SOLID WASTE MANAGEMENT PLAN
2018- 2037

Frederick County, Maryland

Division of Utilities and Solid Waste Management

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Introduction

BACKGROUND

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

The State of Maryland established the Maryland Department of the Environment (MDE) to enforce and implement federal and state solid waste management regulations. This Solid Waste Management Plan ("Plan") is required pursuant to Environmental Article §9-501 Annotated Code of Maryland, subject to review by the governing body of the County pursuant to Environment Article §9-503, to be reviewed and updated, if necessary, by the County every three years (§9-503(b)), along with progress reports to MDE at least every two years, including any revision or amendment of the Plan that has been adopted (§9-506(b)). Any Plan revisions or changes must also be in accordance with the Code of Maryland Regulations (COMAR) 26.03.03.05. After the adoption of any changes by the County, the Plan is then submitted to MDE for approval.

The current Frederick County Solid Waste Management Plan was adopted by the County on July 18, 2017 via Resolution No. 17-21 and approved by the Maryland Department of the Environment on October 31, 2017, which covers the period of 2018-2037.

PLAN PRIORITY

An important priority is the establishment of appropriate county and local control over the permitting and operation of required solid waste management facilities to preserve and maintain public health and environmental quality. Requirements for citizen notification and involvement in the permitting process will be expanded to increase the public awareness of solid waste facilities and of the permitting process requirements.

It is the intent of Frederick County to use this document as a planning tool for solid waste management into the 21st century. This plan is not intended to provide detailed information, however, certain information regarding existing and planned solid waste facilities are discussed and their locations are included in this plan.

The plan is also the blueprint for accomplishment of Frederick County's goal to recycle waste as mandated by the State of Maryland. Programs and policies to achieve this will be included in the plan. It is also the intent of this plan to develop and articulate issues that must be addressed in order to focus the community on the goals, objectives and concepts of solid waste management through open and active public participation. When a consensus is reached through this process,

additional planning, engineering and community involvement will define the specific sites, technologies, regulations, and policies needed to achieve these goals and objectives.

Although hazardous wastes, special medical wastes, and sludge are included in Chapters 3 and 4, Frederick County does not intend to manage these wastes under the jurisdiction of this plan except as provided for under separate federal and state permits. Hazardous wastes and special medical wastes are strictly controlled by MDE under regulations promulgated specifically for these categories, not under COMAR 26.04.07, Solid Waste Management.

PLAN ORGANIZATION

This Solid Waste Management Plan is presented in five chapters, in accordance with COMAR 26.03.03. Chapters 1, 2, and 3 present plan goals and objectives, a compilation of background data on the existing conditions, and existing solid waste facilities in Frederick County. Chapter 4 presents an evaluation of the existing solid waste management system to meet the stated goals and objectives, and an appraisal of alternative technologies that could address identified deficiencies. Chapter 5 presents the recommended actions to meet the stated goals and objectives during the planning period. A detailed summary of the content of each chapter is presented below.

CHAPTER 1 SUMMARY – GOALS AND REGULATORY FRAMEWORK

The goals, objectives and policies that will guide solid waste management in Frederick County as developed through a collaborative effort by elected leaders, County solid waste management staff and the Citizen's Solid Waste Advisory Committee are presented. The evaluation of alternatives and formulation of recommended actions in Chapters 4 and 5 are based on meeting the intent of these goals and objectives. A summary of existing federal, state, and county solid waste regulations comprises the remainder of the chapter.

CHAPTER 2 SUMMARY – COUNTY BACKGROUND INFORMATION

Population projections for the County by municipality and planning region are presented. The projections are the basis for the prediction of solid waste generation, and subsequently the sizing and staging of needed solid waste management facilities as described in the following chapters. A brief discussion of the structure of the County government as it relates to solid waste management is included. Also included is a summary of the current requirements and policies of the county zoning regulations and comprehensive plan related to solid waste management.

CHAPTER 3 SUMMARY – EXISTING AND PROJECTED GENERATION OF VARIOUS WASTES

This chapter compiles in a tabular format, for at least the succeeding 10-year period, the annual and project generation of stipulated wastes. A discussion for the basis of each waste data type, along with types and quantities of waste entering or leaving the County for processing, recovery or disposal is provided. Information and description of existing solid waste collection systems

and service area(s) is included. Finally, a map with coordinates that identified each existing public or private solid waste acceptance facilities relating to the respective size, types and quantities of solid wastes accepted, ownership, permit status and the anticipated service life (years) remaining.

CHAPTER 4 SUMMARY – ASSESSMENT OF SOLID WASTE MANAGEMENT ALTERNATIVES

Using the data compiled in the previous three chapters, an assessment of the adequacy of existing and planned management facilities and regulations to meet the goals and objectives for the planning period is presented. Solid waste management technology alternatives are identified and evaluated for their ability to meet the needs of the County.

In addition, siting constraints for solid waste facilities within the County are presented. The constraints are also presented within maps illustrating first level screening criteria for facility siting.

Source separation/reduction programs and resource recovery options are presented in this chapter with the goals to reduce solid waste disposal and land disposal capacity needs. Consumer education programs promoting source reduction and resource recovery are also included. Lastly, any programs and procedures for emergency response to spillage of hazardous materials are presented in this chapter.

CHAPTER 5 SUMMARY –SOLID WASTE MANAGEMENT PLAN OF ACTION

Based on the assessment of need and evaluation of alternatives conducted in Chapter 4, an action plan for solid waste management in Frederick County for the planning period is presented. The recommended plan includes the sizing and staging of needed management facilities, the organization of collection systems for solid waste and recyclables, and required modifications to County policies and regulations. Cost projections for the recommended plan of action, including projected County expenditures for operation and maintenance, and capital improvements for the planning period are presented. The cost data is used to calculate projected revenue requirements for each year of the planning period.

CERTIFICATIONS

The Frederick County, Maryland Solid Waste Management Plan 2018-2037 was prepared in accordance with the requirements of the Code of Maryland Regulations (COMAR) Title 26.03.03, which is included in Appendix A.

The Frederick County, Maryland Solid Waste Plan, 2018-2037, was approved and adopted by Frederick County as stipulated in Resolution 17-21 and the letter approving this Plan from MDE, copies of each follow this section.

DO NOT REMOVE FROM THE FILE

THE EFFECTIVE DATE OF THIS RESOLUTION IS July 18, 2017

RESOLUTION NO. 17-21

RE: ADOPTION OF THE 2018-2037 SOLID WASTE MANAGEMENT PLAN

PREAMBLE

Each County in Maryland is required to have a County Solid Waste Management Plan pursuant to Title 9, §503(c) of the Environment Article, Annotated Code of Maryland.

On June 30, 1998, by Resolution 98-17, the Board of County Commissioners of Frederick County, Maryland ("Board"), adopted the 1998-2017 Frederick County Solid Waste Management Plan ("SWMP"). The Maryland Department of the Environment ("MDE") approved that SWMP on November 10, 1998. The SWMP has been updated and amended several times as required by MDE and as desired by the Frederick County Government (the County) at various times throughout the time period covered by the SWMP.

The Frederick County Solid Waste Management Plan expires at the end of 2017, and MDE provided notification to the County in December 2015 that a new 2018-2037 SWMP must be adopted by the County and approved by the MDE by December 31, 2017.

Frederick County has appointed a Solid Waste Advisory Committee ("SWAC") which makes recommendations concerning proposed amendments and revisions to the County's SWMP, and as to whether proposed amendments are consistent with the SWMP. The SWAC approved the proposed 2018-2037 SWMP on January 4, 2017.

The Frederick County Planning Commission held a public hearing on the proposed 2018-2037 SWMP on July 12, 2017. The Frederick County Planning Commission found the 2018-2037 SWMP to be consistent with the Countywide Comprehensive Plan.

The County Council of Frederick County, Maryland, finds it desirable and in the best interests of the citizens of Frederick County to adopt the proposed 2018-2037 Frederick County Solid Waste Management Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNTY COUNCIL OF FREDERICK COUNTY, MARYLAND, that the County Council hereby adopts the 2018-2037 Solid Waste Management Plan which is attached hereto as Exhibit A, and grants approval to Staff to make non-substantive changes and corrections to the Plan prior to final approval by MDE.

The undersigned certifies that this Resolution was approved and adopted on the 18th day of July, 2017.

COUNTY COUNCIL OF
FREDERICK COUNTY, MARYLAND

By: Bud Otis
Harold F. (Bud) Otis, President

FILED
2017 JUL 26 PM 3:15
LINDA K. DALTON

COUNTY EXECUTIVE ACTION: ✓ Approved ____ Vetoed

Jan H. Gardner
Jan H. Gardner, County Executive

[Place MDE Letter of Approval on This Page]

Chapter 1 – Goals and Regulatory Framework

This chapter presents the goals, objectives and policies established in a collaborative effort by elected leaders, County solid waste management staff and the Frederick County Solid Waste Advisory Committee (SWAC) to guide the development of this plan.

A primary objective of this plan is to reduce waste and increase recycling and other methods in order to reduce reliance on landfilling and other disposal options in accordance with the U.S. EPA recommended Waste Management Hierarchy as shown in Figure 1-1. Protection of the environment will be promoted through increasing the role of County agencies and citizens in the permitting and monitoring of solid waste management facilities.

The remainder of the chapter presents a description of existing federal, state and county solid waste regulations related to solid waste management. The description provides a basis for formulating County legislative initiatives to supplement existing County regulations to achieve the goals and objectives presented in this plan.

GOALS AND OBJECTIVES

Figure 1-1

Source: https://www.epa.gov/homeland-security-waste/waste-management-hierarchy-and-homeland-security-incidents

Frederick County's long-range plan to coordinate and guide the physical development of the County is presented in the Frederick Countywide Comprehensive Plan (CWCP). Goals and objectives established by the CWCP are intended to remain constant during the 20-year planning period. These themes and goals are provided in Table 1-1.

Consistency with the intent of the County Comprehensive Plan is an important criterion for developing solid waste management goals and objectives. Table 1-2 presents the solid waste management goals and objectives developed by the Division of Utilities and Solid Waste Management (DUSWM) in conjunction with Frederick County SWAC.

The solid waste management goals are intended to provide a framework during the 20-year solid waste management planning period. However, the objectives are intended to be revised and/or supplemented during each plan update to reflect the dynamics of solid waste management within the County. The County and its stakeholders developed policies to guide the direction of solid waste management in the County. These policies are provided in Tables 1-2 and 1-3.

Table 1-1: Countywide Comprehensive Plan –Themes and Goals

THEME: CONSERVING OUR NATURAL RESOURCES AND GREEN INFRASTRUCTURE	
NR-G-01	Protect natural resources and environmentally sensitive areas in Frederick County.
NR-G-02	Encourage the use of local, non-polluting, renewable and recycled resources (water, energy, food, material resources).
NR-G-03	Manage growth and land development in Frederick County in a manner that is in harmony with the conservation and protection of our natural environment.
NR-G-04	Promote a reduction in per capita consumption of energy in Frederick County.
THEME:	**PROTECTING AND PRESERVING OUR HERITAGE**
HP-G-01	Minimize the impacts of development on the County's historic resources and their setting by establishing compatible land uses.
HP-G-02	Encourage voluntary protection of historic resources by providing incentives to private property owners.
HP-G-03	Protect and maintain Frederick County's most important historic structures, archeological, and natural sites, districts, and cultural landscapes.
HP-G-04	Retain as a working group those elements of the County's farm landscape that contribute to the aesthetics, historic character, and economy of agricultural areas.
HP-G-05	Maintain the historic character of the County's rural towns and villages.
HP-G-06	Support the economy of Frederick County by encouraging preservation, rehabilitation, and restoration within context, and promotion of tourism related to historic resources.
HP-G-07	Foster public education, greater appreciation, and understanding of historic and archeological resources to encourage support for preservation in Frederick County.
THEME:	**PRESERVING OUR AGRICULTURAL AND RURAL COMMUNITY**
AG-G-01	Preserve the County's prime agricultural lands for continued production.
AG-G-02	Encourage the growth of new, and the preservation of existing agricultural industries in agricultural-designated areas in order to support local farm operations.
AG-G-03	Permanently preserve through various agricultural programs at least 100,000 acres of agricultural land by 2020 and protect a total agricultural base of 200,000 acres as a Rural Reserve to support a diversity of agricultural practices.
AG-G-04	Maximize state funding and technical resources for a coordinated agricultural land preservation effort.

Table 1-1: Countywide Comprehensive Plan –Themes and Goals (Continued)

AG-G-05	Maintain compatibility and create a regional mass with agricultural preservation activity with adjoining counties.
THEME:	**PROVIDING TRANSPORTATION CHOICES**
TR-G-01	Plan a safe, coordinated and multi-modal transportation system on the basis of existing and future development needs, land uses and travel patterns.
TR-G-02	Integrate transit, pedestrian, bicycling and ADA accessible facilities into the County's existing roadways and communities and the design of new roadways and communities.
TR-G-03	Maintain and enhance the quality of the transportation system to assure an acceptable level of service, safety and travel conditions for all roadway users.
TR-G-04	Reduce the need for single occupancy auto use through travel demand management and increasing the share of trips handled by bus; rail; ride-sharing; bicycling and walking.
THEME:	**SERVING OUR CITIZENS**
SC-G-01	Provide for community services and facilities in an efficient and timely manner relative to the pace of growth.
SC-G-02	Maintain adequacy of public facilities and services relative to existing and projected targeted populations.
SC-G-03	Locate community services and facilities that maximize accessibility via transit, bicycle, and pedestrian modes of transportation.
SC-G-04	To the extent feasible, distribute public facilities and services throughout the County on a local, regional, or centralized basis.
SC-G-05	Ensure that County facilities serve all County residents equally by employing Americans with Disabilities Act (ADA) standards.
THEME:	**HOUSING GOALS**
HO-G-01	Achieve a balance of housing choices that meets the needs of Frederick County individuals and families at all income levels.
HO-G-02	Support opportunities for people to live where they work.
HO-G-03	Strive to provide those with special needs (elderly, disabled, very low income) safe, sound and sanitary homes.
HO-G-04	Increase investment in existing neighborhoods and rural communities through revitalization efforts.
HO-G-05	Utilize infill and redevelopment to increase housing choices throughout the County.

Table 1-1: Countywide Comprehensive Plan –Themes and Goals (Continued)

THEME:	**SUPPORTING A DIVERSIFIED ECONOMY**
ED-G-01	Support a sustainable, local economy that creates diverse employments and income opportunities while respecting social and environmental assets.
ED-G-02	Expand employment growth in targeted industries to ensure the County's fiscal health.
ED-G-03	Provide sufficient land resources to accommodate long-term economic growth.
ED-G-04	Sustain a balance between growth in employment and housing.
ED-G-05	Maintain agriculture as a viable industry in Frederick County.
ED-G-06	Develop the transportation infrastructure and utilities necessary to support the County's targeted industries (agriculture, biotechnology, advanced technology, and manufacturing) and overall growth in the employment sector, including growth industries of tourism, education services, healthcare services and the retail industry.
ED-G-07	Redevelop and revitalize the County's existing employment areas.
THEME:	**ASSESSING OUR WATER RESOURCES**
WR-G-01	Maintain a safe and adequate drinking water supply to accommodate the needs of the current population as well as future generations.
WR-G-02	Protect and enhance the quality of Frederick County's surface waters, ground water resources, and wetlands.
WR-G-03	Invest in water and sewer infrastructure that will provide adequate treatment capacity and reduce pollutant loading in rivers and streams.
WR-G-04	Promote coordinated planning between jurisdictions and agencies responsible for drinking water, wastewater, and storm water management.
WR-G-05	Engage the public in watershed conservation and promote a stewardship ethic.
THEME:	**MANAGING OUR GROWTH**
MG-G-01	Establish plans and policies that consider Frederick County within the context of the metropolitan region.
MG-G-02	Develop a consensus with municipalities to determine how much new residential growth is desired in municipality-centered Community Growth Areas.
MG-G-03	Ensure that adequate infrastructure is provided – concurrently with development- in order to accommodate long-term land use plans.
MG-G-04	Reduce non-rural development outside of Community Growth Areas while maintaining opportunities for compatible agricultural support services and uses in the rural Communities.

Table 1-1: Countywide Comprehensive Plan –Themes and Goals (Continued)

MG-G-05	Manage land use planning and development in a manner that is compatible with the conservation, protection, and enhancement of the County's Green Infrastructure. The design and layout of our communities will draw inspiration from – and not suppress or subjugate – those natural features that define Frederick County.
MG-G-06	Increase the proportion – and 'per acre' unit density – of new residential development occurring within Community Growth Areas while minimizing new residential development outside of the County's Community Growth Areas.
MG-G-07	Establish as a targeted goal for the development and redevelopment of lands within Community Growth Areas, an average density of 7.5 residential dwellings/acre by the year 2025.
MG-G-08	Increase the number of properties – both vacant and underdeveloped lands – available for employment uses in order to support policies that emphasize the reuse and revitalization of previously developed sites.
MG-G-09	Emphasize Mixed Use development within Community growth Areas.
MG-G-10	Emphasize reinvestment in our growth areas by encouraging infill and redevelopment projects which are compatible with existing neighborhoods and districts.
MG-G-11	Facilitate the growth management strategy of increasing density in growth areas by employing sound community design principles that enable comfortable, efficient, and accessible communities.
MG-G-12	Support the desire of residents to live, work, and play in communities whose designs are: inspired by the pattern and layout of traditional and neo-traditional neighborhoods; nurturing of the distinct, locality-inspired character of Frederick County; arranged according to the time-tested model of neighborhoods, districts, and corridors; and, optimized to enable walking, biking, and the use of public transit for personal transportation.
MG-G-13	Employ compact community design that supports the conservation of natural and historic resources, reduces the consumption of energy, and results in the efficient provision and use of community infrastructure.
THEME: COMMUNITY AND CORRIDOR PLANS	
CP-G-01	Maintain consistency between municipal comprehensive plans and the County's Comprehensive Plan.
CP-G-02	Incorporate the Countywide goals and policies from the Comprehensive Plan as part of the individual community and corridor plans.
CP-G-03	Incorporate community-based physical planning elements into the Corridor and Community planning efforts.

Table 1-2: Frederick County Solid Waste Management Plan – Goals and Objectives

GOAL 1: PROTECT THE HEALTH AND WELFARE OF CITIZENS AND THE ENVIRONMENT

Objectives:

A. Promote the quality of life for Frederick County Citizens by protecting the environment by maintaining the quality of water, land, and air and meeting or exceeding applicable County, State and Federal regulations.

B. Cooperate with state monitoring systems at all waste facilities, both public and private, to ensure compliance with all regulations and permits.

C. Cooperate with MDE in enforcement of permit conditions for state-permitted facilities.

D. Maintain County review process for solid waste proposals prior to applications to MDE.

E. Establish means by which citizens may be informed of, and comment on, general or specific solid waste proposals or facilities.

GOAL 2: CONSERVE NATURAL RESOURCES

Objectives:

F. Encourage and promote reduction and reuse of waste materials through the promotion, development, and expansion of recycling, and the use of recycled materials.

G. Conserve land by minimizing the amount of land used for waste disposal, and develop uses for such areas after they have been used for waste disposal.

H. Conserve non-renewable fuel resources by the recovery of energy from wastes.

I. Meet State law by recycling at least 35% of the waste stream annually. Take practicable and economical actions to meet the voluntary statewide waste diversion goal of 60% by the year 2020. This goal includes a 55% recycling rate plus up to a 5% credit for source reduction activities. This is to ensure compliance with the requirements of Sections 9-505 (a) (18) and 9-1706.1 of the Environment Article, Annotated Code of Maryland.

J. Meet the County goal to reach a 60% waste diversion rate by the year 2025.

GOAL 3: THE FREDERICK COUNTY SOLID WASTE PROGRAM IS TO BE FINANCIALLY SELF-SUFFICIENT

Objectives:

K. Establish and maintain a fee structure that adequately funds the solid waste program.

L. Maintain and periodically evaluate tipping fees to provide commercial entities with economic incentives to recycle waste.

