

CHAPTER FIVE: SOLID WASTE MANAGEMENT SYSTEM PLAN OF ACTION

The Montgomery County Solid Waste Management Plan is a dynamic planning document that may be amended by the County government in accordance with the requirements of Section 9-503(c) of the Environment Article, Annotated Code of Maryland. Section 9-515(b) of the Environment Article requires the County to review and update the Solid Waste Management Plan at least once every three years, according to the MDE established schedule. COMAR 26.03.03 details the scope and content requirements for the Plan.

In early 2018, DEP asked MDE for an extension to the submission schedule for the County's revised Solid Waste Management Plan, chiefly because the County was undertaking two main initiatives:

- 1) The County Council Bill 28-16 required DEP to develop a strategic plan (the "Strategic Plan to Advance Composting, Compost Use, and Food Scraps Diversion in Montgomery County, Maryland," published in April 2018) for reducing food generation and wasted food, reusing food that would otherwise be wasted, and increasing the amount of food and other organic materials that can be composted, and advancing the use of compost; and
- 2) The Development of the "*Aiming for Zero Waste Plan, A Vision for Sustainable Materials Management in Montgomery County.*"

The Solid Waste Management Plan 2020 -2029 is based on the results of the initiatives mentioned above. DEP staff developed the recommendations of the Strategic Plan¹ to reduce the amount of food waste generated at the source, channel excess food to those with unmet needs, and recycle/compost food waste into useful and usable material and encourage the use of the material to ensure that there is sufficient demand for recycling food scraps in conjunction with over 215 stakeholders and six working groups established by DEP staff for which stakeholders were invited to serve on. The recommendations are incorporated in Section 5.6.4 of Chapter 5 of the Plan.

The *Aiming for Zero Waste* planning process involved the evaluation of the current solid waste system, benchmarking the County with other jurisdictions, identification of options to increase reuse, recycling, and diversion, assessment of the County's existing waste management facilities, and an analysis of the management options for "What's Left" after the expected increase in recycling. Throughout the *Aiming for Zero Waste* planning process, input

¹[Strategic Plan to Advance Composting, Compost Use, and Food Scraps Diversion. Montgomery County, MD](#)

and feedback were requested from the Task Force on the County's Integrated Waste System, residents, and other stakeholders.

The Task Force provided advice and guidance on maximizing waste reduction, reuse, recycling, and sustainable management of all materials across the entire integrated waste management system. Their recommendations were key inputs to this Plan of Action. The full set of recommendations can be found on the Aiming for Zero Waste website²

The options to increase reuse, recycling, and diversion were selected for their ability to increase the diversion of more materials from disposal, provide sustainable materials management, and increase the recovery of materials. Combined, these options present a comprehensive waste management strategy that supports the County's effort to reach a carbon-neutral operation. The County is still reviewing all options to identify the best course of action. Chapter 5 of this Ten-Year Plan will be subject to revision as options are selected.

As the County makes decisions and the implementation phase begins, the County will notify MDE and update this Ten-Year Plan as needed. The County will also communicate with stakeholders to keep them informed of changes and additions to the County's Solid Waste operations. To develop an efficient and effective Action Plan, the County will:

- Undertake studies, pilot programs, cost analyses, and review procurement options to select the options to provide the best results.
- Conduct feasibility studies, including extending trash collection services to Subdistrict B.
- Develop specific project and program timelines, staff assignments, and budgets.
- Secure food waste processing capacity while the County develops its organics processing infrastructure.
- Identify low-cost, low-effort options for waste reduction and reuse initiatives. Review and propose modifications to regulations.
- Develop and present an implementation plan.

Chapter 5 – The Plan of Action has eight subsections:

- 5.1 General Solid Waste Management Policies
- 5.2 County-Owned Solid Waste Infrastructure
- 5.3 Potential New County-Owned Infrastructure
- 5.4 Potential New Private Facilities
- 5.5 Current Plan of Action for Reduction of Solid Waste Generation and to Maximize Recycling
- 5.6 Enhanced Plan of Action for Reduction of Solid Waste Generation and to Maximize Recycling

² <https://www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/task-force-recommendations.pdf>

- 5.7 Impacts of Recommended Options to Reduce Waste and Increase Recycling
- 5.8 Financial Management System

5.1 General Solid Waste Management Policies

The principles of sustainability shall guide the County's solid waste management preferences and practices. That is, actions taken today should be those judged least likely to make life more difficult for future generations. In keeping with this principle, the County adopted the solid waste hierarchy (Figure 1.1), where waste reduction is the most preferred solid waste management technique, followed by reuse and recycling (including composting), then controlled combustion with energy recovery, and least preferred, landfilling.

The County builds and maintains solid waste acceptance and disposal facilities primarily to accommodate municipal solid waste generated in the County. The design capacity of the County's solid waste acceptance and disposal facilities was based on the projected volumes of solid waste generated in the County. To conserve capacity, the use of the County's solid waste acceptance and disposal facilities is restricted to solid waste generated in the County.

5.1.1 General Refuse Collection Policy

County Code, Section 48-29, and its implementing regulations establish the entire County as a collection and disposal district. The collection and disposal district is divided into Subdistrict A and Subdistrict B. Services provided vary for each Subdistrict. The Recycling and Resource Management Division collects recyclables from all Single-Family Homes in the non-municipal portions of the County. Solid waste is collected from a subset of the Single-Family Homes. (see Section 3.2.1 of this Plan for details).

5.1.2 Biosolids Management

Since 2015, biosolids generated at the Blue Plains Water Resource Recovery Facility began using anaerobic digestion to convert over half the organic matter in biosolids into methane to generate electricity to provide power for operations at Blue Plains. Approximately 25 – 30 percent of the total biosolids produced at Blue Plains WRRF come from Montgomery County.

WSSC Water completed a significant facility planning study in 2011 reviewing alternatives for processing biosolids produced at its WRRF's within both Montgomery and Prince George's counties in a manner that is environmentally beneficial and is also economically feasible.

The approved alternative includes the design and construction of a central bio-energy project comprised of Thermal Hydrolysis, Mesophilic Anaerobic Digestion, and Combined Heat and Power facilities. This project was added to the WSSC Water Capital Improvements Program in FY15 and is currently under construction with an expected completion date of November 2024. When complete, some of the expected environmental and economic benefits will include:

- Significant reduction in biosolids quantity.
- Production of digester gas as a renewable fuel, which will be used to produce heat and electric power.
- Production of high-quality (Class-A) biosolids which can be used more widely than the Class-B biosolids currently produced.

5.1.3 Hazardous Wastes

The State of Maryland regulates the transportation, treatment, storage, and disposal of hazardous wastes. The County Zoning Ordinance does not permit hazardous waste disposal facilities within the County. The County will continue to provide an environmentally responsible disposal option for household hazardous waste and businesses and institutions that generate a small quantity of hazardous waste.

5.1.4 Administration of the Plan

The Plan of Action is developed and administered by the Director of DEP under the direction of the County Executive. The Recycling and Resource Management Division (RRM) of DEP assists the Director in developing the Plan and is responsible for its implementation and management. The RRM conducts on-going solid waste management planning and analysis in response to changes in waste flows, demographics, and economic conditions. The Plan of action reflects the County's assessment of its current solid waste system and projects the changes and improvements to the system needed over the next ten years. The County Executive and the County Council may alter, extend, or modify the Plan of action.

Under the direction of the DEP Director, the RRM Division:

1. Formulates the County Solid Waste Management Plan. As needed, revisions and amendments to the Plan are developed with recommendations for the County Executive.

2. Conducts research and extensive planning functions to develop and recommend capital improvements and operating budgets to the County Executive.
3. Monitors technical developments and innovations in solid waste management. Conducts research and technical evaluations to determine whether changes, modifications, or adjustments should be pursued to enhance waste efficiency and sustainability.
4. Analyzes, reviews, and identifies potential solid waste management facilities sites and prepares and submits requests for appropriate permits, permit updates, revisions, and modifications.
5. Reviews and comments on state solid waste refuse disposal permit applications, modifications, revisions, and amendments for solid waste facilities.
6. Oversees the design, construction, and operation of solid waste management facilities needed to implement the Plan. These efforts may include the procurement of appropriate investigations and studies, contract development, selection and supervision of contractors, and compliance with local, state, and federal permits.

5.1.5 Coordination

1. M-NCPPC provides requested information regarding population, growth forecasts, planning factors, and other developmental criteria specified by the County Council or County Executive.
2. MDE implements and enforces State laws in the County and regulates solid waste acceptance and certain recycling/composting facilities.
3. WSSC Water provides requested information regarding engineering, design, present and future capacities, and fiscal elements of biosolids management facilities and programs.
4. Title 26.03.03.02B of COMAR provides that "the Plan includes 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 with the County to the extent that these inclusions shall promote public health, safety, and welfare." The County has approved no subsidiary solid waste management plans for inclusion in this Plan.

5.1.6 Public Participation

DEP coordinates public participation in solid waste management planning and provides administrative support and information to SWAC, DAFIG, and other solid waste advisory committees created by the County Council or the County Executive.

