity.
- Personnel handling the asbestos wear disposal protective clothing and respirators.
- The asbestos is handled with care to reduce the emission of fibers into the air. Asbestos is delivered to a separate area of the landfill for disposal.
- The asbestos is placed in a trench and completely covered with soil.

The above procedure recognizes that the health threat posed by asbestos is the release of asbestos fibers to the atmosphere and inhalation by humans. Once properly buried within a landfill and isolated from the atmosphere, asbestos poses no known health risks.

All other asbestos that has been removed must be taken out of County for disposal.

### 3.8.2 Special Medical Waste

The County landfill will not accept special medical wastes, including infectious and/or bio- hazardous medical waste. Hospitals contract with private haulers that haul the SMW out of county per MDE regulations. The management of special medical waste is strictly regulated by the MDE under specific medical waste regulations. However, the County reserves the right to address the management of special medical waste under a separate plan.

### 3.8.3 Hazardous Waste

The County landfill does not accept hazardous substances for disposal other than small quantities of household hazardous wastes. Currently, hazardous waste generators within the County contract with a licensed hauler of hazardous waste for collection and disposal. Hazardous waste storage, transport and disposal is strictly regulated by the MDE. However, the County reserves the right to address the management of hazardous waste under a separate plan.

### 3.8.4 Household Hazardous Waste (HHW)

Several options are available to local governments for reducing the quantity of household hazardous waste disposed in landfills. These options include the following:

- Promoting source reduction through public information programs that emphasize the use of alternative non-hazardous products and the proper handling and disposal of hazardous household materials.
- Holding periodic hazardous waste collection days for residents.

- Establishing a permanent residential hazardous waste collection center where such waste can be collected on a continuous basis.

One drawback with the second option is that citizens must store quantities of hazardous materials in their homes between collection days, sometimes for extended periods of time. And while both the second and third options are costly, the third option requires substantially greater staffing, facilities, and disposal costs.

Charles County holds a household hazardous waste collection day the first Saturday of every month at the Department of Public Works in La Plata. Waste quantities continue to rise as citizen participation continues to increase. While collection programs can be costly, there are many benefits to preventing household hazardous waste from entering the landfill. Expanding the County's public education program in conjunction with a collection program continues to contribute to the environmental quality of the landfill, as well as sensitizing the public to their role in responsibly managing their waste.

### 3.8.5 Emergency Response for Hazardous Waste Spillage or Leakage

The Charles County Chemical Emergency Response and Preparedness Plan (April 2019) includes the appropriate response and recovery actions to prepare for, prevent, minimize, or mitigate a threat to public health, welfare, or the environment caused by actual or potential chemical, oil, or other hazardous materials incidents. This plan provides an integrated and coordinated response to actual or potential discharges or releases by hazard-specific response mechanisms of the Hazardous Material (HazMat) Team under the Department of Emergency Services Special Operations Division.

U.S. Route 301, a major north-south truck route along the Eastern Seaboard, traverses the county. Hazardous materials spillage events occur there several times per year. The Chemical Emergency Response and Preparedness Plan assigns responsibilities for notifications and responses to various agencies within the County. In addition, the Charles County Government administers an emergency preparedness and risk management program, and in conjunction with the Sheriff's Department, provides lead staff in the event of such incidents. All emergency vehicles carry a U.S. Department of Transportation "Emergency Response Guidebook", which contains federal and industry approved protective measures. The Hazardous Material Response Plan is consistent with the emergency plans of other agencies/organizations, including the Charles County Sheriff's Department and the Maryland State Police. When implemented, this Plan will abate the hazard and restore conditions to normal.

### 3.8.6 Non-hazardous Contaminated Soils

The disposal method for soil contaminated with petroleum or petroleum products which are generated within Charles County is dependent on test results indicating the level of toxicity and contamination. The following information is required before the contaminated soil may be disposed in the County landfill.

- A statement from the generator certifying that the soil is non-hazardous waste as defined by federal regulations under Subtitle C, Resource Conservation and Recovery Act.
- The amount of petroleum contaminated soil to be disposed.
- A description of the sampling protocol and a copy of all laboratory analyses.

A minimum of one composite sample shall be analyzed for each required test for every 100 cubic yards of soil to be disposed. In the case of soil reclaimed by thermal treatment, a minimum of one sample shall be analyzed for every production day composited hourly.

# Chapter Four: Assessment of Solid Waste Management Alternatives

Chapter 4 evaluates the ability of the existing solid waste management system to meet the stated goals and objectives in the *Charles County Comprehensive Solid Waste Management Plan*. Feasible alternative technologies, management techniques, and regulatory modifications that could be used to meet identified deficiencies are discussed. In addition, siting constraints for potential new management facilities are reviewed.

This chapter outlines Charles County's needs to alter, extend, modify, and/or add to its existing solid waste disposal system during the next 10 years. The chapter will contain references to tables, figures, and content from the previous chapters, which will illustrate a summary of needs that the County should consider when implementing solid waste strategies and initiatives in the next planning period.

The next decade anticipates a population that will increase in both size and in density in Charles County. A growing population will yield increased quantities of waste that will need to be properly disposed of. To manage this material in a manner that is efficient and economically and environmentally sound, it is critical that waste diversion opportunities become a top priority of the County. Additional priorities during this planning period consist of affordability for customers and considerations of landfill alternatives for material, particularly as the existing landfill reaches capacity and may close.

## 4.1 Collection and Transfer

The following section describes and evaluates collection systems for residential and other non-rubble waste and recyclables. Descriptions of systems for the collection of residential and other non-rubble waste and recyclables include the free enterprise system, contract collection, hauler licensing, and public operation. Each of these collection alternatives is described below to provide a basis for evaluating the County's existing collection system. Pricing systems and alternatives presented below include pay-as-you-throw.

### 4.1.1 Alternative Collection Systems

The current waste collection system in Charles County is a combination of free enterprise (in the unincorporated areas), public operation (in the incorporated towns), and contract collection (for recycling in some of the County areas).

#### 4.1.1.1 Free Enterprise System

Sometimes referred to as an "open" or "subscription" model for waste collection, the free enterprise system operates by private subscription for waste collection services. This is the current model that is most prevalent in Charles County. Individual homeowners, apartment complexes, commercial establishments, industries, or institutions in unincorporated portions of the County contract directly with a private hauler to collect their solid wastes and recyclables. Individual clients or homeowner associations are billed for services by the private hauler. The remaining residents who do not contract with a private company haul their own solid waste directly to the County Landfill and dispose of it through the Tag-a-Bag program, take their recyclables to drop-off centers, or dispose of their trash illegally through burning or dumping.

The free enterprise system requires minimal involvement and financing by the local government while individual households and commercial establishments may either contract with the hauler of their choice

or dispose of their own waste. If service is unsatisfactory, consumers can choose another hauler, if another hauler services their neighborhood and it is not cost prohibitive. The cost for hauling and disposal of waste is billed directly to and borne solely by the customer.

There are a number of disadvantages to the free enterprise system. In Charles County, the system is characterized by overlapping routes, in which multiple hauling companies service the same street or neighborhood, oftentimes on different days. This increases the miles travelled by hauling trucks, resulting in increased greenhouse gas emissions, and added wear and tear of County roads. Overall, in terms of labor, equipment, operation, and maintenance, this system is generally costs residents more for services provided and is less efficient than a system with assigned routes that do not overlap.

Due to the lack of public involvement with the free enterprise system, it is often difficult to implement modifications to collection practices that may be desirable to meet the goals and objectives of a local government's solid waste management plan, such as volume-based billing for collection services and mandatory separation and collection of recyclables. Waste flow control is more difficult to attain under the free enterprise system, as is reliable and detailed waste collection data from the haulers. When collection is voluntary, vagrant dumping to avoid collection fees or trips to the County convenience centers or Landfill also poses a problem.

#### 4.1.1.2 Contract Collection

Under a contract collection system, the County contracts with a hauler directly for curbside collection and waste management services, rather than individual households, institutions, and businesses contracting on their own. In order to contract with multiple haulers, the County is divided into collection districts which would subsequently be awarded to haulers based on a competitive bidding process. The County is responsible for determining the number and geographic location of collection districts, as well as establishing and enforcing performance requirements and standards of practice.

To implement a contract collection system, the County must address a variety of issues, including but not limited to: duration of the contract; whether collection is mandatory or voluntary within the district; requirements and details pertaining to the collection of recyclables; which entity provides containers for both refuse and/or recyclables; frequency of collection for refuse, recyclables, yard waste, white goods, bulky items; details pertaining to the servicing of multi-family housing, commercial, institutional, and industrial establishments; collection hours and days; performance standards for spillage, litter, noise, equipment; oversight and violations for substandard performance; whether haulers must use a designated disposal facility; billing and bill collection procedures; and insurance, indemnification record keeping.

Eliminating redundant collection routes characterized by a free enterprise system, contract collection often leads to the reduction of collection costs for homeowners and commercial entities. The contract system provides the County with flow control opportunities while supporting hauler businesses and without requiring the County to manage its own fleet and hauler staff. Although recyclable collection and volume-based billing can be implemented in the open free enterprise system, the increased control afforded to the County in a contract system would facilitate implementation and monitoring of these measures. Since contract waste collection can ensure curbside trash pickup for all households (as well as businesses and institutions, depending on how the contracts are structured), this can significantly reduce the occurrence of littering and illegal dumping. Furthermore, the additional control of haulers would help reduce out-of-county waste from entering the County Landfill and waste leaving the County as well.

#### 4.1.1.3 Hauler Licensing & Requirements

This strategy involves developing a detailed action plan and timeline to implement select hauler requirements that provide standards for the collection, transportation, and disposal of solid waste. These standards may be detailed in regulatory codes and possibly include guidance on recycling, pre-collection, and storage, permits, and enforcement in the County. This strategy could also involve requirements for haulers to provide reports on the tonnage of different types of solid waste and where/how it was disposed.

Solid waste hauler requirements vary between municipalities, and depend on local goals, existing conditions, and preferences. However, hauler requirements typically include a set of regulations and rules that create standards to which solid waste haulers must adhere. Typical hauler requirements include mandatory reporting and recycling, and can also include areas of service, fleet maintenance requirements, and adherence to specific waste bans. Hauler requirements generally necessitate that no private hauler may collect solid waste or recyclables unless they have obtained a valid hauler permit from the municipality.

Hauler requirements can be implemented for residential-only private haulers, whereby a municipality may choose to only regulate collection of solid waste from residential customers and generators, or a municipality can implement hauler requirements for residential and commercial private haulers with either uniform or different regulations.

Hauler requirements may have a positive impact on equity in the County because the requirements generally create standards for collection, recycling, fleet maintenance, and service frequency across the entire area. This means that neighborhoods that had been underserved by haulers in the past may be more adequately served. If implemented with equity in mind, hauler requirements may also increase and improve opportunities for minority- and women-owned hauling businesses.

Creating and implementing hauler requirements is a powerful strategy that can have a variety of positive impacts on reducing greenhouse gas emissions, increasing recycling, and improving data collection. Depending on which specific hauler requirements are put into place, this policy can be used to:

- Reduce miles travelled by waste haulers
- Improve waste collection fleets
- Expand available data by requiring reporting
- Mandate recycling collection services for waste haulers

Hauler reports, which provide the County with valuable solid waste management data, can include:

- Number of customers provided solid waste collection services
- Type of solid waste collected (municipal solid waste, arboreal/debris waste, construction/demolition waste)
- Source of solid waste collected (household, commercial, institutional)
- Amount (weight in tons) of solid waste collected
- Amount (weight in tons) of solid waste disposed
- Number of customers provided recycling services
- Type of recyclable material collected (commingled, glass, plastic, aluminum, newspaper, cardboard, paper, metal, yard waste)
- Source of recyclable material collected (household, commercial, institutional)
- Amount (weight in tons) of recyclable material collected

- Amount (weight in tons) of recyclable material recycled or diverted and location of recycling facility or diversion location
- Amount (weight in tons) of recyclable material disposed and location of disposal

Hauler requirements can be implemented under the free enterprise and contract collection models.

#### 4.1.1.4 Public Operation

Under this option, collection and hauling services are provided directly by County employees using equipment owned by the County. The County would control directly whether and for whom collection would be mandatory. The County would also have full control over billing. This alternative provides the most control for a municipality and can be a powerful tool in waste reduction, diversion, and recycling. While the county would benefit from economies of scale in the procurement of equipment and supplies, there would be a large capital expenditure required to launch such a program, and the County would be putting numerous private hauling operations out of business.

#### 4.1.1.5 Other Systems

There are a number of other collection systems that the County may wish to consider in the future, including franchising and district allocation.

### 4.1.2 Evaluation of Current Collection System

Three (3) of the four (4) collection systems described above are currently employed within Charles County. In the unincorporated areas of Charles County, most municipal waste is collected by private haulers through a free enterprise system. The remaining residents who do not contract with a private company haul their own waste directly to the County Landfill. The incorporated Towns of Indian Head and La Plata operate their own collection systems (public operation). These two municipalities use their own employees and equipment to provide curbside collection of municipal waste for their residents. The Towns of La Plata and Indian Head use a private company to do their residential curbside collection for recyclables.

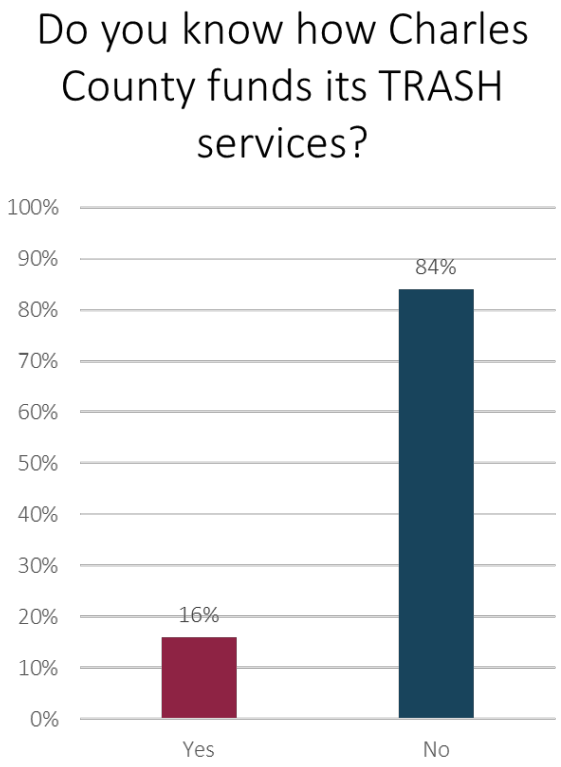
The existing free enterprise waste collection system requires minimal involvement and financing by the County. However, due to the unregulated nature of the system and the number of haulers, it is more difficult to implement modifications to the collection practices that are necessary to meet the goals and objectives of the *Charles County Comprehensive Solid Waste Management Plan*. A competitive environment fostered by the free enterprise system generally produces charges reasonably competitive with each other. However, the inefficiencies of overlapping routes generally increase operating costs incurred by the haulers which are passed on to the consumers. Furthermore, rural areas may not have ample options for curbside waste collection and so may be charged an even higher rate.

The use of two separate systems for the collection of municipal waste and recyclables produces extra paperwork and confusion for consumers, many of whom do not know how and how much they pay for trash and recycling services Figure 4-1.

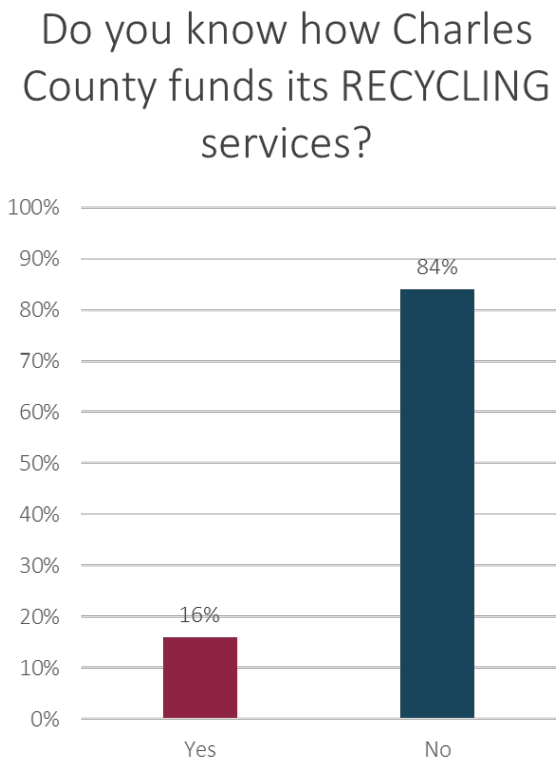
The current contract collection system for recyclables collection enables the County to ensure the quality of service by establishing performance standards, and to maintain control over the types and quantities of recyclables collected. The County contracts with a single service provider to collect residential recycling. However, of the approximately 60,000 homes in 2019 paying for recycling services, there are 1,500 homes not receiving curbside recycling.

Commercial, industrial, and institutional establishments currently contract directly with private haulers for collection. These establishments often have unique requirements related to collection frequency, containers, and collection hours, which are best addressed by individual contracts; therefore, the existing arrangements for these facilities should be maintained. Alternatively, commercial establishments should have the option of being included in the residential waste or recyclable collection system if satisfactory service can be provided.

Figure 4-1 - Public Survey Response: Funding Knowledge




*Total Answer Count for Question: 1,014*
*Mean : 1.843 | Confidence Interval @ 95% : [1.821 - 1.866] |*
*Standard Deviation : 0.364 | Standard Error : 0.011*




*Total Answer Count for Question: 1,014*
*Mean : 1.836 | Confidence Interval @ 95% : [1.814 - 1.859] |*
*Standard Deviation : 0.370 | Standard Error : 0.012*

### 4.1.3 Transfer

A transfer station is used to consolidate waste from residential, commercial, and other collection vehicles into a larger vehicle for transportation costs savings to a remote location. An example of this savings would be to take the waste from two (2) or more route collection vehicles with two (2) -person operating crews and place the waste into one semi-truck-trailer, with one (1) driver transporting waste to the disposal facility located out of County. The savings are realized by using less labor to transport the waste, by increasing the time collection vehicles can spend collecting waste, and by using one (1) vehicle instead of multiple vehicles (thus saving the hauler operating costs, i.e., fuel, maintenance, and labor) for the transport to the out-of-County facility.