M. Identify and monitor market trends, for sale and/or reuse of recyclables.

Table 1-2: Frederick County Solid Waste Management Plan – Goals and Objectives (Continued)

GOAL 4: DEVELOP MULTI-JURISDICTIONAL SOLUTIONS FOR SOLID WASTE MANAGEMENT

Objectives:

N. Establish means to integrate County, municipal and federal institution efforts to achieve County-wide solutions.

O. Coordinate efforts of Frederick County and jurisdictions outside Frederick County to achieve regional solutions.

P. Encourage the review and revision of County regulations and codes to promote the use of recycled products.

GOAL 5: EDUCATE THE PUBLIC ABOUT SOLID WASTE MANAGEMENT AND PLANNING ISSUES

Objectives:

Q. Develop a broader understanding of the growing impact of solid waste on our daily lives.

R. Develop an understanding of individual citizen contribution to the generation of solid waste.

S. Inform citizens of choices they can make that will minimize waste production.

GOAL 6: MAINTAIN THE SOLID WASTE MANAGEMENT PROGRAM

T. Maintain a permanent Solid Waste Advisory Committee.

U. Develop and maintain a system for continuous solicitation and collection of comments and suggestions about the solid waste program.

V. Prepare annual reports as required by the State that monitor the County's progress in managing its solid waste.

Table 1-3: Frederick County Solid Waste Management Policies

1. Any further development of solid waste processing or disposal facilities should be conditioned upon the demonstrated need with Frederick County or under regional agreements.
2. Any enterprises that apply for approval under the comprehensive plan must provide a description and analysis of the solid waste that the enterprise will generate, as well as a management plan for such wastes.
3. Performance bonds shall be required for all solid waste acceptance facilities except for Solid Waste Processing Facilities. Upon approval of an application and before any permit shall be issued, the applicant shall be required to give a performance bond to the County in the amount set forth in the regulations of the Maryland Department of the Environment. The bond shall be conditioned upon the applicant's compliance, in all respects, with each and every provision of these regulations, the regulations of the department, the requirements upon which the permit was issued, and the operating plan as submitted by the applicant and approved by the County. The applicant shall indemnify and save harmless the County, its officers and agents, against or from all costs, expenses, damages, injury, or loss to which the County, its officers and agents may be subjected by reason of any want of care of skill, negligence, or default on the part of the applicant or his agents or employees in the establishment and operation of the solid waste processing facility or land disposal site.
4. Acquisition of land for siting of any County solid waste facilities must be done in accordance with the "Standard Operating Procedures for Property Rights Acquisitions in Frederick County, Maryland" (Resolution 10-30, adopted October 26, 2010).
5. Any use not expressly in conformance with the Solid Waste Management Plan is automatically considered inconsistent with the plan.
6. The Solid Waste Advisory Committee must have adequate time to review, receive public comments and seek expert opinions on proposals for solid waste facilities, or requests for findings of consistency with the plan.
7. Forbid the placement of solid waste management facilities outside of solid waste management floating zones, in conservation zones, on agricultural preservation properties, or areas of critical concern.
8. Provide an integrated Solid Waste Management System, including provisions for recycling, resource recovery, waste transfer, and in-County disposal, which is adequate to accommodate Frederick County's current and projected municipal solid waste generation.
9. Municipal solid waste landfills, rubble landfills, transfer stations and/or processing facilities, with the exception of facilities at Fort Detrick and private facilities managing waste materials generated by that private entity, will be under the ownership and management of Frederick County.
10. The Frederick County Solid Waste Management Program will be managed to serve the needs of Frederick County. Solid waste disposal and transfer facilities, being critical to the health and safety of all County residents, will remain under the ownership and/or control of Frederick County and be operated in compliance with agreements with the County.
11. The Frederick County Solid Waste Facilities will not accept out-of-county solid waste except pursuant to a reciprocal multi-jurisdictional agreement or in compliance with agreements with the County.

SOLID WASTE MANAGEMENT PLAN MISSION

Develop and maintain a comprehensive solid waste program for all of Frederick County, with a set of goals and objectives that - taken in their entirety - guide the implementation of an environmentally-sound, cost-effective system, consistent with the Countywide Comprehensive Plan.

STRUCTURE OF COUNTY GOVERNMENT

Frederick County is governed by an elected County Executive who appoints division directors, and an elected County Council who handles legislative policy. Solid waste management planning is the responsibility of the County Executive, DUSWM and the SWAC. Solid waste administration is the responsibility of the County Executive and the DUSWM.

The SWAC was created for the purpose of recommending the soundest methods of waste disposal, recycling, and waste reduction; and advising the County Executive on specifically requested policy alternatives. The SWAC has 12 voting members that meet once a month. The SWAC Charter details the tasks, meeting format, and membership requirements for the SWAC.

Within DUSWM is the Department of Solid Waste Management (DSWM), which is responsible for implementing solid waste management programs. The governmental organizational chart is provided in Appendix B.[1]

LAWS AND REGULATIONS

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.

Generally, state regulations must 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.

[1] The County Government Organization chart changes from time to time and is not considered integral to this document (Plan), but provided for informational purposes. As changes or updates to this chart occur, the Appendix is considered automatically updated with the most current version on file with the Office of the County Executive.

Generally, County regulations must meet or exceed federal and state laws and regulations, and may be more stringent. The more specific issues of land use, zoning, procurement, financing and operation related to solid waste management facilities are left entirely to the County to regulate.

FEDERAL

While it is not feasible to describe all federal laws that affect solid waste management, Table 1-4 summarizes those that are judged to be most significant. Foremost among the laws listed in Table 1-4, the Resource Conservation and Recovery Act (RCRA) of 1976, as 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 outlines federal standards for municipal sanitary landfills. These standards include the location, design, operation, ground water monitoring, corrective action, closure, post-closure, and financial assurance criteria for all municipal sanitary landfills.

The Code of Federal Regulations (CFR) provides 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 sub-parts. CFR Title 40 is entitled Protection of the Environment, which includes Subchapter I Solid Wastes (CFR Parts 240 through 280).

Solid waste management at the federal level is the responsibility of the United States Environmental Protection Agency (EPA). Direct implementation of solid waste programs is strictly delegated to state and local governments. The federal regulations important to solid waste management derived from CFR, Title 40, Subchapter I-Solid Wastes are summarized in Table 1-5.

Table 1-4: Summary of Federal Statutes Affecting Solid Waste Management (General)

Resource Conservation and Recovery Act (RCRA):

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 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) (CERCLA):

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.

Clean Water Act:

Section 402 of the 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 waters of the United States. The construction of facilities, which may impact rivers, lakes, marshes, swamps or wetlands is regulated by Section 404, which is administered by Army Corps of Engineers. Section 405 addresses the disposal of wastewater treatment sludge.

Clean Air Act:

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.

Safe Drinking Water Act:

Identifies groundwater monitoring methods for landfill systems and resource recovery facilities in order to provide the earliest possible detection of fluid migration into underground sources of drinking water. Landfill operators must comply with requirements of the state implementation plan established under section 1426.

Endangered Species Act:

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.

Table 1-5: Summary of Federal Regulations (CFR, Title 40, Subchapter I)

Part 240: Guidelines for the Thermal Processing of Solid Wastes

These prescribed guidelines are applicable to thermal processing facilities designed to process or which are processing 50 tons or more per day of municipal-type solid wastes. The requirement sections delineate minimum levels of performance required of any solid waste thermal processing operation.

Part 241: Solid Wastes Used as Fuels or Ingredients in Combustion Units

This part identifies the requirements and procedures for the identification of solid wastes used as fuels or ingredients in combustion units under section 1004 of the Resource Conservation and Recovery Act and section 129 of the Clean Air Act.

*Part 243: Guidelines for the Storage and Collection of Residential, Commercial and Institutional Solid Waste**

Minimum performance levels for municipal solid waste collection operations. Issues addressed include storage, safety, equipment, frequency and management.

*Part 246: Source Separation for Materials Recovery Guidelines**

Minimum actions for the recovery of resources from solid wastes, including high grade paper, residential materials and corrugated containers.

Part 247: Comprehensive Procurement Guideline for Products Containing Recovered Materials

Recommended guidelines only. Procedures that can be utilized in the specifications for procurement of products to increase the use of recycled materials. This guideline designates items that are or can be made with recovered materials and whose procurement by procuring agencies will carry out the objectives of section 6002 of RCRA.

Part 254: Prior Notice of Citizen Suits

Section 7002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, authorizes suit by any person to enforce the Act. These suits may be brought where there is alleged to be a violation by any person of any permit, standard, regulation, condition, requirement or order which has become effective under the Act.

Part 255: Identification of Regions and Agencies for Solid Waste Management

These guidelines are applicable to policies, procedures and criteria for the identification of those areas which have common solid waste management problems and which are appropriate units for planning regional solid waste management services pursuant to section 4002(a) of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976.

Part 256: Guidelines for Development and Implementation of State Solid Waste Management Plans

The purpose of these guidelines is to assist in the development and implementation of State solid waste management plans, in accordance with section 4002(a) of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976.

* Regulations marked with an asterisk (*) are mandatory for federal agencies and recommended for state and local governments.

Table 1-5: Summary of Federal Regulations (CFR, Title 40, Subchapter I) - Continued

Part 257: Criteria for the Classification of Solid Waste Disposal Facilities and Practices

Criteria to determine which solid waste facilities and practices pose a reasonable probability of adverse effects on health or the environment. Facilities in violation will be considered open dumps. The criteria do not apply to municipal solid waste landfills (MSWLF) which are subject to the revised criteria contained in Part 258 of this subchapter.

Part 258: Criteria for Municipal Solid Waste Landfills (Subtitle D Regulations)

Establishes minimum national criteria for the design and operation of all municipal solid waste landfills (MSWLF) that are used to dispose of sewage sludge. Includes location restrictions, operating criteria, design criteria, ground water monitoring and corrective action, closure and post-closure care and financial assurance criteria. The criteria applies to all MSWLF units that receive waste on or after October 9, 1991.

Part 260: Hazardous Waste Management System: General

Provides definitions of terms, general standards and an overview of Parts 260 through 265.

Part 261: Identification and Listing of Hazardous Waste

Provides identification of those solid waste materials which are subject to regulation as hazardous wastes under Parts 262, 263, 264, 265, 268, 270, 271 and 124.

Part 262: Standards Applicable to Generators of Hazardous Waste

Establishes standards for generators of hazardous wastes including EPA identification numbers, manifests, pre-transport requirements, recordkeeping and reporting.

Part 263: Standards Applicable to Transporters of Hazardous Waste

Establishes regulations for transporters of materials requiring a manifest as defined in Part 262.

Part 264: Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities

Establishes minimum national standards for the management of hazardous waste.

Part 265: Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities

Establishes minimum national standards that define the acceptable management of hazardous wastes during the period of interim status and until the certification of post-closure or closure of the facility.

Part 266: Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities

Establishes minimum national standards for the recyclable materials used in a manner to constitute disposal, hazardous waste burned in boilers and industrial burners for energy recovery, used oil burned for energy recovery, recyclable material used for precious metal recovery and spent lead-acid batteries being reclaimed.

Table 1-5: Summary of Federal Regulations (CFR, Title 40, Subchapter I) - Continued

Part 267: Standards for Owners and Operators of Hazardous Waste Facilities Operating Under A Standardized Permit

Establishes minimum national standards which define the acceptable management of hazardous waste under a standardized permit.

Part 268: Land Disposal Restrictions

Identifies hazardous wastes that are restricted from land disposal and defines those limited circumstances under which an otherwise prohibited waste may continue to be land disposed.

Part 270: EPA Administered Permit Programs: The Hazardous Waste Permit Program

Application requirements, standard permit conditions, monitoring and reporting requirements for EPA permitting for the treatment, storage and disposal of hazardous waste.

Part 271: Requirements for Authorization of State Hazardous Waste Programs

Identifies the requirements that state programs must meet to fulfill interim and final authorization as well as the procedures EPA uses to approve, revise and withdraw approval of state programs.

Part 272: Approved State Hazardous Waste Management Programs

Establishes the applicable state hazardous waste management programs.

Part 273: Standards for Universal Waste Management

Establishes requirements for managing batteries, pesticides, mercury-containing equipment and lamps.

Part 279: Standards for the Management of Used Oil

This section identifies those materials which are subject to regulation as used oil under this part and indicates whether these materials may be subject to regulation as hazardous waste under parts 260 through 266, 268, 270 and 124 of this chapter.

STATE

Three organizations in Maryland are directly involved with solid waste management issues, including the Maryland Department of the Environment (MDE), Maryland Environmental Services (MES) and the Northeast Maryland Waste Disposal Authority (NMWDA).

Maryland Department of the Environment

The MDE is the state agency, which has responsibility for solid waste management within the State. MDE requires counties to prepare, submit for approval and at least every three years review and update, if necessary, comprehensive solid waste management plans (COMAR 26.03.03). MDE implements federal and state solid waste regulations for surface water and ground water protection, erosion and sediment control, preservation of wetlands, and recycling. MDE reviews solid waste facility and management plans, issues permits and inspects facilities.

Maryland laws which will affect the development of recycling programs in Frederick County, include the Maryland Recycling Act, Newsprint Recycled Content Act, Telephone Directory Recycling Act, Plastic Material Code Act, Composting Act, Natural Wood Waste Recycling Act, the Mercury Oxide Battery Act, Public School Recycling Plans, Fluorescent and Compact Fluorescent Light Recycling, Recycling-Apartment Buildings and Condominiums Act, Recycling Rates and Waste Diversion-Statewide Goal Act, Recycling-Special Events Act and Recycling-Composting Facilities Act. The state laws affecting solid waste management are summarized in Table 1-6.

The Annotated Code of Maryland, as amended, includes all state laws passed by the legislature. Laws addressing solid waste management are included in the Environment Article, which contains many of the laws affecting the location, design and operation of solid waste disposal facilities. The laws of Maryland delegate to MDE the authority to promulgate implementing regulations regarding solid waste. Table 1-7 provides an abbreviated summary of the Annotated Code provisions affecting solid waste management.

State regulations are compiled into the Code of Maryland Regulations (COMAR). Title 8 contains the regulations of the Department of Natural Resources, which must be considered when siting solid waste facilities. Title 26 of COMAR contains the administrative rules and regulations for MDE including solid waste management regulations. The regulations affecting solid waste management are summarized in Table 1-8.

MDE enforces regulations for two additional recycling-related acts: Scrap Tire Recycling Act (COMAR 26.04.08) and the Natural Wood Waste Facility Recycling Act (COMAR 26.04.09). The scrap tire regulation requires the MES to establish a scrap tire recycling system for Maryland. Additionally, the regulation prohibits the disposal of tires in landfills after January 1, 1994. The wood waste recycling facility regulation establishes a permitting system for these facilities.

MDE issues permits for the various types of waste facilities that could be sited in the County, including sanitary landfills, land clearing debris landfills, rubblefills, processing facilities, transfer stations, incinerators, WTE, medical waste incinerators, and industrial and hazardous waste landfills. Industry and the private sector are responsible for applying for permits and providing industrial and/or hazardous waste facilities for disposal of their waste, as required. Frederick

County is able to regulate industrial and hazardous waste facilities through public review of permit applications for waste management facilities.

All solid waste disposal and processing facilities are required to operate in accordance with laws and regulations for reduction of health hazards and to minimize 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 below is for a refuse disposal permit, which is a requirement for all solid waste management facilities. As previously described, additional permits are required for constructing and operating these facilities. Additionally, it is important to note that the inclusion of these requirements is for general planning purposes and is not intended to provide a complete description of permitting requirements. An applicant for a permit must obtain a copy and follow all requirements of the applicable COMAR regulation.

Maryland Environmental Service

The Maryland Environmental Service (MES) is a unique organization created by the General Assembly in 1970 to provide water supply and waste purification and disposal services. It is organized both as a corporation and a public utility. MES is available to provide support to any locality which requests assistance. Additionally, MES will provide remedial services requested by MDE for a locality that has not complied with regulations.

Northeast Maryland Waste Disposal Authority[2]

The Northeast Maryland Waste Disposal Authority (NMWDA) is a coordinating agency and financing mechanism for regional integrated waste disposal facilities for the counties of Anne Arundel, Baltimore, Harford, Carroll, Howard, Frederick and Montgomery, as well as the City of Baltimore. NMWDA assists its members with the following solid waste activities: planning, constructing, financing, owning, and operating regional waste disposal facilities within the boundaries of the member jurisdictions.

[2] Md. NATURAL RESOURCES Code Ann. § 3-901, 902 & 903.

Table 1-6: Summary of Maryland Laws Affecting Solid Waste Management Statutes

Maryland State Implementation Plan (SIP) (Ongoing):

Limits emissions from specific pollutant sources to prevent air quality from falling below National Ambient Air Quality Standards (NAAQS).

Nontidal Wetland Regulations (1990):

Prevents net loss of nontidal wetlands by establishing a stringent permitting process.

Chesapeake Bay Critical Area Protection Program (1984):

Controls human intervention in the Bay area.

Maryland Recycling Act (1988):

Establishes a requirement for Maryland counties, based on a population of less than or exceeding 150,000, to reduce through recycling the County's waste stream by 15 or 20 percent, respectively.

Asbestos Hazard Emergency Response Act (1990):

Deals with asbestos controls and requires completion of a teaming program by those who do asbestos-related work with schools.

Land-Clearing Debris Landfills – Amount of Security (1990):

Addresses the amount of security required for each acre of land-clearing debris landfills.

Newsprint Recycled Content Act (1991):

Regulates newsprint recycling by imposing specified recycling content percentage requirements on the Maryland newspaper industry.

Telephone Directory Recycling Act (1991):

Regulates telephone directory publishers to meet specified recycling content percentage requirements for telephone directories.

Scrap Tire Law (1992):

Prohibits the disposal of tires in landfills after January 1, 1994 and creates a licensing system for the management of scrap tires.

Plastic Material Code (1991):

Rigid plastic containers or bottles may not be distributed for sale in the state unless appropriately labeled indicating the plastic resin used to produce them.

Composting Act (1992):

Includes composting in the definition of recycling. Requires that county recycling plans address composting issues, and bans clean loads of yard waste from landfills effective in 1994.

Mercury Oxide Battery Act (1992):

Makes battery manufacturers responsible for collection, transportation and recycling or disposal of batteries sold or offered for promotional purposes in the state.

Table 1-6: Summary of Maryland Laws Affecting Solid Waste Management Statutes - Continued

Sludge Application (1993):

Land application procedures for sludge are strictly regulated to maintain the public health.

Medical Waste Legislation (1988):

Regulates identification, record-keeping, treatment, transport and disposal of special medical wastes; infectious wastes are prohibited in solid waste landfills in the state.

Nickel Cadmium (NICD) Battery Act (1995):

Regulates the storage, transportation and destination of nickel-cadmium batteries.

Public School Recycling Plans (2010):

Requires a County recycling plan to address the collection, processing, marketing and disposition of recyclable materials from County public schools.

Fluorescent and Compact Fluorescent Light Recycling (2011):

Requires a county to develop a strategy for the collection and recycling of fluorescent and compact fluorescent lights that contain mercury.

Recycling – Apartment Buildings and Condominiums Act (2012):

Establishes a requirement for Maryland counties to address the collection and recycling of certain materials by certain property owners, managers and councils of apartment buildings and condominiums in their recycling plan, as well as a method of implementing reporting requirement. This Act also requires owners, managers and councils with ten (10) or more dwelling units to provide for recycling for residents on or before October 1, 2014.

Recycling Rates and Waste Diversion – Statewide Goal Act (2012):

An Act revising the 1988 Maryland Recycling Act (MRA) requiring a county Plan to address a reduction through recycling of at least 35 percent for a county with a population of greater than 150,000 and 20 percent for a county with a population of less than 150,000 of the county's solid waste stream by July 1, 2014. The plan must be fully implemented by December 31, 2015.

Recycling – Special Events Act (2014):

Establishes a requirement for Maryland counties to address the collection and recycling of certain materials by organizers of certain special events in their recycling plan. This Act also 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 on or before October 1, 2015.

Recycling – Composting Facilities Act (2013):

Provides that a person may operate a composting facility only in accordance with specified requirements, regulations, orders, and permits and requires the Department of the Environment to adopt regulations to establish a permit system for composting facilities.