1. Solid Waste Advisory Committee – SWAC is a legislatively created citizen advisory and oversight committee that consists of 15 members appointed by the County Executive and approved by the County Council. SWAC members serve three-year terms. The committee is advisory to the County Council and the County Executive on all matters relating to solid waste management within the County. Chapter 48, Section 48-40 of the Montgomery County Code, specifies the organization, membership, and activities of the committee.
2. Dickerson Area Facilities Implementation Group – DAFIG is a legislatively created citizen advisory group by Council Resolution 13-1498, consisting of 12 voting members appointed by the County Executive and approved by the County Council. DAFIG advises the County on issues of concern to the community affected by County solid waste operations in the Dickerson area. The facilities under the purview of the DAFIG include the RRF, the Yard Trim Composting Facility, properties originally purchased for the Site 2 Landfill, and properties associated with the original Matthews Farm. It is intended that the DAFIG will function in an advisory capacity to the County for the life of the facilities at Dickerson.
3. Ad Hoc Committees – From time to time, the County Executive appoints ad hoc committees to address special problems related to solid waste. Such committees serve at the pleasure of the County Executive. These committees are established to represent special community interests as the need arises. The former County Executive Isiah Leggett formed a Task Force on the County's Integrated Waste System Strategic Plan. This Task Force continued its work under the current County Executive Marc Elrich. In May 2020, the Task Force finalized his advisory mandate, producing recommendations to the County Executive.
4. Public Hearings – The County Council holds a public hearing on the proposed Comprehensive Solid Waste Management Plan and any revision thereof. Fourteen days notice of the hearing date must be provided by publication in a newspaper or newspapers of general circulation in Montgomery County.
5. Stakeholders' involvement – In 2018, DEP engaged key stakeholders and the public through an online survey to measure the use of solid waste programs and services,

gauge interest, and gather ideas on additional strategies to reduce waste and increase recycling. The County also hosted Open House meetings to solicit feedback on strategy options under consideration for further study.

5.1.7 Legal Matters

1. County Code Amendments – The Director of DEP, in coordination with the Office of the County Attorney (OCA), prepares and recommends to the County Executive appropriate amendments to Chapter 48 (Solid Wastes) of the Montgomery County Code and other relevant provisions of the County Code.
2. Executive Regulations – The Director of DEP, in coordination with the OCA, prepares Executive Regulations appropriate to implement County solid waste programs and policies.
3. Legislative Awareness – The Director of DEP maintains awareness of legislation under consideration by the Legislature of the State of Maryland related to solid waste management and provides testimony to legislative committees as appropriate.
4. Legal Support – The OCA provides legal advice and assistance in all legal matters related to solid waste management.
5. Regulatory Compliance – DEP and sister agencies work cooperatively to ensure that the County complies with all federal and state regulatory requirements relating to the management of solid waste facilities (Section 1.4 of this Plan).

5.1.8 Solid Waste Data Management and Reporting

The County gathers solid waste data from various sources that are used to determine disposal rates, recycling rates, waste reduction activity, and other key measures. Certain solid waste data are readily attainable from in-County sources. Tonnages from County facilities are available for input into a data management system. For example, the tonnages of MSW processed at the Transfer Station and the tonnages of recyclables handled at the MRF are weighed and recorded on-site.

Other data points must be determined by less direct means. County Executive Regulation 5-13 AM requires haulers and collectors to report, semiannually, on the amount and disposition of materials collected (i.e., tonnage, by type, and the acceptance facility, including non-County facilities). Reporting required under ER 1 - 15 complements this data and is used to reconcile

sector-relative recycling and disposal tonnages. Specialized studies are used to monitor some minor waste streams not reported by the preceding means. Periodically the DEP conducts an analysis of the composition of the disposed waste stream ("Tip and Sort") involving statistical sampling of the waste delivered for disposal at the Transfer Station. In addition to providing comprehensive support for tracking progress toward the recycling goal and guiding future efforts, these studies also ensure that system benefit charges are properly allocated (see Section 5.8.2).

DEP Reports to the County Council

DEP will report annually to the County Council, typically via the budget process, regarding the status of the County's solid waste management system. Annual reporting will include:

1. The overall County waste diversion and recycling rate calculated on a calendar year basis once approved by MDE will be posted on the DEP website;
2. b. Progress reports on the implementation of recycling programs, including a description of major initiatives planned for the upcoming year necessary to implement the policies included in this Plan, which may be included in the Recycling Plan Update.

In addition to annual reports, DEP will brief the County Council, as requested, regarding the implementation of this Plan and the operation of the County's solid waste management system.

DEP will continue to maintain its detailed solid waste databases, including disposal tons and recycling tons at County facilities and elsewhere, per capita and per employee waste generation rates, waste diversion and recycling rates, source reduction trends, waste stream composition, and per ton waste processing costs. The County will seek to improve data gathering from external sources, particularly related to refuse and recyclables processed at non-County facilities.

Each calendar year, per County Council Resolution 17-566, DEP will calculate its recycling and waste diversion rates according to the Maryland Recycling Act methodology and guidelines.

5.2 County-Owned Solid Waste Infrastructure

The County will need to improve existing facilities and develop new facilities to transfer or process materials. This section described the upgrades required for county-owned facilities and potential new facilities.

5.2.1 Shady Grove Processing Facility and Transfer Station

The County's Review of Existing Processing Facilities Report³ includes a list of recommended Capital Improvement Projects (CIP). The CIP projects include making tipping floor and roof repairs; upgrading scale house and fire protection; replacing compactors, HVAC systems, underground piping, rail containers, and rail cars; implementing new scale systems; purchasing rolling stock and replacement of rail cars and rail containers.

- With the expansion of diversion and recycling programs proposed in this chapter, the County expects that the average annual tonnage of MSW received at the Transfer Station will not exceed its permit capacity of 821,500 tons.
- Using the concept of a Resource Recovery Park (RRP), the County will continue to provide receptacles at the Shady Grove Processing Facility and Transfer Station for generators to unload self-hauled recyclables.
- The County may modify the drop-off services as needed to reflect changes in the collection program or market conditions.
- Maximize the materials sold as mulch to minimize tonnage sent for processing.
- Set yard waste tip fee per Section 5.8.2.
- Evaluate the relocation of yard trimmings grinding operation.

5.2.2 Materials Recovery Facility (MRF) and Mixed Paper Processing Facility

A retrofit of the commingled processing equipment is required, and improvements to the paper processing are needed to reliably process the quantity of material the County intends to receive. The refurbishment projects include:

- New scales will be installed in FY 2022.
- As part of the commingled line upgrade, the MRF electrical service will be inspected to determine the level of service upgrade and/or increase required for the new system.

³ [Task 8: Review of Existing Processing Facilities](#)

- The existing commingled processing line will be removed and replaced with state-of-the-art equipment, including robotic and optical sorting, ballistic sorting, updated screening systems, improved metering of material into the processing system, reduced manual labor, and changes to process flow to pull glass at the front of the process, increasing the value of recycled commodities sold. The commingled building will be expanded slightly, increasing baled material storage capacity.
- Improvements to sewer service and stormwater system.
- Expansion of paper receiving building.
- Upgrades to scanning and screening systems.

In May 2021, the County Council approved a capital project to upgrade and increase the capacity of the MRF. This Capital Refurbishment project will improve operational efficiency and increase the throughput capacity of the MRF. Facility design and engineering will begin in FY 2022. Removal of old system and installation of new equipment is scheduled to start in early FY 2023.

5.2.3 Yard Trim Composting Facility

An on-going structural maintenance program will continue at the Montgomery County Composting Facility, including scheduled replacement of portions of the paved pad and regular inspections and preventative maintenance to its on-site stormwater management system. To assure the on-going ability of the County to recycle its end products at the lowest net cost to the County, DEP will strive to increase the market share of finished compost products produced at the facility. For the immediate future, DEP will:

- Monitor annual tonnages of yard trim processed at the Composting Facility and sources of that tonnage.
- Continue aggressive promotion, education, and training for grasscycling and backyard or on-site composting.
- Maintain back-up contracts for yard trim composting capacity above the facility cap of 77,000 tons per year.
- Contingency contracts may be renewed or replaced from time to time to assure that there is no lapse in contingency coverage. Contingency contract tonnage provided for any fiscal year should provide for no less than a seven percent surge as compared to the most recently completed fiscal year.
- As part of the County's efforts to increase capacity for food waste diversion, the County is considering options for retrofitting the Yard Trim Composting Facility to accept food waste. This change, if pursued, would require renegotiation of the existing use agreement with the Sugarloaf Citizens Association.

5.2.4 Resource Recovery Facility

As mentioned in Chapter 4, a physical assessment of County-owned facilities, including the RRF, was carried out in 2019; the recommendations of that assessment constitute the Plan of Action for the RRF to ensure it is reliable while in operation.

In addition to the improvement projects, DEP will continue:

- To monitor the performance of all contractors related to the operations of the RRF.
- To strive to increase revenues from the sale of electricity and recovered metals.
- The recycling and beneficial reuse of ash as alternate daily cover, road base construction material, and other specialized products.
- To continue efforts to recover additional metals from ash.
- To pursue feasible efficiencies in RRF operation and environmental performance.

The current disposal path for waste is through the County's Resource Recovery Facility. That facility is expected to remain open through April 2026. The County Executive has expressed an interest in closing the RRF. Prior to Council consideration of an amendment to this Plan that would support the closure of the RRF, the County Executive will provide to the County Council an analysis by the Department of Environmental Protection which compares the short and long-term costs, environmental and public health impacts, racial equity and social justice implications, facility impacts, operational concerns, and other major issues of keeping the RRF open versus changing the County's primary waste disposal from the RRF to in-County or out-of-County landfilling. After completing this analysis, the County Council will consider potential amendments to this Plan from the County Executive regarding the future disposal path for waste.