Transfer stations may be owned and operated by the County, by a private entity, or through a public-private partnership in which the County owns the transfer station and contracts out for operations and hauling services. While facility ownership, size, and services offered vary significantly among transfer stations, they serve the same basic purpose—consolidating waste from multiple collection vehicles into larger, high-volume transfer vehicles for more economical shipment to distant disposal sites. In its simplest form, a transfer station is a facility with a designated receiving area where waste collection vehicles discharge their loads. The waste is often compacted, then loaded into larger vehicles (usually transfer trailers; in some locations intermodal containers, railcars, and barges are also used) for long-haul shipment to a final disposal site—typically a landfill, waste-to-energy plant, recycling facility, or a composting facility. No long-term storage of waste occurs at a transfer station; waste is consolidated and loaded into a larger vehicle and moved off site, usually in a matter of hours.

A transfer station is different than a convenience center or a drop-off center. At a convenience center, residents manually discard waste into containers where it is consolidated for transport to an appropriate site, but the waste might be accumulated for several days. A transfer station is designed and intended for commercial vehicles to deliver material, and that material is removed quickly by other vehicles, not in containers. However, many communities have installed full-service operations that provide public waste and recyclables drop-off accommodations on the same site as their transfer stations.

Charles County intends to permit the construction of a privately owned transfer and processing facility, the Waldorf Recovery Facility – C&D and MSW Transfer and Processing Station, which will be privately financed, and is expected to be operational during the 2022 calendar year. The facility operator submitted a refuse disposal permit application to MDE in 2019 which complies with state permitting requirements, and more details about this proposed facility, including its exact location in Waldorf, the anticipated construction process, the planned accepted materials, diversion potential, and influence on other County facilities that currently rely on the existing landfill revenues for funding, is presented in Chapter 5.

## 4.2 Billing and Payment

### 4.2.1 Alternative Billing and Payment Systems

#### 4.2.1.1 Pay-As-You-Throw (PAYT)

In communities with pay-as-you-throw programs (also known as unit pricing or variable-rate pricing), residents are charged for the collection of municipal solid waste based on the amount they throw away. Pay-As-You-throw (PAYT) creates a mechanism for charging for trash services similarly to electricity, gas, and other utilities. Customers pay a variable rate depending on the amount of service they use.

Most communities with PAYT charge residents a fee for each bag or can of waste they generate. In a small number of communities, residents are billed based on the weight of their trash. This can create economic incentive to recycle more and to generate less waste. It can also create conditions for illegal dumping and littering.

#### 4.2.1.2 Waste Utility Bill

Also referred to as a Convenience Center Fee, this system bills customers on a quarterly or annual basis for solid waste collection services.

#### 4.2.1.3 Environmental Service Fee

The Charles County Environmental Service Fee (ESF) is included in every homeowner's property tax bill and pays for the recycling and stormwater management maintenance programs. In 2019, the ESF was $124 for residents in unincorporated areas, and $19 for residents of incorporated towns.

### 4.2.2 Evaluation of Current Billing and Payment System

In Charles County, the Tag-a-Bag program and TAB and landfill tipping fees comprise the Pay-As-You-Throw program. Currently in Charles County, the residents living in unincorporated areas pay for garbage disposal either by contracting with a private hauler and paying the hauler directly or by hauling their own trash to the County landfill and paying on site. For residents that rely on public assistance, Tag-a-Bag fees are waived with a ten (10) bag maximum per visit.

## 4.3 Recycling & Source Separation

Source separation refers to the removal of materials, at the point of generation, from the municipal solid waste stream, prior to the collection, disposal, or processing of the remaining mixed municipal solid waste. Typical materials subject to "source separation" include, but are not limited to:

- yard trimmings
- recyclable glass
- aluminum
- ferrous metals
- electronics
- paper
- corrugated cardboard
- certain plastics

Recycling includes the system of collecting, sorting, processing, marketing, and remanufacturing these materials. "Waste" is commonly defined as "matter out of place," and so materials do not have to be considered waste unless there is absolutely no use for them. With this concept in mind, waste management can apply the same logic to used materials as it does to virgin materials and identify or create ways to put these materials back into productive use. Recycling and source separation represents one method of meeting legislative requirements for "materials recovery".

Although recycling is not new to the management of solid waste, it is gaining wider acceptance as a viable approach to the solid waste management and disposal problems. State mandated recycling goals and increased public awareness is resulting in an increased amount of material being recovered for recycling. Along with this increase, problems associated with expanding recycling programs and increased recycling costs are emerging. Although systems of recycling are not without their problems, source separation and recycling is a critical component of a waste reduction and solid waste management plan, as it helps to conserve landfill space, protect the environment, and minimize the need for the mining and processing of virgin products.

Recycling issues facing communities today include mandatory versus voluntary programs, flow control, accounting and reporting procedures, contamination in setouts, compatibility of recycling with other waste management practices and market development. Components of a municipal recycling program include curbside collection, drop-off centers, buy-back centers, and processing facilities to recover recyclables from

the municipal or rubble waste streams. Each of these components are described in the following sections to provide a basis for evaluating the existing recycling program.

### 4.3.1 Curbside Collection

In curbside programs, residents as well as certain businesses place their recyclables at the curb for collection and subsequent delivery to processing facilities. There are several variations of curbside recycling, the three major systems are described below.

- Resident Sort - Residents segregate target materials by type into separate containers. Typically, three containers are provided to each resident for collection of newspaper, metal cans, glass, and plastic.
- Curbside Sort - In these programs, target materials are placed into a single container, separate from other residential wastes. Collection crews sort the materials at curbside as they place recyclables in the collection vehicle.
- Dual Stream – recyclable paper is placed in one container and mixed comingled containers and other non-paper acceptable materials, e.g., aluminum foil, are placed in another container and set out separately for collection in a collection vehicle with separate compartments.
- Single Stream - Target materials are placed in a single container, separate from the other residential wastes. The materials are not sorted by collection crews but placed into the collection vehicle in a mixed state.

When evaluating curbside collection program variations, differing approaches may affect the level of participation achieved, material processing requirements, the investment required to fund the program, and operational costs. Some programs are structured to pick up refuse and recyclables at the same time; others collect recyclables separately from refuse. Curbside programs typically target newspaper, glass, plastics, and aluminum, but other materials may be included.

Material processing requirements for the curbside programs are dependent upon the collection option selected and the specific market requirements. Typically, an intermediate processing facility is used to prepare each material for market specifications and to package the material for shipment to the markets. These services may be contracted to private industry, or the facility may be operated by the local government.

Municipal refuse collection crews and private haulers both have been used to service curbside routes. As a result of single stream recycling, haulers can utilize traditional solid waste collection vehicles to collect recyclables. Some programs require dual stream collection, which would require compartmentalized collection vehicles. The type of vehicle is dependent on availability, the collection route, and the method of collection. Containers are typically provided to each household for curbside programs. The number and size of container depends on the collection system selected. The containers are typically imprinted with a county, municipal, or recycling logo. Container selection should consider convenience and ease of use from the perspective of the residents and haulers.

Curbside collection of recyclables could be accomplished by contracting, licensing/hauler requirements, or public operation. Equipment associated with curbside collection programs include collection vehicles, collection containers, and processing equipment. Operating costs are highly variable and include labor, fuel, supplies, and maintenance. Collection equipment costs can range from $30,000 for a flatbed trailer to $300,000 for a self-loading truck. Labor costs can range from $20 to $135 per ton of material collected.

Most curbside programs in the United States are now collecting materials through single stream collection. This is the result of new technologies at Material Recovery Facilities. The greatest advantage is increased productivity during collection, increased volume, and the least burden to residents. Curbside programs provide a convenient way for homeowners to recycle and single stream increases this convenience. However, single stream recycling does result in higher contamination rates. To minimize contamination, ongoing public education and communications efforts need to be in place to inform and enforce recycling requirements.

Curbside collection programs experience high start-up and operating costs. The programs are also highly tied to volatile markets for recycled materials. The success of the curbside collection program is dependent on an ongoing public education program alongside technological advancements as well as state and federal policies that continue to help develop markets, expand materials that can be recycled, and ban certain materials from landfills. Curbside can often be challenging to implement in remote rural areas, as it can be prohibitively expensive and not cost-effective. However, when understood through an equity lens, communities may choose to subsidize rural collection or distribute the cost among all residents so that higher density areas cover the excess costs of servicing low density areas.

### 4.3.2 Drop-Off Centers

Drop-off center recycling is accomplished through the establishment of stations where recyclable materials can be brought by the public. These centers are generally publicly owned and operated. Drop-off centers can range from small, mobile operations to permanent processing facilities which accept, process, and store recyclables until they are shipped to market.

Small drop-off centers can use a number of containers for collection of recyclables. Containers successfully used for drop-offs include open or closed top roll-off boxes, compactors, 55-gallon drums, and igloo bins which are bell-shaped containers. Material processing requirements are dependent upon the type of drop-off center operation and are similar to the requirements of the curbside programs. Materials from unmanned centers would typically require a higher level of intermediate processing. Staffed drop-off centers require office or warehouse facilities and storage containers.

Costs associated with drop-off centers include the collection containers, transportation of the materials to a central facility, site maintenance, administrative costs of record-keeping, and labor for stations which are staffed. These costs are highly variable depending on the level of technological sophistication. To determine the true cost of recycling operations, a comprehensive analysis would be required, especially when the drop off centers are funded by one or more enterprise funds.

The advantages of drop-off centers include relatively low operating costs and the ability to site them in rural areas to meet the needs or residents who do not have access to the curbside recycling program. They can also be located close to population centers and, depending on budget and staffing, can operate 24 hours per day. However, drop-off centers are significantly less convenient than curbside collection programs. They require residents to take a much more proactive approach to recycling, and so it involves a higher level of participation. Other challenges include vandalism and theft at unmanned drop-off centers and issues with the centers becoming littered with trash. Community and municipal workers must be committed to keep the site clean. Understandably, material recovery levels are typically lower than curbside programs, while contamination of recyclable materials tends to be higher than curbside collection programs.

### 4.3.3 Buy-Back Centers

Private buy-back centers operate similarly to drop-off centers; however, individuals are paid for their materials based on current market prices or where redemption deposit programs are in place. Buy-back centers can be permanent or mobile facilities. Permanent buy-back centers function as an intermediate collection point/processing center taking materials in and distributing them directly to the end processors. At a minimum, a buy-back center requires scales and containers for weighing and storing the recyclables. Other equipment requirements are dependent on the approach, or the combination of approaches used. Local governments incur no costs associated with the use of buy-back centers since they are privately owned. While paying the public for recyclables provides an incentive to some who would otherwise not recycle, low material recovery rates are typical of these facilities. Market prices may significantly affect participation. Since Maryland does not have any redemption/deposit system in place for recyclables, there are no buy-back centers in the state.

### 4.3.4 Materials Recovery Facility (MRF)

A material recovery facility or "MRF" processes recyclables that have been source-separated from the waste stream. MRFs receive and process recyclables that have been source-separated from the waste stream. They vary in level of sophistication from "recyclable transfer stations" to highly mechanized processing plants for commingled recyclables. Equipment requirements are based upon the level of separation of the incoming recyclables and the type and quality of recycled materials required. Most MRFs will include concrete storage bunkers, compaction, and baling equipment. Sophisticated MRFs can include conveyer lines, screening and picking stations, electromagnetic separators, infrared separators, and air classifiers as previously described for the MWPF.

As with the MWPF, capital and operations costs vary over a wide range, dependent on the level of technology employed by the facility. MRFs generally produce a higher quality of recyclable materials than a MWPF; therefore, capital and operations costs are significantly lower. There is better control over the types and sources of waste that is accepted. In addition, environmental impacts, including odors, are less of a concern than with a MWPF. However, in order to utilize the MRF concept, residents and businesses must separate recyclables from their waste stream prior to collection.

### 4.3.5 Construction Debris (C&D) Processing Facility

A large portion of land-clearing, construction, and demolition debris, also known as rubble, waste, is recyclable. A few examples of recyclable rubble materials include wood, paper, concrete, asphalt, gypsum wallboard, and glass. These wastes are most often mixed when received from project sites, creating an obstacle for recycling. Some separation of wastes can be accomplished at the job site by encouraging contractors to segregate major recyclable components in separate disposal containers. However, segregation of wastes at demolition sites is an expensive, labor-intensive process. Alternatively, a central rubble MRF can be established to separate and process the recyclable components of the rubble waste stream.

C&D is not as amenable to the highly mechanized separation technology used in some municipal waste MRFs. Since the rubble waste is generally large, bulky, and heavy, sorting equipment is limited to front-end loaders, dozers, and human labor. Processing equipment can include grinders, balers, crushers, shredders, and chippers depending on the level of processing at the facility.

Wood waste makes up a significant portion of the rubble construction debris, including pallets, stumps, and brush from land-clearing operations. Large tub grinders and woodchippers are often used to reduce these

wastes to wood chips for marketing. Chips can be marketed as fuel, mulch, and animal bedding. Depending on the market, painted, or treated wood products may be excluded from the chipping operation. In addition, magnetic separation of metal wastes (e.g., nails from pallets) is often used. There are several permitted wood processing facilities currently operating in Charles County, as shown in Table 4-1.

Table 4-1 - Permitted Wood Processing Facilities in Charles County

| Permitted Wood Processing Facilities in Charles County | | | | | |
|---|---|---|---|---|---|
| AI No. | Facility Name | Permit No. | Permit Expiration | Site Acreage | Site Location |
| 36735 | Calvert Wood Recycling, LLC | 2016-NWW-GP01 | 4/3/2021 | 8.5 | 6585 Ripley Rd, La Plata, MD 20646 |
| 66095 | Beuchert Excavating, Inc. | 2019-NWW-GP01 | 3/5/2024 | 12.5 | 12340 Crain Hwy, Newburg, MD 20664 |
| 22,039 | Mona Recycling | 2019-NWW-0002 | 10/31/2024 | 8 | 6970 Our Place, Port Tobacco, MD 20677 |
| 159,237 | Chesapeake Environmental Materials, LLC | 2017-NWW-GP01 | 11/15/2022 | 12 | 12110 Forgotten Farm Place, St. Charles, MD 20602 |

*Source: Maryland Department of the Environmental Natural Wood Waste Permits. (April 2019). Retrieved from: https://mde.maryland.gov/programs/LAND/SolidWaste/Documents/NWW_Recycling_Facilities.pdf*

Paper waste is primarily corrugated materials which can be easily baled and readily marketed after separation from the rubble waste stream. Contaminated and plastic-coated cardboard must be excluded. Recycled paper products are made with the recovered paper waste.

Asphalt roofing waste has a high resale value due to the high percentage of petroleum; however, recycling has not been widespread due to problems associated with the removal of contaminants (e.g., paper backing, stone, gutter scraps, and nails). Sorted shingles and aggregate are mixed, reduced in volume, and passed over magnets to remove metals. The recovered asphalt can be used to manufacture paving products.

Metal waste is separated into the various types (e.g., ferrous, aluminum, copper) and marketed to scrap metal dealers. The scrap metal is used to manufacture new metal products.

The volume of concrete in rubble is highly variable. Waste concrete can be crushed and then passed over magnets to remove rebar and wire which is marketed to scrap metal dealers. Crushed concrete can be used as aggregate for septic fields, driveways, pipe bedding material, and landfill roads.

Plastic materials are sorted, baled, sometimes shredded, or crushed, depending on the market, and used to manufacture new plastic raw materials and/or products.

Earth materials such as soil and yard waste can be used as landfill cover or sent to a yard waste composting facility. Other products recovered from the rubble waste include the following:

- Bricks - Crushed and used as aggregate or ornamental stone.
- Carpet - Landfill cover.
- Glass - Ground and used to manufacture fiberglass insulation, for sand blasting, or asphalt aggregate.
- Gypsum Wallboard - Crushed and used as agricultural gypsum, wallboard, or cat litter.
- Porcelain - Crushed and used as concrete aggregate.
- Tires - Shredded and used in roadways, to manufacture rubber products (e.g., bumpers, mudflaps, car mats, shoes, gloves).

C&D rubble recycling reduces the amount of land required for landfills and extends the life of existing facilities and provides a beneficial use for materials that would otherwise be considered waste. However, depending on available markets, costs for this technology may exceed costs for landfilling.

### 4.3.6 Commercial Recycling

Recycling is provided in the commercial sector primarily through private industry contractors who collect and market recyclables for large- and small-scale businesses. Many smaller businesses collect material and take it to publicly operated recycling centers to minimize costs. Larger businesses and shopping centers often ship recyclables directly to markets.

### 4.3.7 Assessment of Current Recycling & Source Separation Programs

In 2019, 60,671 tons was recycled in Charles County, with 33 percent from the residential sector and 67 percent from the commercial sector.

The Charles County recycling program consists of the following areas:

#### 4.3.7.1 Collection

A combination of curbside collection and citizen drop-off locations collect newspaper, telephone books, office paper, cardboard, textiles, glass, metals, plastics, electronics, batteries, white goods, used oil and antifreeze, yard waste, and tires. The implementation of “single stream” recycling at the curb and centers increased convenience by eliminating the need to presort, making it easier for residents to recycle. There are currently nearly 48,200 residents served by the curbside recycling program, and a total of approximately 1,500 households that are currently contributing to the Environmental Service Fee as part of their property tax but are not receiving curbside services. The gap between those who pay for the recycling program and those who are served by the curbside collection service is an indication that the service area should continue to expand and will be addressed as one of the recommendations.

As required by law and described in Chapter 3, the apartment and condominium officials of multi-family properties with 10 or more units, must continue to ensure the collection and transportation of recyclable materials from apartment and condominium locations to markets, or other legal recycling destinations, and are responsible for the marketing or other legal recycling and waste disposition of their recyclables as well.

#### 4.3.7.2 Processing

The County operates a mulch facility that processes recycled yard waste collected within the County. The County uses the composted material on the public grounds and athletic fields and offers free mulch to the public.

#### 4.3.7.3 Public Education

Charles County conducts a variety of public education programming aimed at community leaders, business organizations, large commercial generators, schools, residents, to promote participation in the recycling effort. The DPW responds to direct requests for classroom and community organization visits. The DPW also attends the Charles County Fair and posts litter control and waste reduction information on social media.

#### 4.3.7.4 Market

The County regularly monitors the recyclables market to ensure the best price. Factors including transportation, traffic, processors acceptance standards, and the amount of material available are all part of the County's analysis when evaluating the best possible market, but there are not a lot of options available at present, which makes it difficult for the County to compare vendors, leaving the assessment limited.

## 4.4 Resource Recovery

Resource recovery is using waste as an input material to create products as new outputs. The aim is to reduce the need for raw materials as well as the amount of waste generated, thereby reducing the need for landfill space, and optimizing the values created from waste. Materials found in municipal solid waste, construction and demolition waste, commercial waste and industrial wastes can be used to recover resources for the manufacturing of new materials and products. Plastic, paper, aluminum, glass, and metal are examples of where value can be found in waste.