Table 1-7: Summary of Annotated Code of Maryland Titles Affecting Solid Waste Management

ANNOTATED CODE OF MARYLAND – ENVIRONMENT ARTICLE

Title 4 *– Water Management*

Title 6 *– Toxic, Carcinogenic and Flammable Substances*

Title 7 *– Hazardous Materials and Hazardous Substances*

Under Title 9 *– Environment Article; MDE regulates the location, design and operation of sanitary landfills through refuse disposal permits issued and enforced under authority of the following sections of the Environment Article*

Subtitle 5 – County Water and Sewerage Plans

Subtitle 17 – Office of Recycling, Created MDE's Recycling Program and defined and mandated county recycling goals

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 Systems – Hearings*

Section 210 *– Landfill Systems – 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 – Denial of Permit to Nongovernment Person*

Section 213 *– Landfill Systems – Term of Permit (5 Years)*

Section 214 *– Landfill Systems – Revoking or Refusal to Renew a Permit*

Section 215 *– Landfill Systems – Closing and Covering When Operations End*

Section 225 *– Landfills Near Hospitals Prohibited (1/2 Mile Radius)*

Section 226 *– Certificate of Public Necessity Required for Hazardous Waste Landfill System*

Section 227 *– Infectious Waste in Landfill System Prohibited*

Section 228 *– Scrap Tire – Storage, Recycling and Disposal*

Table 1-8: Summary of Maryland Regulations Affecting Solid Waste Management

COMAR REGULATIONS

Under Title 08 – (Department of Natural Resources), the following sections must be considered in the siting of solid waste management facilities:

Subtitle 3– Chapter 8, Threatened and Endangered Species

Subtitle 19–Chapters 1-6, Forest Conservation

Under Title 26

Subtitle 3 – Chapter 3, Water Supply, Sewerage, Solid Waste and Pollution Control Planning and Funding – 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.

Subtitle 3 – Chapter 10, Financial Assistance for the Constructing of Solid Waste Processing and Disposal Facilities: Stipulates the requirements, priority listing criteria and ranking system for counties to receive financial assistance from the state.

Subtitle 4 – Chapter 7, Regulations of Water Supply, Sewerage Disposal and Solid Waste Management: Regulations for 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 17 – Chapter 4, Construction on Nontidal Waters and Floodplains

Subtitle 23 – Chapter 1, Nontidal Wetlands

Subtitle 5 – Chapter 7, Wetlands Regulations

Subtitle 8 – Water Pollution

Subtitle 17–Chapter 1, Erosion and Sediment Control

Subtitle 17 – Chapter 2, Stormwater Management

Subtitle 11–Air Quality

Subtitle 13–Disposal of Controlled Hazardous Substances

*Municipal Landfills (COMAR 26.04.07.06 – 26.04-07.10)**

The permitting process for municipal landfills proceeds in three phases and requires public notification of the proposed sanitary landfill. The permitting process for a landfill can typically take from three to five years, including time for field investigation, engineering, review by the MDE and public comment. The Annotated Code, Environmental Article, Section 9-210(a) clarifies the local approvals required in the permitting process. The MDE may not issue a permit until the following steps are taken:

- MDE has completed its preliminary Phase I review
- MDE has sent its written findings to the County Executive and the Planning Commission, and
- The County has completed its review and provided MDE with a written statement that the proposed refuse disposal system:
    a. Meets all applicable County zoning and land use requirements, and
    b. Is in conformance with the County solid waste plan

Public notification of applications for the construction of new landfills and the modification of existing landfills is required by Section 9-204.2 of Title 9 Environment Article, Annotated Code of Maryland. The regulation requires that MDE publish notice of the application once a week for two weeks in a newspaper of general circulation within the County.

In addition, the applicant must give notice by certified mail to land owners adjacent to the site, the chairman of the legislative body, and any elected executive of the County, the elected executive of any municipal corporation within the County, and any other county within one mile of the site. Phase I of the permitting process is a preliminary siting study. The Phase II Permit Application presents a detailed description of the site geology and a conceptual design for the facility. The Phase III application includes detailed design drawings and specification, as well as the operational plan for the facility.

After reviewing the Phase III Permit Application Report, MDE distributes the report to interested agencies. MDE will set a date, time and place for a meeting with all interested agencies. If possible, MDE will either approve or deny the permit within 60 days after this meeting. If they are unable to review the report within the 60 day period, they will contact the applicant within 30 days of receipt of the report and advise the applicant of the anticipated time for completion of the review process.

At the time of review, MDE will determine if the permit application report has sufficient information to proceed with the public hearing. In the event that the report is considered complete, a public hearing will be scheduled prior to issuing a refuse disposal permit. Should the Phase III Permit Application Report be denied, MDE will advise the applicant of the basis for the denial and the procedures for appealing the determination.

*COMAR references are subject to change.

*Land-Clearing Debris Landfills (COMAR 26.04.07.11-.12); Industrial Waste Landfills (COMAR 26.04.07.19-.20)**

Information required for a permit is included in a phase one permit application report, the first phase of a three-phase application process. A detailed waste characterization is required for industrial landfills.

MDE will review the permit and issue a determination within 60 days of its receipt, if possible. If MDE is unable to review the permit report within the 60-day period, they will contact the applicant within 30 days of receipt of the report and advise the applicant of the anticipated time for completion of the review process. Should the permit be denied, MDE will advise the applicant of the basis for the denial and the procedures for appealing the decision. Prior to issuance of the refuse disposal permit, MDE holds a public hearing for all landfills, including debris, industrial and rubble.

*COMAR references are subject to change.

*Rubblefills (COMAR 26.04.07.13-26.04.07.18)**

The refuse disposal permitting process for a rubblefill follows the three-phase procedure used for municipal sanitary landfills. The MDE review procedure and public participation requirements are also similar.

In the March 14, 1997 edition of the Maryland Register, The Maryland Department of the Environment proposed modifications to the State Regulations pertaining to the permitting and operation of rubble landfills in Maryland. On August 29, 1997, amendments to Regulations .02, .13, and .15-.18 under COMAR 26.04.07 Solid Waste Management were adopted by the Secretary of the Environment.

The revisions to the regulations specifically affect the design of rubble landfills. Under the provisions of the regulations, all rubble landfills in Maryland that accept waste material after July 1, 2001 must include a liner and leachate collection system. COMAR 26.04.07.13 stipulates the design standards for the landfill liner system. The design standards include:

- A prepared subbase with a minimum depth of 2-feet, compacted to achieve a permeability of 1 x 10-7 cm/sec or less. The liner is then placed over the prepared subbase. The liner may be constructed as follows:

- 1-foot of clay or other natural material having an in-place permeability of 1 x 10-7 cm/sec; or

- One or more unreinforced synthetic membranes with a combined minimum thickness of 50 mil with a permeability of 1 x 10-10 cm/sec; or

- A single reinforced synthetic membrane with a minimum thickness of 30 mil, which has a permeability of 1 x 10-10 cm/sec.

- A drainage layer consisting of either 2-feet of sized gravel or a synthetic drainage material to provide free passage of leachate over the liner.

Because of the regulatory changes to rubble landfills, Frederick County has ceased operation of the separate rubble disposal cell at the sanitary landfill. Rubble waste delivered to the sanitary landfill is now incorporated into the active municipal solid waste disposal cell or transferred. Construction of a separate rubble disposal cell at the sanitary landfill is no longer planned.

*COMAR references are subject to change

Short-Range Solid Waste Management Policy and Action Recommendations

The design standards for rubble landfills that have been incorporated into COMAR are similar to but not identical to the standards for municipal sanitary landfills. The unit construction costs are also similar. While economics may well favor design and construction of a separate rubble landfill, there is little incentive or advantage obtained in constructing separate rubble cells at municipal landfills. Separate cells would necessitate additional staffing and equipment. Incorporation of the rubble waste into the municipal waste cell, or transferring and disposal of the waste, becomes a cost-effective solution.

Processing Facilities (COMAR 26.04.07.23); Transfer Stations (COMAR 26.04.07.24)*; Incinerators (COMAR 26.04.07.25)**

In general, the refuse disposal permit application consists of a letter briefly describing the project, detailed engineering drawings and specifications, and operating plans. MDE will distribute the permit application letter in accordance with defined COMAR requirements. Comments concerning the permit application letter are requested within 30 days of its receipt.

Local approval of zoning and compliance with Frederick County land-use regulations is required before MDE will issue a permit.

MDE will either approve or deny the request within 60 days after receipt of the letter if practical. If MDE is unable to review the permit application letter within the 60-day period, they will contact the applicant within 30 days of receipt of the letter and advise the applicant of the anticipated time for completion of the review process. If approved, the applicant will be advised to proceed with the engineering drawings and specifications. A public hearing or notification is required for processing facilities or transfer stations; a public hearing is required for incinerators.

*COMAR references are subject to change.

COUNTY

Federal and state solid waste management regulations as well as current County requirements are reflected in Frederick County's planning documentation and regulations. DUSWM is responsible for implementing regulations. County regulations and documentation regarding solid waste management include the following:

The Countywide Comprehensive Plan (CWCP) provides a framework for establishing a long-range action plan for solid waste management. Long-range goals were discussed earlier in this chapter. The short-range policies and action recommendations presented in this document are summarized in Table 1-9.

The Frederick County Zoning Ordinance Sections 1-19-5.310, 1-19-10.800 and 1-19-8.348 provide zoning regulations for solid waste management facilities. A detailed description of zoning regulations for solid waste is presented in Table 2-3.

Frederick County Land Acquisition Policy Standard Operating Procedures for Property Rights Acquisitions in Frederick County, Maryland – Resolution No. 10-30 documents legal authority and standard procedures for real estate acquisitions for use by the County.

The Frederick County Permit Application Consistency Check List provides a means for the DSWM and SWAC to evaluate solid waste permit applications for consistency with this plan. As described previously, the MDE may not approve a permit application for the construction or modification of a solid waste management facility until it has been certified by the County as consistent with the Solid Waste Management Plan. The SWAC will make a consistency determination and forward its recommendation to the County Executive, based on the checklist provided in Table 1-10. The review process for projects that are not initiated by Frederick County Government is included as Appendix D. The applicant must meet criteria required by the County listed as Table 1-11.

The Frederick County Recycling Plan under requirements of the Maryland Recycling Act of 1988, in 1990 the County adopted and MDE approved a recycling plan that served as a blueprint for Frederick County to reach a recycling rate of 20%. That level was mandated in the Recycling Act for counties with populations of 150,000 or more, which was revised in 2012 to reach a recycling rate of 35% for counties with populations of 150,000 or more. The County has established a waste diversion goal of 60% by the year 2025.

Frederick County Ordinance 06-03-399. The yard waste disposal ban became effective on May 1, 2006. This ordinance bans all yard waste from disposal in the landfill or transfer facility.

Frederick County Ordinance 06-05-401. The System Benefit Charge (SBC) was enacted on January 26, 2006. This charge is assessed to all properties in Frederick County, and serves to complement fees as a funding source for Frederick County's Solid Waste Enterprise Fund. The purpose of the charge is to pay a portion of the reasonably anticipated capital costs and operating costs for the disposal of solid waste. The budget includes funding for costs associated with recycling collections programs and waste disposal. The charge is applied countywide, including within the municipalities. The charges are for both residential and non-residential properties. All information for the assessment of a property is based on the Maryland State Department of Assessments and Taxation's (SDAT) records. Residential rates are applied per dwelling unit for both single family and multi-family properties. Non-residential rates are applied to properties with improvement values greater than $5,000 and the number of billing units is based on several factors including the Bureau of Public Roads Use Codes (BPRUC) that establishes the primary use of the property, structure area and the land use code.

MUNICIPAL

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

Maryland Environment Code Annotated, Section 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 County plan. Frederick County municipalities have developed a Combined Municipal Solid Waste Plan (CMSWP) which is provided in Appendix C. Frederick County recognizes and acknowledges the special needs and requirements of the municipalities as delineated in the CMSWP. The County and municipalities have developed a cooperative working relationship to provide for a solid waste management program which benefits the entire County. This plan promotes the continued cooperative relationship between the County and municipalities. In general, the CMSWP states that the municipalities accept the County plan, providing:

- Differences noted in the municipal plan are considered
- The municipalities are consulted on a regular basis concerning implementation of the County plan
- Changes made to the County plan are brought to the attention of the municipalities
- Adequate notification is provided, and approval by the municipalities is granted, for changes to the County plan which affect the municipalities prior to final County approval.

Table 1-9: Countywide Comprehensive Plan – Solid Waste Management Policies and Action Recommendations

MANAGEMENT POLICIES	
PU-P-10	Cooperate with other jurisdictions in developing regional solutions to solid waste management problems.
PU-P-11	Integrate solid waste management systems and programs to ensure reliable, safe and cost effective disposal and recycling services for Frederick County residents.
ACTION RECOMMENDATIONS	
PU-A-04	Maintain representation on regional boards that evaluate the feasibility and implementation of regional solid waste acceptance and processing facilities.

Table 1-10: Solid Waste Management Plan – Proposed Solid Waste Facility

IS THE PROPOSED FACILITY CONSISTENT WITH:

1. Goals, objectives and policies presented in Chapter 1 of the Solid Waste Management Plan?
2. Needs assessments presented in Chapters 4 and 5? (Required facilities have been determined based on waste projections developed in the Solid Waste Management Plan. Any proposed facility should be consistent with an identified need within the County).
3. Siting criteria presented in Chapter 4? (The location of the proposed facility should not be within any of the exclusion areas identified on the siting constraints maps, in an unsuitable area as specifically determined by MDE, or upon request by the County Executive).
4. Implementation schedule presented in Chapter 5? (The implementation schedule provides a plan for determining when required facilities should be constructed. If a proposed facility is not in conformance with this schedule, then it is not consistent with the Solid Waste Management Plan.)
5. Applicable municipal Solid Waste Management Plans and regional agreements?
6. Frederick County Zoning Ordinances?
7. Countywide Comprehensive Plan?

Table 1-11: Non-Governmental Solid Waste Management Plan Amendment Process

An application for a Solid Waste Plan Amendment must contain at least the following information:

a. Name, address and phone number of the applicant.

b. Name and address of applicant's representative.

c. Name of the owner and operator of the facility.

d. Scaled site map of facility.

e. Total site capacity in cubic yards, tons per day or tons per year.

f. A written discussion of how the Plan amendment will meet the consistency criteria listed in Table 1-10 on page 1-29 of the SWMP. Also, the discussion must include how the applicant will protect the health, safety and welfare of the citizens of Frederick County. The discussion should include a conceptual monitoring plan that addresses all potential forms of pollution (air, water, land), both type and frequency of monitoring.

g. Planned site life/years of planned operation.

h. Description of solid waste stream/components to be processed/recycled/disposed and source.

i. How waste is generated, if applicable, will be disposed.

j. Discussion of how this facility/process/program would be compatible/compete with existing facilities/processes/programs.

k. Markets, if applicable, for material generated/processed, to be kept confidential.

l. The applicant shall submit a schedule of all major permits required for full development of the proposal. The schedule should identify the name of the permit, when the applicant will make the submission, and to what agency.

m. Applicant shall provide written request to the County Executive proposing specific language for an amendment to the SWMP.

Chapter 2 – County Background Information

This chapter presents population projections for the County based on data from the Department of Planning and Zoning and the U.S. Census. The population data provides the basis for the projection of waste generation during the planning period in Chapter 3.

In addition, current zoning regulations and comprehensive plan policies addressing solid waste management are summarized. This summary provides a basis for establishing whether a refuse disposal permit application is in conformance with County zoning and land-use plans.

GENERAL

Frederick County covers approximately 664 square miles, making it the largest County in Maryland. The County is located in the northwestern part of the state. The 1980 Census identified Frederick County as part of the Washington D.C. Metropolitan Statistical Area, which is linked together through employment and commuting patterns. Approximately 3.5 million people are accounted for within the counties and towns comprising this area.

City of Frederick serves as the center of local government, as well as the center for commercial, financial and employment development within the County.

POPULATION

According to the 2010 Census Report, Frederick County had a population of 233,385 in 2010, an increase of almost 20% from the 2000 Census Report of 195,277. The projected population through 2030 and 2040, which covers the planning period for this document, is projected to be 303,600 in 2030 and 332,200 in 2040. The population statistics used throughout this document are based upon population projections developed in coordination with the Metropolitan Washington Council of Governments (MWCOG) as part of the Round 9.0 Cooperative Forecasts adopted in November, 2016.

MUNICIPALITIES

There are 12 incorporated municipalities within Frederick County, the largest of which is Frederick City. According to the 2010 U.S. Census Frederick City had an estimated population of 65,239, making it the second largest city in the state. Population statistics for the 2000 and 2010 census are presented in Table 2-1.

Brunswick	**Myersville**
Burkittsville	**New Market**
Emmitsburg	**Rosemont**
City of Frederick	**Thurmont**
Middletown	**Walkersville**
Mount Airy	**Woodsboro**

The 12 municipalities of Frederick County represent 97,862 residents (2010 Census) or approximately 42% of the County population. There are approximately 4,031 commercial and industrial establishments located within the County. Municipalities generate approximately 42% of municipal solid waste within the County. This estimate is developed by way of a per capita waste disposal rate for the entire

County multiplied by the municipal population data. It is reasonable to assume that the municipal solid waste generation will fluctuate from 40%-50% during this and subsequent planning periods.

Figure 2-1: Frederick County Vicinity Map

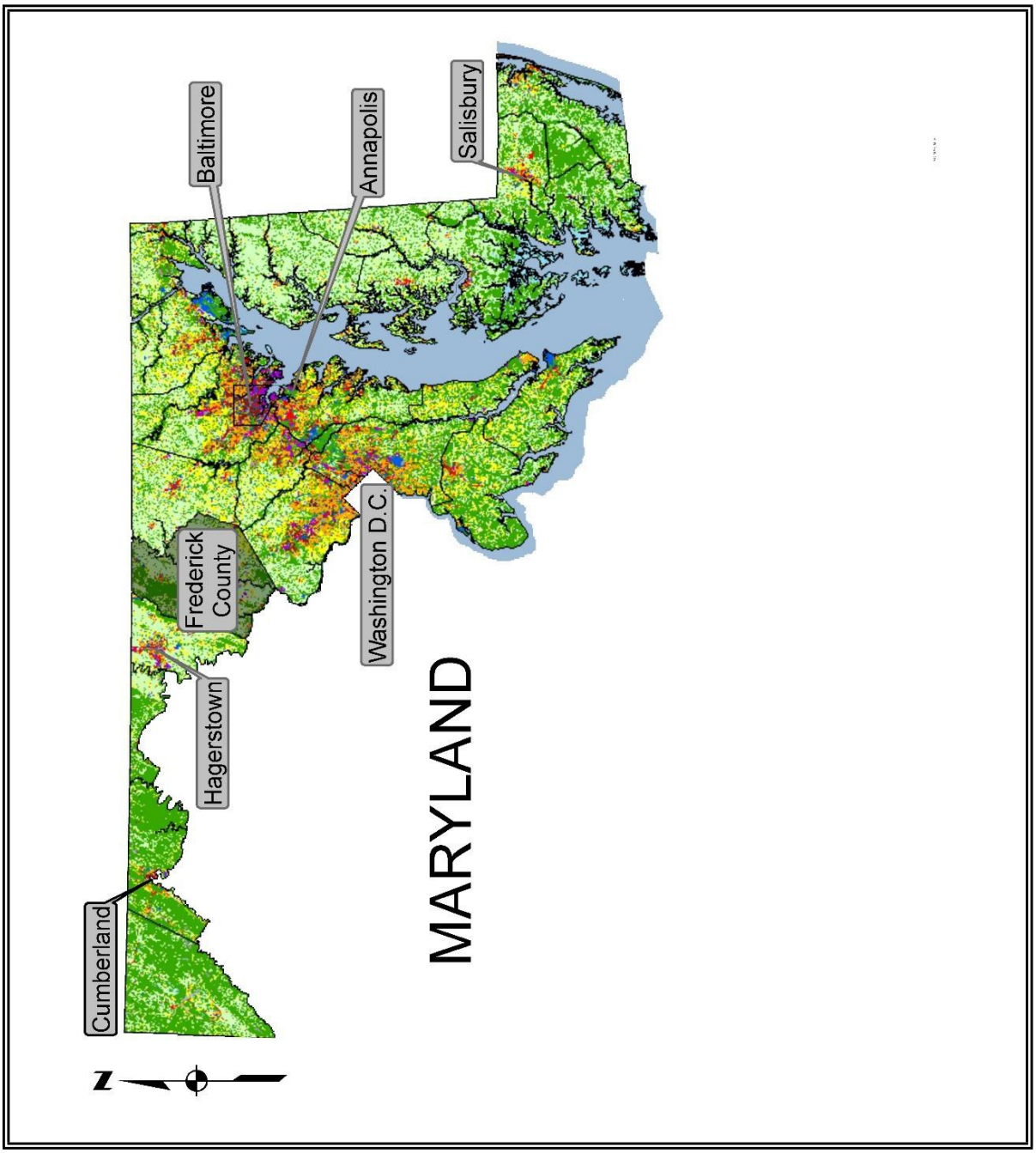


Table 2-1: Population Estimates and Projections – 2000, 2010, 2020, 2030 and 2040 Census Estimates

2000 Census	2010 Census	2020 Projection	2030 Projection	2040 Projection
195,277	233,385	267,800	303,600	332,200

*** Population projections developed in coordination with the Metropolitan Washington Council of Governments (MWCOG) as part of the Round 9.0 Cooperative Forecasts adopted in November, 2016.**

FEDERAL FACILITIES

Frederick County has four major federal facilities; Fort Detrick, Department of the Army, National Preparedness Directorate National Training & Education Emergency Management Institute in Emmitsburg, the Social Security Administration National Support Center in Urbana and the Catoctin Mountain National Park. The facilities are shown on Figure 2-3. There are other federal offices located within Frederick County; however, since these are not considered largely impactful compared to the four campus-like facilities listed above.