5.2.5 Out-of-County Landfill Contract / Ash Recycling

DEP will continue utilizing the existing contract for beneficial recycling and reuse of ash while seeking better options for reducing the waste stream. The ash contract has a term through June 30, 2024, with a seven-year renewal term at DEP's option. As described in Chapter 3, the DEP will also continue to utilize the Covanta contract for disposal of C&D material while the DEP seeks diversion and recycling options for the C&D material.

The DEP will consider:

- Encouraging private sector recycling of construction and demolition materials and other non-processible solid waste rather than landfilling.
- Recycling more construction and demolition materials received at the transfer station.
- Continuing to recycle RRF ash.

5.2.6 Solid Waste Transportation System

The solid waste transportation system primarily consists of moving the solid waste from the Transfer Station to the RRF, from the RRF to the out-of-county landfill, and from the Transfer Station to the out-of-County landfill or to recycling facilities.

DEP will monitor the performance of all transportation contractors to ensure reliability. DEP will enforce all contractual service standard requirements to ensure reliable and uninterrupted movement of wastes and build contingency capacity to ensure waste transport.

5.2.7 Land Reserved for Potential Future In-County Landfill

The County currently owns 820 acres of land in Dickerson, Maryland, to serve as a potential future in-County landfill as an alternative to the RRF and/or a contingency in the event economic conditions change. This location is along Wasche Road and is known as "Site 2" and has an MDE permit, No. 2019-WMF-0237. The County continues to allow this site to be used for agriculture purposes until a landfill is needed.

The County may commence construction, after receiving final MDE permits, of the landfill at any point in time as it determines that such action is in the interest of public health, safety, and welfare, by the terms and conditions of the landfill's Refuse Disposal Permit and any applicable court orders or consent orders. This site remains an option for the evaluation of an alternative for the RRF.

The development of Site 2 has been contested in the past, and in 2002, an order of dismissal regarding the judicial review of MDE Permit No. 1995-WSF-0237-0 was issued. Part of the order was the stipulation that, if and when the County provides notice of its intent to initiate construction of a sanitary landfill at Site 2, petitioners shall have 30 days leave from the date of the County's notice to file a new judicial review of the permit

As part of a letter of understanding in 1998, the County agreed to give notice of its desire to proceed at least one year in advance of the anticipated construction start date.

5.3 Potential New County-Owned Infrastructure of the Solid Waste System

The County needs to invest in new facilities to process materials such as organics and textiles to implement recommended recycling options. The County is considering a Resource Recovery Park that could house these facilities and take advantage of efficiencies and economies of scale.

5.3.1 Organics Processing Facility

The County has developed an Organics Management Strategy, but the lack of organics processing capacity in the region has hampered its implementation. With insufficient regional processing capacity, the County will move forward with plans to process SSO in-County. An in-County facility presents the best opportunity to increase organics diversion significantly. The technologies available to manage approximately 65,000 tons of food scraps and non-recyclable paper, along with the required amendment (e.g., leaf and yard waste), were examined. Based on this evaluation, covered aerated static pile technology was recommended. The County will continue to monitor the feasibility of AD, which could be developed in the future in conjunction with a composting facility to manage digestate. The viability of AD may depend on markets for renewable energy.

The County is evaluating the following options to acquire food waste processing capacity:

- Modifying operations at the County's existing Yard Trim Composting Facility to manage higher volumes of yard trim and SSO;
- Collaborate with nearby municipalities to investigate the feasibility of developing a Regional Organics Facility; and
- Issue a Request for Proposal for a private-sector project developer who could develop an organics facility in private land or County-owned land. This could be done through a procurement process such as a Design/Build/Operate (DBO) or Design/Build/Operate/Maintain (DBOM) or some variation thereof.

A facility could be developed at county-owned properties such as MCYTFC or Site 2. The County could opt to purchase land for an organics processing facility. Until the County develops its capacity, the County is considering issuing a Request for Proposal for adequate organics processing capacity at one or more out-of-county facilities for 2021-2025.

Benefits of developing a County-owned Organics Processing Facility include:

- Provides County control of processing and operations;
- Reduced risk and ensures adequate capacity;
- Potential to develop as a Regional facility;
- Combine with anaerobic digestion technology;
- Revenue from compost and electricity sales;
- Reduced hauling distances;
- Lower GHG emissions compared to landfill disposal.

5.3.2 Resource Recovery Park

In essence, the County's Shady Grove site is a resource recovery park. The facility provides several functions within a very constrained space. It will be more difficult for this facility to operate efficiently with a growing population and more waste to manage. As the County moves forward with plans to develop new infrastructure, it may be possible to site these facilities at one location and develop a new resource recovery park. This park could include another drop-off location to relieve the strain on the Shady Grove Transfer Station site, as well as include a reuse area.

The County is evaluating siting multiple facilities in one site. This facility could co-house processing facilities to provide a network of facilities to develop innovations in waste processing and develop circular economy opportunities.

Benefits of developing a Resource Recovery Park include:

- Co-locating facilities can provide efficiencies in collection and processing;
- Would minimize nuisance impacts as facilities are consolidated;
- May allow for new facilities such as reuse centers or other drop-off facilities;
- Potential to develop an "innovation" park to create new markets and products; and,
- Contribute to a circular economy.

5.4 Potential New Private Facilities

5.4.1 In-County Infrastructure

Private persons who wish to operate solid waste disposal facilities in Montgomery County may not do so without a State solid waste disposal permit. The State will not issue a permit unless the site is consistent with the Comprehensive Solid Waste Management Plan. With respect to private sites:

1. The County will review and comment on state solid waste disposal permit applications; the site and any facility on the site must comply with all County laws and with relevant parts of this Plan.
2. The County, as part of its review of permit applications, will designate materials that private facilities are permitted to process. These designations will be made at the time of application according to public solid waste flow control needs and may change from application to application.
3. At the time that a property owner applies for a state solid waste refuse disposal permit, the County will review the permit application following Section 9-210 of the Environment Article to determine the conformity of the proposed private facility with County land use, zoning, and solid waste laws, regulations and plans.
4. The County Zoning Ordinance limits privately owned transfer stations, landfills, and incinerators to the IH heavy industrial zone. These facilities are permitted in the IH zone only if the County Board of Appeals grants a special exception determining that the specific IH parcel is suitable for a transfer station, landfill, or incinerator following the standards outlined in the Zoning Ordinance. The Zoning Ordinance allows the construction of a recycling facility in a Rural Service Zone if the facility meets special development standards outlined in Chapter 59, Section 3.6.9 of the County Zoning Ordinance. This section of the County Zoning Ordinance covers minimum standards for lot size, road frontage, distance to an interstate interchange, building setback, and on-site screening and landscaping. This section also requires the facility to have a construction debris recycling permit that satisfies the materials handling and reporting requirements. The Zoning Ordinance allows private recycling facilities in select industrial zones.
5. DEP will explore interest and roadblocks to the private sector development of nearby recycling facilities for such special wastes as yard waste and food waste. DEP will continue to review and possibly modify existing regulations to promote the expansion of private recycling infrastructure within the County.

6. In 2017, C&D Recovery, located at 24120 Frederick Rd, Clarksburg, MD 20871, handled approximately 18 percent of the C&D managed by the private sector. The facility was under re-construction and recently opened its door for business.

5.4.2 Out-of-County Infrastructure

Private facilities handled 51 percent of the rubble, land clearing, and C&D generated in the County in 2017 and managed more than 141,000 tons of MSW generated in the County. As detailed in Chapter Three, there are many other options outside the County where collectors may choose to take C&D and MSW. Other privately-owned facilities outside Montgomery County accept land clearing, hazardous wastes, medical wastes, dead animals, automobiles, and tires.

5.5 Current Plan of Action for Reduction of Solid Waste Generation and Maximize Recycling

The residents and businesses of Montgomery County have achieved a recycling rate of approximately 55.9 percent and a waste diversion rate of 60.9 percent in 2017. Sections 5.5 and 5.6 describe in detail the mechanisms for managing each of the waste streams identified in COMAR 26.03.03.03 §D(1). Table 5.1 summarizes whether or not there are changes and, if so, the section where the changes are addressed.

Table 5.1 Mechanism for Managing the Waste Stream According to 26.03.03.03 §D(1)

Waste Category 26.00.01	Plan of Action Section #
MSW Residential	5.5 and 5.6
MSW Commercial	5.5 and 5.6
Industrial (solids, liquid, etc.)	5.5 and 5.6
Institutional (schools, hospitals, etc.)	5.5 and 5.6
Land clearing and demolition debris (rubble)	5.6
Controlled hazardous substance (CHS)	No changes
Dead animals	No changes
Bulky or special wastes	5.5 and 5.6
Vehicle tires	No changes
Wastewater treatment plant sludges	No changes
Septage	No changes
Asbestos	No changes
Concrete/Brick	5.6
Special medical waste	No changes
Household Hazardous Waste & Eco-Wise	No changes
Soil	No changes
Wood waste	No changes
Paint	No changes

To manage the above waste streams, DEP will continue with the efforts described in Chapters 3 and 4 of this Plan:

1. Continue to provide education, outreach, training, technical assistance, and guidance to single-family and multi-family residents, multi-family property owners, managers, condominium and common ownership community boards, and businesses including business owners, managers, commercial property owners, property management companies, employees, commercial service providers, and refuse and recycling collection companies to further increase participation in recycling, reuse, waste reduction and buying recycled programs.
2. Continue to provide a comprehensive level of outreach, education, training, technical assistance, and site-specific recommendations to businesses and multi-family properties to implement, improve, or expand on-site recycling programs using on-site visits by County staff.
3. Continue dedicated enforcement of the County's recycling regulation, County Executive Regulation 1- 15, as it pertains to businesses and multi-family properties by thoroughly investigating cases of non-compliance and judicious use of progressively stronger enforcement techniques.
4. Continue dedicated enforcement of the County's companion recycling regulation, ER 18-04, about haulers and collectors of solid waste, together with ER 1-15, implements the County's ban on disposal of targeted recyclables.
5. Expand efforts to implement cooperative recycling and refuse collection programs among businesses in the Central Business Districts. Data has shown that when businesses that generate similar types of waste contract their recycling and refuse collection services together with one collection service provider and share a common set of recycling and refuse collection containers, the businesses increased the number of materials they recycle and the quantity. Most participating businesses experienced a decrease in their monthly recycling and refuse collection service costs due to collection efficiencies.
6. Target Additional Materials for Reuse: As opportunities arise, the County will target additional types of materials for reuse programs. The County will refine waste generation and waste reduction measurement techniques, document results of waste reduction activities, and develop cost/benefit assessments for new waste reduction initiatives. The

County will continue to work cooperatively with regional organizations to promote waste reduction, including supporting legislative initiatives about waste reduction.