### 4.4.1 Yard Waste

Yard waste composting is becoming an increasingly popular waste management option as communities look for ways to divert this portion of the waste stream from landfills. Composting is a simple, low-cost operation which can handle large portions of the waste stream and significantly benefit other waste management operations environmentally and economically. The availability of and access to outlets which will use or purchase compost is fundamental in determining composting program success. Typically markets include farms, nurseries, municipal operations (parks and landfills). Although compost can generate revenue, the revenue is not likely to exceed the cost of collecting, processing, and distributing the compost. However, reduced disposal costs and environmental benefits are attractive features of yard waste composting.

Yard waste compost is a material which has undergone a biological decomposition of organic matter and is stabilized to the stage of being beneficial to plant growth. Composted yard waste products can be generated for use as a mulch, soil amendment, topsoil, or potting soil. A proper balance of environmental conditions is required to ensure successful composting. The following four factors are critical to the composting process:

1. Moisture - Too much or too little may slow down the composting process.
2. Oxygen - Required for the bacteria to decompose the organic material.
3. Nutrients (nitrogen-to-carbon ratio) - A balance of thirty parts carbon to one part nitrogen promotes efficient composting (e.g., grass clippings have a higher nitrogen- to-carbon ratio than do leaves).
4. Temperature - Self generated heat from the bio-decomposition of the waste material naturally rises as the action of the microorganisms increase. This increase has the positive effect of

enhancing decomposition and destroying weed seeds that may be present in the material being composted.

Types of yard waste includes leaves, wood, and green waste such as grass clippings, sod, hay, straw, weeds, brush, and hedge clippings. Leaves and wood generally decompose slower than green waste. Wood waste is the slowest to compost because of its density and its high carbon content and low nitrogen content. Green waste is an excellent source of nitrogen and moisture for the composting process. When mixed with leaves and woody material which lack these ingredients, the overall process is enhanced.

The types of compost from yard waste includes mulch, soil amendments, and soil mediums. Mulch is partially decomposed wood waste which can be used as a barrier to retain moisture and insulation to protect plants. Types of mulch includes bark, wood chips and shredded wood. Bark is generally ground or broken up into small pieces rather than chunks; wood chips are generally derived from wood/brush chipping equipment; shredded mulch is produced by running woody material through a tub grinder and is then composted to stabilize the material.

Soil amendments consist of compost that is mixed with soil to improve the physical and nutrient characteristics of the soil. Examples of soil amendments include humus and screened compost. Humus is a dark, rich, well-decomposed organic material; screened compost is the peat-like, fine portion of composting material that has been screened from large, woody particles.

Soil mediums are typically a mixture of soil amendments such as compost, sand, and vermiculite to produce planting mixtures and potting soils.

Composting of yard waste has a variety of benefits: it is a low-cost operation and saves valuable landfill space. Composting has minimal operation and maintenance requirements. The final product is useable and is potentially marketable. However, yard waste composting has the potential for odor problems. Furthermore, markets for compost may vary and excess compost may require a separate storage area.

#### 4.4.1.1 Yard Waste Processing Technologies

Yard waste composting technologies range from small scale backyard systems to larger scale systems for processing waste within a regional area. Models for processing yard waste include:

##### 4.4.1.1.1 Backyard Composting

The type of backyard system is only limited by the imagination of the homeowner. Systems include the following:

- Backyard windrows - elongated piles constructed by layering.
- Cylindrical pens - using woven wire to form a cylindrical pen and layering materials within the pen.
- Perforated steel drums partially filled with compostable material. The drum is rolled to provide for aeration of the compost.

##### 4.4.1.1.2 Low-Level Technology for Large Scale Operations

Process involves forming large windrows (12 feet high by 24 feet wide) that are turned once a year with front-end loaders. Compost is ready for use in approximately 1 to 2 years. This technology requires little attention and is relatively inexpensive. The space required for this technology is also minimal in comparison to the other technologies. However, odor is a common characteristic due to the infrequent turning.

#### 4.4.1.1.3 Mid-level Technology for Large Scale Operations

Process involves medium size piles (6 to 7 feet high by 15 to 18 feet wide). The composting process is completed in approximately 16 to 18 months. Piles are turned more frequently, hence the odor problem occurs less frequently.

#### 4.4.1.1.4 High-Level Technology for Large Scale Operations

A multi-step control approach involving grinding, shredding, and frequent windrow-turning. Additional process control is provided through moisture addition and temperature monitoring. Compost is ready for use in 3 to 6 months. Capital and initial operating costs are higher due to the additional shredding, grinding, mixing, and screening equipment.

### 4.4.1.2 Costs

The planning of yard waste composting programs must take into consideration four cost components:

- Capital cost of processing facilities and possibly transfer stations
- Annual site operation and maintenance costs
- Annual yard waste collection costs
- Annual product marketing costs

The capital cost of the compost processing facilities will vary widely depending on the sophistication of the process used, the amount of waste received, and the type of waste received. A careful evaluation of options versus cost implications is required when planning and financing such facilities.

Site operational costs are more predictable, and these typically range from $2 to $5 per cubic yard of material produced, exclusive of collection and marketing costs. Generally, the greatest cost associated with yard waste management arises from waste collection. Curbside pick-up can represent as much as 75 to 80 percent of total project costs. Typical collection costs can range from $8 to $20 per cubic yard of waste.

Marketing costs will vary and will be a function of the demand for the material, influence of competing products, quality of the material produced, and the desired revenue. Marketing costs are minimal when compost products are used by government agencies or when "giveaway" programs with citizens consume all of the product. If revenue is derived from product sales, increasing levels of marketing are required. A good rule of thumb is that wholesale "bulk" marketing results in the high-volume sales and low revenue; whereas wholesale "bagged" marketing results in low volume but high revenue.

### 4.4.1.3 Evaluation of Existing Yard Waste Composting Program

Yard waste is estimated to comprise approximately 16 percent of the residential waste stream and nearly 25 percent of the commercial/industrial and institutional waste stream. The solid waste management objective is to recycle all yard waste, in order to keep it out of the Landfill. This means that as much material must be mulched as possible. All residents that currently receive municipal curbside recycling service also receive yard waste collection services.

An organics waste composition study is needed to provide information for detailed planning of collection and processing systems that will be necessary to reinstitute composting of yard waste in Charles County. When a characterization study is completed, a more definite assessment of the feasibility of an organic composting system can be made. Once an organic composting system is in place, increasing participation from the commercial sector and expanding the collection system throughout the County can help raise the yard waste composting rate.

### 4.4.2 Food Waste and Mixed Organics

On a local, state, and federal level, there is a growing public consensus that food and organic waste must be taken out of the waste stream and repurposed for productive use. There is an ever-growing number of legal, administrative, and funding tools to help municipalities implement mixed organic waste recovery programs. Therefore, over the next decade, it is likely that organics recycling will increase for County residents, businesses, and institutions, either in order to comply state regulations, and/or due to cultural shifts through which the public will demand increased organics recycling.

Composting is a natural process whereby microorganisms break down organic matter in aerobic conditions. The composting process starts with grinding the incoming material and mixing it with bulking agent and composting inoculum. This material goes through three stages of processing: active composting, curing, and screening. The full cycle lasts up to 150 days.

Five (5) factors that influence the composting process are moisture, oxygen, temperature, carbon to nitrogen balance, and particle size. The type of waste used for composting determines the carbon to nitrogen balance and particle size. Large composting facilities must screen waste received to ensure nonorganic material (contamination usually found in food waste deliveries) is not present. Prepared waste material then goes through the composting process where moisture, oxygen, and temperature are controlled to create a product. Yard waste such as green waste, plant material, and woody waste traditionally have been the most common feed materials for composting. The addition of food waste as a feed material has become more prevalent recently and more facilities have started to accept and incorporate it into the composting process. Biosolids have also been used as a feed source for composting.

The most commonly implemented composting systems are:

- Traditional Windrow
- Aerated Static Pile
- Covered Pile
- In-Vessel Composting
- Anaerobic Digestion (AD)

There are different products that are generated as a result of different composting methods. Different qualities of composts have different certifications or grades. Composting products that are produced and sold are assigned one of three grades: Grade 1, Grade 2, or Waste Grade. Each grade has different standards that must be maintained. Grade 1 compost has the strictest level of standards, and the standards loosen as the product moves from Grade 1 to Grade 2 to Waste Grade. Waste Grade compost does not have set standards but is classified as compost that fails to meet Grade 2 standard requirements. Compost produced from biosolids has stricter standards, since it has a higher potential risk for odor, contaminants, and pathogens. Similar to grades, the different certification levels for compost are based on quality, the higher the quality the higher the certification level. Each grade and certification of compost can be used for different uses, such as compost, stormwater management, and landscaping. Specifications can be found through the U.S. Composting Council.

The products of the AD process are similar regardless of the type of AD technology used. Some of the solids are converted to biogas, and the remaining solid and liquid materials are discharged from the AD system. These materials are referred to as “digestate.” The volume of the digestate is typically similar to that of the original waste stream. The total solids of the digestate is generally slightly lower than that of the original waste stream, due to the conversion of some of the solids to biogas and the breakdown of some of the

physical structure of the remaining solids. Suspended solids can be separated from the digestate stream and processed to produce compost, dried and pelletized or combusted as a fuel, or land applied directly as a soil amendment. In the case of dry AD, most of the liquid material is kept within the process (closed loop) and the solid fraction can be directly composted and used on several applications, subject to its quality and regulatory approvals. The liquid fraction of the digestate can be treated by conventional wastewater treatment technology or land applied as a soil amendment. Depending on the characteristics and composition of the waste stream, digestate can be beneficial as a soil amendment, due to the fact that the AD process does not remove typical fertilizer nutrients such as nitrogen, potassium, or phosphorous from the waste stream. In some cases, the AD process can increase the value of the waste stream as a fertilizer by converting the nitrogen bound in the organic material to a form that is more readily absorbed by plants. The most beneficial method of processing and disposal of AD system digestate is highly dependent on the characteristics of the waste stream and must be evaluated on a case-by-case basis.

The biogas produced by the AD process contains varying concentrations of methane (around 60%), carbon dioxide, hydrogen sulfide, water vapor, and trace amounts of other gases, depending on the type of AD system and the characteristics of the waste stream. Biogas can be a valuable product of the AD process, due to the combustible properties of methane. Biogas can be combusted directly in a boiler; processed to remove the water vapor and corrosive gases and combusted in a reciprocating engine or turbine; or further processed to isolate the methane and used as a substitute for natural gas. Use of the biogas in a boiler or combined heat and power (CHP) generator can be beneficial, as some of its thermal energy can be used to support the AD process (typical AD systems require the waste stream to be maintained at temperatures between 95- and 120-degrees Fahrenheit). Processing of biogas to produce a natural gas equivalent can be beneficial as methane isolated from biogas and purified to commercial standards, referred to as renewable natural gas or RNG, can be injected into the natural gas grid or compressed and used as a vehicle fuel. The production of RNG may be eligible for various environmental credits and tradable commodities.

### 4.4.3 Solid Waste Composting

There are no county or regional solid waste facilities that manage solid waste composting operations. The County has no plans to initiate this type of operation during this planning period.

### 4.4.4 Waste to Energy (WTE) & Municipal Waste Combustion

Before 1970, municipal waste incinerators in the United States were refractory-lined units that functioned solely to reduce the volume of waste destined for disposal. Over the past several decades, only "waste-to-energy" facilities that produced steam and/or electricity through the combustion process are present in the U.S. The most often technology used has waterwall combustion chambers that recover the heat from burning the waste to generate steam that is either sold directly, used to drive turbines to generate electricity, or do both called cogeneration.

The primary environmental benefit of waste-to-energy facilities is the conservation of natural resources and environmental protection. Solid waste that would otherwise end up in a landfill is used to generate energy, thus conserving fossil fuels. After combustion, the volume of material requiring land disposal is reduced by 85 to 90 percent. Additionally, greenhouse gas emissions from a WTE facility are significantly lower than from waste disposed in a sanitary landfill.

Both mass-burn and RDF systems (described below) are commercially proven, as evidenced by the number of commercial-scale facilities in operation and their cumulative years of operating experience. Particularly for mass-burn systems, there are vendors with strong business positions and significant amounts of

construction and operational experience. Biomass processing into biogas and gasification for fuel and chemical production have been commercially viable for nearly 10 years, and are increasingly being developed in communities across the U.S.

Waste-to-energy facilities are net energy producers, although they cannot produce electricity on the scale of a normal-sized fossil-fired power plant. Revenues from energy sales usually cover a portion of the plant's operating expenses and debt service. Improvements in air pollution control technology have resulted in significant reductions in the quantities of major air pollutants emitted from waste-to-energy facilities.

The primary environmental issues associated with municipal waste combustion are air pollution and ash disposal. Because of these issues, there is often significant public opposition to the operation of municipal waste combustion facilities. Waste-to-energy facilities are difficult to site and permit; the amount of time required for siting, permitting, and construction is considerably greater than for other waste processing and disposal technologies. The capital cost of a waste-to-energy facility is substantially greater than for any other waste disposal alternative considered in this Plan.

#### 4.4.4.1 Technologies for Waste to Energy

There are two types of facilities used for the incineration of municipal solid waste; a mass-burn facility and a refuse derived fuel facility. These types of facilities are described in the following sections, as well as other critical considerations.

##### 4.4.4.1.1 Mass-Burn Facility Operations and Equipment

Mass-burn facilities can be constructed and operated with or without energy recovery. The singular identifying feature of mass-burn facilities is they do not process incoming waste prior to combustion. Incoming waste is dumped into a tipping pit and fed into a charging hopper using a crane or conveyor. The crane removes bulky and non-processible objects (white goods, sofas, tires, etc.) and sets them aside for recycling or landfill disposal. The remaining waste is transferred from the pit into the furnace by a horizontal moving ram.

The furnace is designed to continually agitate the waste as it burns. Waste particles are very heterogenous in size and agitation is required so that complete or near-complete combustion is achieved. Within the furnace, the waste tumbles down a series of stepped grates, and is shoved along by horizontal rams to maximize the rolling action. Controlled quantities of air must also be supplied to the furnace to support combustion.

In a waste-to-energy mass-burn facility, the hot flue gases created by the combustion process rise upward through the furnace into the boiler, where they transfer heat to water-filled tubes. In many facilities, the tubes are located in the boiler walls, a configuration aptly known as a waterwall boiler. Both stationary and rotating waterwall units are commercially available, though stationary units are much more common. One key advantage of the waterwall design is that by absorbing the heat created, the tubes help protect the boiler walls from thermal destructive effects such as slagging. As a result, less excess air is needed for cooling the furnace (too much excess air generally will lower a boiler's energy production efficiency).

After passing through the boiler, the flue gases travel through a superheater, where they increase the energy content of a portion of the steam previously manufactured by the boiler. They are then directed through air pollution control equipment, such as scrubbers and fabric filter baghouses, and discharged to the atmosphere via a stack.

The steam produced in the boiler and superheater can be used for industrial process purposes, central steam heating, or to generate electricity by channeling it through a turbine. The turbine- generator and steam circulation systems employed at mass-burn facilities are identical to those used at fossil fuel power plants. The quantities of steam and/or electricity produced largely depend on the waste capacity of the facility.

As in any combustion process, a solid ash residue is produced. Bottom ash is formed by combusted material that exists at the bottom of the furnace chamber, while fly ash consists of ash and other solids captured from the boiler and air pollution control equipment. Fly ash often is treated by processing it through a pug mill, where it is wetted and reduced in size. Bottom ash may be passed under a magnetic separator and through a trommel screen to recover ferrous and non-ferrous metals for recycling. The ash streams may either be combined prior to shipping them to a landfill or shipped and disposed independent of each other.

#### 4.4.4.1.2 Refuse Derived Fuel Facility Operations and Equipment

The fuel properties of mixed municipal solid waste can be improved by reducing it to particles less than six inches in length and removing the materials that have little or no heat value. This is precisely what refuse derived fuel (RDF) processing facilities are designed to accomplish. An auxiliary function is the recovery of recyclables, although modern RDF facilities do not sort out nearly as much recyclable material as mixed waste processing or even municipal solid waste composting facilities.

Municipal solid waste is dumped onto a tipping floor where front-end loaders and dozers compact the waste and push it onto in-feed conveyors. Bulky and non-processible items are segregated either on the tipping floor or are lifted off the in-feed conveyor by cranes at designated picking stations. The bulk of the waste enters a series of shredding and screening machines, which convert between 60 and 80 percent of it to loose RDF. Equipment utilized in the processing lines often consists of the following:

- Low-speed shredders of flail mills for breaking open bags of waste.
- High-speed hammermill shredders which use rotating hammers to drive waste through fixed grates, thus pulverizing it to the size of the grate openings.
- Overhead magnetic separators, which recover ferrous metals. They either may be of the belt variety (like those at MRFs), or they may be rotating beltless drums which function in essentially the same manner as the belt separators.
- Trommel screens, similar to those used in the pre-processing areas of municipal solid waste composting facilities.
- Steel-belt and rubber-belt conveyors, which transfer the waste between the different pieces of processing equipment.

The processed RDF consists of paper, plastic, and other particles one to six inches in length. Fine particles (those under one inch) typically consist of non-combustibles such as dirt, food waste, and broken glass. This material is screened out by the trommels and deposited on conveyors, which load it into trailers for shipment to landfills. Ferrous metal is also collected on separate conveyors and transferred into waiting trailers for shipment to scrap markets.

After processing, the RDF normally is stored on a second enclosed tipping floor. This is an obvious difference from mass-burn systems, where the fuel product (raw waste) is stored in a pit. The RDF is pushed onto in-feed conveyors by front-end loaders and enters a feeding system, which may be a complicated series of vibrating screens, auger conveyors, and pneumatic feeders. The purpose of this system is to carefully regulate the flow of RDF into the combustion chamber, thus maximizing combustion efficiency.

The furnaces and waterwall boilers utilized at RDF combustion facilities are similar to those at mass-burn plants. However, in RDF combustion systems, much more of the fuel burns in suspension (combusts while airborne in the furnace), as opposed to on the grates. In addition, RDF boilers do not need to accommodate the larger, heavier objects from the waste stream since

- RDF boilers are generally smaller than those at mass-burn facilities.
- Only one set of moving grates is typically employed (i.e., there is no stepped series of grates).
- The grates themselves are of less-rugged construction than those used in mass-burn systems.