ZONING

The County remains predominantly undeveloped with approximately two-thirds of the County existing as agricultural or undeveloped land and about 16% as woodlands. Residential use comprises approximately 10% while commercial and industrial uses comprise approximately 2% of the County land.

In Western Frederick County (west of US Highway 15 and Interstate 270), areas not zoned for development are primarily conservation lands of the Catoctin and South Mountains; in eastern Frederick County, areas not yet zoned for development are generally zoned for rural/agricultural uses. Most of the commercial and industrial development is centered in or near Frederick City with the exception of mining operations.

The Frederick County zoning regulations provide the basic tools for guiding development pursuant to the County's comprehensive plan. A solid waste district may be created as a floating zone that may be established within Agricultural, Village Center, Highway Service, General Commercial, Office Research/Industrial, Limited Industrial and General Industrial Zoning Districts and when having the corresponding comprehensive plan land use designation.

Table 2-2 lists additional zoning regulations for siting solid waste management facilities, which are not under the control of Frederick County Government. Permit applications for solid waste management facilities within Frederick County must be consistent with the County zoning regulations. MDE will not review a permit application until conformity is found.

The Solid Waste Management Plan shall not be used to create or enforce local land use and zoning requirements.

COMPREHENSIVE PLAN

The County Comprehensive Plan is a long-range plan (20-year planning period), which coordinates and guides the development of Frederick County. The latest Comprehensive Plan was adopted on April 8, 2010 and is available via the County's website.

Generally, the Plan includes, but is not limited to information of the County's history, demographic trends, land use, environmental issues, mineral resources, housing, community services, transportation, community facilities, and implementation plan.

Comprehensive Plan goals and objectives and short-range solid waste management policies and action recommendations are repeated in Chapter 1. As with zoning regulations, any permit applications for solid waste management facilities within Frederick County must be consistent with the County Comprehensive Plan.

Figure 2-2: Frederick County Population Estimates and Projections

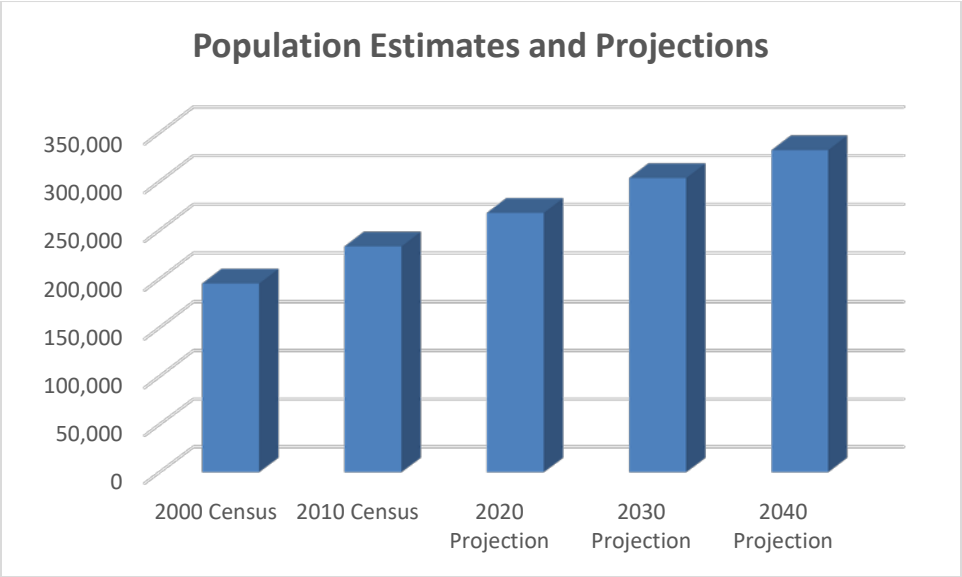


Figure 2-3: Incorporated Municipalities and Federal Facilities in Frederick County

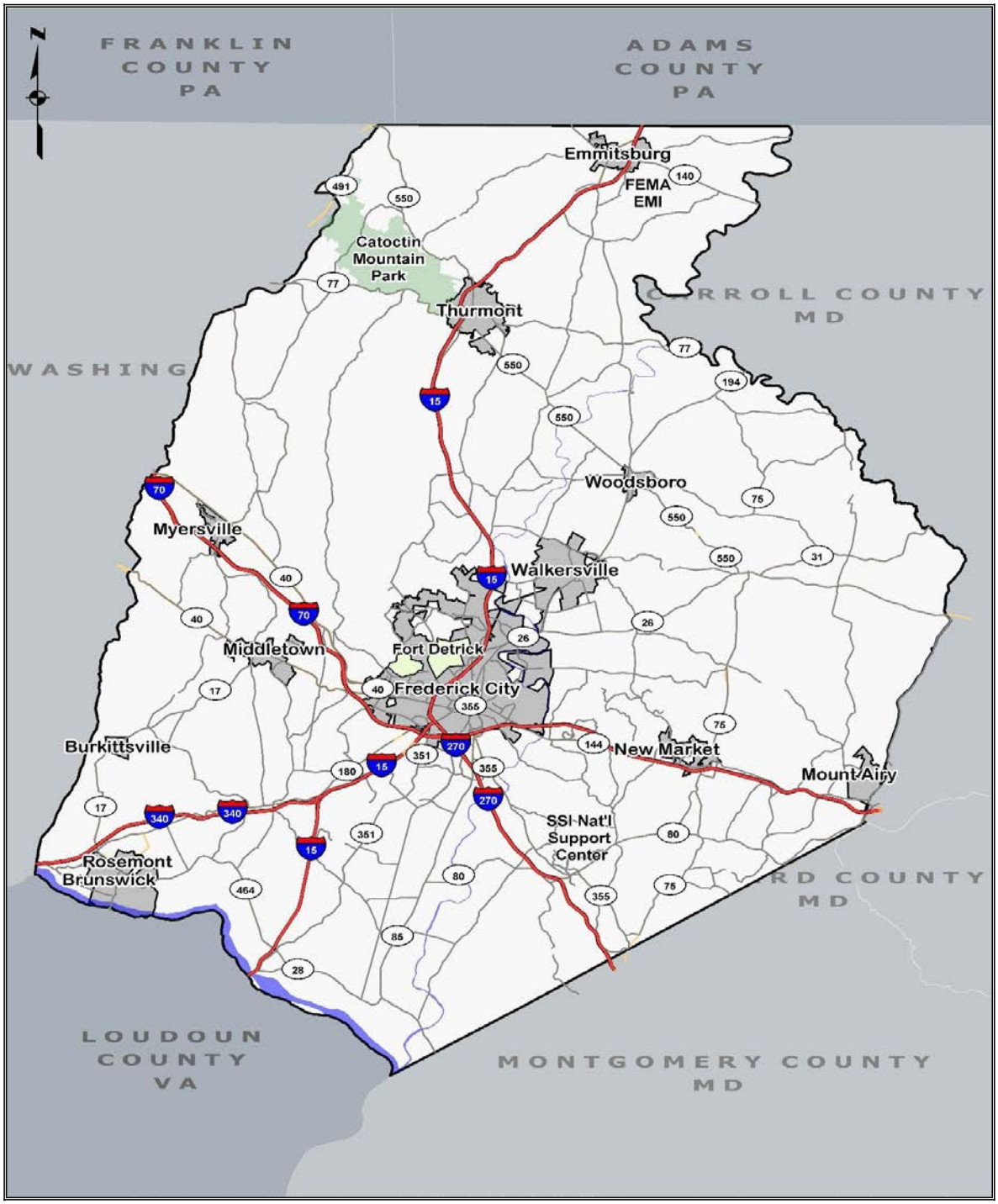


Table 2-2: Frederick County Zoning Regulations for Solid Waste Facilities

Zoning Ordinance Section 1-19-5.310[1]

- Recycling pickup and distribution center may be located in districts zoned limited industrial and general industrial, with site plan approval.
- Industrial waste landfills may be located in districts zoned as agricultural and general industrial by special exception, with site plan approval.
- Yard waste composting sites may be located in agricultural and general industrial districts by special exception, with site plan approval.
- Sludge pits may be located in districts zoned agricultural by special exception, with site plan approval.
- Borrow pit operations may be located in districts zoned agricultural, limited industrial and general industrial, with site plan approval.

Zoning Ordinance Section 1-19-10.800[2]

- Solid Waste District (SW) shall be a floating zone which may be established within Agricultural, Village Center, Highway Service, General Commercial, Office Research/Industrial, Limited Industrial and General Industrial Zoning Districts and when having the corresponding Comprehensive Plan land use designation.
- The uses permitted in the solid waste district shall be as set forth in Section 1-19-5.310. Any use dealing with solid waste that requires a permit from MDE, not specifically addressed in Section 1-19-5.310, will be reviewed under these criteria and may be established only upon the approval of the County Council.
- A property owner may file an application which shall consist of the following:
  - Application stating request.
  - Site plan.
  - Statement of consistency with the County Solid Waste Plan.
  - Documents establishing compliance with all development standards set forth below;

[1] Reference the Zoning Use Table [Article V, Division 3]. The information provided is for convenience and not to be considered all-inclusive; the reader is strongly advised to refer to the latest information available via the County's website.
[2] Reference the Optional Methods of Development [Article X], Solid Waste District (SW) [Division 8]. The information provided is for convenience and not to be considered all-inclusive; the reader is strongly advised to refer to the latest information available via the County's website.

Table 2-2: Frederick County Zoning Regulations for Solid Waste Facilities (Continued)

Zoning Ordinance Section 1-19-10.800 (continued)

- The application shall be filed and processed in the same manner as a zoning map amendment. The application may be granted if the County Council finds that the applicant has established that the proposed use is compatible with neighborhood uses, consistent with the Comprehensive Plan for the county and the region in which it is located, and satisfies the development standards and criteria set forth in this section and all other applicable provisions of this chapter.
- Development Standards
  - Minimum lot size shall be ten (10) acres.
  - No portion of the site on which the solid waste facility is located may be within a designated floodplain.
  - Required Setbacks: All activities associated with use shall be located a minimum of 150 feet from the property lines.
  - Building Height Restrictions: The height of principal use equipment shall not exceed one hundred (100) feet from grade; accessory structures shall not exceed sixty (60) feet from grade. Buildings used for agriculture are exempt from height restrictions.
  - Frontage: The site shall have a minimum of 80 feet frontage on a public road meeting the collector street standards established in the Master Highway Plan. Access shall not be provided by use of a panhandle.
  - Lot Width: The lot width at the front building line shall be a minimum of 300 feet.
  - Open Space/Green Areas: All setback areas shall be landscaped and maintained as green space.
  - Exclusions from Setbacks: Fences, railroad access, warning signs, security nose barriers, berms and access roads may be located within the setback areas.
  - Fencing: Fencing shall be required around all solid waste and accessory activity areas.
  - Lighting: Lighting shall be designed and directed so as not to adversely impact adjoining properties and shall be specifically approved during the site plan approval process.

Table 2-2: Frederick County Zoning Regulations for Solid Waste Facilities (Continued)

- Access: Commercial/industrial entrance standards shall be utilized in the design of any point of access to a public road, including acceleration and deceleration and bypass lanes as necessary.

- All activities associated with the solid waste use and all other activities conducted on the site shall meet all applicable federal, state and local regulations governing noise, dust, air pollutant emissions, vibrations, water appropriation and discharge, including those established in §1-19-7.610 of this chapter as set forth for Limited Industrial (LI) Districts.

Zoning Ordinance Section 1-19-8.348[3]

- The following provisions shall apply to solid waste operations requiring special exception approval in agricultural and general industrial districts:
  - Minimum lot area, 10 acres.
  - Building setback shall be 150 feet from property line.
  - The holder of the special exception must maintain all applicable valid federal, state and local permits.
  - Conditions may be established regulating the operation of the use, including, but not limited to, routing of trucks, total number of trucks, hours of operations, volume of operation and dust control. Parking and maintenance of trucks and other equipment and activities accessory to the operations must be included within the application and will be subject to all conditions established by the Board.
  - The use shall comply with all applicable noise, dust, and other pollutant standards set forth by federal, state and local regulations and at a minimum in the Agricultural District shall comply with §1-19-7.610 as it applies to the Limited Industrial (LI) District.
  - The site shall have access to a collector or arterial roadway as designated on the Comprehensive Plan and shall be built to said classification requirements.
  - The site shall have a minimum of 80 feet of road frontage. Access to a site via a panhandle is prohibited.

[3] Reference the Special Exception Uses [Article VIII, Division 3]. The information provided is for convenience and not to be considered all-inclusive; the reader is strongly advised to refer to the latest information available via the County's website.

Table 2-2: Frederick County Zoning Regulations for Solid Waste Facilities (Continued)

- No zoning certificate will be issued by the Zoning Administrator until all applicable permits have been reviewed by the appropriate federal, state and local agencies and with the understanding that the issuance of the corresponding permits is only dependent upon the county issuance of the zoning certificate.
- The use and zoning shall correspond to the Comprehensive Plan designation.
- Petroleum, flammable liquid, or hazardous substance storage tanks shall have 100% catchment basin, or double-walled containment and a spill protection overfill alarm. This does not apply to propane or natural gas tanks.
- Shall comply with §1-6-50 (Wellhead Protection Ordinance) at site plan approval.

Chapter 3 – Existing Solid Waste Management Program

In this chapter, baseline data is presented on existing solid waste management facilities and programs. Waste generation rates for the planning period are defined based on recent per capita waste generation and population projections. The baseline descriptions of the existing collection system, solid waste management facilities and recycling program provide the basis for the evaluation and needs assessment of subsequent chapters.

WASTE GENERATION

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

- Residential (household, domestic)
- Commercial
- Industrial (non-hazardous) solids, liquids and sludge
- Institutional (schools, hospitals, government buildings)
- Land clearing and demolition debris (rubble)
- Controlled hazardous substances (CHS)
- Dead animals
- Bulky or special (automobiles, large appliances, etc.)
- Vehicle tires
- Wastewater treatment plant sludges
- Septage, and
- Other

Projected generation in these waste categories in Frederick County during the period 2016 through 2030 is presented in Table 3-1 and discussed below. Figure 3-1 graphically illustrates the percentages of each waste category generated within the County. Descriptions of each waste category and the methodology used to estimate projected quantities is presented below.

Table 3-1
Annual Waste Generation in Frederick County
(Tons)
2018-2037

Waste Category	2015 Actual	2020	2025	2030	2035	2040
MSW Residential	66,006	71,821	77,426	81,422	85,660	89,093
MSW Commercial	69,647	75,783	81,697	85,914	90,385	94,007
MSW Mixed	19	21	22	23	25	26
Industrial (solids, liquid, etc.)	19,244	20,939	22,574	23,739	24,974	25,975
Institutional (schools, hospitals, etc.)	0	0	0	0	0	0
Demolition Debris (rubble)	68,966	75,042	80,898	85,074	89,501	93,088
Land Clearing	0	0	0	0	0	0
Controlled Hazardous Substance (CHS)	0	0	0	0	0	0
Dead Animals	0	0	0	0	0	0
Bulky or Special Waste	0	0	0	0	0	0
Vehicle Tires	1	1	1	1	1	1
Wastewater Treatment Plant Sludges	564	614	662	696	732	761
Septage	0	0	0	0	0	0
Asbestos	1	1	1	1	1	1
Yardwaste	0	0	0	0	0	0
Soil	13,985	15,217	16,405	17,251	18,149	18,876
Special Medical Waste	792	862	929	977	1,028	1,069
Witness Burns	21	23	25	26	27	28
Total MRA & NON MRA Waste Disposed	239,246	260,324	280,640	295,124	310,483	322,925
Total MRA & NON MRA Recyclables	183,225	199,367	214,926	226,019	237,781	247,331
Total Waste	422,471	459,691	495,566	521,143	548,264	570,256
Total Waste Generated	422,467	459,687	495,562	521,138	548,259	570,251

Figure 3-1: Projection of Solid Waste Generation by Waste Category Percentages 2011-2017

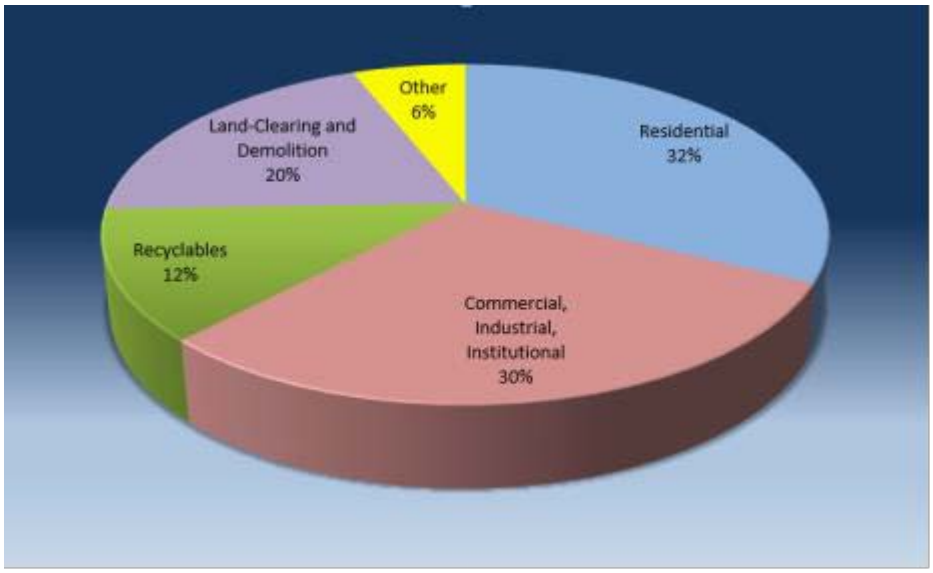


Figure 3-1. Other includes Dead Animals, Bulk Trash, Tires, Yard Waste, Asbestos, Leachate and Water Treatment Plant Residuals.

RESIDENTIAL

Residential waste includes wastes generated by households in Frederick County, except for dead animals, bulky wastes and tires which are described in subsequent sections.

Residential waste for disposal in most communities is collected and hauled to the Reichs Ford Road solid waste management facility. Solid waste management facility records indicate that 65,720 tons of residential waste was delivered there in 2015.

Recyclables recovered by residents are collected by the County's Curbside Recycling Collection Program, the Municipality Recycling Drop-off Centers and the County Recycling Drop-off Center located at the Reichs Ford Road solid waste management facility. The County Satellite Drop-off Program was terminated effective July 1, 2011 in response to the full expansion of the Residential Curbside Recycling Program. The Municipality Recycling Drop-off Centers were established in 2012 in order to expand the availability for recycling in Brunswick, Emmitsburg, Middletown, Thurmont and Walkersville. These combined programs recovered 25,013 (pre-residual) tons of recyclables in 2015.

Adding these recovered recyclables to the waste disposed provides a total residential municipal solid waste generation of 90,733 tons for 2015.

COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL

Waste from businesses, industry and institutions within the County are collected and delivered to a number of waste processing or disposal sites. The Reichs Ford Road solid waste management

facility records waste accepted for disposal from commercial, industrial and institutional sources under the category of non-rubble commercial and institutional waste.