7. **Target Additional Materials for Recycling:** The DEP will continue to explore any practical opportunity to expand the range of material types that can be recycled, whether by collection, drop-off, or special events. The DEP may look for opportunities to develop new cost-effective programs for materials that are currently recyclable but are relatively small components of the waste stream.
8. DEP will monitor potential technological advances in food waste composting and anaerobic digestion to determine if these activities may be suitable for implementation in the County. This can include programs that target specific types of food waste generators, e.g., institutions, grocery stores, and restaurants.
9. Almost all types of plastics, except film plastics and polystyrene, are now included in the County's recycling program. Markets for film plastics continue to require purities beyond the practicable capability of the County's curbside recycling collection program. However, film markets have demonstrated tolerance for the grocery store-type bags returned to some of those stores. Many grocery stores and some retail stores in the County take plastic bags, shrink/stretch wrap, and other plastic films for recycling. The County will continue to work with grocery stores and other retailers to promote film plastic recycling via this route.
10. **New Education Methods:** DEP will appraise the effectiveness of alternative education and outreach strategies and will focus its efforts on initiatives quantifiably demonstrated to have a measurable positive effect on recycling performance. The County Executive's annual operating budget submission must include summary findings of participation studies, focus groups, surveys, and other means used to evaluate the effectiveness of alternative techniques and must describe how these findings justify the specific outreach, education, training, and technical assistance proposed for funding in the upcoming fiscal year.
11. **Incorporated Municipalities:** The County has provided access to the MRF to all County municipalities providing curbside recycling collection services, including commingled materials and source-separated residential mixed paper. Some County recycling program resources, particularly in support of multi-family and non-residential recycling, have been made available to the municipalities.
12. **Purchase of Goods Containing Recycled Materials:** Section 11B-56 of the Montgomery County Code establishes that recycled paper and paper products should constitute at least 50 percent of the total dollar value of paper and paper products purchased by or for the County government. The same section of the County Code also mandates that County agencies either require goods containing recycled materials or use a percentage

price preference (up to 10 percent) for recycled materials when purchasing goods. The Office of Procurement reviews all purchasing agreements to ensure compliance with the requirements of the County Code. DEP distributes information on the availability of recycled materials products to County businesses and municipalities to encourage them to use these materials.

13. Continue working with agencies that issue event permits for special events, as described in section 3.3 of this Plan.
14. Continue providing support to the Montgomery County Public Schools SERT team to implement and improve recycling in Public Schools, according to 3.3 of this Plan.
15. The State "Recycling- Apartment Buildings and Condominiums (2012) Act". To comply with this Act, Montgomery County intends to continue its current multi-family recycling program, as described in Section 3.3 of this Plan.
16. Consistent with State Bill SB370, Environment – Recycling – Office Buildings requires the Counties to address the collection and recycling of recyclable materials from buildings that have 150,000 square feet or greater of office space. The County implements the Recycling Plan for Office Buildings, as described in Appendix F of this Plan.
17. DEP will provide input related to solid waste management to the Climate Workgroup currently working on the Climate Action and Resilience Plan (CARP). Once the CARP is finished, it will help make some of the decisions in this Plan of Action.

5.6 Enhanced Plan of Action for Reduction of Solid Waste Generation and Maximize Recycling

As shown in Figure 5.1, a comprehensive suite of options was developed and vetted through DEP staff and the Task Force⁴. Input received as part of the public meetings was considered in the selection of the recommended options. The options took into consideration environmental, technical, social, and financial factors as well as their potential to reduce waste and improve recycling assisting the County with its goal of aiming for zero waste.

The options will build on and enhance the County's already successful recycling program described in Chapter 4 and Section 5.5 of this Chapter.

Figure 5.1 Options to Reduce Waste and Increase Recycling

Reduce Waste & Reuse Items <ul style="list-style-type: none"> • Food waste reduction campaign • Fix-it/repair clinics • Materials exchange network • Reuse events • Sharing libraries • Reuse centers 	Recycle <ul style="list-style-type: none"> • Textiles • Mattresses • Carpets • 2nd Cart to capture more materials 	Compost <ul style="list-style-type: none"> • Commercial, School and Residential Food Waste • Backyard and Community Composting 	Convert Waste to Energy
Landfill	Education, Outreach and Enforcement		
<ul style="list-style-type: none"> • Expand Trash Collection to Sub-district B • C&D Materials Management • PAYT/Standard Trash Container 	<ul style="list-style-type: none"> • Bulk Trash • Regulatory Mechanisms • Other Supporting Initiatives 		

The recommended options are presented in the order of the waste hierarchy adopted by the County, which is based on EPA's waste management hierarchy. Some of them are fairly straightforward to implement with current resources. In contrast, others such as source-separated organics will require further planning, additional budget development, and new infrastructure and processing facility. As DEP moves into the implementation phase, it will consult internally and with stakeholders to make the best decisions for people living and working in Montgomery County.

The following table presents the estimated tons of materials diverted and disposed by all sectors in the County with the implementation of the recommended options. In this table, the materials diverted include:

- Recycling - those materials accepted in the County's curbside recycling program (commingled materials and mixed paper products);

⁴ <https://www.montgomerycountymd.gov/SWS/Resources/Files/master-plan/task-force-recommendations.pdf>

- Yard trim - leaves, grass, and brush;
- Organics - food scraps and non-recyclable paper; and
- Other materials diverted - ferrous and non-ferrous metals, textiles, leather, carpets, wood waste, tires, electronics, batteries, and manure.

Recycling rates were calculated based on the estimated tons diverted, as shown in Table 5.2 below. In the table, the Recycling Rate represents the diversion of tons from the recommended options only, without any recovered material from the RRF. The MRA Recycling Rate represents the tons diverted from the options as well as material recovered from the RRF. The Diversion Rate represents the MRA Recycling Rate plus the 5% Source Reduction Credit.

These estimates represent realistic, achievable capture and participation rates based on experiences in other jurisdictions. Achieving higher diversion rates would require greater levels of enforcement with fines for non-compliance. The Diversion Rate estimates assume that the maximum five percent Source Reduction Credit would continue to be earned.

Table 5.2 - Recycling, MRA, and Diversion Rates

	Recycling Rate (Recommended Options Only)	MRA Recycling Rate (Includes Ash)	Diversion Rate (Includes Source Reduction Credit)
2017	41.8%	55.9%	60.9%
2021	43.3%	56.9%	61.9%
2026	49.8%	61.5%	66.5%
2030	52.2%	63.2%	68.2%
2035	52.6%	63.5%	68.5%
2040	52.4%	63.4%	68.4%

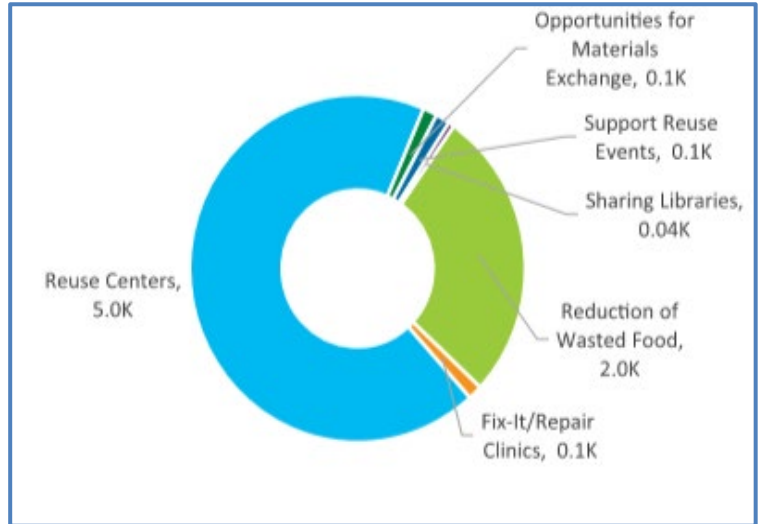
5.6.1 Reduction and Reuse

At the top of the waste management hierarchy are source reduction and reuse, which are critical to impact behavioral change. The following tables present options intended to encourage reduction and reuse through new programs and regulatory options.

Jurisdictions are recognizing that encouraging reduction and reuse have numerous benefits, including;

- Reducing the need for extraction of virgin materials,
- Changing attitudes and perceptions of single-use and disposable materials, and
- Reducing the volume and tons of materials requiring management.