Steam generation, air pollution control, and ash handling systems are similar in design to those used at mass-burn facilities. There are a number of other general differences between RDF and mass-burn facilities:

- Because some components of the waste stream with poorer heat value and combustion properties are removed during pre-processing, RDF facility will produce approximately 5 percent more energy than an equivalently sized mass-burn facility.
- Because RDF processing is a more mechanically complex process, RDF systems often exhibit lower availability than mass-burn systems. As with mixed waste processing, very complex processing lines tend to have more mechanical shutdowns and lower overall availability.
- Due to the relative complexity of the pre-processing systems, RDF systems require operators with greater skill and experience.
- Because processed RDF is stored on a separate tipping floor, a larger site is required than for a mass-burn facility.
- RDF facilities may send a greater percentage of their incoming waste stream to landfills, since they screen out the finer materials with poor combustion properties. In a mass-burn system, much of this material will come out in the ash, but some of it may burn and not have to be landfilled.

#### 4.4.4.1.3 Biomass Processing into Biogas

In this process, MSW is delivered by collectors and sorted twice. The first sorting removes unsuitable materials. The waste is then solubilized, or “pulped.” The second sorting process removes recyclable materials which did not hydrate in the pulping process. These materials can be marketed as recyclable commodities. The remaining organic biomass becomes either a feedstock for anaerobic digestion, wherein biogas is produced, or a feedstock that can go through additional processing for production of other biofuels or biochemicals.

#### 4.4.4.1.4 Gasification into Fuel and Biochemical Production

MSW and other non-recyclable feedstocks are minimally prepared and then gasified into syngas. The technology separates contaminants and water at this point, and the syngas is converted into a fuel for energy generation, such as methanol or ethanol, or to feed production of other products and materials. The fuel products can be used to power vehicles or other engines.

### 4.4.4.2 Costs

Capital costs for a waste-to-energy plant, as well as operation and maintenance costs, are generally high and vary greatly depending on the type of facility. Construction costs alone may range be around $125,000,000 per 500 tons of rated daily capacity (assuming $250,000 per installed daily ton).

#### 4.4.4.3 Feasibility in Charles County

With a daily waste stream of approximately 300 tons per day, processing of waste for generation of one or more energy products for decentralized use is most appropriate for Charles County. To capitalize and operate a mass-burn facility with any economic efficiency would require Charles County to procure additional tons from other out-of-county sources and become a net importer of waste. It would also require a transportation network capable of bringing the waste into the facility efficiently. More appropriate for waste-to-energy in Charles County would be a process that generates fuel (ethanol, biomethanol, etc.) or other valuable chemicals.

### 4.4.5 Landfill Mining

Landfill mining is the process of excavating waste from active or closed landfills to reduce their environmental impact. In the case of a sanitary landfill, areas that were filled prior to the implementation of waste-to-energy, materials separation, and recycling programs may contain combustible materials (for waste-to-energy); metals and other recyclable materials. In addition to recovering materials, landfill space and cover material (i.e., soil) can be reclaimed. This process requires excavation and hauling equipment, material separation equipment such as magnetic separators, optical separation systems (glass), balers, and crushers.

### 4.4.6 Assessment of Current Resource Recovery Efforts

Currently, in Charles County, the most robust resource recovery efforts pertain to yard waste recycling and processing. Furthermore, the approved FY2022 Capital Improvement Plan includes funds that are allocated for the evaluation of potential Landfill gas extraction and to design, permit and install a landfill gas to energy system, which will reduce methane emissions.

## 4.5 Land Disposal

### 4.5.1 Landfill Design and Operational Best Practices

Landfilling will remain an important component of every integrated solid waste management program. Source reduction, recycling, and resource recovery can significantly reduce, but not eliminate, the need for landfills. A municipal waste landfill contains compacted solid waste within an enclosed lined area to minimize potential adverse environmental impacts. All landfills within Maryland must satisfy requirements established for construction, operation, maintenance, expansion, modification, and closure as stipulated by MDE.

Despite environmental and public concerns associated with landfills, every integrated waste management system must have access to a landfill. Recycling, composting, and material separation and removal can divert significant portions of the waste stream from final disposal, but not all materials are recyclable. Combustion of solid waste significantly reduces waste volumes, but even the most advanced facilities must dispose of ash residues. Also, waste may need to be disposed of during plant shutdowns.

Today, municipal waste landfills are significantly more sophisticated than the open dumps of the past. "State-of-the-art" landfills use a variety of specific technologies and practices including:

- Liner Systems
- Leachate Collection and Removal Systems
- Leachate Treatment and Disposal Systems

- Leachate Recirculation
- Closure Techniques (i.e., reducing the amount of leachate generation)
- Gas Collection, Venting/Reuse, and Monitoring Systems
- Provisions for Closure and Post-Closure Care and Maintenance
- Ground and Surface Water Monitoring Systems
- Monitoring and Control of Materials Entering the Site

Municipal sanitary landfill construction and operations costs have increased dramatically over the past decade. Factors contributing to the rising landfill costs include:

- Stricter, more comprehensive environmental regulations.
- Increased public awareness and demand for environmental protection.
- Time delays, engineering, and legal costs in obtaining permits.
- Design of remediation measures at the existing landfill.
- Property costs for new landfill sites.

Typical costs for landfills include predevelopment, land acquisition, landfill development, construction, operating, and closure and post-closure costs. These costs vary over a wide range.

Pre-development costs are associated with site selection, investigation, and permitting costs. Land costs vary widely in Charles County. Remote, rural areas of Charles County generally have lower land costs but will have higher transportation costs. As environmental and legal requirements become more complex, the costs associated with obtaining a permit rise. The cost of obtaining a permit depends on the changing requirements of the federal and state regulations and the complexity of the site. The costs for developing a landfill can include roadways, fencing, monitoring wells, and on-site facilities.

Costs for construction of a municipal waste landfill are dependent on the following major activities including:

- Excavation
- Liner Construction
- Leachate Collection and Treatment/Disposal Systems
- Ground and Surface Water Monitoring Systems
- Stormwater and Sediment and Erosion Controls
- Ancillary Facilities and Equipment

The liner and leachate collection/removal system are generally the most expensive components of a landfill. Construction costs for a double-lined landfill are estimated to be in the range of $400,000 to $500,000 per acre.

Municipal waste landfills are a necessary element of solid waste management for Charles County. State-of-the-art landfills are more sophisticated and environmentally protective than the unlined landfills of the past. Cost on a per-ton-basis for municipal waste landfills are often substantially lower than other management options (e.g., incineration, composting). Other management options are generally more labor intensive, have more extensive maintenance requirements, and are more reliant on high-technology machinery.

However, landfilling represents a long-term potential liability, with the post-closure period extending for many years after the cessation of operation. Post-closure costs will be incurred annually during the time

that the County owns the property. Post-closure requirements include leachate collection and treatment, gas management, and groundwater monitoring. In addition, costs of construction are increasing, and the potential for adverse environmental impacts is present. Because of this potential, there is significant public opposition to siting new municipal waste landfills. A municipal waste landfill requires a substantial amount of land which is diverted from other beneficial uses.

### 4.5.2 Assessment of Existing Municipal Waste Land Disposal System

The Charles County Sanitary Landfill opened on July 1, 1994 in Waldorf, Maryland. This municipal landfill has several features which provide several environmental safeguards as well as serving the citizens more efficiently and effectively. The environmental safeguards include a composite liner of clay and a 60 mil HDPE membrane, a leachate collection system, two stormwater management ponds for the entire site, and a passive methane collection system. To better serve the citizens of Charles County, the landfill was built with a citizen disposal area on asphalt with a volume-based payment system named "Tag-A-Bag". A staffed recycling center that accepts a wide variety of materials, and a small drop off area on concrete for bulk loads of waste from pick-ups, van, and trailers. Dual scales expedite truck traffic with a fully computerized scale house.

See Chapter 3 for more information about the current and projected conditions at the Charles County Landfill.

#### 4.5.2.1 Charles County Landfill Cell 4 Construction

Cell 4 has been in the original landfill plan from its inception. Funding for this project has been approved in the FY 2022 Landfill Fund (see Figure 3-2), with $4,196,000 (47% of expenditures) allocated for landfill for the construction of Cell 4. The county is in the process of obtaining approval of the project from MDE. Upon approval from MDE, the construction process will take place in three phases, that will begin with the construction of Cell 4A in 2022. Cell 4 is approximately 18 acres large and will have a 1,518,200 cubic yard capacity (see Table 3-9).

### 4.5.3 Land Disposal for Rubble Waste

As specified in COMAR 26.04.07, rubble landfills may accept the following:

- Land-Clearing Debris
- Demolition Debris
- Construction Debris
- Asbestos Waste
- Household Appliances and White Goods

As with a municipal waste landfill, rubble landfill technology involves compacting and covering solid waste within a confined area. All new rubble landfills are required to have liners and leachate collection systems and existing rubble landfills must meet these requirements by July 1, 2001 or cease accepting waste.

Rubble landfills have requirements similar to those described for municipal solid waste landfills for separation to groundwater, stormwater management, and water quality monitoring systems. Waste is placed and compacted in lifts of up to eight-foot thickness; six inches of soil cover must be applied at least every three days and 12 inches of intermediate cover must be placed within one month of completing a lift. Final cover consists of a two layer of vegetated soil. Volume requirements for rubble landfills may be minimized through removal and recycling of certain components of the waste stream. Grinding and

chipping wood waste and shredding tires prior to disposal can also be employed to increase the density of the waste, thus conserving landfill space.

#### 4.5.3.1 Assessment Existing Rubble Disposal System

Not all of the rubble generated in Charles County is disposed at the County's Sanitary Landfill. This is due to two reasons: (1) there is no economic incentive; and (2) the County Commissioners have adopted a policy banning disposal of rubble from large commercial haulers in an effort to extend the landfill life. Small contractors and homeowners who have building construction debris utilize the landfill due to its convenience. Therefore, a significant percent of the waste that enters the Charles County Landfill is comprised of rubble and C&D waste. Currently, nearly 49,000 tons of Bulky Non-MRA waste enters the landfill. The majority of this waste is likely C&D and rubble.

### 4.5.4 Sludge Management

The Clean Water Act requires municipalities to cleanse wastewater prior to discharging it into the environment. This cleansing process generates sludge which in turn must be disposed or reused. Sludge management begins with sludge generation and continues through treatment, ending with reuse and/or disposal. When properly reused, sludge can be a valuable resource as a soil conditioner and partial fertilizer. The EPA and the MDE encourage the beneficial reuse of sludge wherever environmentally feasible.

For a treatment facility that receives primarily municipal wastewater, such as Charles County's Mattawoman Waste Water Facility, the quality of sludge does not limit the types of reuse/disposal options available. When treatment facilities receive large volumes of industrial waste, the facility does not generate a "clean sludge" (i.e., low concentration of metals in the sludge), thereby limiting the options available for sludge disposal.

The most common and accepted practices for the reuse or disposal of wastewater sludge include:

- Lime Stabilization/Land Application
- Heat Drying/Pelletization
- Composting
- Landfilling
- Incineration

#### 4.5.4.1 Evaluation of Current Sludge Management

The most cost-effective and environmentally acceptable sludge management disposal alternative is lime stabilization/land application. Capital expenditures and potential impacts associated with sewage sludge composting, incineration, and pelletization make these alternatives less feasible at this time. Additionally, Charles County has a policy that does not allow for the disposal of sewage sludge in the municipal waste landfill. For these reasons, the existing sludge management method of land application is, at this time, the most feasible option.

## 4.6 Siting New Solid Waste Acceptance Facilities

The following assessment considers the constraints imposed upon the establishment of new solid waste facilities by:

- Topography

- Soil types and their characteristics
- Geologic conditions
- Location
- Use and depth of aquifers
- Location of wetlands
- Location of surface water sources and their floor plains and watersheds
- Existing water quality conditions
- Incompatible land use
- Planned long-term growth patterns
- Federal, State, and local laws and areas of critical State concern (as designated by the Department of State Planning)

The decision-making process for selecting a solid waste management facility site involves the interaction of several factors. These factors include environmental, technical, economic, and socio-economic, and socio-political considerations. Site selection develops a hierarchy of factors influencing the decision and incorporates objective (quantitative) and subjective (value judgments) considerations into the evaluation of sites through a multi-level screening process.

- Environmental concerns deal with the effects that the facility will have on the ecosystem of the site and surrounding area and permitting requirements. It includes impacts on wetlands, groundwater, surface water, endangered species, archaeological sites, historical sites, and environmentally sensitive areas.
- Technical concerns involve the physical location and daily operational requirements such as access to roads, buffers, size and type of facility, soils, easements, sediment and erosion controls, stormwater management, and site utilization.
- Economic and Socio-economic concerns involve costs incurred to establish the site and the financial impact on near-by neighbors of the facility, particularly in comparison to any site being considered.
- Socio-political concerns deals with the reaction of local citizens, industry, and others to the siting process and final decision.

In order for the siting process to be effective, the methodology must consider the future impacts of the decision, involve the public, take conflicting views into consideration, and provide a usable tool with which county decision makers may make the final decision.

Site selection for a solid waste management facility is one of the most politically volatile issues that local governments face. Public attitudes and concerns are an integral part of the process of siting a new waste management facility. The public and political acceptability of the facility rests on the shoulders of the Charles County Commissioners and the local officials.

A sound framework for establishing a site is essential to providing the County and local officials with a solid foundation from which to arrive at a decision. Once the site decision is made, the County may continue forward to provide the community with an integrated solid waste management system.

The siting process for disposal and processing facilities involves a multi-level screening process. The first level screening process identifies areas in the County that are unsuitable for siting of land disposal and processing facilities based upon broad technical, environmental and land use criteria. If a site passes first level screening, it is subjected to more stringent site-specific screening criteria. The suitability of the site will

also be evaluated through the requirements of the MDE permitting process, Charles County Department of Public Facilities, Charles County Planning and Growth Management Department, Charles County Commissioners, and through extensive public review through the Charles County citizen groups. A detailed description of a General Procedure for Siting Waste Management Facilities is provided in Table 4-2.

Existing physical features and existing and planned uses of the land within Charles County affect the siting of waste management facilities. Solid waste management facility siting should be planned to minimize impacts on the citizens of Charles County and the environment. A brief description of these constraints imposed on solid waste acceptance facilities based on technical environmental and land use concerns follows.

Table 4-2 - General Procedure for Siting Waste Management Facilities

The process of site selection can be defined in stages or levels by which numerous possible sites is reduced to a few probable sites. Involvement of and communication with Charles County and citizens throughout the entire process is essential to provide input for the site evaluation planning parameters, determination of and ranking of site suitability criteria and the matrix evaluation process.

*Establish Site Evaluation Planning Parameters* as a framework for the site search direction. These parameters should include, but not be limited to, items such as size, service life, major areas excluded, minimum buffer zone requirements, compatible surrounding and adjacent land uses, preferred site distance from centers of development, acreage requirements.

*Data Collection of Baseline Information* including previous studies and reports and conducting meetings with the interested county departments, citizen groups, and regulatory agencies to discuss the proposed process.

*Prepare Land Use Opportunities and Constraint Maps* depicting technical, environmental, economic, and socio-economic concerns relevant to solid waste management facility siting.

*Identify Primary Potential Solid Waste Management Facility Sites* by a "windshield" survey, U.S.G.S. topographic maps, floodplain maps, aerial photographs, plat maps, zoning maps, project planning parameters, meetings with county officials, and regulatory agency representatives.

*Develop Screening Criteria* taking the planning parameters into account, several key factors may be identified in screening sites. Key factors which are common to solid waste management facilities are that the site should:

- Have a minimum impact on the community
- Be served by adequate road systems
- Be technically sound, environmentally suitable, and economically feasible
- Have the support of elected officials and citizens groups

*First Level Screening* (absolutes) involves an inherent constraint which does not allow a solid waste management site at the location due to conditions that, if found, would eliminate a site from further investigation. First level screening criteria may include, but is not limited to, highly developed areas, areas within 5,000 feet of an airport runway, areas within the 100-year floodplain, site boundaries with reasonable direct access beyond two miles of a major arterial road or transportation network, national parks, or critical environmental areas.

*Develop a Site Feasibility Matrix* to rank and provide a comparison of the sites based on the first level screening criteria. The site comparison will provide for elimination of non-feasible sites from further investigation. This site elimination is important as it would be inefficient (time wise and momentarily) to attempt to investigate all the primary potential sites in terms of the level two screening criteria. The end result is a listing of potential sites for further investigation as well documentation of the non-feasible sites and why they were eliminated.

*Conduct Field Inspection* of the potential sites with county officials and MDE officials.

*Second Level Screening* (non-absolutes) involves assessing the constraints which, by virtue of their nature, are not absolutely disqualifying. Second level screening is an evaluative process in qualitative and quantitative terms. Criteria for qualitative evaluation include, but is not limited to, buffer, easements, habitat impact, surface water quality impact, archaeological/historical, surrounding land-use, aesthetics (screening) and land ownership. Quantitative criteria are definable in terms of standard engineering practices and include haul distances, access, site size/shape, soils, availability of site resources (cover soil), site drainage, groundwater/aquifer impacts, site utilization, wetlands impacts, well inventory, proximity to sensitive areas, proximity to residential developments, and development costs.

*Determine Matrix Rating Methodology* for evaluation of the second level screening criteria as a joint effort of the citizens group, and county officials. Two of the more common matrix rating systems used are the ranking method and the rating method.

The rating method simply assigns an unweighted numerical value for each screening criteria (1 - very good, 2 - good, 3 - fair, and 4- poor). The numbers are tallied, and the lesser overall total is the most desirable site. This method assumes that each criterion is of equal importance.

The ranking system uses a weighted numerical value for each criterion. The impact factors (1 - negligible impact, 2 - less significant impact, 3 - significant impact, and 4 - most significant impact) are used to reflect the relative value of each screening criteria. The impact factor is then multiplied by the numerical rating criteria to provide a weighted value.

*Develop a List of Preferred Sites* based on the matrix evaluation of the sites, a selected number of sites should be selected for further analysis.

*Conduct a Workshop* with the Charles County Commissioners to present the findings and list of preferred sites and the recommendations of the consultant of the final sites for detailed investigation.

*Conduct Final Site Investigation* of the sites selected for detailed study.

*Conduct Public Participation* meetings to obtain community input into the decision-making process and to present site-specific data obtained in the final site investigation. The Charles County Commissioners shall oversee this meeting.

*Final Site Selection* shall be made by the Charles County Commissioners based on the final site investigation data, the recommendations of citizens groups, and public opinion. The site will be selected and procured by the Charles County Commissioners.