Commercial

The Reichs Ford Road solid waste management facility records indicate that 60,230 tons of commercial municipal solid waste were received in 2015. Commercial, industrial and institutional sources reported recovering 73,678 tons of recyclables in 2015.

Adding the recovered commercial recyclables reported to the County to the commercial municipal solid waste delivered to the County solid waste management facility provides a total municipal solid waste generation of 133,908 tons in 2015. It is important to note that this commercial waste generation rate does not reflect the generation of construction and demolition debris, sewage sludge or other wastes not defined as municipal solid waste.

Commercial waste generation within the County is collected and hauled to the County solid waste management facility or recycled directly through various outlets.

Industrial

In general, industrial waste generated within the County is hauled to the County solid waste management facility. Although, Eastalco Aluminum Company still maintains an apparent active disposal permit for their onsite landfill, plant production has been ceased for a number of years and the County is unaware of any future plans to resume production.

Percentages of combined commercial/institution wastes vary due to economic conditions, they continue to represent between 20-30% of the total waste stream, based upon Frederick County solid waste management facility scale records.

Clean Fills

Construction projects, both governmental and private, generate "clean fill" material (as defined in COMAR 26.04.07.04.C.5). This material is used in earth moving construction to establish topography and/or improve drainage, and is subject to receiving a grading permit from Frederick County. Clean fill is exempt from the Solid Waste Management Plan. Questions related to clean fill or grading operations should be directed to the Frederick County Division of Public Works, Office of Project Management.

Institutional

In general, institutional waste generated within the County is collected and recycled or hauled to the County solid waste management facility. Waste generated at the Fort Detrick Army Headquarters is disposed of on the post as subsequently described.

The U.S. Army operates incinerators for processing some portions of their institutional waste. Fort Detrick also operates a Subtitle D landfill for certain wastes from the post. Fort Detrick may also bring certain types of acceptable Municipal Solid Waste (MSW) to Frederick County's waste management facilities for either landfill disposal or transfer and disposal.

Special medical waste generated within Frederick County is either incinerated at the Frederick Memorial Healthcare System Incinerator, steam sterilized at the Frederick Memorial Healthcare System Rotoclave, hauled to Baltimore for incineration or collected and hauled to a facility of their choosing for safe, ultimate disposal. This special medical waste is described in a subsequent section.

RUBBLE

Rubble includes land clearing, construction and demolition (C&D) debris as defined in COMAR 26.04.07.11 and .13. Rubble generated within the County is accepted at the Reichs Ford Road solid waste management facility.

With the closure of the dedicated rubble landfill at the Reichs Ford Road solid waste management facility, all rubble is now handled as municipal solid waste although it continues to be accounted for as a separate waste type. The Reichs Ford Road solid waste management facility accepted 39,462 tons of rubble in 2015 (residential and commercial C&D, shingles, concrete, and structural and land-clearing debris).

CONTROLLED HAZARDOUS SUBSTANCES

Controlled hazardous substances (CHS) are materials that are designated by MDE as "controlled" and meet the criteria of a hazardous substance. The County is not permitted to handle CHS and therefore does not specifically track generation rates of CHS as part of the County's solid waste management system since it is strictly controlled by MDE regulations and therefore is beyond the scope of Frederick County's Solid Waste Plan.

CHS wastes are collected by a private hauler and taken out of the County to treatment facilities or hazardous waste disposal sites. Manifests required to accompany waste shipments must be signed and verified by the generator, transporter and disposal or treatment facility.

DEAD ANIMALS

The Department of Agriculture, Frederick Laboratory reports that 58 tons of dead animals were incinerated in 2015. Dead animals from the Frederick County Division of Animal Control, animal clinics, veterinarians, County Highway Department and residents are accepted.

No estimates for pets buried in cemeteries or agricultural animals buried on farms are readily available.

BULKY WASTES

Bulky wastes include furniture and white goods such as refrigerators, washers, dryers and other large appliances. Traditionally, the scrap metal industry has provided adequate recycling opportunities and economic incentives to recycle the majority of scrap metal and scrap automobiles.

The County operates a recycling program for white goods and other scrap metal at the Reichs Ford Road solid waste management facility and are accepted at no charge. When feasible, large white good items and large scrap metal items contained in loads delivered to the County solid waste management facility are separated for recycling. Solid waste management facility records indicate that 794 tons of bulky items (white goods and scrap metal) were accepted at the Reichs Ford Road solid waste management facility in 2012, 682 tons in 2013, 668 tons in 2014 and 646 tons in 2015.

In its contracts with scrap metal dealers, the County requires the recycling facility to be licensed to evacuate Freon as required by the Clean Air Act from all appliances containing refrigerant.

Based on the bulky waste received at the County solid waste management facility, the per capita generation rate for bulky waste is estimated at .017 pounds per person per day.

TIRES

In 2015, approximately 86 tons of scrap tires were delivered to the Frederick County solid waste management facility.

The State of Maryland General Assembly banned disposal of scrap tires in landfills in 1993 (Title 26, Subtitle 04, Section 08) and in the same year began a system for assigning licenses to facilities and haulers to better track the transport and disposal of scrap tires in the State. The Frederick County solid waste management facility holds a Secondary Scrap Tire Collection Facility License (No. 2013-RSC-09071) as authorization to operate a disposal site for scrap tires, with the stipulation that no more than 1,500 scrap tires may be stored on site at any one time. Entities are limited to handling no more than five tires annually without a Maryland secondary scrap tire haulers license.

The majority of used scrap tires generated in the County are taken to a recycling or storage facility directly from the retailers who change tires. The projected generation data for tires is based on 0.70 lbs. per person per year using the 2015 actual solid waste management facility data and population figure.

SEWAGE SLUDGE

The majority of sewage sludge generated within Frederick County is disposed of using land application on State-permitted sites (primarily farms) in the region. The Reichs Ford Road solid waste management facility receives only small quantities of sludge under emergency situations.

The Reichs Ford Road solid waste management facility did not receive any sludge during 2015.

The projected generation data for sludge is based on the average annual gallons per person in 2015.

It should be noted that the vast majority of sewage sludge generated within the County is being land-applied, which has subsequently greatly reduced the volume of sludge received at the County's solid waste management facility.

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. In Frederick County septage is accepted for treatment at the Ballenger-McKinney Waste Water Treatment Plant (WWTP). Additional information on the management of septage can be found in COMAR 26.04.06.

There are numerous private and public haulers operating within Frederick County which collect and transport septage to the WWTP. Sludge from septage wastes is processed along with sludge produced by the Ballenger-McKinney WWTP.

Ballenger-McKinney Wastewater Treatment Plant treated an average of 6,983 gallons of septage per day 2015.

ASBESTOS

The Reichs Ford Road solid waste management facility accepted less than one ton of asbestos in 2015. One ton, is considered to be more representative of future conditions and will be used for generation projections.

OTHER

Special Medical Waste

Special medical wastes are wastes considered to be infectious or biohazardous, according to COMAR 26.13.11. Operators of special medical waste facilities must meet regulations governing the management and handling of such wastes including packaging, identification and transport. Generators of less than 50 pounds of special medical waste per month are not required to file travel manifests with MDE, while generators of greater than 50 pounds per month are required to do so.

Special medical waste generators in Frederick County include the Frederick Memorial Healthcare System, Fort Detrick and numerous small clinics, nursing facilities and laboratories. Special medical waste generators at Fort Detrick include the Frederick Cancer Research and Development Center and the U.S. Army Medical Research Institute of Infectious Diseases.

Special medical waste generated in the Frederick Memorial Healthcare System is steam sterilized on site. Approximately 220 pounds of special medical waste are processed daily, using an approved proprietary system that sterilizes and grinds the waste into a material safe for ultimate disposal at a solid waste management facility of their choice.

Fort Detrick is the home of the National Cancer Institute – Frederick Cancer Research and Development Center as well as medical research facilities for Department of Defense organizations. The special medical waste generated at this facility is incinerated independent from the County's waste management system.

Clinics, nursing facilities and laboratories which generate special medical waste contract with haulers to transport the waste to an out-of-county incinerator. Frederick County believes that these generators are under the generation limit for filing an MDE transport manifest. The quantities of special medical waste from these facilities are not documented.

It is consistent with this Plan for generators of special medical waste to either transport the waste in compliance with MDE regulations to an approved facility or to use an MDE-approved process for handling waste that they alone generate on-site. Consideration must be given to the potential for special medical waste to entrain radioactive materials. A generator is defined as an entity whose act or process produces special medical waste. A generator is not an entity who collects medical waste or who receives shipments of special medical waste that they have not produced themselves.

For the purpose of this plan, commercial medical waste processors are not consistent with the plan and are not recommended for further consideration.

County Maintenance Debris

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

Agricultural Waste

Generally, agricultural wastes are reused on the farm. For example, manure is used as fertilizer and organic debris is plowed back into the land. Although not identified as such, small quantities of agricultural waste entering the County solid waste management facility are classified as commercial or rubble waste.

Recreation Waste

Recreational waste from parks and other recreational facilities including solid waste and septage is accounted for as municipal solid waste or septage waste.

Mining Waste

Numerous quarries throughout the County mine stone, which is used for various types of aggregate. Primary stone materials mined for include limestone, shale and slate. Other mineral resources which are quarried include limestone for building and agriculture, shale for the building industry and sand and gravel.

The primary solid waste potentially associated with quarrying operations is overburden (soil), which is usually stockpiled on-site for eventual use in mine reclamation or sold as clean fill to the construction industry. Although quantities of this material are significant, it does not currently pose a solid waste management problem in the County because it generally is not delivered to the County's solid waste management facility.

Used Oil and Antifreeze

Many industries and businesses collect their used oil and antifreeze for recycling or reuse.

Waste oil and antifreeze are collected for recycling by contracted service providers, and at the Frederick County Recycling Center and commercial establishments such as garages and service stations.

Maryland Environmental Services (MES) provides waste oil collection at four sites in Frederick County. Five sites in Frederick County collect antifreeze. Additionally, there are numerous garages, service stations and retailers who collect waste oil and antifreeze for recycling. Total quantities of waste oil and antifreeze recovered from County sites in 2015 were 1,467 tons of waste oil and 62 tons of antifreeze. Of that amount, 146 tons of waste oil were collected at the four designated collection sites and 7 tons of antifreeze were collected at the five designated sites located throughout Frederick County. These numbers are likely to be low, however, since reporting is not mandatory and reports from all private facilities are not received by the County.

WASTE COMPOSITION

The Frederick County municipal waste stream is comprised of residential and commercial municipal solid waste and residential and commercial construction and demolition debris (rubble) which is delivered to the County solid waste management facility for disposal or recycling. For calendar year 2015, the percent composition of the County's municipal solid waste stream was approximately 75% municipal solid waste (57% residential and 43% commercial)

and 19% construction and demolition waste (12% residential and 88% commercial).[1] This composition excludes liquid waste such as oil and antifreeze as well as institutional wastes handled independent of Frederick County Government's solid waste management systems.

RECYCLING

A combination of public and private programs serve to address the recycling needs of the commercial and residential sectors.

Institutions include Frederick Memorial Healthcare Systems, Mount Saint Mary's University, Hood College (all of whom contract for recycling services); Frederick County Government offices, Board of Education and Frederick Community College.

Most businesses contract for collection and/or marketing of their recyclables, although some such as grocery chains generate quantities that make it practical to provide their own marketing and collection.

Residential programs are provided by Frederick County in the form of curbside recycling or the Reichs Ford Road Recycling Center. Several Frederick County municipalities operate recycling drop-off centers as well. In addition, there are private recycling centers in Frederick County which accept recyclable materials and, in some cases, pay for these materials. These materials are then transported for further processing or to end-use markets.

RESIDENTIAL PROGRAMS

Reichs Ford Road Solid Waste Management Facility

The County has provided a drop-off center for recyclables at the Reichs Ford Road facility since 1989. The drop-off center is open during normal operating hours for the facility. The following recyclables are collected:

Mixed Paper	**Cardboard**
Paper/Boxboard	**Shredded Paper**
Narrow-Neck Plastics	**Wide-Mouth Plastics**
Bulky/Oversized Plastics	**Glass Bottles & Jars**
Bi-Metal Cans	**Aluminum Cans & Foil**
Aseptic/Gable-Top Containers	**Empty Aerosol Cans**
Plastic Grocery Bags	**Motor Oil**
Antifreeze	**Lead-Acid Batteries**
Scrap Tires	**Flexible Foam**
Electronics	**Large Appliances**
Scrap Metal	**Yard Waste**

[1] In 1995-96, Frederick County conducted an analysis of the waste delivered to the County solid waste management facility. This analysis showed paper products at 39%, making up the largest part of Frederick County's waste stream, with corrugated cardboard at 8% the largest single paper type. Food waste (12%) and plastics (10%) were also large items.

With the exception of scrap tires and electronics, the above listed materials are accepted at no charge.

Residential Recycling Program

A recycling program, including a curbside collection program and satellite drop-off locations, was initiated by the County in 1991. The program was expanded on multiple occasions between 1991- 2008 to collect materials from all municipalities and densely populated areas. The program changed from dual stream collection to single-stream collection in January 2009 and was fully expanded in May 2009 to include all single-family households in the County and now provides every other week curbside collection. With the closure of the residential satellite recycling drop-off centers in 2011, participants are encouraged to utilize the fully-expanded Curbside Recycling Program, the Reichs Ford Road Recycling Center, or one of the Municipality Recycling Drop-off locations.

Curbside recycling is a single-stream program that accepts magazines and catalogs, newspapers (including all inserts); junk mail and envelopes; clean paper products – colored and white (such as typing, fax, copy, letterhead, file folders, cardstock, etc.), shredded paper; brown paper bags; non-metallic wrapping paper; paperboard boxes (such as cracker and cereal boxes without liners); corrugated cardboard; books (including paperbacks, hardbacks and telephone books); aseptic/gable top milk and juice cartons; plastic bags; narrow-neck plastic containers such as peanut butter, margarine tubs, yogurt, mayonnaise, prescription bottles, etc.; glass food and beverage containers such as jars and bottles; tin and steel food and beverage containers; aluminum food and beverage containers; aluminum foil and aluminum pie pans; and empty aerosol cans.

The County recycled 20,603 tons of residential single-stream recyclables in 2015 from the curbside and drop-off center programs.

Seasonal Programs

Frederick County offers other recycling opportunities to County residents on a seasonal basis subject to funding.

Every Christmas season the County promotes the recycling of Christmas trees. This annual program grinds/chips collected trees into mulch, which is then sold to help offset program costs. During the 2015 holiday season, over 37.36 tons of Christmas trees were recycled.

Yard Waste

Frederick County uses a yard waste grinder for mulching of woody yard waste material such as brush and branches at the primary recycling center located on Reichs Ford Road. In addition, the County operates a windrow composting operation at this same location which processes grass, leaves and certain unadulterated lumber (pallets) into a finished grade compost. Additionally, one decentralized yard waste collection center exists which accepts mixed yard waste, brush, branches, grass and leaves located at Walkersville's Heritage Farm Park, which is on property owned by the Town of Walkersville.

Frederick County adopted ordinance number 06-03-399 on January 17, 2006 which prohibits the disposal of yard waste in the landfill. Yard waste is currently accepted at no charge at the Reichs Ford Road recycling center and Walkersville Heritage Farm Park.

In 2015, 16,219 tons of yard waste was received at the County's yard waste processing facilities.

Bulky Wastes

Bulky wastes, in the form of furniture, appliance, and other large items, are accepted year-round at the Reichs Ford Road solid waste management facility. Most waste haulers will not collect bulky wastes as part of routine trash collection, so they are usually brought to the Reichs Ford Road site by the homeowner.

Some municipalities provide special bulk trash collection.

A non-profit group, formerly called the Frederick Non-Profit Building Supply and now known as the Frederick Habitat ReStore, was formed in 1990 and works to obtain useable discarded building materials to supply non-profit building projects and low-income families. The operation is currently housed in a warehouse like facility and no scales are available for weighing materials collected.

Electronics

Electronics are accepted at the Reichs Ford Road solid waste management facility for a fee. Items accepted include desktop and laptop computers, keyboards, scanners, printers, fax machines, GPS units, PDAs, cell phones, digital cameras, DVD players, VCRs, stereos, televisions, etc. There are also private electronic recycling companies where residents and businesses can take electronics to be recycled for a fee.

Organics

A total of 35,217 tons of organics were recycled in 2015. This included grease and proteins from various private generators within Frederick County.

COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL PROGRAMS

Numerous commercial and industrial establishments are collecting recyclables such as office paper, corrugated cardboard, aluminum cans, glass, plastics, newspaper, and used oil and antifreeze for recycling.

Recycling programs are in place at many local institutions, including Frederick Memorial Healthcare Systems, Frederick Community College, Hood College and Mount Saint Mary's University. The Frederick Memorial Healthcare System recycles corrugated cardboard, cans, plastic bottles and pallets. Hood College operates a dual-stream recycling program, collecting corrugated cardboard and mixed paper and commingled bottles and cans. They also collect scrap metal and white goods, electronics and pallets. Mount Saint Mary's University recycles corrugated cardboard, mixed paper, aluminum products and numbers one and two plastics. Items are collected separately with the exception of the plastics which are collected together.

The County Board of Education installed recycling containers at each school in the fall of 1992 for collection of mixed paper, plastics, polystyrene, cardboard, and bi-metal and aluminum cans. However, the schools ceased collection of plastics and bi-metals due to low volumes, as well as polystyrene due to a lack of markets. In the fall of 2009, the Board of Education converted its recycling program to a single-stream program through inclusion in the Frederick County's Recyclable Materials Collection Service. The schools collect all of the same materials for recycling that are accepted in the curbside program. Several schools have also opted to explore their own institutional composting programs.

The recyclables recovered by commercial, industrial, and institutional sources may be transported to the County's Transfer and Processing Station or to out-of-county destinations for processing.

Commercial recyclables delivered to the County's facilities are recorded via scale records. Recyclables processed elsewhere may be voluntarily reported to the County on an annual basis for possible inclusion in the official MRA recycling rate. In calendar year 2015 approximately 64% of the MRA recycling taking place in the County is estimated to come from commercial and institutional sources. In 2015, commercial recyclers in Frederick County recycled approximately 73,678 tons of material.

Office Building Recycling Plan

1. Collection and Marketing

Owners of buildings with 150,000 square feet and greater of office space will be responsible for providing all containers necessary to fulfill recycling requirements throughout their buildings, as well as determining the collection schedule directly with the collection contractor. Distinctive colors and/or markings of recycling containers should be provided to avoid cross contamination. Office building owners must ensure collection and transportation of recyclable materials from office building locations to markets or tipping as commercial recycling at the Frederick County processing and transfer station at the prevailing tipping fee rate. Owners and/or tenants will be responsible for placing recyclables in building recycling bins prior to their removal on the scheduled pick up day.

2. Stakeholders

Stakeholders include the owners and tenants of applicable office buildings, and Frederick County.

3. Participants

At the time of the implementation of this requirement, eight applicable properties were identified through SDAT records (Appendix G). One of the properties is owned by Frederick County Government and therefore is already participating in a County-sponsored recycling program.

4. Materials to be Recycled

Each owner of the participating office building must provide recycling receptacles for the collection of paper and cardboard, metals, and plastic materials and for the removal for further recycling of recyclable materials deposited into the recycling receptacles.

5. Schedule of Implementation

On or before October 1, 2021, office building owners must have recycling services in place and operational in order to meet the requirements of the office building recycling program.

In order to meet this deadline, the following steps must be completed by October 1, 2021:

- Frederick County will distribute literature to the applicable office building owners regarding the office building recycling program. Office building owners will begin to educate workers/tenants (as applicable) about the program and the requirements of the law.
- Office building owners will coordinate with tenants (as applicable) to reach agreement as to which entity will be responsible for carrying out the office building recycling program.

- Office building owners will provide recycling receptacles for the collections of recyclable materials.

6. **Program Monitoring**

Monitoring of recyclable materials bins will be carried out by office building owners and/or tenants.

Frederick County may require the office building owner and/or tenant to report to the County metrics associated with the office building recycling program.

7. **Enforcement**

The County may, but is not required to, manage or enforce the recycling activities of an office building located within the boundaries of one if its municipalities. Enforcement agents of the County or municipality may conduct inspections in order to enforce this program.

The County Office of Recycling will notify the office building owners of the implementation requirements in accordance with Sections 9-1703 and 9-1711 of the Environment Article, Annotated Code of Maryland. The County Attorney's Office will determine if the County should enforce the law and what enforcement actions should be used.