There are many opportunities to encourage reduction and reuse, which can be delivered through partnership-based initiatives with non-profit organizations. This could include food waste reduction campaigns and donations of food by businesses. On-going education and outreach are critical elements of effecting change in waste reduction and reuse.



Reduction and Reuse

CHALLENGES/OPPORTUNITIES

- The County has little control over consumer decisions or actions but can continue to provide information about reducing waste to encourage changes in behavior.
- Reducing waste is key to moving towards zero waste.
- Consumers are becoming more aware of environmental issues, such as single-use items, over- packaging, fast fashion, and food waste. They are making changes, as well as advocating for change to reduce waste.
- On-going education and outreach about minimizing waste generation is required and is an integral component of all options part of this Plan.
- All residents in the County can participate in programs.
- While most options do not divert significant tons, they are essential to change societal behavior.

OPTIONS TO INCREASE WASTE REDUCTION AND USE

- Food waste reduction campaigns
- Fix-it/repair clinics
- Sharing libraries
- Reuse events
- Reuse centers
- Community/neighborhood exchanges
- On-line portal for material exchange
- On-going education, outreach, and enforcement and targeted campaigns

DIVERSION POTENTIAL: Approximately 7,000 tpy with all options fully implemented.

ANNUAL GHG REDUCTION POTENTIAL: -39,000 MTCO₂E

TIME FRAME: Implement in the short-term, maintain over the mid- to long-term.

5.6.2 Regulatory Options to Encourage Waste Reduction and Reuse

CHALLENGES/OPPORTUNITIES

- County has already implemented bans on some materials. These can be enhanced and/or expanded.
- County has the opportunity to show leadership in waste reduction through additional waste reduction initiatives in County facilities.
- Many options do not divert significant quantities of waste but are important components of zero waste programs and changing behavior.
- People are more aware of issues regarding single-use materials through recent media attention and are more supportive of waste reduction measures.

REGULATORY OPTIONS TO REDUCE WASTE

- Ban single-use plastic shopping bags and increase the fee for paper bags.
- Reduce single-use plastic water bottles in County facilities and install water refill stations.
- Revisit ordinances to explore how to expand and include more materials (e.g., single-use food ware, Styrofoam®, etc.).
- Advocate for Extended Producer Responsibility (EPR) of other materials and container deposit legislation.
- On-going education, outreach, enforcement, and targeted campaigns.

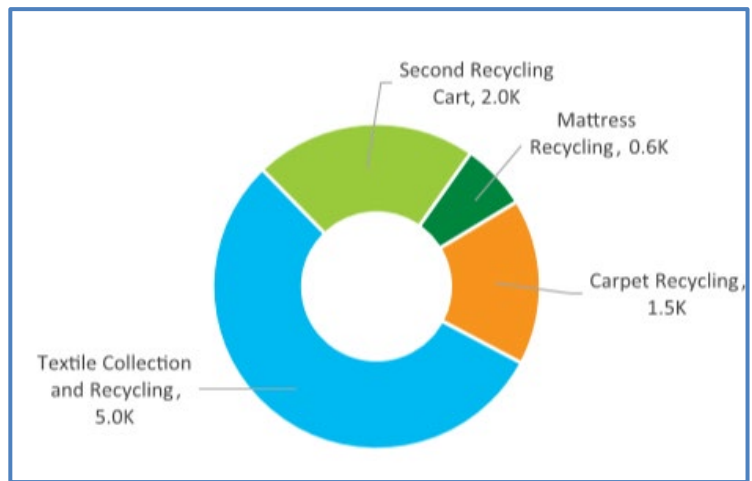
DIVERSION POTENTIAL: Approximately 3,000 tpy with all options fully implemented. Extended Producer Responsibility and container deposit programs could divert more materials.

ANNUAL GHG REDUCTION POTENTIAL: -9,000 MTCO₂E

TIME FRAME: Implement in the short-term, maintain over the mid- to long-term.

5.6.3 Recycling Other Materials

Recommended options to increase recycling and reduce the volume of waste that needs disposal include: providing a second recycling cart with more capacity for residents to manage recyclables at home and recycling more materials such as textiles. Other materials such as mattresses and carpets are more difficult to recycle due to limited options for recycling currently available. Extended Producer Responsibility (EPR) programs for mattresses and carpets are expanding, and with advocacy, it could be a state program in the future. In the meantime, the County is evaluating the implementation of EPR initiatives and could also enter into partnerships to deliver the recycling programs for these additional materials.



Recycling More Materials

CHALLENGES/OPPORTUNITIES

- Residents of Sub-districts A&B should have two recycling carts to capture more materials (currently, residents have one recycling bin for commingled materials and one recycling cart for mixed paper and cardboard items).
- Textiles are an easily diverted material. Opportunities currently exist at the Shady Grove site to recycle textiles, but the program could be expanded. There are existing recycling programs delivered by organizations that collect and recycle textiles from residents (at the curb and in multi-family buildings). Curbside collection programs may negatively impact existing thrift stores and charitable organizations by competing for textiles in a good quality condition that are, in fact, reusable. The County should focus its textiles recycling program on those textiles that, due to poor condition or other factors, can no longer be reused by others and instead should be processed into fibers and then recycled into new items. Ample reuse opportunities, which fulfill the more desired material management method in the waste management hierarchy, are already provided by the many charitable organizations in the County.
- Mattresses and carpets are difficult to recycle materials with limited options for recycling. EPR or state grants would assist with developing markets and make collecting these materials more feasible.
- Porcelain and ceramics are low tonnages, difficult to recycle items. Current markets are not conducive to collecting these materials for recycling. The County should continue to monitor opportunities to recycle these materials in the future.

OPTIONS TO INCREASE RECYCLING

- Provide a second recycling cart to single-family residents in Sub-districts A&B.
- Textile diversion awareness campaign and collection strategy.
- Mattress collection.
- Carpet collection.
- On-going education, outreach, and enforcement, and targeted campaigns.

DIVERSION POTENTIAL: Approximately 9,000 tpy with all options fully implemented.

ANNUAL GHG REDUCTION POTENTIAL: -27,000 MTCO₂E.

TIMEFRAME: Short, mid, and long-term implementation, mid- to long-term operation.

5.6.4 Strategic Plan to Advance Composting, Compost Use, and Food Scraps Diversion in Montgomery (County Bill 28-16)

Reducing or eliminating the amount of food being wasted is the most effective waste management tool. Increasing the amount of food scraps separated from other waste and recycled is critical to reaching the County's goal of zero waste. The Strategic Plan provides a framework for each of the six focus areas described below. Implementation plans have been or are to be developed for each focus area. They will include timelines, cost estimates, and assessments to mitigate potential impacts on the County's overall waste management system. Additional research may be required to identify revisions to existing regulations, policies, or standard practices for managing food scraps. Accurate data and metrics are needed to assess current efforts, identify additional food scraps sources, and secure the processing capacity required to develop and maintain a successful food scraps reduction and recycling program.

1. **Reducing Wasted Food/Channeling Food to Others:** Expanded and targeted education of donors to understand what is "acceptable" in terms of donating foods to others can reduce the amount of food wasted and disposed of as trash. The County works to decrease the amount of food thrown away and decrease food insecurity through efforts such as:
 - Educating food producers, wholesalers, and retailers on how to manage food to reduce the amount of leftover food waste created. The Strategic Plan provides the direction, framework, and strategies for reducing the amount of food wasted to balance food production with food demand.
 - Providing food that would otherwise be wasted to organizations that serve people in need; and
 - Expanding education of donors to understand what is "acceptable" in terms of donating foods to others.

2. **In-Home, Backyard, and Community-Scale Composting:** The County has begun a program to test and evaluate the effectiveness of rodentproof backyard compost bins for use by residents to compost food scraps in their backyards. The County is also working to reduce the volume of food scraps currently disposed through increasing at-home, backyard, and community-scale composting programs.

3. **On-Site Institutional and On-Site Business Composting:** DEP has identified several businesses and organizations with on-site composting programs for food scraps and/or other organic materials recycled on-site. DEP supports expanding on-site composting at businesses and commercial properties, as well as certain multi-family properties to minimize the amount of food scraps entering the County's solid waste stream.

4. **On-Farm Composting:** DEP works with the County's Office of Agriculture Services to support and promote properly managed on-farm composting to reduce the volume of food scraps entering the County's solid waste stream.
5. **Composting Capacity to Serve Montgomery County and Recycling of Food Scraps in the Commercial Sector:** More recently, there has been an increasing availability of processing facilities in the regional market to accept and process food scraps for recycling. DEP has secured a limited amount of capacity at a food scraps composting facility, the Prince George's County Organics Compost Facility in Upper Marlboro, Maryland. DEP has implemented its Commercial Food Scraps Recycling Partnership Program, through which DEP offers stable food scraps recycling capacity to large generators of food scraps in Montgomery County, and provides technical assistance, as well as financial and other incentives to expand the number of County businesses that implement programs to source separate their food scraps for recycling. These businesses continue their efforts to recycle food scraps by securing food scraps recycling collection services from various other service providers. At the same time, DEP is encouraging the development and expansion of processing facilities to increase capacity for additional tonnages of food scraps for recycling.
6. **Strategies to Maximize Food Scraps Collection at the Curb:** DEP is implementing a pilot program in FY22 to provide single-family residential curbside recycling collection of food scraps and other acceptable organic material in two specific geographic areas of the County. One area is within Subdistrict A, and the other in Subdistrict B. DEP issued a Request for Proposal and has now executed a contract for food scraps collection services for this pilot program. DEP will utilize available capacity secured at the Prince George's County Organics Compost Facility for processing of the collected material.