### 4.6.1 Topography

Charles County is located in the Atlantic Coastal Plain, therefore is a relatively low-lying area. Elevations range from 10 feet above sea level near the Potomac River to approximately 230 feet near Waldorf. Large portions of the County are exceedingly flat, with a gentle slope toward the Chesapeake Bay, or toward local drainage features. Broad plateau formations with sides dissected by drainage features are common throughout most of the County. This dissection reflects the nature of the soils underlying the County which are easily eroded clays, sands, and gravels. In some areas, dissection is incomplete and flat areas several miles across have not as yet been reached by headward cutting streams. Stream valleys affect local topography throughout the County.

Adjacent to the Potomac and Patuxent Rivers are low-lying flats not more than 10 to 25 feet above sea level. Steeply sided terrace formations are often present in these locations as well. These flats vary in width from a few feet where the river current of the Potomac washes strongly against the shoreline, such as is found at several locations in western Charles County near Indian Head and Potomac Heights, to more than a mile in the southern part of the County, such as Allen's Fresh. The interior of the County, along U.S. Route 301 from Faulkner to the Prince George's County line is predominantly flat. Outward from this plateau, dissection becomes more pronounced, and the land is gently rolling and hilly. Approximately 65 percent of the County is nearly level or gently sloping, 24 percent moderately or strongly sloping, and 11 percent is greater than 15 percent.

Landfill sites are generally located in topographic high areas, broad flat plateau areas, and areas which do not have steep ridges. Land which has slopes greater than 15 percent is not considered acceptable for landfills due to excessive site grading required to develop the landfill. Other waste management facilities are not as constrained by the slope of the land; however, cost factors associated with site work must be considered.

Low-lying areas along rivers and waterways may be regulated by federal, state, and county laws protecting these areas due to critical areas, tidal wetlands, and non-tided wetlands. Additionally, low-lying areas within the 100-year flood plain are not acceptable for development as a land disposal facility due to state and federal regulations.

### 4.6.2 Soil Types & Characteristics

Predominant soil types of Charles County are gravels, sands, silts, and clays. For landfills, the porous nature of the unconsolidated soils does not provide the impervious layer needed to contain leachate within the waste fill area. However, measures such as geomembranes, leachate collection and treatment systems, and monitoring systems aid in reducing the potential for migration of leachate into the environment.

The Charles County Soil Survey provides more detailed information on the types and locations of soils within the County which should be used for the initial stages of siting a landfill. Based on this survey approximately 19 percent of the County has soils with slight or moderate limitations for septic systems indicating that these soils are moderately permeable. The remaining 81 percent of the County is mapped as having poor drainage, and permeability. Approximately one-quarter of the County's land area is characterized as tidal marsh and swamp. However, this survey is somewhat limited as it is primarily concerned with the first 5 feet of the soil profile and more information is required before the final site selection decision can be made.

The properties of the soils on which a landfill is sited should be considered in planning, design, construction operation, closure, and post-closure of the landfill. Soil characteristics such as soil texture, erodibility, load-bearing capacity, resistance to slide, permeability, water table elevation, and quantity should be addressed

during the site selection process. Impermeable soils are desirable soils for the base of the landfill; however, landfill operations require a loamy or silty soil which is easily spread and compacted for cover material. Soil types for other waste management facilities are those which can provide adequate support for the building, structure, or concrete pad.

### 4.6.3 Geologic Conditions

Although landfill facilities can be engineered to be environmentally protective in most geologic settings, it is desirable to have sites in areas in which geologic conditions provide backup attenuation capacity. In Charles County, optimum geologic conditions for a landfill site include adequate depth to groundwater and the presence of a low permeability formation (aquiclude) beneath the site. Geologic conditions should be such that an effective groundwater monitoring system can be established.

The geologic formations beneath Charles County are composed of gravel, sand, silt, and clay. These materials have been transported by streams, particularly the Potomac River, from the Appalachian and Piedmont region west and north of the County throughout the geological history of the County and were deposited in the form of alluvial fans and deltas. Tidal and marine mud and silt layers overlay dense, hard crystalline, metamorphic, and igneous rocks of Precambrian age. The crystalline rocks are deep below the surface. Diatomaceous deposits are unique to this part of the state and are found throughout the County.

In the vicinity of Faulkner, there are unique surficial sediments which are a relatively young, thin veneer approximately 30 feet in thickness, occupying elevations of 30 feet above mean sea level and consisting of gravel, sand, and silt. These sediments were deposited by the eastward flowing Potomac River as the river migrated slowly southeastward to its present location. Beneath this granular deposit is the Calvert formation of the Chesapeake Group which is composed of the Fairhaven and Plum Point Marls. This formation overlies and tends to seal the surficial granular deposit from all of the older geologic units.

### 4.6.4 Location

Locating a site for a solid waste management facility involves the interaction of regulatory, environmental, technical, economic, and socio-political considerations. General regulatory, legal (laws), environmental, technical, and economic concerns for siting a waste management facility are discussed in other chapters of this plan. Socio-political considerations are dynamic and volatile. Charles County encourages and provides procedures and policies for public involvement in considerations associated with proposed solid waste management facilities within the County. In summary, the location of a solid waste management facility is governed by engineering, technical, and economic considerations which are generally straightforward with little controversy. As stated previously, these concerns are addressed in other sections of this Plan.

The socio-political issues are very dynamic and are a function of historic and recent events within the County. The variables for siting solid waste management facilities are that of socio- political issues which are constantly changing and are not easily documented.

### 4.6.5 Aquifers

The geologic formation underlying Charles County are sedimentary sands and gravels, capable of yielding substantial quantities of fresh water. There are five major water-bearing aquifers located in Charles County which slope from west to east. These aquifers are found in the Patuxent, Patapsco, Raritan and Magothy formations of the Cretaceous system, the Aqua Greenstone of the Eocene series, and in the Pleistocene deposits. Contamination of the aquifers within Charles County is a possibility due to geology of the area, and the numerous recharge areas.

### 4.6.6 Wetlands

Wetlands are of major importance to ecosystems in the County and Chesapeake Bay. The County has approximately 139,800 acres of wetland areas, of which approximately 81 percent are tidal, and the remaining 19 percent are non-tidal. The tidal wetlands provide a transition zone between dry land and open water. Non-tidal wetlands are referred to as inland or upland wetlands and included swamps, bogs, and hardwood forests. Solid waste management sites should not encroach upon, or negatively, impact wetlands.

### 4.6.7 Surface Water Sources & Watersheds

Charles County is bordered by the Patuxent, Potomac, and Wicomico Rivers, and has three lakes or reservoirs within the county limits with a surface area of approximately 171 acres. The three lakes, Jamesian, Trinity, and Wheatley were constructed for flood control as part of the Gilbert Run Swamp improvements. The use of the Patuxent, Potomac or Wicomico Rivers as a water source is constrained by their salinity concentrations.

Along these rivers are areas associated with the 100-year flood plain. Facilities located within the 100-year floodplain may hinder the flow, reduce the temporary storage capacity of the floodplain, or wash out the waste within the landfill and endanger human health and the environment.

Floodplains are not suitable for siting solid waste management facilities within Charles County. Federal regulations (CFR 40) contains provisions banning the location of solid waste facilities within 100-year flood plains. Additionally, Charles County's Floodplain Management Program establishes floodplain districts within the County and provides for the issuance of permits and imposes regulations on construction and development within these districts.

### 4.6.8 Existing Water Quality

As described above for aquifers and surface waters, poorly sited, designed, or managed solid waste disposal or processing facilities can cause water quality degradation. While current federal and state regulations and criteria for these facilities require design features to mitigate for potential water quality impacts, it is important, where possible, to site such facilities where they pose the least risk to drinking water supplies and other sensitive water resource areas.

As stated in the *Charles County Comprehensive Plan*, it is critical that the County improve and maintain water quality in the coastal, estuarine, and upper basin tributary streams. Prior to the establishment of any solid waste management facility in Charles County, each of these water quality issues should be considered.

### 4.6.9 Incompatible Land Use

Solid waste management facilities have the potential to create odor, noise, dust, and/or adverse traffic impacts for adjacent land users. Charles County is aware of the problems and nuisances which may be created by solid waste management facilities. The *Charles County Zoning Ordinance*, *Charles County Comprehensive Plan*, and requirements for public notification of potential new solid waste management facility locations will aid the County in reducing the possibility of adjacent incompatible land uses.

Similarly, new developments or land uses adjacent to existing solid waste management facilities must consider potential impacts due to any existing solid waste facility.

## 4.6.10 Planned Long-Term Growth Patterns

The *Charles County Comprehensive Plan* is the planning document designed to plan and direct the development of growth patterns within the County. The planned growth pattern is supported by the *Charles County Zoning Ordinance*.

Planning for land use and growth management in the County will provide the necessary guidance in siting solid waste management facilities. Using the County's development and growth management plan as a basis to site solid waste management facilities, provide assurance that projects do not impact or nullify the County's long-term objectives.

## 4.6.11 Federal, State, Local Laws & Critical Concerns

Critical concern areas established by the State of Maryland are classified into three categories:

- The first category includes those areas which can tolerate little or no interference from human activity due to physical or regulated constraints. This category includes marshes or endangered species habitats.
- The second category comprises conservation areas in which development that does not adversely impact the area, is allowed. Areas such as historic places or recreational areas are included.
- The third category includes lands which are designated for some future use. Generally, such sites are vacant and are designated as such due to its unique location or situation.

The development of a landfill within areas of critical federal, state, or county concern is not allowed due to regulatory requirements. However, certain solid waste management facilities may be located in these areas, provided the facility does not adversely impact the area. For example, recycling drop-off centers may be located within parks. Charles County has several areas considered to be of critical concern. These areas are discussed in the following paragraphs.

## 4.6.12 Additional Areas of Consideration

### 4.6.12.1 Airports

The *U.S. Department of Transportation, Federal Aviation Authority Order 5200.5, FAA guidance Concerning Sanitary Landfills on or Near Airports* stipulates the following criteria for sanitary landfills.

- Waste disposal sites may not be located within 10,000 feet of any runway end (used or proposed) to be used by a turbine powered aircraft.
- Waste disposal sites may not be located within 5,000 feet of any runway end used only by piston powered aircraft.
- Waste disposal sites may not be located within a 5-mile radius of a runway end that attracts or sustains hazardous bird movements from feeding, water, or roosting areas into, or across the runways and/or approach and departure patterns of aircraft.

### 4.6.12.2 Hospitals

The *Annotated Code of Maryland Environment Article, Section 9-225* prohibits the location of any landfill within a 0.5-mile radius of any hospital.

#### 4.6.12.3 Chesapeake Bay Critical Area

The Maryland General Assembly adopted the Chesapeake Bay Critical Area Law in 1984. The law requires that Charles County adopt and implement a critical area management program to protect the water quality and wildlife habitats of the Bay and its tributaries. The County is preparing a development guidance system for critical area growth allocations. The critical area is defined as the land along the tidal shoreline extending 1,000 feet inland of mean high tide or the landward boundary of tidal wetlands.

#### 4.6.12.4 Zekiah Swamp Management Area

The Zekiah Swamp originates in Southern Prince George's County and flows through Charles County forming the headwaters of the Wicomico River. The Zekiah Swamp is part of the watershed of the Wicomico Scenic River, originally designated in 1968 by the Maryland Legislature. The Smithsonian Institution in conjunction with DNR described the Zekiah Swamp as one of the most important ecological areas on the East Coast and the largest natural hardwood swamp in Maryland.

#### 4.6.12.5 Patuxent River

The County is participating with neighboring counties which border the Patuxent River in protecting the river's resources through land management strategies to control pollution within the watershed. The County was able to acquire an agricultural preservation easement on 222 acres through the State Agricultural Preservation Program and 615 acres with the State Open Space Program.

#### 4.6.12.6 Parks

Additional areas of critical concern include national, state, and county parks which are located throughout the county, including:

- Benedict Community Park
- Bensville Park
- Bryantown Soccer Complex
- Cedarville State Park
- Charlie Wright Park
- Doncaster State Forest
- Friendship Farm Park
- General Smallwood State Park
- Gilbert Run Park
- La Plata Park
- Laurel Springs Regional Park
- Mallows Bay Park
- Mattawoman Natural Environmental Area
- Mattingly Park
- Maxwell Hall
- Myrtle Grove Wildlife Management Area
- Oak Ridge Park
- Pinefield Park
- Piscataway National Park
- Pisgah Park
- Robert B. Stethem Memorial Park
- Ruth B. Swan Memorial Park
- Southern Park
- Strawberry Hills Park
- Thomas Stone National Park
- Tilghman Park
- Turkey Hill Park
- White Plains Regional Park

## 4.7 Public Education

Public awareness of, and concern for solid waste management issues has heightened considerably over the past 20 years. As a result, public opinion has played an important role in shaping public policy over such issues as the siting of solid waste management facilities, concerns over the increased cost of waste disposal, and widespread support for recycling. Informed and participating citizens is a key to a successful solid waste

management program. In its publication entitled, Decision Makers Guide to Solid Waste Management, the EPA makes the following recommendations regarding public information and involvement:

- Decision makers should involve the public early in the waste management planning process.
- Promotion and education programs should be tailored to the needs of each community and maintained throughout the year.
- Planning for public education and involvement requires that decision makers understand their audience, prepare a formal plan, and establish a method for evaluating the success of the programs.
- The public has a right and a responsibility to understand the full costs and liabilities of managing the wastes they produce.

Thus, the public should be involved in decision making with respect to solid waste management planning, and public education is critical to enable the public to make sound decisions.

In order to promote sound solid waste management practices and encourage waste reduction and recycling and other appropriate waste disposal behaviors, Charles County's public education program informs county residents, businesses, and institutions about related county policies and programs. The County's education program consists of press releases, television commercials, the County webpage, online banner ads, fliers, tax bill insert, mailings, public workshops, school visits, and seminars. Charles County also has a mobile phone app called "Charles County RECYCLES" provided by ReCollect, which provides solid waste management information to the public.

## 4.8 Comprehensive Plan Requirements

*Charles County Comprehensive Plan* is a general guidance tool and is not intended to provide specific guidelines concerning solid waste management. The Plan has established guidelines for the County to develop an integrated solid waste system. In general, the Plan encourages the search for short- and long-term solutions for solid waste management. It does not discourage the consideration of new technologies not addressed within it, nor of new developments in existing technologies that at present are not recommended, provided they are consistent with goals and objectives of the *Charles County Comprehensive Solid Waste Management Plan*.

## 4.9 Zoning Requirements

Charles County has recognized that solid waste management technologies are in a process of development and evolution. While land filling was the primary mode of solid waste management in past decades, today it is only one component of solid waste management. Solid waste management encompasses waste-to-energy facilities, recycling facilities, reuse facilities and composting facilities, in addition to the more traditional landfills. As technologies and practices evolve, the *Charles County Zoning Ordinance* may need to be revised and amended. Nevertheless, the objectives of the code will remain as stated above, and the County will endeavor to retain flexibility in its zoning provisions in recognition that facilities/processes and the property on which they are located can be tailored to become compatible with a wide variety of surrounding land uses.

### 4.9.1 Permissible Uses

Section 62 of the Charles County Zoning Ordinance states that "Uses such as incinerators, private prison, private landfills and rubblefills, toxic and hazardous waste disposal facilities, private sludge storage facilities,

and other uses that have similar impacts that are not listed on the Table of Permissible Uses are not allowed."

### 4.9.2 Minimum Zoning Standards

The *Charles County Zoning Ordinance Article IX: Minimum Standards for Special Exceptions and Uses Permitted With Conditions* articulates the relevant standards. The minimum standards supplement the base requirements for the zone in which the proposed use is located. The intent of the standards is to minimize the potential impacts which the solid waste management facility may have upon adjacent properties. Items such as minimum setbacks, buffer requirements, hours of operation, security (perimeter fencing), provisions for traffic access, and utility services are addressed.

# Chapter 5: Solid Waste Management Plan of Action

## 5.1 Action Plan Overview

An integrated solid waste management Plan provides specific management tools to handle various components of the waste stream. Numerous programs, which comprise the *Charles County Comprehensive Solid Waste Management Plan*, must be used in combination to complement each other. This plan includes a description of proposed programs and, where possible, a discussion about implementation and cost.

The *Charles County Comprehensive Solid Waste Management Plan* must respond to the requirements of the state-mandated recycling goals and all other federal, State and County regulations and laws. The goals and objectives illustrated in Chapter 1 address many of these requirements.

Based on the evaluations of existing and alternative technologies presented in Chapter 4, this chapter outlines a Plan of Action and Alternatives for the Charles County Solid Waste Comprehensive Management Program through the year 2031. The recommendations are grounded in the Schedule (Table 5-1) which lists the projected closure dates for the public solid waste acceptance facilities, as well as the dates for new solid waste systems coming online over the ten-year planning period.

Table 5-1 - Schedule

| Schedule | | |
|---|---|---|
| **YEAR** | **New Solid Waste Disposal Systems / Capacity** | **Closure of Solid Waste Acceptance Facility** |
| **2022** | Charles County Landfill Cell 4A Construction Start and Completion; Waldorf Recovery Facility planned opening; Mudd Facility phase for mulching; Tri-County Recyclables Depot planned opening | |
| **2023** | | |
| **2024** | Mudd Facility phased for Citizen Convenience area | |
| **2025** | Charles County Landfill Cell 4B Construction Start and Completion | |
| **2026** | Mudd Facility phased for Transfer Station | |
| **2027** | | |
| **2028** | Charles County Landfill Cell 4C Construction Start and Completion | |
| **2029** | | |
| **2030** | | Charles County Landfill Closure (Scenario: No Vertical Expansion; No diversion to transfer station) |

| | | |
|---|---|---|
| **2031** | | |

## 5.2 Public Outreach Summary

The public survey was made available online and was completed by 976 residents of Charles County. When asked to select a description of the area in which they lived, 31% of respondents selected rural, 63% selected suburban, and 6% selected urban.

Of the five goals for managing the County's solid waste, the following four were identified as Important to Very Important: preserve and protect the natural environment; protect human health and safety, and provide a quality living environment; provide a cost-effective, self-sufficient solid waste management program; promote recycling, waste reduction, and reuse of materials throughout the County. The following goal was ranked between Somewhat Important and Important: continue to explore the feasibility of the use and/or sale of methane gas from the County landfill. When asked if there are goals missing from the list, residents identified the need for tax-funded system for trash disposal that would prevent illegal dumping and littering, expanding the recycling program to rural currently underserved parts of the County, expanding the list of items that are recycled as well as recycling education for residents. Another comment made by a few respondents identified the problem of too many haulers in their neighborhood creating a nuisance and adding wear and tear to the roads.