APARTMENT BUILDING AND CONDOMINIUM RECYCLING PLAN

1. Apartment Building and Condominium Recycling (ABCR) Program

Through the cooperation of the Frederick County Office of Recycling 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 one hundred twenty-one (121) apartment buildings and condominiums that fall under the scope of the law. The Frederick County Office of Recycling has notified the apartment and condominium officials and discussed the requirements of the law including the materials that must be recycled (i.e., plastic, metal, glass containers, and paper) at the identified locations.

It is the responsibility of apartment and condominium officials to determine how the materials will be stored, collected, and transported to the recycling markets for the collected materials. Apartment and condominium officials must report to the County on an annual basis details on the required recycling activities. Other program requirements include:

a. Materials Included in Program

Recyclables must include: plastic containers, metal containers, and glass containers, and paper.

b. Collection of Materials

Apartment and condominium officials 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 apartment and condominium officials must ensure collection and transportation of recyclable materials from apartment and condominium locations to markets or tipped as commercial recycling at the Frederick County processing and transfer station at the prevailing tipping fee rate. Residents will be responsible for placing recyclables in building recycling

bins prior to their removal on the scheduled pick up day.

c. Marketing of Materials

Apartment and condominium officials are responsible for the marketing of their recyclables. If they choose to have recyclable materials transported to the Frederick County transfer station, they must pay the current prevailing tipping fee rate for commercial single stream recycling.

2. Stakeholders

Stakeholders that will be involved in implementing the law are:

a. Owner or Manager of the Apartment Building or Councils of the Unit Owners of Condominium – Responsible for providing recycling to the residents of each apartment building or condominium by October 1, 2014. Secure and manage recycling contracts with the contractor for providing material collection and recycling services from the building locations. Provide material collection bins and containers for transporting the materials from the buildings to the markets. Perform record keeping and may report to the County on annual basis.

b. The Maryland General Assembly-Responsible for legislation mandating the collection and recycling of recyclable materials from residents of all apartment buildings and condominiums with more than 10 dwelling units by property owners or managers of apartment buildings and councils of unit owners of condominiums.

c. Maryland Department of the Environment-Responsible for enforcement of environmental laws and regulations, such as the Environment-Recycling-Apartment Buildings and Condominiums.

d. Act requiring the collection and recycling of recyclable materials from residents of all apartment buildings and condominiums with more than 10 dwelling units by property owners or managers of apartment buildings and councils of unit owners of condominiums.

e. Board of Frederick County Commissioners – Responsible for adopting the MDE approved language of ABCR Program for the Solid Waste Management Plan amendment.

f. Frederick County Planning Commission - Responsible for reviewing and finding consistencies with the Comprehensive Plan regarding the Solid Waste Management Plan amendments, to include ABCR Program.

g. Frederick County Department of Solid Waste Management – Communicate the requirements of the law to the apartment and condominium officials. Provide educational and outreach materials in electronic format to assist apartment and condominium officials in developing a recycling program. Monitor the progress and performance of the ABCR Program. Update County's recycling plan to include the ABCR Program and amend the County Solid Waste Management Plan. Update a list of participating apartment buildings and condominiums at the time of Frederick County's 3-year Plan review.

3. Participating Apartment Buildings or Condominiums (132) in ABCR Program are listed in Appendix E.

Note: By State law, any new apartment buildings or condominiums that will fall under the requirements of the law are required to implement an ABCR program within three (3) months of commencement of the business.

4. Schedule for the Implementation of the ABCR Program:

a. By October 1, 2014, the County will distribute summary literature detailing the requirements of the ABCR Program to apartment and condominium officials. Apartment and condominium officials will begin to educate the residents about the ABCR Program and discuss the requirements of the law after being notified.

b. By October 1, 2014, apartment and condominium officials will subsequently provide educational assistance to the residents and advise them of the date when the residents can start collecting the materials.

c. By October 1, 2014, apartment and condominium officials finalize and secure recycling services contracts with the private contractors.

d. On or before October 1, 2014, apartment and condominium officials must have recycling services in place and operational in order to meet requirements of the ABCR Program so that residents may start collecting and recycling the materials at the participating apartment buildings or condominiums.

5. Program Monitoring

The apartment and condominium officials will conduct inspections, review service levels, investigate reported or unreported pick-up and disposal complaints, meet with residents or recycling contractor staff to educate or review practices, and review contractor compliance with the recycling contract as they deem necessary in order to conduct a successful recycling program.

The apartment and condominium officials will also be available to conduct educational seminars and/or tours regarding new materials, practices and procedures for residents. Also, the owner, manager or council shall be responsible to keep the residents current on new regulations, laws, and mandates affecting recycling in the apartment buildings or condominiums. Any ABCR Program performance deficiencies that arise will be documented and addressed. The apartment and condominium officials shall initiate actions to correct all deficiencies within 60 days of being notified by the County.

6. Program Enforcement

The County Office of Recycling will notify the apartment and condominium officials of the implementation requirements in accordance with the Sections 9-1703 and 9-1711 of the Environment Article, Annotated Code of Maryland. The County Attorney's Office will determine if a County should enforce the law and what level of enforcement actions should be used. The law allows for fines to a person that violates the recycling or reporting requirements of the law or a civil penalty not exceeding $50 for each day on which the violation occurs.

Further, any penalties collected under the law shall be paid to the county, municipality or other local government that brought the enforcement action.

FREDERICK COUNTY PUBLIC SCHOOL RECYCLING PLAN

1. Program Description

This plan was to be implemented pursuant to Maryland State Law as of October 1, 2010. Many aspects of this plan were already adopted by the Board of Education (BOE) voluntarily. This plan incorporates all of Frederick County Public Schools (FCPS), including Frederick County Charter Schools, and Frederick Community College (FCC). The main point of contact for recycling in FCPS will be the Energy and Recycling Coordinator, and the Executive Director of Facilities Planning for FCC.

The Frederick County Board of Education will be included in the Recycling Service Agreement with the Northeast Maryland Waste Disposal Authority for transporting and processing of recyclables. The materials that must be recycled through this contract include: newspapers (including all inserts); magazines and catalogs; junk mail; cardboard and paperboard; corrugated boxes; computer printouts; books (including paperback, textbooks and hardbacks); aerosol cans; office paper (including typing, fax, copy, letterhead, NCR) and envelopes; brown paper bags (Kraft); telephone books; glass containers such as bottles and jars; ferrous and bimetal food and beverage containers; non-metallic wrapping paper; aluminum food and beverage containers; aluminum foil and aluminum pie pans; narrow-neck plastic containers (other than for motor oil) that carry plastic resin codes 1 through 7; wide-mouth containers such as peanut butter, margarine/butter tubs, yogurt, cottage cheese, sour cream, mayonnaise, whipped topping, prescription bottles (lids and caps do not need to be removed); bagged plastic film; aseptic/gable top milk and juice cartons.

Collection and Marketing

Each school will be responsible for the internal collection of recyclable materials, as well as determining the collection schedule directly with the collection contractor. Each school will establish who is responsible for the program (typically someone on the custodial team), as well as how often recyclables are collected. The materials can then be brought to the Frederick County transfer station and transported to the County's contracted Material Recovery Facility for both processing and marketing. The Service Agreement for processing and marketing of the materials will be managed by the County's Department of Solid Waste Management (DSWM).

2. Stakeholders

Stakeholders include the Board of Education and Frederick Community College, each individual publicly-funded school, Frederick County and the recycling collection contractor.

Development, Implementation and Monitoring

Recycling for all schools and FCC will be implemented through FCPS and FCC administration. Each school will determine what size collection containers are needed and the frequency of collection. Each individual school, typically custodial staff, will be primarily responsible for the monitoring of the recyclables, with assistance from the County's Department of Solid Waste Management (DSWM) when requested. Each school will be responsible for educating all staff and students. The County's DSWM will assist the public schools and FCC with outreach and education in the following ways:

- Providing education on the Department website
- Educating principals and administrative staff when requested by FCPS
- Attending outreach events when requested by FCPS
- Assisting with promotional and educational materials when requested by FCPS

Recycling Contract

FCPS has its own Recyclable Collection Service Agreement for recycling collection. Recyclables may be brought to the Frederick County solid waste management facility at Reichs Ford Road for recycling transporting and processing.

Recycling Contractor

The recycling contractor for the collection of recyclables will supply the schools with a limited number of internal collection containers to assist with the implementation of the program. Any additional bins that are needed will need to be purchased by each individual school.

3. List of County Schools

Elementary Schools

- Ballenger Creek Elementary School
- Brunswick Elementary School
- Carroll Manor Elementary School
- Centerville Elementary School
- Deer Crossing Elementary School
- Emmitsburg Elementary School
- Glade Elementary School
- Green Valley Elementary School
- Hillcrest Elementary School
- Kemptown Elementary School
- Lewiston Elementary School
- Liberty Elementary School
- Lincoln Elementary School
- Middletown Elementary School
- Middletown Primary School
- Monocacy Elementary School
- Myersville Elementary School
- New Market Elementary School
- New Midway Elementary School
- North Frederick Elementary School
- Oakdale Elementary School
- Orchard Grove Elementary School
- Parkway Elementary School
- Sabillasville Elementary School
- Spring Ridge Elementary School
- Thurmont Elementary School
- Thurmont Primary School

- Tuscarora Elementary School
- Twin Ridge Elementary School
- Urbana Elementary School
- Valley Elementary School
- Walkersville Elementary School
- Waverley Elementary School
- Whittier Elementary School
- Wolfsville Elementary School
- Woodsboro Elementary School
- Yellow Springs Elementary School

Middle Schools

- Ballenger Creek Middle School
- Brunswick Middle School
- Crestwood Middle School
- Governor Thomas Johnson Middle School
- Middletown Middle School
- Monocacy Middle School
- New Market Middle School
- Oakdale Middle School
- Thurmont Middle School
- Urbana Middle School
- Walkersville Middle School
- West Frederick Middle School
- Windsor Knolls Middle School

High Schools

- Brunswick High School
- Catoctin High School
- Frederick High School
- Governor Thomas Johnson High School
- Linganore High School
- Middletown High School
- Oakdale High School
- Tuscarora High School
- Urbana High School
- Walkersville High School

FCPS Charter School/Specialty Schools

- Carroll Creek Montessori School
- Frederick Classical Charter School
- Heather Ridge School
- Monocacy Valley Montessori School
- Rock Creek School

College Facilities

- Frederick Community College

All County schools, including charter and county-funded colleges (as listed in number three) will be incorporated into the Frederick County recycling program for collection, processing and marketing of recyclables. Newly opened schools will begin participating in the program within three months of the new school year session.

4. Program Implementation Schedule

Circa April 2009 – Completion of evaluation of public school recycling programs.

Circa April 2009 – Begin implementation of improvements to public school recycling programs resulting from the evaluation of the programs.

10/1/2010 – Deadline for which all Frederick County public schools must be participating in the Frederick County Public School Recycling Program plan.

5. Program Monitoring

The majority of monitoring of the program will be done by each individual school, namely whoever is responsible for collection and outreach within that school. The Frederick County Department of Solid Waste Management will monitor the external containers on occasions for contamination and report these findings to the FCPS Energy-Utilities Services Coordinator for contamination outreach at that school. The collection contractor will invoice FCPS and FCC directly for payment of services.

QUANTITIES

Quantities of materials recovered from the residential recycling program are provided in the Residential Recycling Program section. A recycling program summary of all recycling activity within Frederick County is presented in Table 3-2.

The Maryland Recycling Act of 1988 requires diversion of 20% by weight of the tonnage at the Frederick County solid waste management facility beginning in 1994. In 2012, the minimum required recycling rate was raised to 35%. Frederick County has exceeded this minimum by achieving a 46.71% recycling rate (51.71% waste diversion rate) in 2012, a 49.50% recycling rate (54.50% waste diversion rate) in 2013 and a 50.40% recycling rate (55.40% waste diversion rate) in 2014.

SPECIAL EVENTS RECYCLING PLAN

1. Special Events Subject to the Recycling Program

The Frederick County Department of Solid Waste Management has identified sixty-four (64) public sites within the County that fall under the scope of the law. The Frederick County Department of Solid Waste Management will notify the organizers of special events via direct mail to explain the requirements of the law including the materials that must be recycled (i.e., plastic, metal, glass containers, and paper) at the identified locations.

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:

a. Includes temporary or periodic use of a public street, publicly owned site or facility, or public park;

b. Serves food or drink; and

c. 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.

The County has identified public sites within the County that host or may host special events meeting the above criteria. These sites can be found in Appendix F. 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).

2. Materials and Obligations

The SERP must include collection of at least plastic containers, metal containers, glass containers, and paper. The special events organizer must assess the availability of food scraps recycling services for the event. If services are deemed reasonably available, the special events organizer must provide for food scraps recycling, including provision of separate containers for organic and non-organic recyclables.

a. Collection - Special events organizers are responsible for:

1. Providing and placing recycling receptacles adjacent to each trash receptacle at the event (except where already existing on site);

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 associated with recycling at the special event;

b. 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. Transporting recyclable materials to the Frederick County transfer station and paying the current prevailing tipping fee rate for commercial single stream recycling.

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.

Recycling at a State-owned site must follow the State agency's recycling plan, or the SERP, whichever constitutes the greatest level of recycling. Recycling at a federally-owned site must follow any applicable federal recycling plan, or the SERP, whichever constitutes the greatest level of recycling. Recycling at municipally-owned sites must follow any additional regulations established by the municipality.

3. Stakeholders

Stakeholders that will be involved in implementing the law are:

a. Special Events Organizer – Responsible for providing recycling bins and ensuring collection for recycling in accordance with the requirements in §9-1712, beginning October 1, 2015.

b. The Maryland General Assembly- Responsible for legislation mandating the collection and recycling of recyclable materials from special events meeting the required criteria.

c. Maryland Department of the Environment- Responsible for enforcement of environmental laws and regulations, such as the SERP.

d. Frederick County Governing Body Responsible for adopting the MDE approved language of SERP for the Solid Waste Management Plan amendment.

e. Frederick County Planning Commission - Responsible for reviewing and finding consistencies with the Comprehensive Plan regarding the Solid Waste Management Plan amendments, to include SERP.

f. Frederick County Solid Waste Advisory Committee – Responsible for recommending to the Frederick County Council the soundest methods of waste disposal, recycling, and waste reduction; and advising the Frederick County Governing Body on specifically requested policy alternatives, such as SERP.

g. Frederick County Department of Solid Waste Management – Communicate the requirements of the law to prospective special events organizers and owners/operators of publicly-owned sites in the County. Provide educational and outreach materials in electronic format to assist special events organizers in developing a recycling program. Update County's recycling plan to include the SERP and amend the County Solid Waste Management Plan.

4. Participating public sites in SERP are listed in Appendix F.

5. Program Monitoring

Department of Solid Waste Management and special events organizers will monitor progress and performance of the SERP. Recycling at events subject to the SERP will be ensured as follows:

a. Notification will be sent via direct mail to all owners of public sites located within the County that host or may host special events meeting the specified criteria.

b. Access to an electronic fact sheet or other informational document outlining the requirements of the SERP will be distributed to each municipality and publicly owned site or facility within the County. Links to the information will be available on the on other agency's websites, for example the County Health Department's website, Frederick County Parks and Recreation's website and Community Development's website.

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.

6. Program Enforcement

The Department of Solid Waste Management will notify via direct mail all municipalities and the owners of all public sites within the County, of the implementation requirements in accordance with Sections 9-1703 and 9-1712 of the Environment Article, Annotated Code of Maryland. Links to the information will be available on the County's website. The County Attorney's Office will determine if a County should enforce the law and what level of enforcement actions should be used. The law allows for fines to a person that violates the recycling or reporting requirements of the law or a civil penalty not exceeding $50 for each day on which the violation occurs. Further, any penalties collected under the law shall be paid to the county, municipality or other local government that brought the enforcement action.

EXPORTED WASTES

Frederick County has been affected by the trend in the solid waste industry of construction and operation of private "mega" landfills. These very large landfills are built in rural areas and their main objective is to receive large volumes of waste for disposal. These landfills are very competitive and normally offer low tipping fees. The majority of the Frederick County exported waste is currently being trucked out of State, primarily to Pennsylvania and Virginia, to mega-landfills which are privately owned and operated.

Solid waste management facilities operated by neighboring counties generally do not accept imported waste; however, privately-owned and or operated solid waste facilities in other counties generally accept out-of-county waste. This percentage of the total solid waste stream is estimated at between 1-5%, although this percentage is variable based on economic conditions due to the generally protracted distances these facilities are located from Frederick County. This out-of-county tonnage is tracked by MDE and assigned to the applicable county of origin for annual reporting purposes if being received at State of Maryland permitted facilities. As previously discussed, recyclables and controlled hazardous substances are exported out-of-county for processing.

IMPORTED WASTES

MUNICIPAL WASTE INSPECTION PROGRAM

Private landfills and incinerators in the County only accept wastes generated within the particular facility. The only public land solid waste management facility, the Reichs Ford Road solid waste management facility, does not accept wastes generated outside the County. Landfill personnel perform frequent inspections of incoming loads to ensure out-of-county waste is not accepted. In the event a load of waste is deemed to be from outside the County, sanctions may be imposed on the hauler. The sanctions include a fine of up to $1,000 and the possible suspension or permanent revoking of the company permits.

Frederick County strongly believes that no significant amounts of solid waste generated out-of-county are being disposed at the County solid waste management facility.

SLUDGE

Waste Water Sludges

Municipal waste water sludge may be imported from other regional waste water treatment plants into the County for land application at MDE-permitted agricultural sites through private contract arrangements. This may include, but not be limited to, wastewater sludge from the following treatment plants:

- City of Annapolis Water Treatment Plant
- Back River Water Treatment Plant
- Blue Plains Advanced Waste Water Treatment Plant (Washington, DC)
- Broadneck Water Reclamation Facility
- Broadwater Waste Water Treatment Plant
- Cox Creek Waste Water Treatment Plant
- Damascus Waste Water Treatment Plant
- Dorsey Run Advanced Waste Water Treatment Plant
- Freedom District Waste Water Treatment Plant
- Hanover Wastewater Plant (Hanover, PA)
- City of Havre de Grace Waste Water Treatment Plant
- Kent Narrows, Stevensville & Grasonville (KNSG) Wastewater Treatment Plant
- Leonardtown Wastewater Treatment Plant
- Little Patuxent Wastewater Treatment Plant
- Marlay Taylor Waste Water Treatment Plant
- Maryland City Waste Water Treatment Plant
- Mattawoman Wastewater Treatment Plant
- Ocean City Wastewater Treatment Plant
- Parkway Wastewater Treatment Plant
- Patuxent Water Treatment Plant
- Penn Township Waste Water Treatment Plant (Hanover, PA)
- Piscataway Wastewater Treatment Plant
- Rock Hall Wastewater Treatment Plant

- Seneca Wastewater Treatment Plant
- Sod Run Wastewater Treatment Plant
- Valley Forge Wastewater Treatment Plant (Valley Forge, PA)
- Wicomico Shores Wastewater Treatment Plant

RECYCLABLES

Table 3-2 provides a summary of documented quantities of recyclables collected within the County during 2015. A total of 114,545.62 tons of recyclables were reported to the County for 2015. Frederick County realizes that the quantities of recyclables reported to the County only reflect a portion of the recycling efforts by the commercial, industrial and institutional sectors of the community since reporting this information is voluntary.

CONTROLLED HAZARDOUS SUBSTANCES

Controlled hazardous substances generated within the County were exported out-of-county for processing or disposal.

SPECIAL MEDICAL WASTE

Fort Detrick Medical Incinerator Plant may burn off-site waste in the future. The ash would then go to the Fort Detrick Municipal Landfill.

COLLECTION SYSTEMS

Existing collections systems for municipal waste and recyclables are discussed below.

Municipal Waste

Most municipal solid waste collected within the County for disposal is hauled to the Reichs Ford Road solid waste management facility, either directly by individuals or by municipal or commercial haulers. The City of Frederick provides collection of solid waste using municipal employees and equipment. The remainder of the incorporated municipalities contract directly with private haulers.

Citizens not living within an incorporated area of the County are free to contract with any private hauler or take their waste directly to the Reichs Ford Road solid waste management facility. Commercial and institutional establishments in the unincorporated area also contract directly with private haulers.