Organics Diversion

CHALLENGES/OPPORTUNITIES

- Backyard composting is typically used by municipalities as a low-cost, complementary activity to a curbside collection program. A high degree of municipal encouragement and involvement is needed to maintain regular participation and use of backyard composting units.
- Community composting for garden or food scraps can utilize low-tech methods such as composting bins or vermicomposters. These initiatives create opportunities for community engagement and education on the value of composting and can divert some organic waste. It relies heavily on volunteers.
- Diversion of food scraps in schools provides opportunities to educate students and cultivate positive environmental attitudes.
- Curbside collection of food scraps and non-recyclable paper for single-family homes in Sub-districts A&B is critical to diverting organics from disposal and increasing the County's recycling rate.
- Organics (food scraps and non-recyclable paper) collection in multi-family buildings is more complex and should only be introduced once the single-family residential program is established.
- Diversion of food scraps from the non-residential sector can be phased in according to generation rates and availability of processing capacity. Responsible management through the waste hierarchy should be encouraged, prioritizing source reduction and/or donation.
- All sectors require on-going education, outreach, and enforcement.
- The greatest challenge facing the implementation of an organics program is the availability of processing capacity, particularly for food scraps.

OPTIONS TO DIVERT ORGANICS

- Mandatory diversion of food scraps for businesses.
- Pilot and full-scale organics collection for single-family residents in Sub-districts A&B.
- Pilot and full-scale organics collection for multi-family residents.
- Community composting.
- Backyard composting.
- Diversion of food scraps in schools.
- On-going education, outreach, enforcement, and targeted campaigns.

DIVERSION POTENTIAL: Estimated 60,000 tpy with all options fully implemented.

ANNUAL GHG REDUCTION POTENTIAL: -2,200 MTCO₂E

TIME FRAME: Short to mid-term implementation, on-going operation.

5.6.5 C&D Materials Management

The Shady Grove site could provide a convenient and economical location for managing C&D materials if additional space is available. The County has adopted the IGCC (International Green Construction Code), which requires not less than 50 percent of non-hazardous construction waste to be diverted from disposal. Additional regulations would divert waste from the Transfer Station and increase the recycling of C&D materials.

CHALLENGES/OPPORTUNITIES

- County has implemented IGCC requirements to ensure C&D materials are being diverted properly. Additional enforcement would increase diversion.
- Deposit programs for developers to show proof of recycling can increase diversion.
- There are several private C&D recycling/disposal facilities in and around Montgomery County, many of which have higher tipping fees than at the Shady Grove site.
- Higher tipping fees at the Transfer Station would reduce the number of problematic materials (e.g., shingles) received.
- Since there are a number of alternate recycling/disposal facilities in the area, the County could stop accepting C&D materials and not have to manage these materials at the transfer station or RRF.
- The county could support the development of new markets for C&D materials such as wood or glass.

OPTIONS TO MANAGE C&D MATERIALS

- Increase tipping fees for C&D materials at the Transfer Station.
- Increase enforcement of IGCC requirements.
- Develop a new diversion ordinance or update existing ordinances to include deposit programs.
- Stop accepting some or all C&D materials at the Shady Grove site.
- Encourage the development of new markets for C&D materials if/when a Resource Recovery Park is established.
- On-going education, outreach and enforcement, and targeted campaigns.

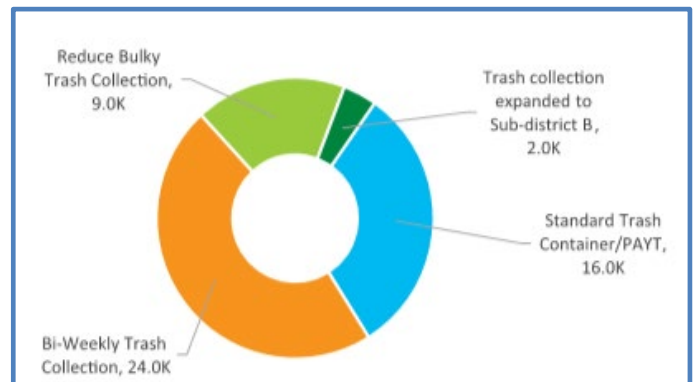
DIVERSION POTENTIAL: ~46,000 tpy with all options fully implemented. Additional materials could be diverted with the development of new markets/products. Diversion of C&D materials does not count towards MRA recycling, but it will free processing capacity at the Transfer Station and RRF and potentially reduce bypass tons.

ANNUAL GHG REDUCTION POTENTIAL: -9,000 MTCO₂e

TIMEFRAME: Short to mid-term implementation, on-going operation.

5.6.6 Trash Disincentives to Increase Recycling

Trash disincentives are program elements with significant potential to reduce waste disposal and encourage participation in diversion programs. The proposed capacity for the standard trash container should be sufficient to manage typical residential waste quantities from households participating in diversion programs. This will encourage waste reduction and use of the County's recycling and organics collection services and diversion programs.



CHALLENGES/OPPORTUNITIES

- MoCo has very generous allowances for curbside trash collection, bulky collection, and drop-off at the Shady Grove site. Following are strategies for further review and their predicted possible results:
- Restricting trash set-out could encourage reduction, reuse, and recycling. This could be accomplished with the use and enforcement of a standard trash container.
- A standard trash container could reduce the ability of rodents/vermin to get into the trash by replacing existing resident’s owned damaged containers and/or residents’ placing bagged materials at the curb.
Standard trash containers will be collected using a mechanical lifter which will also result in increased worker safety.

OPTIONS TO DISINCENTIVIZE TRASH

- Consider using a standard trash container with an allowance for excess trash (tags or specially marked bags as part of a PAYT system).
- Consider reducing the number of items collected in the bulk trash curbside service.
- Consider reducing the amount of trash accepted at the Shady Grove site at no charge or implement a minimum fee.
- Consider the implementation of every other week trash collection once the County-wide residential curbside organics program is in place.
- Continue with on-going education, outreach, enforcement, and targeted campaigns.

DIVERSION POTENTIAL: ~49,000 tpy with all options fully implemented.

ANNUAL GHG REDUCTION POTENTIAL: -81,000 MTCO₂e

TIMEFRAME: Mid-term implementation, on-going operation.

5.6.7 Responsible Management of Materials - Collection Enhancements

The following sections discuss how materials can be collected to divert more materials and disposed of in a fiscally and environmentally sound manner. These recommendations are intended to enhance the County's collection system as it changes with the implementation of new programs and services. There are opportunities for a more efficient collection of materials through changes to how and where materials are collected. Some of these changes will also encourage participation in diversion programs. The extension of the trash collection services to Subdistrict B is core to the success of other programs. Office of Legislative Oversight published a report on Trash and Recycling Collection⁵ with a detailed analysis of the services and possible alternatives.

CHALLENGES/ OPPORTUNITIES

- The County currently only provides trash collection services to Sub-district A; extending this service to Sub-district B will give more control to the County to implement additional diversion programs and incentivize residents to participate. This is a critical element of a successful implementation of new diversion programs and changes to other programs.
- The County currently has 13 service areas with several collection contracts. Reducing service areas and contracts will reduce the administrative burden and allow the County more flexibility to change programs.
- Franchising would reduce the number of collection vehicles in the County, collecting waste from the multi-family and non-residential sectors, and would provide more control to the County. This is a contentious issue and would require more analysis and consultation.
- County only collects HHW and electronics at the Shady Grove site. Mobile collection of these materials could be considered to increase diversion.
- Separate collection of organics and yard trim will be more expensive with new containers and collection vehicles but is anticipated to result in higher participation and more flexibility/control of processing.
- Once a curbside organics program is in place, there is an opportunity to move to every other week collection of trash and potentially recycling, which would encourage participation in the diversion programs offered by the County

⁵[Trash and Recycling Collection: An Evaluation of Current Policies Report Number 2019-17. November 12, 2019](#)

OPTIONS TO ENHANCE COLLECTION

- The County should consider providing trash collection services to Subdistrict B.
- Convert to every other week collection of trash and recycling, alternating with organics collection.
- Reduce the number of collection areas and contracts.
- Consider franchising if the County requires more control over the waste collection from the multi-family and non-residential sectors.
- Mobile collection of HHW and electronics.
- On-going education, outreach, enforcement, and targeted campaigns.

DIVERSION POTENTIAL: ~2,000 tpy (for expansion of trash collection to Sub-district B). Diversion potential for every other week collection is already accounted for in the estimates of organics and recyclables diverted.

ANNUAL GHG REDUCTION POTENTIAL: -4,700 MTCO₂e

TIMEFRAME: Implement in the short-term, maintain over the mid- to long-term.

5.6.8 Supporting Mechanisms

There are several supporting mechanisms to increase diversion, create opportunities for new markets supporting the circular economy, and create some efficiencies in service delivery.

Supporting Waste Reduction, Reuse, and Recycling

CHALLENGES/OPPORTUNITIES

- Recognition programs for recycling or sustainability efforts made by businesses can encourage residents to shop locally and support these businesses.
- Continue to work with businesses to support efforts to reduce or recycle waste and provide grants/incentives to support programs.
- The County could support businesses/individuals waste reduction, reuse, or recycling efforts by providing space, materials, or resources for pilots.
- Most neighboring jurisdictions are facing the same waste management issues as the County and are working individually to find solutions.
- Markets need to be developed to encourage the recycling of materials.