Residents were asked about trash disposal at their homes, and of the respondents that do not have trash collection service at their homes, 6% said that it was not available where they live, 32% prefer to haul their own trash to the landfill or trash drop-off center, and 46% said that trash collection is too expensive. For those who would like trash collection service at their home, 30% said they would be willing to pay less than $10 per month, 28% said they would pay $10-$20 per month, 7% said they would pay $20-$50 per month, and 1% said they would pay more than $50 per month, with another 32% who answered that they didn't know or that it was not applicable.

The following haulers were identified as trash collectors by the survey respondents:

- Evergreen Disposal (51%)
- Ambers Disposal (19%)
- Waste Management (11%)
- Goode Trash Removal (6%)
- Town of La Plata (6%)
- TnT trash Service (2%)
- Town of Indian Head (2%)
- Other (2%)
- Burch Trash (1%)

There were a number of indicators in the public survey outcomes that suggest that the residents of Charles County are environmentally conscious and active. When asked about personal recycling practices, 83% of respondents said that they believe that it is their duty to recycle as much as they can, whenever they can, and only 2% said that they never recycle. Furthermore, 87% of residents answered that they were confident that they know which items are accepted by their recycling collector.

## 5.3 Proposed Solid Waste Disposal System

See Table 3-6, Table 3-7, and Table 3-15 for details about all the solid waste acceptance facilities currently operating in the County. The following facilities are proposed additions to the Charles County solid waste management system.

### 5.3.1 Mudd Resource Recovery Facility

The County is currently considering the construction of a County-owned Resource Recovery Complex (RRC) that would be in La Plata, Maryland. The anticipated project site is located along Mudd's Way off Radio Station Road, just north of Charles County Parks Department. The RRC would include a Mulching Area, a Citizen Disposal Area, a Transfer Station, an Office, and parking that are critical for the proper function of a mulching facility.

A mixed waste processing facility such as the proposed Mudd facility, recovers recyclables from the mixed municipal waste stream onsite. For a typical MWPF, mixed municipal solid waste is dumped onto the tipping floor and pushed onto a below-ground conveyor by a front-end loader. Usually, this waste must go through a bag-breaking operation, especially if the MWPF is receiving large quantities of residential waste. Bag-breaking can also be performed manually but is generally performed using specialized bag-breaking devices.

Initial pre-sort conveyors can provide the opportunity to find and separate out both recyclable materials like large corrugated and objectionable materials like propane and oxygen tanks.

Screening drums or other special equipment such as air classification units are used to separate the mixed waste stream, generally into two components:

- An "undersize" stream, which consists mostly of fine particles fewer than one or two inches in length. This stream contains fine aggregate materials (e.g., glass, stones, etc.) and compostables, such as soil and food particles.
- An "oversize" stream, which contains recyclable food and beverage containers, paper, film, plastic, and other large objects.

One of the primary objectives of this process is to separate the compostable components of the waste stream from the larger particles of paper and plastic that are more useful as fuel. Size classification can also help improve hand-sorting efficiency. Since the finer material has already been removed, sorters picking materials from the oversize fraction do not have to dig through as much material to reach and pick out the recyclables.

The first recyclable item that is typically removed is ferrous metal. The overhead electromagnetic separator is the device used almost universally in the industry. These separators, which are manufactured by a number of companies, consist of an electromagnet surrounded by a moving conveyor belt. The electromagnet attracts ferrous metals which "adhere" to the magnetic separator belt. The separator belt then dumps the metal onto another conveyor which transports it to crushing equipment or directly loads it into trucks for shipment to market. Since magnetic separators are not 100 percent efficient, some facilities station hand-sorters before or after the magnet to increase the amount of ferrous captured.

After the magnetic separation process, the remaining waste often proceeds onto hand-sorting conveyors. These are slow-moving conveyors, located 10 to 15 feet above floor level. The sorters stand on elevated

platforms that are adjacent to the conveyors and pick recyclable materials, which they then drop into chutes. The chutes convey the material to one of the following:

- Storage bunkers, located underneath the sorting conveyors.
- Processing equipment (e.g., glass crushers, aluminum can flatteners, or plastics granulators).
- Other conveyors, which transport the recyclables to processing equipment or storage areas.

Very often, MWPFs will receive loads of waste that are dry and contain primarily paper materials from commercial generators. The number of loads containing primarily dry material would be affected by the existence of programs that source-separate cardboard and paper. These dry paper loads can be baled and shipped to market after a minimal amount of sorting to remove contaminants. Such sorting can be done on the tipping floor (in the manner of the "dump and pick" MWPF). In other words, these loads do not have to be processed through the entire sorting system. Once they are baled, crushed, or otherwise processed, recyclables are either stored within the building or loaded directly into waiting trucks for shipment to markets.

The MWPF may further process non-recovered waste. Non-recovered waste which comes off the sorting conveyor may be shredded to make it easier to burn or compost. The loose, fluff-like material that emerges from the shredder is directed to an on-site fuel pelletization or composting process or loaded into transfer trailers for shipment to off-site fuel production or composting facilities.

Capital costs for a MWPF are highly variable dependent on the level of mechanization and sophistication of the facility, as well as land acquisition and site development costs. The primary advantage of a MWPF is the convenience to residents and business; therefore, there is no need to segregate wastes at the source. This typically results in higher recovery rates for recyclables. However, capital and operations costs are significantly higher than for a Material Recovery Facility (MRF). Contamination of materials is a problem, resulting in lower quality recyclables that are more difficult to market. MWPFs can and do operate in tandem with source separation and recycling programs. The potential exists for environmental impacts from odors, aesthetics, and contaminated runoff from the facility.

### 5.3.2 Waldorf Recovery Facility

In addition to the Charles County Landfill and the recycling centers, organic waste operations, and wastewater management infrastructure discussed in Chapters 3 and 4, a private C&D and MSW Transfer Station is proposed that would open during the planning period of this plan.

The proposed facility will accept the following materials: C&D, MSW, tires (if the facility is licensed by the State as a tire acceptance facility), soil, lumber, concrete, land clearing debris, and scrap metal.

Name: Waldorf Recovery Facility

- Address: Tax Map 8, Grid 17, Parcel 323, End of Chesterbrooke Court, Waldorf, MD
- Ownership: Property – Acton Sun Land, LLC or Assigns
- Operation Business: Acton Waste Solutions, LLC
- Proposed Operation: C&D Recycling and MSW Transfer Facility
- Materials Accepted: C&D, MSW
- Proposed Capacities: C&D – 400,000 tons annually, MSW – 400,000 tons annually

Tentative schedule:

- Permitting: Fall 2019 – Spring 2021

- Construction: Winter 2021-2022
- Opening: Summer 2022
- Financing: Privately Funded
- Acton Waste Solutions, LLC Recycling Facility

The Waldorf Recovery Facility is a proposed privately-owned facility developed on a 13.716-acre site located on Chesterbrooke Court in Waldorf. The facility will be privately financed and is expected to be in operation during the 2022 calendar year. This facility would need to be permitted by MDE for C&D Recycling and MSW Transfer. Truck traffic to and from the facility would be routed through Routes 5 and 301 and Acton Lane during its hours of operation. The facility would accept mixed and source separated materials from construction or demolition of structures, including wood, metal, cardboard, shingles, masonry, and drywall. All incoming debris will be weighed and inspected to ensure that only acceptable materials are delivered and deposited inside of the wholly enclosable building for sorting. Recyclable materials will be separated and shipped off-site for reuse. Up to 85% of the materials are expected to be recycled. The approximate 45,000 square foot building will be constructed on the site and shall utilize Leadership in Energy and Environmental Design (LEED) fixtures and components, such as LED or fluorescent lighting and low emitting materials for adhesives, sealants and like materials, as appropriate. Seasonal dust mitigation techniques shall be utilized. Stormwater impacts will be reduced through the utilization of buffers and other stormwater management features and shall comply with all applicable State and County stormwater regulations. The site will include stormwater management water quality controls for 100% of the site's impervious area. Stormwater management techniques will include landscaped bio-retention swales within the buffer areas.

The Waldorf Recovery Facility will meet all County permit requirements as well as comply with State and Federal requirements. This facility shall not accept liquids, paint, paint thinner, tar creosote, adhesives, animal carcasses, septage, biosolids, controlled hazardous substances, compressed gas cylinders, drums or tanks that have held hazardous materials, shock sensitive materials or explosives. Notwithstanding the foregoing, the facility may accept MSW from neighboring counties.

### 5.3.3 Tri-County Recyclables Depot

The Tri-County Recyclables Depot is a recycling transfer facility on a 3.1-acre site located on Hughesville Industrial Park Drive in Hughesville. The facility is privately financed and is currently operating as a single stream recycling transfer facility. This facility would need to be permitted by MDE for C&D Processing and Transfer Facility. Truck traffic to and from the facility would be routed through Routes 5 and 231 and Hughesville Industrial Park Drive during its hours of operation. The facility would accept source separated materials from construction or demolition of structures, including wood, metal, concrete, gypsum, masonry, plaster, and asphalt. All incoming debris will be weighed and inspected to ensure that only acceptable materials are delivered and deposited inside of the wholly enclosable 10,500 sq ft building for sorting. The facility staff will separate and ship off site some of the recyclables from the C&D Transfer Station. These recyclables will include scrap metal and old corrugated cardboard (hereafter, "OCC"). Scrap metal and OCC will be removed from the inbound C&D stream with an onsite skid steer equipped with a grapple attachment. These materials will be sent to a local recycler. The facility will utilize water to prevent the migration of dust from the property and will be the facility's main method of dust control. Additionally, the facility will ensure that the site is kept neat and tidy, ensuring all C&D remains undercover inside the building, to prevent the generation of dust. The C&D facility will comply with all applicable State and County storm water regulations, as well as ensuring that the site's Storm Water Management Plan is always followed. Storm water management control methods at the site will include landscaped bio-retention

swales within the buffer area, gutter gators to prevent the flow of water from leaving the site, and other methods included in the WB Waste Solution Storm Water Management Plan.

The Tri-County Recyclables Depot will meet all County permit requirements as well as comply with State and Federal requirements. This facility shall not accept municipal solid waste, liquids, paint, paint thinner, tar creosote, adhesives, animal carcasses, septage, biosolids, controlled hazardous substances, compressed gas cylinders, drums or tanks that have held hazardous materials, shock sensitive materials or explosives.

The proposed facility will accept the following materials: C&D waste.

- Address: 6530 Hughesville Industrial Park Road, Hughesville, MD 20637
- Ownership: Property – WB Waste Solutions, LLC
- Operation Business: WB Waste Solutions, LLC
- Proposed Operation: C&D Transfer Facility
- Materials Accepted: C&D
- Proposed Capacities: C&D – 400 tons per day or 140,000 tons annually

The tentative schedule:

- Permitting: Winter 2021 – 2022
- Construction: Spring 2022
- Opening: Summer 2022
- Financing: Privately Funded
- WB Waste Solutions, LLC

## 5.4 Managing Waste Streams

Over the next ten years, the County solid waste management system will utilize a new transfer station, the planned Mudd facility, and will continue to rely on its existing County-owned Landfill, recycling centers, private haulers, and wastewater treatment infrastructure to manage the following waste streams:

- Residential (household, domestic) Waste
- Commercial Waste
- Industrial (non-hazardous) Solids, Liquids, Sludges
- Institutional (schools, hospitals, government buildings) Waste
- Land Clearing and Construction and Demolition Debris (rubble)
- Controlled Hazardous Substances (CHS)
- Dead Animals
- Bulky or Special Wastes (automobile, large appliances)
- Vehicle Tires
- Wastewater Treatment Plant Sludges
- Septage
- Other Waste

These materials will be collected and managed at all the various drop off and recycling centers that are located throughout Charles County and presented in Chapter 3 in this report, as well as at the new transfer stations and facilities that are anticipated during the new planning period, and at the Charles County Landfill as able. In the areas that receive curbside recycling service in the County, single stream recycling materials

will continuously and consistently be collected year-round on an every-other-week basis, and yard waste materials will be collected weekly April through December each year.

## 5.5 Action Plan

The following action plan is intended to move the SWMP goals and objectives forward, while ensuring that the County fulfills its solid waste management responsibilities over the next decade and beyond.

### 5.5.1 Public Outreach and Communication

The following action plan pertains to the ways in which the Charles County DPW communicates with its customers.

#### 5.5.1.1 Issues

In 2021, DPW did not mail the recycling calendar to Charles County residents. This decision was made for an economic and environmental savings. Communication with residents is primarily through digital means. For example, social media posts and advertisements, online news outlet advertisements, County e-newsletter, YouTube, and the Charles County Recycles app. An insert is distributed with the County tax bill each year.

The elimination of the mailer was new to 2021. An informative post card was mailed in place of the calendar. The post card directed residents to the website or the app for more information. DPW understands there will be an adjustment period for residents to adapt to this change. The following actions are to supplement the ongoing and growing digital presence.

#### 5.5.1.2 Action Plan

**Expand public communication to include non-digital methods.**
To overcome the digital divide, Charles County DPW will continue to create an annual tax insert with information and resources. To ensure that those without access to the internet have access to the DPW phone numbers, the County will hang solid waste information materials in prominent public spaces, such as government buildings and libraries. Informational posters will be prominently displayed at the Landfill and all recycling centers. DPW will publish two annual print ads in the Maryland Independent local newspaper in order to reach those who may otherwise not be receiving important solid waste management information.

**Target messaging to increase recycling and landfill diversion.**
There were a number of key messaging opportunities identified in the public survey that the Charles County DPW can use to create targeted public outreach campaigns. These include:

- What is and is not recyclable, how to recycle correctly
- How to get recycling service at their home
- How recycling services are funded, what is the budget, how it is allocated
- Anti-littering campaign that can include incentives for beautification and community pride
- How-to fix small appliances (19 percent are throwing away appliances when they break).

### 5.5.2 Stakeholder Engagement

This topic refers to the ways in which the County DPW can work with people and entities that have a particularly high stake and involvement in the solid waste management system.

#### 5.5.2.1 Issues

There are a variety of groups of individuals who have a stake in the solid waste management system of Charles County: residents, business owners, school leadership, environmental leaders, and solid waste professionals. In order to make improvements to the current system, it is essential to have the support of the key stakeholder groups that will be most impacted by the changes. By providing ongoing opportunities for two-way communication, the County can hear from a broad variety of stakeholders and stay informed on critical issues and concerns.

As the County seeks to achieve its goals of environmental sustainability and high levels of service, it is critical to engage different stakeholders during the early stages of policy change and infrastructure planning. People support what they help build and by that same token, they also often reject great ideas that even benefit them, just because they had no say in the decision. Engaging stakeholders in key decisions achieves two things: it helps the County build trust with its constituents and relationships for the long-term and gives the staff an early read into issues or pain points and a chance to address them before they become too expensive to address.

#### 5.5.2.2 Action Plan

**Convene solid waste haulers for quarterly meetings.**
Solid waste haulers in Charles County have had a significant amount of influence in the County's solid waste management system. Their opposition to proposed changes have made it difficult to move critical policies and practices forward. At the same time, haulers of all sizes in the County have key on-the-ground insights into the daily functions and dysfunctions of the solid waste management system. They can be a valuable County partner in making changes to the system to improve services, divert waste from the Landfill, and improve customer experience. To open channels of communication, build trust, and ensure that knowledge is flowing in both directions, the Charles County DPW will host a quarterly meeting inviting local haulers operating in the County to share observations, concerns, ideas for improvements.

**Meet regularly with newly formed Resilience Authority of Charles County to partner on initiatives that would have a positive impact on climate and the environment.**
The Charles County DPW will work closely with the newly formed Resilience Authority. The Resilience Authority undertakes and supports resilience infrastructure projects that mitigate and adapt to the effects of climate change by offering a range of financing structures, forms, and techniques that leverage public and private investment. By meeting with the Resilience Authority on a regular basis, the DPW can ensure that solid waste initiatives are aligned with broader environmental goals and will stay better informed about potential resources to improve programs.

### 5.5.3 Hauler Requirements

Hauler requirements are regulations and rules that determine how solid waste and/or recycling hauling can occur within a jurisdiction. These requirements can vary between municipalities and depend on local goals, existing conditions, and preferences. Typical hauler requirements include:

- Mandatory reporting
- Mandatory recycling
- Supply of containers and carts for customer storage of waste/recyclables
- Specified areas of service
- Specified days of service

- Fleet maintenance requirements
- Adherence to specific waste bans
- Designation of waste destination (as long as solid waste processing or disposal facility is publicly owned)

#### 5.5.3.1 Issues

Hauler requirements can be implemented for residential-only private haulers, whereby a municipality may choose to only regulate collection of solid waste from residential customers and generators, or a municipality can implement hauler requirements for residential and commercial private haulers with either uniform or different regulations. Creating and implementing hauler requirements is a powerful strategy that can have a variety of positive impacts on reducing truck traffic, greenhouse gas emissions, increasing recycling, improving data collection, and providing a financial underpinning to cover the costs for publicly owned solid waste management infrastructure. Depending on which specific hauler requirements are put into place, this policy can be used to:

- Reduce miles travelled by haulers
- Improve waste and recycling collection fleets
- Expand available data by requiring reporting
- Mandate recycling requirements for haulers
- Create collection schedules so that same day collection services are provided for waste and recyclables in a given neighborhood
- Assure County-owned transfer and/or disposal infrastructure is used

In Charles County, the community of private haulers has had a significant impact on the policies that have and have not been able to go into effect as a result of their strong influence. This portion of the plan is also meant to address issues that were brought up in the public survey comments. For example, one resident commented “too many individual trash companies are traveling through neighborhoods when one truck could pick ALL the trash up.” It is critical to note that in many other counties in Maryland, contract collection services in residential areas on the same day for all materials is the norm.

#### 5.5.3.2 Action Plan

**Implement Hauler Requirements**

The Charles County DPW will obtain the proper internal municipal approvals to move forward with this action. It is essential to get the hauler community involved early in the process. It is also critical that their concerns are adequately addressed and that hauler requirements are implemented according to a timeline that is respectful of current hauler circumstances and does not stall or unduly delay the process.

### 5.5.4 Organics

The following section pertains to diverting organics, including food waste, from the landfill.