COMMERCIAL WASTE HAULERS

Based on a hauler survey conducted in February of 1990, approximately 90 percent of the non-rubble waste stream was delivered to the landfill via municipal or private haulers.

Waste generated at Fort Detrick is collected by Army personnel and hauled to the incinerator or landfill located on the facility. MSW collected by Fort Detrick may also be hauled to the County's solid waste management facilities. Fort Detrick's landfill may also accept non-burnable refuse and ash from the incinerator.

RECYCLABLES

Recyclables within Frederick County are collected either by private haulers, by residents taking the materials to the Reichs Ford Road solid waste management facility or by residents taking the materials to buy-back centers.

The County's Recycling Program currently includes municipal drop-off locations, the Reichs Ford Road Recycling Center and curbside collection for over 76,000 households in Frederick County as of December 2015. The County procures the contract for curbside collection service from a private sector hauler.

Recyclables collected from larger commercial, industrial and institutional sources are generally collected by private haulers contracted by the generating establishment.

Table 3-2 shows that 114,545.62 tons of Maryland Recycling Act materials were recycled in 2015.

Table 3-2: Maryland Recycling Act (MRA) Tonnage Report System – County Recycling Accounting Form – 2015

CATEGORY	Maryland Recycling Act Recyclables	Residential Recycling (TONS)	Commercial Recycling (TONS)	MRA Tons Recycled (TONS)
Metals	Aluminum Cans	181.69	222.07	403.76
	Mixed Cans (AL & Tin/Stl)	260.44	318.31	578.75
	Tin/Steel Cans	0.00	0.70	0.70
	White Goods	2,085.87	368.09	2,453.96
	Lead Acid Batteries	390.82	167.49	558.31
Paper	Newspaper	12,240.94	2,871.33	15,112.27
	Old Corrugated Cardboard	4,468.67	19,050.65	23,519.32
	Office/Computer Paper	0.00	1,815.89	1,815.89
	Mixed Paper	0.00	2,897.05	2,897.05
Compost/Mulch (Yard)	Grass	0.00	2.50	2.50
	Leaves	571.20	142.80	714.00
	Brush and Branches	2,652.00	1,768.00	4,420.00
	Mixed Yard Waste	11,030.52	7,353.68	18,384.20
	Food Waste	0.00	225.86	225.86
Plastic	Mixed Plastic	1,698.80	398.48	2,097.28
	Plastic – Shrink Wrap	0.00	83.06	83.06
	Plastic - Film	67.79	51.14	118.93
Glass	Mixed Glass	2,641.00	394.63	3,035.63
Other Materials	Pallets	0.00	653.19	653.19
	Textiles	0.00	15.46	15.46
	Scrap Tires	2,059.06	514.77	2,573.83
	Animal Protein/Solid Fat	0.00	954.40	954.40
	Electronics	518.93	233.14	752.07
	Other	0.00	32,736.40	32,736.40
Commingled Containers	Commingled Containers	0.00	438.80	438.80
TOTAL	**Total MRA Recycling Materials**	40,867.73	73,677.89	114,545.62

Marketing of Recyclables

Marketing of the majority of recyclables collected in Frederick County is accomplished by the private sector.

In the ***Residential Curbside/Dropoff Program***, ***County Office Recycling Program and Frederick County Public Schools Recycling Program,*** the marketing of recyclables is included in the County's "Recycling Agreement" with the Northeast Maryland Waste Disposal Authority.

In the County ***Yard Waste Recycling Program***, mulch and finished compost are "marketed" for purchase by residential and commercial customers.

In the ***Business Recycling Program***, businesses typically have their recycling collectors market their materials, or in some cases, such as large grocery or retail chains, market directly through their corporate headquarters.

Miscellaneous Items such as scrap tires, white goods, lead-acid batteries, motor oil and antifreeze, flexible foam, electronics and bulky/oversized rigid plastics are marketed directly by the County to area processors and end-users. If businesses directly haul or their recycling collector hauls the recyclables to the Frederick County solid waste management facility, then the marketing of recyclables is included in the County's "Recycling Agreement" with the Northeast Maryland Waste Disposal Authority.

Fluorescent and Compact Fluorescent Light Recycling

In accordance with Section 9-1703 (b) (11) and Section 9-1703 (g) (2) of the Environment Article of the Annotated Code of Maryland, counties are required to revise, by October 1, 2011, their recycling plan by addressing a strategy for the collection and recycling of fluorescent and compact fluorescent lights that contain mercury. Frederick County's current systems meet the requirements and shall remain in operation to encourage recycling and proper disposal of fluorescent lighting.

Frederick County currently accepts and will continue to accept fluorescents and compact fluorescent lights (CFLs) from residents at their bi-annual Residential Household Hazardous Waste (HHW) Day conducted at the Public Safety Training Facility, 5370 Public Safety Place in Frederick. This location is not expected to change since this facility is permitted by the State for collection of HHW. The County contracts its HHW collection through the Maryland Environmental Service (MES). The contractor may change from year to year, depending on which company best meets the financial and service needs of the County. This is a free program for Frederick County residents.

Currently, all fluorescents and compact fluorescent lights containing mercury are transported to NLR, Inc. in East Windsor, CT and treated as universal waste.

In addition, the County maintains an information and referral program in which generators of CFLs are directed to local businesses in the community that accept CFLs from both residential and commercial sources, such as The Common Market and Lowe's, as well as other private fluorescent lighting retail centers. This list is subject to change.

The County is currently and will continue to educate the public on proper disposal of these items, information on HHW days, and the most recent list of local businesses that accept these items on its recycling website and in the residential guidebook.

SOLID WASTE ACCEPTANCE FACILITIES

Data on existing solid waste acceptance facilities in Frederick County are presented in Table 3-3.

LANDFILLS

REICHS FORD ROAD SANITARY LANDFILL – SITE B

The replacement for the Reichs Ford Road Landfill (Site A) is the Site B Landfill located on adjacent property to the east. The facility is 530 acres. The disposal area will be comprised of 58 acres and will be divided into three cells. Construction of Cell 1 began in February 1996. Site B has a composite liner system comprised of a primary liner system, and a secondary liner system and a composite drainage net as a witness zone per RCRA requirements.

Cell 1, Site B operational since January 1997.
Cell 2, Site B operational since September 2001.
Cell 3, Site B operational in 2007.
Life expectancy is until year 2045 (assuming transfer operations).

Primary Liner System

- One to two feet of protective drainage layer containing eight-inch diameter, perforated HDPE lateral pipe serving as a Leachate Collection System (LCS)
- 16-ounce non-woven geotextile to cushion underlying geomembrane against puncture and abrasion
- 60-mil textured primary High Density Polyethylene (HDPE) as a barrier against leachate migration
- 0.25-inch geosynthetic clay liner to restrict migration of any leachate that might seep through the overlying HDPE

Secondary Liner System

Below the primary liner system is the secondary liner system which consists of (from top to bottom):

- One-foot protective drainage layer drainage layer containing six-inch diameter, perforated HDPE lateral pipe serving as a Secondary Leachate Collection System (SCS)
- 16-ounce, non-woven geotextile to cushion underlying geomembrane against puncture and abrasion
- Two foot of clay to restrict migration of any leachate that might seep through the overlying HDPEs.

Below the secondary liner system is a composite drainage net to detect leachate from the overlying clay.

The leachate collection system is installed with a minimum 2% slope to facilitate gravity flow of leachate to the sumps. The secondary leachate collection pipes will convey any potential leachate leaks to the secondary leachate sumps at the lowest elevation of the phase. Leachate is conveyed

to the Ballenger-McKinney WWTP via the Bush Creek interceptor sanitary sewer line for full treatment.

FORT DETRICK LANDFILL

Fort Detrick in the City of Frederick constructed a lined sanitary landfill that began operation in October, 1990. Leachate is collected and discharged to the facility's sanitary sewer system. The Fort Detrick Landfill is projected to reach capacity in 2093.

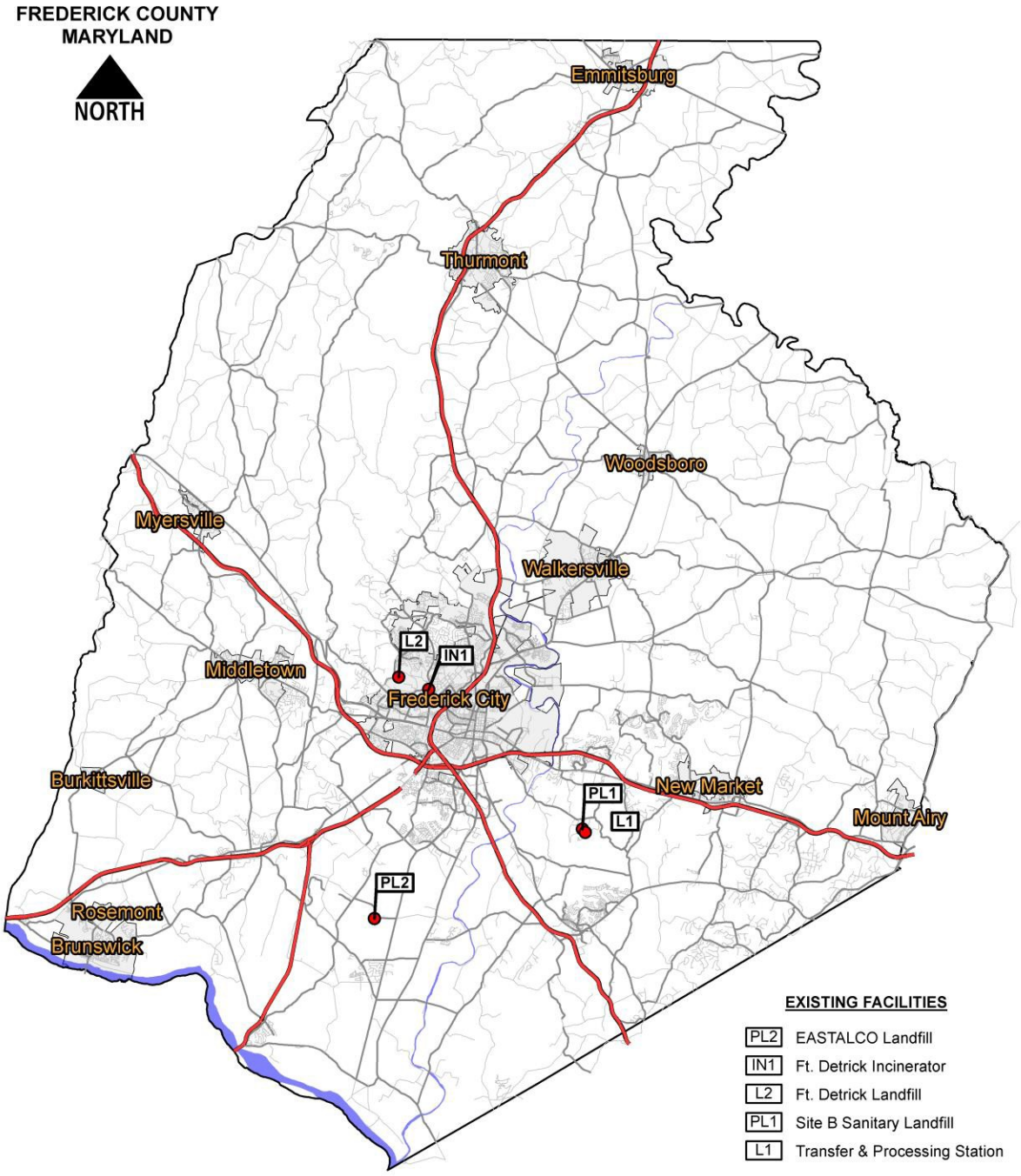
SITE B SOLID WASTE PROCESSING FACILITY & TRANSFER STATION

To preserve disposal capacity at the Reichs Ford Road Landfill, the County permitted and constructed a permanent solid waste transfer facility. The transfer station became operational on January 17, 2009. The landfill would continue in operation at a reduced tonnage acceptance rate to serve as a buffer to transfer operations and as an alternative waste management option in the event that conditions develop that preclude solid waste transfer to another disposal site.

Table 3-3: Solid Waste Acceptance Facilities

EXISTING							
Facility	Figure 3-2 ID	MD Coordinates	Size (Capacity)	Waste Accepted	Owner	Status - Refuse Disposal Permit	Life (Years)
Site B Solid Waste Processing Facility & Transfer Station	L1	560,000N 700,000E	720,000 Tons Annually	Residential Commercial Institutional Sludge Asbestos Rubble	Frederick County	Yes	N/A
Fort Detrick Landfill	L2	585,000N 671,750E	61 Acres	Other Bypass Waste Incinerator	U.S. Army	Yes	815
Fort Detrick Incinerator	IN1	583,000N 676,500E	(2 @ 1,000 pds/hr) (2 @ 2,000 pds/hr)	Special Medical Waste MSW	U.S. Army	Yes	
Site B Landfill Status: Cell 1 - Site Operational 1/1997 Cell 2 - Site Operational 9/2001 Cell 3 - Site Operational 2007	PL1	560,000N 700,000E	183 acres	Residential Commercial Institutional Sludge Asbestos Other	Frederick County	Yes	30 years (assuming transfer operation)
EASTALCO New Landfill	PL2	545,000N 668,000E	10 acres	Potliner Brick	EASTALCO, Inc.	Yes	>25

FIGURE 3-2
SOLID WASTE ACCEPTANCE FACILITIES



(SEE TABLE 3-4 FOR FACILITY IDENTIFICATION)
APPROXIMATION LOCATION ONLY

The Fort Detrick landfill may accept incinerator ash, non-burnable waste, animal bedding and water treatment plant sludge. The landfill has historically received approximately 13 tons of waste weekly. Conversations with personnel at the Army Headquarters of Fort Detrick have provided general information concerning policies for solid waste management within the facility. The waste generated within the facility may be disposed of on-site or off-site dependent on the post's needs, cost, capacity and many other variables. They may also utilize the County's waste management systems for disposal of certain MSW generated from the post.

EASTALCO LANDFILL

The EASTALCO plant operated a permitted 10-acre industrial waste. The plant is currently closed with no production. During active operations the plant disposed of approximately 17 tons of potliner brick and pollution control device debris each day.

INCINERATORS

FORT DETRICK INCINERATOR

Fort Detrick has four incinerators in the same building that have waste processing capabilities. Processable solid waste burned at the complex may include medical, residential, commercial and institutional waste. The incinerator complex has historically processed approximately 11 tons of waste per day.

FREDERICK MEMORIAL HEALTHCARE SYSTEM INCINERATOR

The incinerator at the Frederick Memorial Healthcare System processes medical wastes obtained from the hospital and other sources within the County. The facility processes approximately 220 pounds of special medical waste each day.

OTHER MANAGEMENT FACILITIES

RECYCLABLE DROPOFFS

Frederick County operated 11 satellite drop-offs through July 1, 2011. The satellite drop-offs provided collection for single-stream recyclables, the same that are accepted in the curbside program. With the full expansion of the Curbside Recycling Program in 2009 to all residential single-family homes, the Board of County Commissioners ceased the County-sponsored residential satellite recycling drop-off center program effective July 1, 2011.

The Reichs Ford Road Solid Waste Management Facility provides for collection for recycling of the items that were collected at the satellite drop-offs as well as motor oil, antifreeze, lead-acid batteries, scrap metal, large appliances, electronics, scrap tires, bulky/oversized rigid plastics, and flexible foam.

ESSROC TIRE RECYCLING

ESSROC Cement Corporation near Buckeystown decommissioned its cement kiln and therefore no longer uses waste tires as supplementary fuel for the cement kilns.

BALLENGER-MCKINNEY WASTEWATER TREATMENT PLANT (WWTP)

The Ballenger-McKinney WWTP is owned and operated by Frederick County and is located south of the City of Frederick. In addition to wastewater, the WWTP accepts sewage sludge and septage generated with the County. In 2015, the plant accepted over 212,000 gallons per month, which is approximately 7,000 gallons per day of septage.

FREDERICK MEMORIAL HEALTHCARE SYSTEM ROTOCLAVE MEDICAL WASTE PROCESSING SYSTEM

The Rotoclave at Frederick Memorial Healthcare System processes medical wastes obtained from the Main Campus hospital and satellite facilities owned and operated by Frederick Memorial Healthcare. The facility processes 220 pounds of medical waste each day.

Chapter 4 – Assessment of Solid Waste Management Alternatives

In this chapter, the existing County solid waste management system is evaluated for its adequacy to meet the goals and objectives of this plan for the next 20 years. Feasible alternative technologies, management techniques, and regulatory modifications that could be used to meet identified requirements are discussed. In addition, siting constraints for potential new management facilities are reviewed.

A table at the end of the chapter is included to summarize which of the alternatives considered can best meet the goals and objectives of the plan, and will be considered for incorporation in the Action Plan presented in Chapter 5.

The Solid Waste Advisory Committee has established a hierarchy of management alternatives that was used to guide the evaluation of potential technologies, from most preferable to least:

1. Source Reduction and Reuse
2. Recycling/Composting
3. Energy Recovery
4. Treatment and Disposal

This hierarchy was used both to evaluate the suitability of potential alternatives for the County as well as in the development of the Action Plan presented in Chapter 5.

The significant changes that have occurred since the Assessment of Solid Waste Management Alternatives Section of the Frederick County Comprehensive 10-Year Solid Waste Management Plan was adopted in 1998 are summarized below:

1. The projected life expectancy of the Reichs Ford Road Landfill has been significantly reduced. In 1998, Site B, the new landfill area developed to the east and adjacent to the former landfill site was projected to have sufficient disposal capacity to accommodate 21 years of disposal activities. In 2000, the remaining projected life of the landfill was reduced to 8 years, at the waste acceptance rate that prevailed at the time, 750 to 900 tons per day (TPD) on a 6-day per week basis. At the beginning of January 2011 the remaining capacity in the Site B landfill, including approved vertical expansion capacity was 3,775,940 cubic yards.
2. Cell 1 at Site B, which was constructed in 1996, reached its then permitted disposal capacity in 2000. The replacement landfill cell was not available to accept waste at that time. Therefore, the County obtained authorization from the Maryland Department of the Environment (MDE) to initiate a temporary solid waste transfer operation from the working face. The waste transfer operation commenced on September 6, 2000 and ceased on June 16, 2001 when Cell 2A Stage 1 became available to accept solid waste. Over the duration of the transfer operation, 106,480 tons of solid waste was transferred out of Frederick County.
3. On September 28, 2001, the County ceased operation of the separate rubble cell at the County solid waste management facility and commenced incorporating the waste material in the municipal solid waste cell at the landfill.

4. To preserve disposal capacity at the Reichs Ford Road Landfill, the County permitted and constructed a permanent solid waste transfer facility. The transfer station became operational on January 17, 2009. The landfill would continue in operation at a reduced tonnage acceptance rate to serve as a buffer to transfer operations and as an alternative waste option in the event that conditions develop that preclude solid waste transfer to another disposal site.
5. Tipping fees at the County solid waste management facility in FY2017 are $76 per ton for MSW and $85 per ton for C&D if paid by credit card, and $69 and $78 per ton respectively if paid by cash or check, and these tipping fees include automatic escalators due to the sensitivity of fuel costs and long-haul transfer and disposal.[1] A tipping fee was added for commercial single-stream recyclables in 2009; the tipping fee is $25 per ton as of August 2016. The resolution adopting the new tipping fee also eliminated rubblefill and dumping fee exemptions.
6. The County conducted two (2) Household Hazardous Waste (HHW) Collection Events in calendar year 2015 and plans to conduct two (2) events per year in the future.

The County supports and relies on private enterprise in addressing elements of the overall solid waste management program. Private solid waste collection and recycling operations serve as an important component in the resource recovery and recycling arena. The County's overall waste collection program is in a large part provided by private haulers. Private commercial and industrial facilities also collect and recycle waste materials generated by their operations and some facilities provide the County with recycling tonnage data for inclusion in the overall County recycling statistics. Such private recycling operations have the potential to provide a benefit to the County by accepting and processing certain waste materials, thus diverting this waste from the overall solid waste stream that requires management within the County's system and constitutes a significant proportion of the County's total recycled materials. However, because of public health, welfare and safety concerns, the County needs to retain control of the overall solid waste management program and maintain ownership and/or control of solid waste disposal and transfer facilities within the County.