OPTIONS TO SUPPORT WASTE REDUCTION, REUSE, AND RECYCLING

- Enhanced recognition program to feature businesses that are implementing waste reduction or recycling initiatives.
- Provide incentives such as grants to businesses for bins/carts to increase recycling.
- Develop inter-municipal partnerships or working groups to facilitate knowledge sharing, explore collaborative procurement opportunities, and harmonize programs so that residents who work/play and live in the area all have access to similar programs.
- Continue to identify opportunities to enhance green procurement and support a circular economy.

DIVERSION POTENTIAL: No direct diversion potential. Benefits are indirect.

ANNUAL GHG REDUCTION POTENTIAL: No direct GHG reduction potential.

TIMEFRAME: On-going.

Supporting Education, Technical Assistance, Outreach, Training, and Enforcement

Most, if not all, options will require on-going education and enforcement for successful implementation.

CHALLENGES/OPPORTUNITIES

- The direct impacts of Education, Outreach, and Enforcement are difficult to measure but critical to successful waste management programs and services.
- The DEP is proactive in conducting education, outreach, training, and enforcement across all sectors in the County.
- The introduction of new programs will require targeted outreach, education, and training as well as enforcement.
- Achieving high levels of participation and higher capture rates will require delivering education and outreach programs on an on-going basis, updated regularly to keep content fresh.
- Enforcement will be required to ensure residents and businesses participate properly in programs.
- Communicating progress updates on program implementation and success can motivate residents and businesses.
- Results of the County's 2018 survey showed that the majority of respondents want more education in recycling and environmentally related topics.

OPTIONS TO SUPPORT WASTE REDUCTION, REUSE, AND RECYCLING

- Continue outreach, education, and training and reinforce with enforcement as necessary.
- Document the number of enforcement activities (e.g., fines, oops stickers) to measure the effectiveness of education, outreach, and enforcement activities.
- Develop targeted campaigns for new programs, materials with low capture rates, and look for new opportunities to inform residents/businesses about waste reduction, reuse, and recycling.
- Develop realistic and achievable performance metrics (e.g., waste disposal or generation rates) to monitor the success and performance of programs and identify areas for improvement.
- Review the County DEP website for clarity, ease of use, and navigability on both computers and mobile devices, including tablets and cell phones.
- Support the development of an app for cell phones to provide further information on County waste management programs and as well, opportunities/locations to reuse or recycle materials.
- Conduct regular waste audits as well as pre/post-program implementation to monitor the effectiveness of education and outreach, particularly if there are targeted campaigns, and to identify issues.
- Enforce regulatory requirements of collectors and others delivering loads of waste to the Transfer Station, which contain mandated recyclable materials.
- Utilize more workers in the Recycling Investigations Unit, specifically to investigate the sources of generated loads delivered to the Transfer Station, which contain recyclable materials mandated for recycling.
- Enforce recycling through citations for single-family homes by incorporating a program similar to the one currently used for multi-family and commercial properties to teach residents the importance of recycling.
- Develop policies to address trucks arriving at the MRF with contaminated material.

DIVERSION POTENTIAL: no direct diversion potential. Benefits are indirect.

ANNUAL GHG REDUCTION POTENTIAL: No direct GHG reduction potential.

TIMEFRAME: On-going.

5.7 Impacts of Recommended Options to Reduce Waste and Increase Recycling

The recommended options will have financial, environmental, and social impacts on the residents and businesses of Montgomery County. Highlights of the findings are presented in this section.

5.7.1 Financial Impacts

Implementation of the options recommended for the Plan of Action will have a significant financial impact on the County. Some options (e.g., waste reduction and reuse) are low cost and require predominantly time and materials related to education and outreach. Other, more sophisticated options, such as the curbside SSO program, will require significant expenditures in targeted outreach and education programs, containers, collection, and processing of materials. As explained in the next section of this chapter, under County law, the charges set by the County for solid waste services must equal expenses (i.e., revenue-neutral).

Waste management programs and services are like other services provided by the County, whether they are related to water, transportation, housing, medical services, etc. In general, they are not generating significant amounts of revenue. Committing to sustainability goals sends a clear message to residents and businesses that the County embraces a social purpose and highly values the environment. Investments in the County for waste programs, services, and infrastructure would be an investment in the future of waste diversion for County residents.

5.7.2 Environmental Impacts

Many of the recommended options result in source reduction, which provides the most significant reduction in GHG emissions. Recycling and composting more materials also result in reductions in GHG emissions. The County has already implemented measures that reduce emissions from transportation using rail haul to the RRF. The implementation of the recommended options will contribute towards the County's goal of carbon neutrality.

5.7.3 Social Impacts

Montgomery County has developed a proactive and forward-thinking waste management system and continually strives to manage materials cost-effectively and responsibly. For the most part, the County manages materials within its borders with its infrastructure. Social impacts related to the system would include:

- Potential employment opportunities associated with new facilities and programs, as well as maintaining employment opportunities with continued use of existing facilities.

- Assisting residents in reducing their consumption costs by providing more guidance on good choices that both avoid waste generation and household expenditures (e.g., food waste reduction).

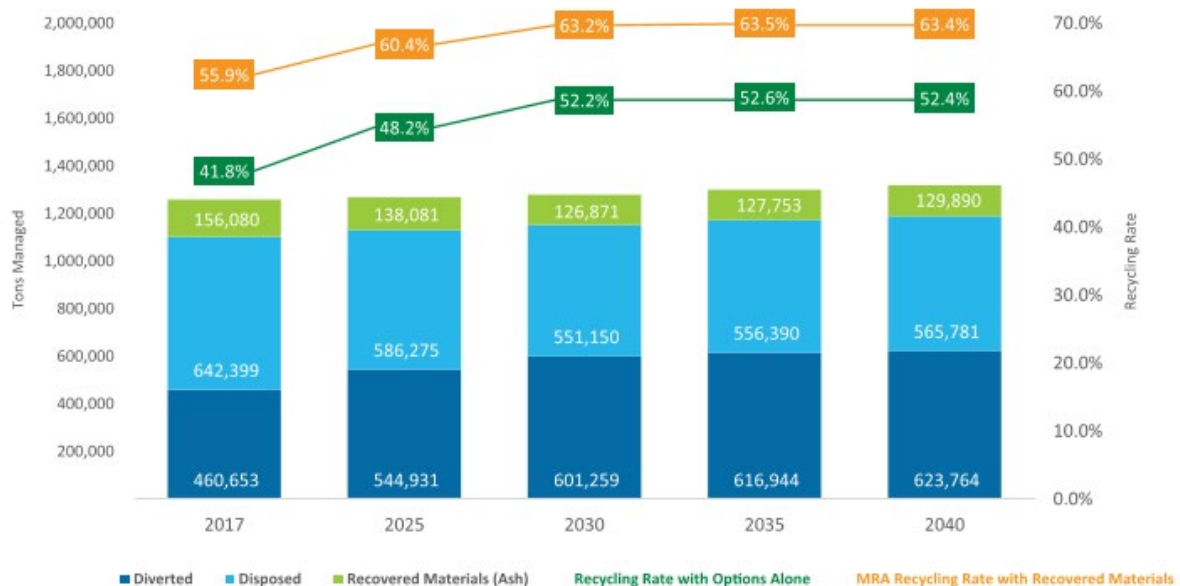
- Focusing on sustainable, in-County solutions to the extent possible – which will allow for a more resilient waste system. Investments in the County for waste programs, services, and infrastructure would be an investment in the future of waste diversion for County residents.

5.7.4 Diversion Potential

In 2017, the County reported an MRA recycling rate of 55.9 percent (includes diversion from ash/metal recovered from the RRF) and a waste diversion rate of 60.9 percent (with the 5 percent source reduction credit). Without counting ash sent to recycling, the recycling rate is 41.1 percent. By 2040, it is estimated that the County's recycling rate would increase by 11 percent with the implementation of new programs (from the options alone) to approximately 52 percent.

Figure 5.2 presents the estimated recycling and diversion rates for MSW with the implementation of the recommended options. The green line figures highlighted in green represent the recycling and diversion rates from the options themselves. These recycling rates represent capture and participation rates that are achievable by the County. To achieve higher rates, it will be necessary to undertake more enforcement, possibly with fines and/or zero tolerance, and for the County to have more control over waste management in the municipalities, multi-family, and non-residential sectors.

Figure 5.2 Estimated Recycling and Diversion Rates with Options Implemented



5.8 Financial Management System

The general expense and revenue information that shapes the County's fiscal policy for this Plan may be found in the Public Services Program (PSP)/Operating Budget and Capital Improvements Program (CIP)/Capital Budget. In conjunction with the annual preparation of the budget, DEP will prepare data and analysis detailing the current and projected six-year expenses and revenues (if applicable) of each solid waste management program. DEP also will provide long-term projections regarding the revenues collected for solid waste programs and the fees that will be necessary to support the program(s). DEP may calculate the average and/or marginal cost of other solid waste programs proposed by the County Executive. These documents will be available at County public libraries and at the offices of DEP. The Solid Waste Enterprise Fund is self-supporting through user fees and receives no financial support from the County's General Fund.

5.8.1 Budgeting

Budget Preparation

The County Executive is responsible for the preparation of the annual budget and its amendments for submission to the County Council for appropriate action. The Office of Management and Budget assists the County Executive and the Chief Administrative Officer with all budget matters, research, program evaluation, and other related matters.

The Director of DEP prepares and submits to the County Executive a recommended budget for operations and capital improvements and requests for supplemental appropriations, as needed, related to the integrated solid waste management system. The budget is developed to create flexibility to make decisions regarding expenses, revenues, and user fees that fund the operating and CIP budgets for solid waste management operations and programs.