#### 5.5.4.1 Issue

Expanded organics diversion could provide the County with the opportunity to reduce volume of waste landfilled while staying ahead of organic waste reduction State policies. Food waste recycling, for instance, represents a potential for significant landfill waste reduction, with food accounting for 24 percent of materials landfilled nation-wide. Organics recycling also gives the County the opportunity to work with current and upcoming state legislation. The Maryland General Assembly recently finalized passage of

organics recycling legislation (HB 264). The policy requires covered entities generating at least two tons of organic waste per week to arrange for disposal alternatives – such as reduction, donation, animal feed, composting or anaerobic digestion – by January 2023. The requirement only applies if a processor within 30 miles can accept all the generator's material. It also gives the County the chance to make strides toward its equity and climate goals, as wasted food accounts for 8% of greenhouse gas emissions worldwide. Creating mechanisms for recovering food waste would have positive environmental and social implications, helping alleviate hunger by increasing food donations and decreasing the amount of organic waste entering the landfill.

#### 5.5.4.2 Action Plan

**Work with public school administration to pilot joint organics composting program.**
The County plans to work with the public school system to establish a joint organics collection program, as the schools provide a vital opportunity for public outreach, education, and program piloting. The public school system recently piloted an organics composting project. While the school systems encountered many challenges, including high costs of hauling and inadequate local processing infrastructure, school system leadership would be a strong partner in moving toward increased organics landfill diversion. Implementing food waste recycling in schools also helps to ensure that the next generation of Charles County residents are informed about and trained in organics recycling and food waste prevention.

**Conduct an organics recycling feasibility study**
In order to determine a path forward for organics recycling, Charles County will need a strong data-based understanding of its current organic waste. Therefore, the first step in moving organics recycling forward is to conduct an organics waste analysis that measures the amount of organics currently being generated and discarded, as well as current levels of organics recycling. This report is a critical step in identifying the highest-leverage activities that would eliminate the highest amount of organic waste in the most efficient manner. Once the report is conducted and complete, the County can determine which approaches to organics recycling are most appropriate, feasible, and effective. As there are so many different approaches to recycling organic waste, it will be essential for the County to understand the various options that are available to them, alongside the costs, benefits, drawbacks, scale, and timeframe associated with each intervention.

### 5.5.5 Recycling Services

#### 5.5.5.1 Issue

Currently, the vast majority of residents do not know how the County funds its recycling services, nor how much they pay for these services. According to the public survey, 84 percent of survey respondents answered "No" to "*Do you know how Charles County funds its Recycling services?*" and 83 percent answered "No" to *"Do you know how much you pay for Recycling services on an annual basis?*" Many people do not understand how the system works, and some people pay for recycling without receiving recycling services.

#### 5.5.5.2 Action Plan

**Expand curbside recycling collection to all homeowners.**
Of the approximately 60,000 homes currently paying for recycling services throughout Charles County, there are 1,500 homes that are currently not receiving curbside recycling. Furthermore, many residents do not know how recycling is funded in their community. As all homeowners in the County currently contribute to the ESF, it is the aim of DPW that they all receive comparable levels of service. The Charles

County DPW will create a transparent plan and schedule to expand curbside recycling services to include all those who contribute to the fund. This plan will provide a clear understanding to residents on how and when expansions occur.

### 5.5.6 Landfill Gas (LFG) to Energy

Landfill gas (LFG) is a natural byproduct of the decomposition of organic material in landfills. LFG is composed of roughly 50 percent methane (the primary component of natural gas), 50 percent carbon dioxide (CO2) and a small amount of non-methane organic compounds. Methane is a potent greenhouse gas 28 to 36 times more effective than CO2 at trapping heat in the atmosphere over a 100-year period.[11] Instead of escaping into the air, LFG can be captured, converted, and used as a renewable energy resource.

#### 5.5.6.1 Issue

The Charles County Landfill currently has a passive landfill gas (LFG) system that flares off LFG. While the current system is within regulation, it is the least effective system for capturing methane. Recovering the methane for productive use would help curtain climate change and may create a positive additional revenue stream.

#### 5.5.6.2 Action Plan

As per the FY2022 Approved Budget, the County shall move forward with evaluating the potential for gas extraction. The current capital improvement plan will allow the County to assess project feasibility and prepare a cost analysis.

### 5.5.7 Landfill Diversion

The following actions pertain to a broad range of efforts that keeps waste out of landfills.

#### 5.5.7.1 Issue

Commercial and C&D waste make up a significant portion of the Charles County waste stream. The following action plans address these generators.

#### 5.5.7.2 Action Plan

**Support commercial recycling efforts through increased outreach and recognition.**
Charles County plans to increase the commercial recycling rate by providing more robust guidance to businesses and by proactively reaching out to address questions they may have about trash and recycling. Through outreach efforts, DPW will work to identify the barriers that businesses face to recycling, such as lack of right-sized containers or confusion about what items can be recycled and advise them of solutions. The County will explore a recognition program for businesses whose recycling programs are excelling. Recognition could be accomplished by showcasing them on the County website or giving them mentions in a social media post.

**Encourage recovery and recycling of construction and demolition materials.**
Develop outreach and incentive programs for homeowners and C&D waste generators to increase diversion of construction and demolition materials. Programs should be based on source reduction; salvaging, recycling, and reusing existing materials; and buying used and recycled materials and products. Examples of C&D source reduction measures include preserving existing buildings rather than constructing

[11] https://www.epa.gov/lmop/basic-information-about-landfill-gas

new ones; optimizing the size of new buildings; designing new buildings for adaptability to prolong their useful lives; using construction methods that allow disassembly and facilitate reuse of materials; employing alternative framing techniques; reducing interior finishes; and more. In addition outreach will promote changing the design of buildings, building systems and materials, C&D source reduction efforts incorporate purchasing agreements that prevent excess materials and packaging from arriving to the construction site. The Charles County DPW will explore options to incentivize deconstruction rather than demolition to increase recovery of usable materials. The County will be proactive about seeking and connecting waste generators with markets for recyclable C&D materials. This may be achieved by partnering with the planned Waldorf Recovery Facility, which includes C&D sorting as part of their functionality, and/or creating a public-private partnership to establish a sorting operation, potentially co-located at the current landfill or one of the convenience centers.

## 5.5.8 Policies

Legal and policy-based actions represent an important approach to improving the solid waste management system in Charles County.

### 5.5.8.1 Issue

Material bans are becoming increasingly popular. The most common material bans include plastic bags, single use straws, and expanded polystyrene (often referred to as Styrofoam). Maryland passed its Styrofoam ban in 2019, and is now considering a plastic bag ban, which is already in place in Baltimore City. Charles County currently has a single use straw ban. While the state level approach is the most consistent and effective mechanism for material bans, it is often local municipalities that are the drivers of this change.

### 5.5.8.2 Action Plan

**Material ban partnership.**
As it is the Charles County Health Department that monitors State mandated material bans, the DPW will work closely with the Health Department to support these efforts through education and outreach of waste reduction practices.

## 5.5.9 Flow Controls

Flow controls are legal provisions that allow state and local governments to designate the place(s) where municipal solid waste (MSW) is taken for processing, treatment, or disposal, so long as the destination is publicly owned.

### 5.5.9.1 Issue

Currently, nearly 20% of MSW is disposed of outside of Charles County, and the County does not have any mechanisms in place to direct waste to its Landfill. With the construction of the new private transfer station, this lack of flow controls means that the County may not have a predictable waste stream in the years to come to provide the revenue needed to cover its costs for services and programs. Currently the county has weak flow controls in place to prevent the Landfill from competing directly with the private transfer station for MSW. If the transfer station offers a less expensive disposal option, it will be hard to prevent haulers from taking their MSW to the transfer station, which would seriously compromise the revenue of the Landfill. The control in place that stipulates that the County Administrator and DPW director can authorize acceptance of MSW generated within Charles County. There are no fines or enforcement provisions on the

haulers or facility for county generated waste. There is also no current control on County-generated C&D material.

#### 5.5.9.2 Action Plan

**Consider implementing solid waste flow controls as a tool to manage solid waste.**
The County plans to conduct a study to determine whether it should implement flow controls. With the current MSW leakage rate and the eventual closure of the Landfill, it may be useful to implement flow controls to ensure that investments in solid waste management infrastructure would be adequately covered. If the County were to construct any additional infrastructure, such as a transfer station, it could compel haulers to dispose of the collected waste at that facility, as long as the facility is publicly owned.

### 5.5.10 Enforcement

Enforcement refers to the ways in which the County enforces its solid waste management laws and policies.

#### 5.5.10.1 Issue

Over the course of conducting influencer interviews, there were multiple mentions of litter and illegal dumping as significant problems with the current solid waste management system in the County. Improved mechanisms for enforcement of illegal dumping bans are one approach to address this problem.

#### 5.5.10.2 Action Plan

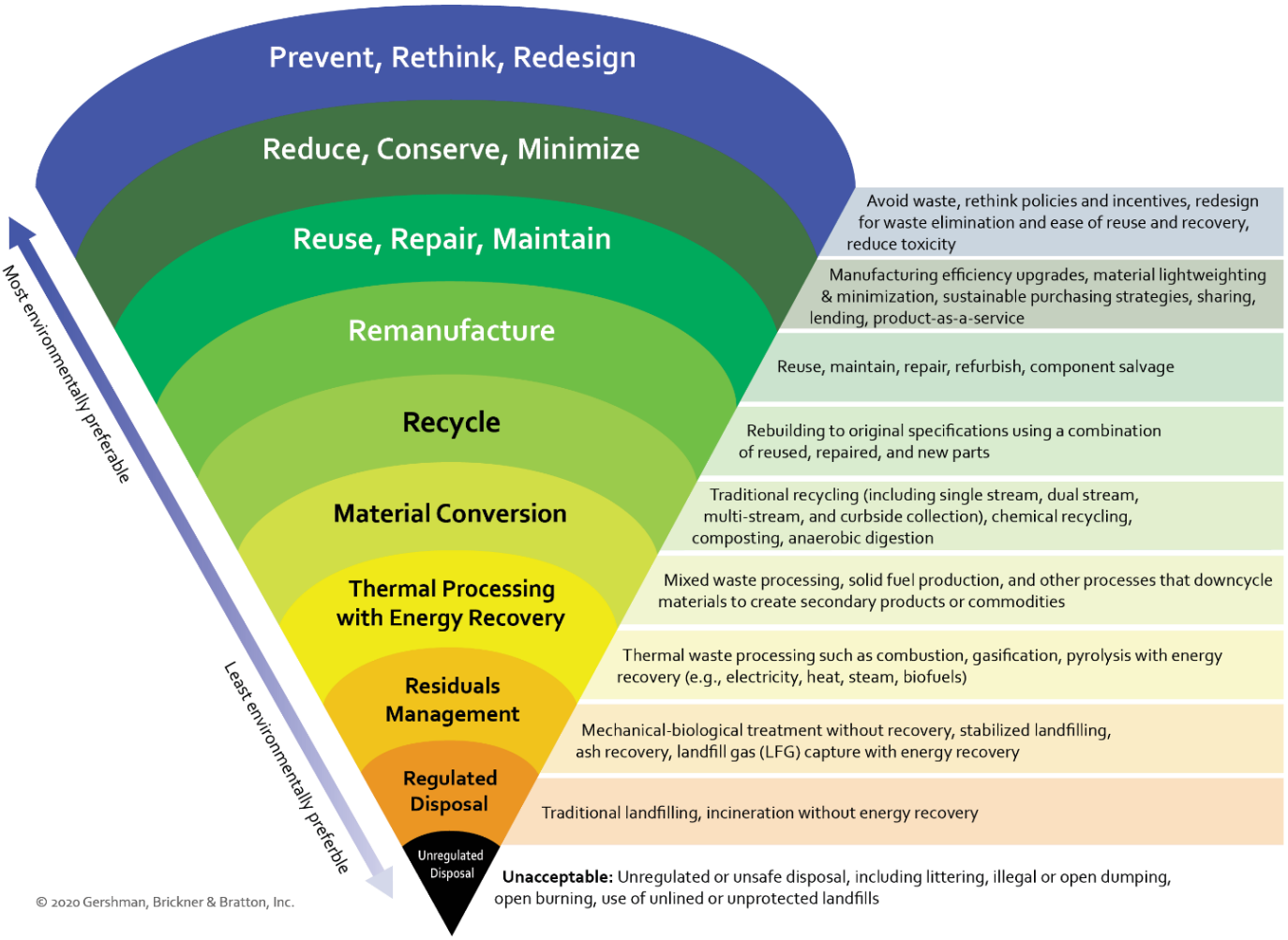
**Work with local law and code enforcement to ensure that illegal dumping bans are adequately enforced.**
Proper enforcement of litter-related laws requires the cooperation of many entities. To ensure adequate municipal and citizen cooperation, the Charles County DPW will work with code enforcement officers, law enforcement officers, prosecutors, and citizen groups to ensure that all parties understand the laws (local and state), and the evidence necessary to convict violators. The County will implement a public outreach campaign to better understand the causes of illegal dumping and littering in the County, and to address these issues specifically. For instance, some residents have noted that illegal tire dumping is a concern. A directed campaign publicizing the locations where people can dispose of tires responsibly and legally could curtail this particular issue.

### 5.5.11 Sustainable Materials Management

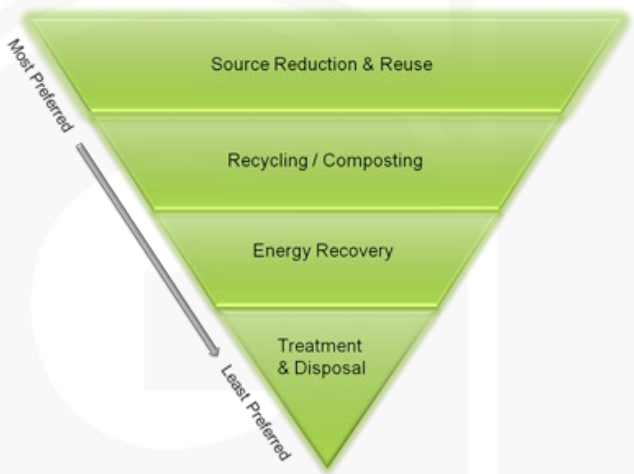
This action pertains to the Sustainable Materials Management (SMM) hierarchy (see Figure 5-1) which provides a model for how to consider waste management more holistically and expand the scope and mandate of solid waste management to include all aspects of materials management that impact the environment and the economy.

Figure 5-1 - Sustainable Materials Management Hierarchy & EPA Waste Management Hierarchy

Sustainable Materials Management Hierarchy:




EPA Waste Management Hierarchy:



#### 5.5.11.1 Issue

The SMM hierarchy establishes a framework for the County DPW to consider how to avoid waste, rethink policies and incentives, resign for waste elimination and ease of reuse and recovery. It would also help the County take a proactive role in ways to encourage manufacturing efficiency upgrades, material light weighting and minimization, sustainable purchasing strategies, and extended producer responsibility. The SMM hierarchy also provides useful tools for the DPW to fulfill its more traditional roles, including dealing with recycling, regulated disposal, and unregulated disposal.

#### 5.5.11.2 Action Plan

**Initiate and join regional and state conversations about transitions in solid waste management based on the Sustainable Materials Management Hierarchy.**

There are many regional and state initiatives in solid waste that are helping to transition solid waste management systems toward greater climate resilience, zero waste, and circular economies. The County will take a proactive approach to joining these groups and conversations to learn about best practices and to make the County more competitive for state and federal funding to launch new initiatives. Groups and processes to get involved with and learn from include the Maryland Zero Waste Plan, the Baltimore County Zero Waste Education initiative, and the Sustainable Maryland certification program.

### 5.5.12 Waste Management & Disposal

This final section pertains to actions in relation to land disposal.

#### 5.5.12.1 Issue

The County must proactively address the dwindling Charles County Landfill capacity.

#### 5.5.12.2 Action Plan

**Implement landfill vertical expansion initiative.**

The County is currently seeking approval from the MDE for vertical expansion. If this request is approved, the County will move forward with this initiative.

**Review and update landfill closure plan.**

The Charles County Landfill closure plan is currently contained in the Landfill Permit Phase III. Post-closure costs have already been allocated and approved. The County will review the closure plan and update it if necessary. According to the FY 2021 Charles County Budget, $4,036,200 was allotted for Landfill Expansion/Closure.

## 5.6 Conclusion

As Charles County continues to grow and its solid waste management systems change over time, it is critical that the County take climate change and resilience into account when considering changing and updating its systems. Furthermore, the County must be proactive in ensuring that improvements to the system are equitably distributed across economic, racial, and geographic lines. (see Table 5-2) The County must actively weigh the benefits and problems associated with the introduction and expansion of private solid waste management infrastructure and will continue to play an active role in ensuring environmental sustainability, equal access, and affordability for its residents and businesses.

Table 5-2 - Historical Demographic Data in Charles County, MD

| Historical Demographic Data in Charles County, MD | | | | | |
|---|---|---|---|---|---|
| | 2015 | 2016 | 2017 | 2018 | 2019 |
| Total population | 152,754 | 154,357 | 156,021 | 157,671 | 159,428 |
| White | 51.52% | 51.38% | 50.80% | 49.60% | 48.10% |
| African American | 45.46% | 46.35% | 47.27% | 48.57% | 50.15% |
| American Indian and Alaska Native | 1.84% | 2.17% | 2.44% | 2.43% | 2.34% |
| Asian | 4.33% | 4.24% | 4.31% | 4.34% | 4.30% |
| Native Hawaiian and Other Pacific Islander | 0.37% | 0.35% | 0.36% | 0.32% | 0.32% |
| Some Other Race | 1.40% | 1.07% | 1.12% | 1.15% | 1.13% |

*Sources:* *US Census Bureau. ACS 5-Year Estimates Data Profiles (2015 - 2019)*
*2019 Charles County Annual Planning Commission Report. (August 2019). Retrieved from https://www.charlescountymd.gov/home/showpublisheddocument/65700/637390623198670000*

*Notes:* *3.Demographic projections are based on Census Data. GBB used 2019 average annual growth from 2019 Annual Planning Commission of 1.10% for the forecast.*

# Appendix A – COMAR 26.03.03

**Chapter 26.03.03. Development of County Comprehensive Solid Waste Management Plans**
**Sec. 26.03.03.00. Notations**
Authority: Environment Article, Title 9, Subtitle 5, Annotated Code of Maryland

**Sec. 26.03.03.01. Definitions**
A. In this chapter, the following terms have the meanings indicated.
B. Terms Defined.
(1) "County" means any of the 23 Maryland counties or Baltimore City.
(2) County Plan.
(a) "County plan" means a comprehensive plan for adequately providing throughout the county (including all towns, municipal corporations, and sanitary districts) the following facilities and services by public or private ownership:
(i) Solid waste disposal systems;
(ii) Solid waste acceptance facilities; and
(iii) Systematic collection and disposal of solid waste, including litter.
(b) "County plan" includes all revisions to the plan.
(3) "Department" means the Department of the Environment.
(4) "Governing body" means the Board of County Commissioners, or the County Executive and Council, or the Mayor and City Council of Baltimore.
(5) "Litter" means any waste materials, refuse, garbage, trash, debris, dead animals, or other discarded material.
(6) "Refuse" means any solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, or agricultural operations, or from community activities, which:
(a) Is discarded, or is being accumulated, stored, or physically, chemically, or biologically treated before being discarded; or
(b) Has served its original intended use and sometimes is discarded; or
(c) Is a manufacturing or mining by-product and sometimes is discarded.
(7) "Revision" means either an adopted amendment to, or a periodic update of, a county plan.
(8) "Solid waste" means any garbage, refuse, sludge, or liquid from industrial, commercial, mining, or agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage or in irrigation return flows.
(9) "Solid waste acceptance facility" means any sanitary landfill, incinerator, transfer station or plant, whose primary purpose is to dispose of, treat, or process solid waste.
(10) Solid Waste Disposal System.
(a) "Solid waste disposal system" means any publicly or privately owned system that:
(i) Provides a scheduled or systematic collection of solid waste;
(ii) Transports the solid waste to a solid waste acceptance facility; and
(iii) Treats or otherwise disposes of the solid waste at the solid waste acceptance facility.
(b) A solid waste disposal system includes each solid waste acceptance facility that is used in connection with it.
(11) "Solid waste management" means the systematic administration of activities which provide for the collection, source separation, storage, transportation, transfer, processing, treatment, re-use, or disposal of solid waste.

### Sec. 26.03.03.02. General Provisions

A. Each county shall maintain a current, comprehensive, solid waste plan which covers at least the succeeding 10-year period. Each plan shall be prepared in accordance with these regulations and shall be arranged with an introduction and five chapters as set forth in Regulation .03 of this chapter.

B. Each county plan shall include all or part of the subsidiary plans of the towns, municipal corporations, sanitary districts, privately owned facilities, and local, state, and federal agencies having existing, planned, or programmed development within the county to the extent that these inclusions shall promote the public health, safety, and welfare. These subsidiary plans may be incorporated by reference into the county plan.

C. The Department may require the installation of a solid waste disposal system, if deemed necessary, after considering the factors listed in Environment Article, Title 9, Subtitle 5, Annotated Code of Maryland. The Department may permit the establishment of a solid waste acceptance facility without a collection and transportation system if a solid waste disposal system is either not available or not required to be installed in the area.

### Sec. 26.03.03.03. Plan Content

A. The introduction shall contain:

(1) A statement certifying that the plan has been prepared in accordance with these regulations and that it has been officially adopted by the governing body of the county; and

(2) The letter of approval from the Department.

B. Chapter One shall contain a:

(1) Statement of the county's goals regarding solid waste management, the objectives and policies necessary to achieve these goals, and a discussion of the conformance of these objectives and policies with those of State, regional, and local comprehensive land use plans, and programs;

(2) Brief discussion, with charts, of the structure of the county government as it relates to solid waste management; and

(3) Brief discussion of State, federal and local agencies, laws, and regulations which affect the planning, establishment, and operation by the county of solid waste disposal systems.

C. Chapter Two shall contain a:

(1) Table which shows the county's present and projected population (if more than one set of projections is shown, the set upon which the plan is based shall be noted);

(2) Map which shows the location of municipalities and federal facilities within the county;

(3) Discussion of current county zoning requirements as they relate to solid waste management activities; and

(4) Discussion of the current status of the county comprehensive land-use plan, including the date that the plan was adopted and last updated.

D. Chapter Three shall contain:

(1) A table that shows the existing and projected, for at least the succeeding 10-year period, annual generation (in tons, cubic yards, or gallons, as appropriate) of:

(a) Residential (household, domestic) wastes;

(b) Commercial wastes;

(c) Industrial (nonhazardous) solids, liquids, and sludges;

(d) Institutional (schools, hospitals, government buildings) waste;

(e) Land clearing and demolition debris (rubble);

(f) Controlled hazardous substances (CHS);

(g) Dead animals;

(h) Bulky or special wastes (automobiles, large appliances, etc.);

(i) Vehicle tires;

(j) Wastewater treatment plant sludges;
(k) Septage; and
(l) Other wastes (water treatment plant sludges, residues collected by a pollution control device, agricultural wastes, mining wastes, litter, street sweepings, recreational wastes, etc.) unless they are generated in insignificant quantities. However, the Department may require the county to substantiate any omission.

(2) A discussion of the bases for the data presented in the table required by §D(1) of this regulation.
(3) A discussion of the types and quantities of solid waste, if significant, which are entering or leaving the county for processing, recovery, or disposal.
(4) A description of existing solid waste collection systems, including service areas.
(5) Information concerning each existing public or private solid waste acceptance facility (incinerators, transfer stations, major composting sites, sanitary and rubble landfills, dumps, major resource recovery facilities, CHS facilities, injection wells, and industrial waste liquid holding impoundments) including:
(a) Its location on a map;
(b) Its Maryland grid coordinates;
(c) Its size in acres;
(d) The types and quantities of solid wastes accepted;
(e) Ownership;
(f) Permit status; and
(g) Anticipated years of service life remaining.

E. Chapter Four.
(1) Chapter four shall contain an assessment (using a narrative description, maps, charts, and graphs as appropriate) of the county's needs to alter, extend, modify, or add to existing solid waste disposal systems during the next 10 years.
(2) The assessment above shall use, when appropriate, the background information contained in chapters one, two, and three.
(3) The assessment shall consider the constraints imposed upon the establishment of solid waste acceptance facilities by:
(a) Topography;
(b) Soil types and their characteristics;
(c) Geologic conditions;
(d) Location;
(e) Use and depth of aquifers;
(f) Location of wetlands;
(g) Location of surface water sources and their flood plains and watersheds;
(h) Existing water quality conditions;
(i) Incompatible land use;
(j) Planned long-term growth patterns;
(k) Federal, state, and local laws and areas of critical State concern (as designated by the Department of State Planning).
(4) The assessment shall evaluate:
(a) The use of source separation and source reduction programs to reduce the quantities of solid wastes which shall be collected for disposal;
(b) Resource recovery options to reduce land disposal capacity needs;
(c) Consumer education programs, and cooperation with appropriate suppliers for the purchase of recycled products to encourage, and help create a market for, resource recovery and source separation programs;

(d) The need for disposal capacity for asbestos;
(e) Programs and procedures needed to respond to the unplanned (emergency) spillage or leaking of hazardous wastes within the county; and
(f) Whether existing local master plans and zoning regulations provide for the appropriate siting, operation, or both, of solid waste management systems or facilities.

F. Chapter Five.
(1) Chapter five shall contain the county's plan of action with respect to all types of solid waste and all phases of solid waste management.
(2) The plan of action in §F(1), of this regulation, shall cover at least the succeeding 10-year period and, at a minimum, shall:
(a) Discuss the solid waste disposal systems and solid waste acceptance facilities, both public and private, which will be in use during the planning period, including proposed systems and facilities;
(b) Provide a mechanism for managing each of the waste streams identified in §D(1) of this regulation;
(c) Demonstrate, through tables, charts, and graphs, that the sizing, staging, and capacity of all systems and facilities in §F(2)(a) and (b), of this regulation, will be adequate for the county's needs during the planning period;
(d) Establish schedules for placing new public or private solid waste disposal systems or solid waste acceptance facilities into operation, including a description of necessary actions and their timing, to bring the county's solid waste disposal systems into compliance with the mandates of pertinent federal and State laws, and any permits or orders issued under these laws;
(e) Describe provisions and methods for financing existing and proposed solid waste disposal systems, including planning and implementation;
(f) Include a projected closure date for each public solid waste acceptance facility which is scheduled to cease operations during the planning period, the projected use of each closed site, and the relationship of that use to the county's comprehensive land use plan; and
(g) Discuss changes in programs, plans, regulations, and procedures as a result of the assessment conducted under §E, of this regulation.

### Sec. 26.03.03.04. Technical Requirements Applicable to County Plans

A. Maps in the county plans shall be of sufficient scale and clarity to clearly show the required information.
B. Projections in the county plans shall be given for at least the succeeding 10-year period at intervals of not more than 5 years.

### Sec. 26.03.03.05. Plan Revisions

A. Except as provided in §B, of this regulation, each county plan shall be:
(1) Revised if deemed necessary by the Department;
(2) Reviewed in its entirety at the interval specified by Environment Article, Title 9, Subtitle 5, Annotated Code of Maryland; and
(3) Revised to include the installation or extension of either a solid waste acceptance facility, or solid waste disposal system, before the issuance of a permit by the Department under Environment Article, Title 9, Subtitle 2, Annotated Code of Maryland.
B. Exceptions. A revision for the sole purpose of including a private facility is not necessary if the:
(1) Facility accepts only wastes generated by the owner's operations;
(2) Facility is in general conformance with the management mechanism described in Regulation .03F(2)(b) of this chapter; and

(3) Information listed in Regulation .03D(5), of this chapter, is provided for the facility when the county plan is reviewed and revised in accordance with §A(2), of this regulation.

C. Revisions pertaining to county plans shall be adopted and submitted in accordance with the following process:

(1) The county shall solicit input concerning the proposed revision from each of the entities listed in Regulation .02B, of this chapter, and from any other entity likely to be affected by the proposed revision.

(2) The county shall provide a reasonable opportunity for a public hearing concerning the proposed revision to the county plan. Prince George's County and Montgomery County are required by Environment Article, Title 9, Subtitle 5, Annotated Code of Maryland, to conduct a public hearing. The Department, the public, and the entities listed in Regulation .02B, of this chapter, shall receive prior notice of a hearing.

(3) Following the public hearing or public meeting, or a decision not to conduct a public hearing or public meeting, the governing body of the county shall adopt the revision and submit it to the Department. This submittal shall be accompanied by a discussion of substantive issues raised at the public hearing or public meeting, and how they were resolved.

D. The Department shall distribute copies of the adopted revision to the Departments of Natural Resources, State Planning, and Agriculture, for review and comment.

E. The Department shall, within 60 days after receiving the submission, approve, disapprove, or approve in part, the adopted revision unless the review period has been extended under Environment Article, Title 9, Subtitle 5, Annotated Code of Maryland. If the submittal is disapproved in whole, or in part, the Department shall, in a written notice to the county, clearly define the inadequacies of the submittal, and provide a suggested outline of the tasks needed to improve the submittal so that it can be approved by the Department.

F. The governing body shall, for 6 months following the disapproval, have the right to appeal the Department's action by sending a written notice of appeal to the Department.

### Sec. 26.03.03.9999. Administrative History

Effective date: January 1, 1971

Regulations .01-.05 repealed and new Regulations .01-.05 adopted effective November 4, 1985 (12:22 Md. R. 2104)

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Chapter recodified from COMAR 10.17.08 to COMAR 26.03.03

Regulation .05C, E, F amended effective June 18, 2018 (45:12 Md. R. 618)

# Appendix B – Amendments

Amendments to County Commissioners of Charles County, Maryland Resolution No. 2022-01 Adoption of the Charles County Comprehensive Solid Waste Management Plan for 2022-2031.

[Insert if needed]

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**COUNTY COMMISSIONERS OF CHARLES COUNTY, MARYLAND**

**RESOLUTION NO. 2022-01**

WHEREAS, the County Commissioners of Charles County, Maryland, by the authority of Environmental Article, Title 9, Subtitle 5, of the Annotated Code of Maryland, and Title 26, Subtitle 3, Chapter 3, of the Code of Maryland Regulations (COMAR), as well as other provisions of the Annotated Code of Maryland and the provisions of the Code of Public Local Laws of Charles County, are directed to adopt and submit to the Maryland State Department of the Environment a comprehensive plan for the provision of adequate solid waste management systems throughout the County to include all towns and municipal corporations within Charles County; and

WHEREAS, said Comprehensive Solid Waste Management Plan has been prepared and submitted to the County Commissioners of Charles County, Maryland, in order that it may be adopted by said County; and

WHEREAS, said Comprehensive Solid Waste Management Plan has been reviewed by the County Commissioners of Charles County, Maryland, and it appearing that all requirements of State law have been complied with; and

WHEREAS, the Charles County Commissioners held a public hearing on the draft Comprehensive Solid Waste Management Plan for 2022-2031 on Wednesday, February 9, 2022 to solicit public comment; and

WHEREAS, the County Commissioners of Charles County, Maryland, held a public work session on all public testimony and all comments submitted during the public record on 02/09/2022 and subsequently on the 02/09/2022; and

WHEREAS, changes to the text, tables and figures were made to the Charles County Comprehensive Solid Waste Management Plan 2022-2031, dated February 9, 2022 subsequent to comments receive during the period of public record; and

WHEREAS, the said solid waste management plan is found to be consistent with land use master planning in Charles County; and

WHEREAS, after serious deliberation and study the County Commissioners of Charles County, Maryland, are of the opinion that it is in the best interest of the citizens of Charles County that the Comprehensive Solid Waste Management Plan be adopted and approved; and

NOW, THEREFORE BE IT RESOLVED, this 9th day of February, 2022, by the County Commissioners of Charles County, Maryland, that the Comprehensive Solid Waste Management Plan, dated February 9, 2022 and its subsequent amendments as approved by the Maryland Department of the Environment is hereby repealed; and

BE IT FURTHER RESOLVED, this 9th day of February, 2022, that attached Charles County Comprehensive Solid Waste Management Plan 2022-2031, dated February 9, 2022, Known as Exhibit A, is hereby adopted by the County Commissioners of Charles County, Maryland and IT IS FURTHER RESOLVED, that said Plan, replace and supersede all previous plans.

FURTHER, IT IS RESOLVED, that the Charles County Comprehensive Solid Management Plan 2022-2031, dated February 9, 2022 shall be submitted to Maryland Department of the Environment for review and approval.

IT IS FURTHER RESOLVED, that if any clause, sentence, article, section, part or parts of said Comprehensive Solid Waste Management Plan 2022-2031 shall be held unconstitutional

Exhibit A: Comprehensive Solid Waste Management Plan 2022-2031, dated February 9, 2022.

or invalid for any reason whatsoever, such unconstitutionality or invalidity shall not effect the validity of the remaining parts of said Plan or any action thereof; the County Commissioners of Charles County, Maryland, hereby declare that they would have adopted the remaining parts of said Plan, or any section thereof, if they had known any such clause, sentence, article, section, part or parts of said Plan would be declared unconstitutional or invalid.

FINALLY, IT IS RESOLVED that said Comprehensive Solid waste Management Plan 2022-2031 shall take effect on the 9th day of February, 2022.

COUNTY COMMISSIONERS OF
CHARLES COUNTY, MARYLAND

Reuben B. Collins, II, Esq., *President*

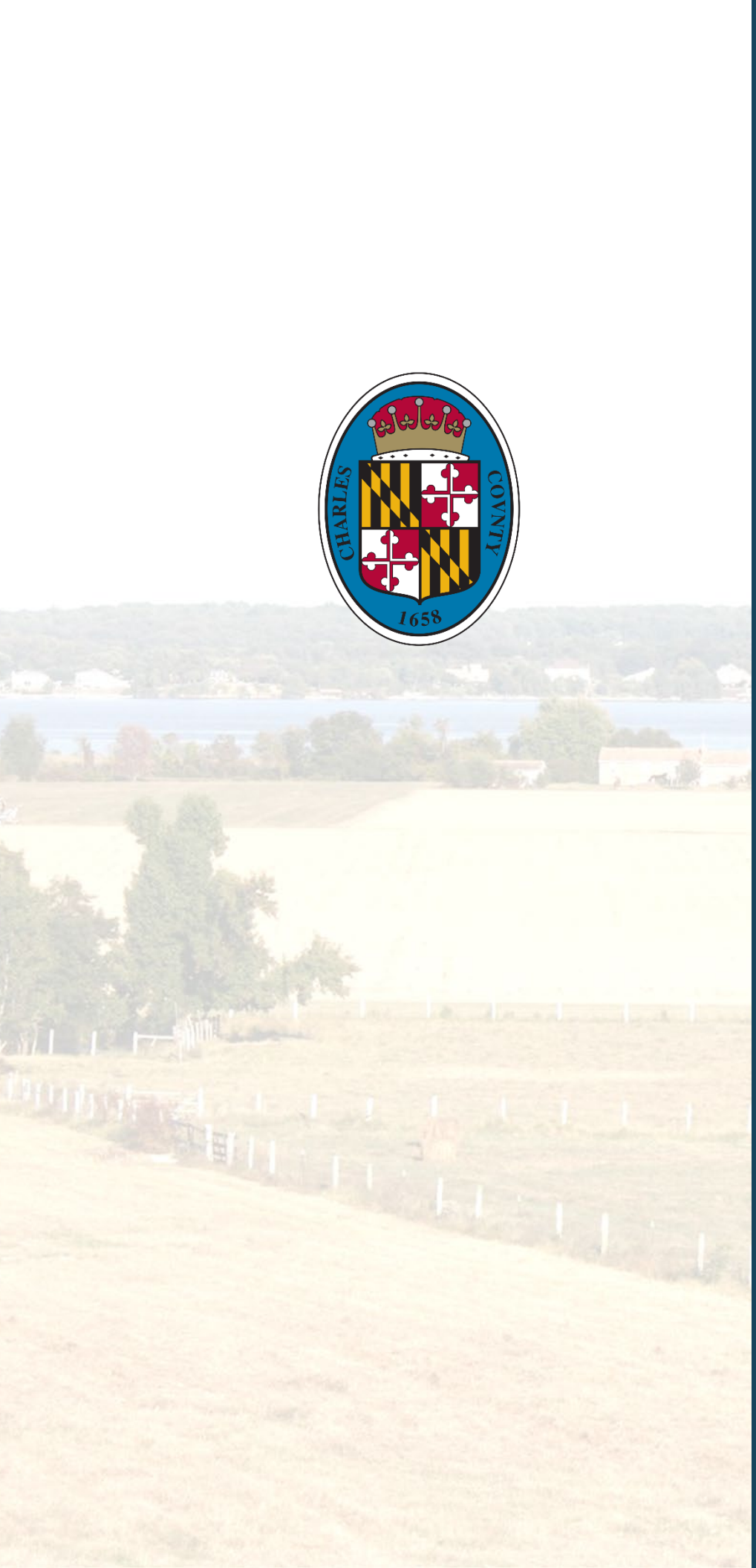
Bobby Rucci, *Vice President*

Gilbert O. Bowling, III

Thomasina O. Coates, M.S.

Amanda M. Stewart, M.Ed.

ATTEST: Carol A. DeSoto, Clerk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