Biosolids Management Budget Preparation

DEP reviews the budget requests of WSSC Water, which are related to the County's activities in solid waste management and makes appropriate recommendations to the County Executive.

5.8.2 Solid Waste Revenue Sources.

Chapter 48 of the Montgomery County Code, Article IV Solid Waste Fund, governs the County's solid waste management system and establishes the Solid Waste Enterprise Fund. Section 48-43 specifically requires separate subsidiary funds for the refuse collection and disposal operating activities. The activities in each subsidiary fund are self-supporting with revenues covering expenses; hence requires that the County at least annually set charges for solid waste services to equal expenses.

The Solid Waste Act adopted the Master Authorization (MA) according to the provisions outlined in (Article II, Section 2.1). The MA is essentially a contract between the County and bondholders and long-term contract holders. The bondholders and long-term contract holders rely on the MA, because it assures them that appropriate policies and procedures are in place to guarantee that there will be a sufficient flow of funds to repay bondholders and contract holders for the duration of the bonds and contracts.

The County funds its solid waste system primarily employing four revenue streams: (1) tipping fees (disposal fees), (2) systems benefit charges, (3) refuse collection and leaf vacuuming charges, (4) revenues and credits from the sale of methane, recyclables, and compost and electricity.

Revenues from these sources provide an adequate and reliable funding source to finance County solid waste programs, including all recycling services. Revenues raised from the four sources above go directly into an independent legislatively established Solid Waste Enterprise Fund that finances County solid waste programs exclusively.

Tip Fees

The County charges separate per-ton fees (\$/ton "refuse tipping fees") for accepting MSW and for accepting Construction and Demolition (C&D) material (charged for waste delivered in open-top roll-off boxes). A distinct tipping fee is also set for accepting yard waste. All tipping fees are set by the County Council and are calculated to assure full recovery of County solid waste system costs, together with all other revenue sources. Within these constraints, the tipping fees can also be set to influence behavior by incentive. The tipping fee is used as the County's "economic flow control" for waste generated in the County that is delivered to the Transfer Station for disposal. The system economics was designed to recognize the impact of both MSW and C&D material delivered to the County's facilities and make the economic outcomes relatively indifferent to the waste management techniques.

The refuse tipping fee is set and periodically adjusted, relative to the regional market, such that MSW delivered by private haulers to the Transfer Station during the forthcoming year will match, as nearly possible, a target of 85 percent to 95 percent of the RRF permit capacity (e.g., 558,450 to 624,150 tons per year based on waste with the design point heating value of 5,500 BTU/pound).

The C&D tipping fee shall be set, at a minimum, to fully cover the County's cost of handling this special type of waste but shall be set at a higher rate than the refuse tipping fee to reflect the County's preference to use the RRF for processing MSW. Material brought to the TS in open-top roll-off boxes is identified as C&D and charged a higher fee. Finally, the refuse and C&D tipping fees shall be no lower than to reasonably assure that combined deliveries to the

County do not exceed the 821,500 TPY annual limitation of the Transfer Station's refuse disposal permit.

Fluctuations in the economy affect overall waste generation. Relative changes in the use of regional disposal options by private collectors and changes in recycling performance by all sectors will continue to affect the amount of MSW delivered to the County for disposal in any year. Influences beyond the County's direct control include pre-existing private sector disposal contracts at regional facilities and regional pricing pressures. These, in particular, can affect response time (i.e., the time it takes for the market to respond to a revised County tip fee). Accordingly, DEP will deploy, develop, and maintain contingency plans and operational capacity that can be used in conjunction with refuse and C&D tipping fee adjustments to manage the amounts of incoming MSW and C&D. The contingency plans may include a controlled bypass of processible waste while tipping fee adjustments take effect.

Tip fees for refuse from non-municipal, single-family residences, and multi-family dwellings in buildings comprising six or fewer dwelling units are collected on the tax bill as disposal fees (prepaid tip fees). This is a fee for service and not a tax. The hauler cannot collect this fee from the resident since it has been prepaid. All other tipping fees are charged as waste is delivered at the Transfer Station.

Systems Benefit Charges

Systems benefit charges are imposed on residential and non-residential generators of solid waste and can include both a base charge and an incremental charge. Base systems benefit charges, after offsets from tip and disposal fees, cover all or a portion of the cost of developing and maintaining the basic programs and facilities necessary to fulfill the County's obligation to provide for the management of solid waste generated within the County. Revenues from base systems benefit charges, together with refuse tip fees and disposal fees, provide for all system costs not covered by another fee. These costs include system administration, waste reduction programs, debt service on existing facilities, and the fixed cost of disposal programs and facilities.

The County Council annually establishes system benefit charge rates and tip fees at a level necessary to raise sufficient revenues to fund County Council-approved solid waste activities and system expenses. Base system benefits charges are derived by allocating revenue generation requirements among the single-family residential, multi-family residential, and non-residential sectors in proportion to each sector's contribution to overall County waste generation. Base system benefit charges are calculated by dividing the total base system benefit charge revenue generation required from each sector, less tip fee offsets from that sector, by the total number of billable units in that sector.

From the non-residential sector, the County may charge and collect the required base and incremental systems benefit charges by various means. Currently, the County establishes,

under County Executive Regulation 9-99 (which can be amended without amending this Plan), non-residential system benefit charges which vary from property to property according to (1) the average waste generation rate for different non-residential land use categories; and (2) the property's improved gross floor area (measured by 2,000 square foot units). There are five categories of non-residential generators ranging from low generators to high generators. Non-residential solid waste generators in specific land uses are categorized into a generator category based on waste generation studies. The charge for a generator is then multiplied by the number of 2,000 square foot units attributable to that generator.

Incremental system benefit charges cover all or a portion of incremental services received by some, but not all, generators of solid waste. Incremental system benefit charges are assessed to each generating sector (single-family residential, multi-family residential, and non-residential) for services provided specifically to that sector. For example, each single-family household (in unincorporated areas of the County) that receives curbside recycling services is charged for its share of curbside recycling program costs. Incremental system benefit charges for the multi-family residential and non-residential sectors cover educational, enforcement, and outreach services provided directly for the benefit of each of those two sectors.

Refuse Collection and Leaf Vacuuming Charges

The County has separate revenue streams to fund the refuse collection and leaf vacuuming services. Single-family residences within the Solid Waste Collection District of the County have assessed charges to cover the costs of refuse collection services. Single-family and multi-family homes within the Leaf Recycling Service Area of the County have assessed charges to cover the costs of leaf vacuuming services.

Revenues and Credits

The County Solid Waste Enterprise Fund receives revenue from various sources that includes but is not limited to 1. The sale of recyclable materials recovered at MRF in Derwood, Maryland; 2. The revenue from the sale of electricity generated by methane extracted from the closed Oaks Landfill; 3. The interest earned on any reserves held by County Finance on behalf of the Solid Waste Enterprise Funds; and 4. Small amounts of revenues from miscellaneous sources such as license fees and rent.

It should be mentioned that the System Benefit Charges, Refuse Collection Fees, and Leaf Vacuuming Fees discussed above are calculated net of all projected revenues and yet fully fund the operating budgets following the Rate Covenants of the Master Authorization and Chapter 48 of the County Code.

Additionally, the County receives economic credit (in the form of reduced operating costs paid to contractors) from the sale of electricity and ferrous metals at the RRF, the sales of compost products produced at the Yard Trim Composting Facility, and from the mulch

produced by grinding brush and natural wood waste at the Shady Grove Processing Facility and Transfer Station. Revenues are also derived from interest earned on any reserves held by County Finance on behalf of the Solid Waste Enterprise Funds. Finally, minor amounts of revenues are derived from miscellaneous sources such as license fees and rent. Annually recommended System Benefit Charges, Refuse Collection, and Leaf Vacuuming Fees discussed above are calculated net of all projected revenues.

5.8.3 Biosolids Management Revenue Sources

WSSC Water funds the management of biosolids through wastewater treatment and water supply user fees.

5.8.4 Plan of Action: Financial Management System

Annually, the systems benefit charges are calculated and reviewed to ensure equitable allocation of costs amongst the different categories of ratepayers. Refuse collection and leaf vacuuming charges are calculated and reviewed and will be adjusted, as necessary to reflect the actual program costs and net asset policy compliance.

Effective financial analysis performed during the rate calculation provides rate and cost stability, budget flexibility, and prudent financial management, which helps to mitigate financial risk to the Solid Waste Enterprise Funds.

The County will continually monitor revenue generation methods to assure that each ratepayer contributes a fair and equitable share while generating sufficient resources to fund all necessary solid waste programs. The County will keep abreast of current market "gate rates" and "contract rates" to maintain competitive tipping fees. Tip fees adjustments affect the amount of waste received at County facilities. These fee adjustments will be used to manage the future waste delivered to County facilities.

The County will monitor commodity markets to assure the Solid Waste Enterprise Fund (Disposal Fund) receives the most favorable revenues and credits possible from the sale of recovered energy from electric revenue, scrap metal, the closed Oaks Landfill (landfill gas revenue), and material sales revenue from paper and commingled recyclables.

DEP established a Fund Balance Policy to provide rate stability to the Solid Waste Enterprise Fund. The policy maintains the appropriate balance of cash reserves and operating cash for the fund while mitigating financial risks.

It is strongly recommended that any change to the rate-setting calculation methodology should be reviewed and approved by (1) Financial Advisor, (2) County Finance, (3) Office of the County Attorney, (4) Bond Counsel, and (5) Office of Management and Budget.