The County has the responsibility to ensure protection of public health and the environment as a result of solid waste management activities within its borders. In addition, the County has the responsibility to ensure that facilities and systems are either in place or planned that will adequately address the solid waste management needs of all County residents, as well as commercial and industrial facilities located in the County. Finally, the County must have adequate control of the waste disposal facilities in the County to insure that it has the ability to address past, present and future fiscal issues associated with the permanent and safe disposal of solid waste. Potential siting and operation of waste processing and transfer facilities in the County must be evaluated in conjunction with and in consideration of these County

[1] Current 2017 tipping fees for MSW are $76 per ton with credit card and $69 per ton if paid with cash or check (escalated as required for fuel adjustments as needed). C&D tipping fees are $85 per ton with credit card and $78 per ton if paid with cash or check (escalated as required for fuel adjustments as needed). Separate tipping fees have been established for mattresses, tires and commercial single-stream recycling.

responsibilities, to ensure that the County's ability to safely and economically provide such services are not jeopardized.

To ensure protection of public health and the environment, the County will own and/or control all municipal solid waste landfills, rubble landfills, waste transfer facilities and processing facilities with the exception of facilities at Fort Detrick and private facilities managing waste materials generated by that private entity. Private solid waste disposal or transfer facilities will not be included in the County's 10-Year Solid Waste Management Plan.

As discussed in Chapter 4, the Solid Waste Management System operates as a self-sufficient enterprise fund. As such, sufficient revenues need to be generated to cover all costs associated with debt service, operations and maintenance and closure and post-closure of the system component elements. Current federal and State of Maryland post-closure monitoring and maintenance requirements pertaining to municipal sanitary landfills extend 30 years after the landfill ceases accepting solid waste. The County needs to regularly estimate the projected costs for these State and Federally mandated future activities, and, where necessary, adjust the fees imposed on system users to collect and escrow over the operating life of the facility sufficient monies to fund these activities after closure.

One of the many reasons privately owned solid waste disposal or transfer facilities are not permitted in this plan is that such facilities have the potential to siphon off quantities of solid waste that are currently managed by the County. A reduction in tonnage delivered to the County would reduce revenues received, which would jeopardize the stability of the enterprise fund and impair its ability to address the long-term costs associated with current solid waste management facilities (both closed and still in use). Supplemental appropriations from the County's general fund would be necessary to address any shortfalls in the County Solid Waste Management Fund.

Frederick County Solid Waste Management Policies 9 and 10, as originally contained in Table 1-3 in the approved Frederick County Solid Waste Management Plan dated March 1998 were revised to reflect the County's decision to implement MSW transfer as an integral part of the overall SWM program. However, the updated language preserves the County's long-standing policy to exercise ownership and management of the facilities that process, transfer or dispose of solid waste in Frederick County excluding certain on-farm and digestion facilities designed to accept and process/compost food waste and associated organic residuals as allowed by local zoning and land use policies.

COLLECTION

Alternatives considered for collection of residential and other non-rubble waste and recyclables include the existing system, franchising, a licensing system and a County-operated system. Large 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. The private sector has adequately met the needs of these commercial establishments in most instances.

EXISTING SYSTEM

In the unincorporated portions of Frederick County, most residential and commercial solid waste is collected by private haulers who contract directly with the individual homeowner, apartment complex, homeowners association or management company, commercial establishment, industry or institution. This is known as private subscription or free enterprise system. Individual clients are billed for services by the private hauler on a monthly or quarterly basis. The remaining residents who do not contract with a private company haul their own solid waste directly to the Reichs Ford Road solid waste management facility.

The City of Frederick operates its own collection system, using municipal employees and equipment. The remainder of the municipalities in the County contract with a private hauler for collection services within their boundaries. Municipal taxes are used to pay for collection costs within the municipalities. Numerous private haulers operate within the County servicing residential and commercial accounts. The advantages and disadvantages of the existing collection system follow.

Advantages

The existing system requires minimal involvement and financing by the County government. The individual or commercial establishment is free to deal with the hauler of his/her choice. If service is unsatisfactory, there are no barriers to choosing another hauler. The system generally serves the existing needs of the County in a satisfactory manner. The cost for hauling and disposal of the waste is billed directly to the customer.

Private enterprise is encouraged; opportunities are open for any small entrepreneur who desires to go into business.

Disadvantages

In a free enterprise system, overlapping routes are prevalent; typically, a neighborhood or block may be serviced by several private haulers. In terms of labor, equipment, operation and maintenance, this system is potentially less cost-effective than a system with assigned routes that do not overlap. However, it is difficult to determine the potential cost savings, or if current charges and a detailed economic analysis of alternative collection systems would be required.

Due to the number of haulers and lack of County involvement, it will be more difficult to implement modifications to collection practices that may be desirable to meet the goals and objectives of the County Solid Waste Management Plan. These could include volume-based billing for collection services, and mandatory collection of recyclables by solid waste haulers. Waste flow control is more difficult to attain under the free enterprise system.

When collection is voluntary, vagrant dumping to avoid collection fees or trips to the Reichs Ford Road solid waste management facility can be a problem.

FRANCHISING

Under a franchise system (contracting), the County would be divided into collection districts with approximately equal residential population. Municipalities could comprise a separate collection district, or could form a district with adjacent unincorporated areas, at the discretion of elected municipal officials. One private hauler is awarded the collection contract for each district based on competitive bidding. The private hauler may be responsible for billing each customer for collection and disposal services according to the rate established in the competitive bidding process.

The County would be responsible for determining the number and geographic location of collection districts, and establishing uniform performance requirements and standards for the franchisee. Additional County staff members would be required to conduct franchise award process and administer the contracts. The following considerations must be addressed in establishing a franchise system:

- Length of contract
- Mandatory or voluntary collection within the district
- Collection of recyclables
- Provision of containers for refuse and recyclables
- Frequency of collection for refuse, recyclables, yard waste, white goods, bulky items
- Servicing of multi-family housing, and commercial, institutional and industrial establishments
- Collection hours and days
- Performance standards – spillage, litter, noise, equipment
- Personnel training
- Designated disposal or processing facility
- Annual adjustments to service rates based on a certified operating cost statement
- Billing and bill collection procedures
- Performance bond
- Insurance, indemnification and record-keeping

Advantages

The elimination of overlapping collection routes may result in the reduction of collection costs for homeowners and commercial accounts by reducing truck miles and gas consumption. Truck traffic and air pollution may also be reduced and franchising may provide increased access to optional services such as yard waste collection that are typically available in most municipalities and larger homeowners associations (HOAs). The franchise system gives the County the opportunity for flow control and facilitates the implementation of new management policies through incorporation of requirements in franchise contracts.

Although recyclable collection and volume-based billing can be implemented in the free enterprise system, the increased control afforded to the County in a franchise system would facilitate implementation and monitoring of these measures, which may increase their efficacy.

Mandatory collection may reduce the occurrence of vagrant dumping and out-of-county waste from entering the waste stream.

Disadvantages

Franchising may result in an increased administrative budget and may require additional staff resources, particularly if local government serves as the customer service and billing entity. A franchise system could also result in the elimination of some haulers from residential collection services within the County. The severity of this impact can be ameliorated through the number of collection districts established, and by limiting the number of franchises that can be awarded to a single private hauler.

LICENSING SYSTEM

The licensing system could provide a compromise between the existing collection system and a franchise collection system. The licensing system may allow existing private haulers to remain in business; however, these haulers would be required to meet requirements imposed by the County. The haulers would be responsible for billing each customer for collection and disposal services.

Frederick County would be responsible for establishing uniform performance standards for the haulers. Additionally the County would establish procedures and policies for licensing haulers. The following considerations must be addressed in establishing a licensing system:

- Length of license
- Mandatory or voluntary collection
- Collection of recyclables
- Provision of containers for refuse and recyclables
- Collection frequency
- Performance standards

Advantages

This system allows for the individual and commercial establishments to choose their hauler; therefore, all haulers would be given an equal opportunity to compete. The system allows for the customer to select and change haulers at his/her option.

In addition to customer choice, the licensing system gives the County the opportunity for flow control, and facilitates the implementation of new management policies through the requirements of the license.

Disadvantages

Overlapping routes may remain. Haulers may oppose a licensing system which imposes regulations on collection and disposal practices. Frederick County would be required to establish standards and licensing procedures and policies. Private hauler may utilize alternate disposal avenues outside the County's systems in order to avoid the imposition of licensing requirements, which could result in reduced funding into the County's systems and difficulties meeting post closure funding requirements.

COUNTY OPERATION

Under this option collection and hauling services would be provided by County employees, using equipment owned by the County. Collection could be made either voluntary or mandatory throughout the County. Financing of the system could either be through the tax system, user fee system or by direct billing that reflected the true cost of maintaining the program.

Advantages

This alternative provides the most control for the County; this could be important for implementation of source reduction and recycling programs, as well as providing a uniform quality of service. Theoretically, economics of scale could be realized by such a large operation in the procurement of equipment and supplies. In addition, the public operations do not have to earn a profit or pay taxes.

Disadvantages

In spite of the potential advantages discussed above, studies by Columbia University (1990) have found that private collection typically costs 28 to 40 percent less than a comparable public operation. Such findings may be attributed to different management objectives and operational characteristics of private industry as well as differences in salaries and benefits.

A very large capital expenditure would be required by the County to procure the necessary equipment to take over all collection and hauling. It is likely that most private haulers would be forced out of residential waste collections from within the County.

This option may increase government control to the detriment of private enterprise by potentially forcing private haulers out of the local residential collection business.

LAND DISPOSAL

Landfilling may remain an important cost-effective component of an integrated solid waste management program. This landfilling may be accessed locally or through waste transfer operations. Source reduction, recycling, and energy recovery/treatment facilities can significantly reduce but have not yet entirely eliminated the need for landfills.

EXISTING AND PROPOSED FACILITIES

Sanitary Landfills

Frederick County owns and operates the Reichs Ford Road solid waste management facility, located off of Reichs Ford Road, about 4 miles southeast of the City of Frederick. The solid waste management facility was initially designed to accept approximately 530 tons per day of municipal solid waste on a 6-day per week operating schedule. In March 2000, an independent assessment of the site determined that the only developed Cell at the Site B landfill was at its permitted disposal capacity. Since the next disposal cell was not projected to be available until early 2001, the County sought authorization from the Maryland Department of the Environment (MDE) to transfer municipal solid waste from the County's Reichs Ford Road solid waste management facility to permitted sanitary landfills located in other jurisdictions.

The County contracted with Waste Management, Inc. for the temporary transfer of solid waste. The contract cost of the transfer was $42.90 per ton. The solid waste was transferred to private landfills outside Frederick County. The interim transfer of MSW from the Reichs Ford Road solid waste management facility allowed the County to extend the longevity of the Reichs Ford Landfill, and provided time to evaluate long-term options for MSW management. The transfer operation was conducted from the working face of the County Landfill. Transfer operations commenced on September 6, 2000 and ceased on June 16, 2001 when Cell 2A Stage 1 was determined to be ready to accept solid waste.

The County Solid Waste Management System operates as an enterprise fund, without the addition of County General Fund revenues. As such, the costs assessed to waste disposers, in conjunction with the System Benefit Charge, is set at a rate that provides sufficient revenues to cover debt service on capital expenditures, annual operating costs and anticipated closure and post closure costs for the solid waste system, and associated recycling programs. A significant portion of the enterprises' debt is associated with the stabilization and closure of the original Site A landfill and the construction of an advanced treatment facility to process the wastewater (leachate) from both the Site A and Site B landfills. Based upon a re-evaluation of these costs, effective February 1, 2001, the County adjusted the per ton tipping fee at the landfill from $45 per ton to $50 per ton of waste delivered to the site. The County plans to maintain the Solid Waste Management System as an enterprise fund, and will periodically review and possibly revise the disposal fees to reflect adjustments in the overall cost associated with maintenance of the System.

In 2000, weigh scale records showed that the waste disposal acceptance rate at the County solid waste management facility ranged between 530 to approximately 900 tons per day. Based upon that tonnage acceptance rate, the cumulative operating life of the facility was determined to range between 6.2 years and 10.1 years, for an average life of approximately 8 years, as shown in Table 4.1. Additionally, with the addition of a solid waste processing and transfer station put into place in January 2009, the County can now augment on-site land disposal of waste in the Site B landfill with waste transfer and disposal to privately owned regional landfills. This additional waste disposal system is anticipated to continue to allow the County to reduce its on-site disposal in the Site B landfill to assist in extending the serviceable life of the Site B Landfill.

In 2011 Table 4-1 was revised to show the effect of 50, 530, and 900 tons per day (tpd) on-site disposal with the capacity before and after the approved Site B vertical expansion.

The projections prior to the 2011 revisions of the remaining life expectancy at the current landfill were a dramatic reduction from the prior 21 years of projected life as initially presented in the 1998 County Comprehensive 10-Year Solid Waste Management Plan. Because of the difficulty in locating and permitting a new sanitary landfill, the County proposed to seek opportunities to preserve disposal capacity at the present landfill site.

The County has pursued or is actively pursuing the following alternatives to extend the life of the current landfill site:

- Construction and operation of a permanent solid waste processing and transfer facility on the site of the current landfill, with out-of-jurisdiction disposal of the solid waste; and
- Modification of the configuration of the existing landfill to maximize the disposal capacity of the planned new cells.
- Pursued a regional resource recovery (waste-to-energy) facility through NMWDA to serve Frederick and Carroll County's current and future combustible waste disposal needs. This facility option was discontinued by the 2010-2014 Board of County Commissioners. A decision by that Board was made not to maintain the permits that were previously obtained for this facility. This option is no longer being pursued.
- Convened a Solid Waste Steering Committee in 2015 to develop solid waste management alternatives after the decision to cancel the waste-to-energy facility option.

The County completed engineering and construction of a 720,000 tons per year solid waste processing and transfer facility. The County also sought and received a modification of its existing State Refuse Disposal Permit for the County solid waste management facility, which was issued by MDE. Adjustments to the liner configuration and the side slopes of the permitted waste disposal cells will provide additional solid waste disposal capacity without expanding the footprint of the permitted solid waste cells. The Solid Waste Steering Committee conducted multiple public outreach forums to solicit community ideas and suggestions for solid waste management options for consideration. At the conclusion of the forums, a Draft Report was prepared by the County's consultant and submitted to the County Executive. Based on comments received on the Draft Report, a Final Report was prepared to recommend a deeper study of feasible options for implementing changes to the County's Solid Waste Management and Recycling Programs. These recommended options are currently under review. The forthcoming Phase II portion of the study will further evaluate the Phase I recommended options.

Table 4-1: Estimated Landfill Life

Total Permitted Capacity	Cell Life before VE		Cell Life after VE		Cell Remaining Life		Life Expectancy in Years		
	in cyds	in tons	in cyds	in tons	in cyds	in tons	50 TPD	530 TPD	900 TPD
Cell 1	682,000	383,625	1,397,876	786,305	611,505	343,972	18.8	1.8	1.0
Cell 2A Stage 1	346,667	195,000	710,553	399,686	310,833	174,844	9.6	0.9	0.5
Cell 2A Stage 2	753,778	424,000	1,544,996	869,061	675,864	380,173	20.8	2.0	1.2
Cell 2B	757,333	426,000	1,552,284	873,160	679,052	381,967	20.9	2.0	1.2
Cell 3	1,228,444	691,000	2,517,907	1,416,323	1,101,466	619,575	33.9	3.2	1.9
	3,768,222	2,119,625	7,723,616	4,344,535	3,378,720	1,900,531	104	10	6

a Cell Life Before Vertical Expansion (VE) is from July 1994 SWMP
b Cell Life Remaining is up to top of trash, excluding approx. 400,000 cubic yards of final cover
c Volume remaining is from Greenman-Pedersen, Inc. Volumes Report dated March 29, 2011
d In-place density used is 1,125 pounds per cubic yards per an Maryland Environmental Services Report, dated August 2000
e Approval on the Site B Vertical Expansion was received on 05/09/08
f Table is an estimate only based on an aerial survey dated 10/21/10
g Tons per day (TPD) is calculated based on 365 calendar days

Rubble Landfill

The County also operated a separate, unlined rubble cell at the Reichs Ford Road solid waste management facility. Rubble waste was diverted from the incoming waste loads and disposed of in the rubble cell. This rubble cell was required to cease accepting waste material as of June 30, 2001, in order to comply with the provisions of COMAR 26.04.07.17. (Frederick County, through a Consent Order with MDE, was allowed to continue to use the unlined rubble fill until September 28, 2001). On September 22, 1997, State regulatory requirements became effective, which required that all rubble landfills that are in operation on July 1, 2001 have an approved liner and leachate collection system. Rubble landfills that did not meet that regulatory design standard were required to cease accepting waste and proceed to closure. Rubble waste that was delivered to the County solid waste management facility is diverted to the municipal waste cell or transferred for disposal elsewhere.

Technology

A sanitary 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 sanitary 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
- Closure techniques which reduce 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

Costs

Landfill management costs and tipping fees have been increasing. The tipping fee for sanitary waste in July 1998 was $45 per ton. Fiscal Year 2017 tipping fees are $76 per ton for MSW and $85 per ton for C&D, when paid by credit card, or $69 per ton for MSW and $78 per ton for C&D when paid with cash or check. Factors contributing to the rising landfill costs within Frederick County include:

- Depletion of landfill volume due to waste generation
- Stricter, more comprehensive Environmental regulations
- Increased public awareness of and demand for environmental protection
- More comprehensive solid waste management systems
- 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 pre-development, land acquisition, landfill development, construction, operating, 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 Frederick County. Remote, rural areas of Frederick 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. Typical pre-development costs for a new landfill property are shown in Table 4-2. Landfill development costs vary greatly from site to site within the County. The costs for developing a landfill include roadways, fencing, monitoring wells, on-site facilities, liner system, and leachate collection and removal systems. Typical landfill development costs are provided in Table 4-3.

Costs for construction of a landfill in Frederick County are dependent on the following major activities including:

- Excavation
- Liner construction
- Leachate collection and treatment/disposal systems
- Ground and surface water monitoring systems
- Storm water 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 in Frederick County were estimated to be in the range of $200,000 to $400,000 per acre in 1998. In 2009 an up-to-date analysis showed that actual Site B construction costs, including costs for final cap identified landfill cell construction costs at approximately $740,000 per acre. This did not include land acquisition costs, leachate treatment costs, gas and groundwater monitoring and management systems, required rolling stock for the landfill, or future cost escalations for these elements.

Operating costs include personnel, equipment, maintenance, administrative, and engineering costs. Typical operating costs are presented in Table 4-4. Typical landfill closure and post-closure costs are presented in Table 4-5.

Table 4-2: Typical Landfill Pre-Development Cost

Cost Description (c)	Cost ($) <500 Acres (a)	Cost ($) 500 – 1,000+ Acres (a)
Landfill Site Selection		
Engineering and Legal	280,000 – 420,000	280,000 – 420,000
Administration	28,000 – 42,000	28,000 – 42,000
Landfill Site Procurement		
Site Appraisal	1,400 – 2,800	1,400 – 2,800
Site Option	140 – 280/acre	140 – 280/acre
Site Purchase (b)	7,000 – 21,000/acre	7,000 – 21,000/acre
Boundary Survey	14,000 – 28,000	14,000 – 28,000
Permitting		
Engineering	420,000 – 840,000	840,000 – 1,253,700
Hydro Geological Studies	350,000 – 420,000	420,000 – 700,000
Wetland & Wildlife Studies	14,000 – 35,000	35,000 – 55,000

a. Acres of total landfill property
b. Land purchase can vary greatly depending on location
c. Typical costs are based on County's engineering experience and judgment

Table 4-3: Typical Landfill Development Cost

Costs ($) (a, b)			
Cost	**<500 acres (c)**	**500 – 1,000+ acres (c)**	**Site A+B – Development Costs (528 acres) (d)**
Roadways; Paved Access	7,000 – 455,000	455,000 – 770,000	380,000
Fencing & Gates	175,000 – 140,000	140,000 – 490,000	235,000
Monitoring Wells with Dedicated Sampling Pumps and Initial Testing (Allowance $24,000/Well)	335,000 – 840,000	840,000 – 2,005,000	140,000
Screening/Landscaping (Allowance $600/Feet)	0 – 420,000	0 – 840,000	65,000
On-Site Facilities			
Leachate Management	700,000 – 2,790,000	2,790,000 – 4,180,000	8,640,000
Scales and Scalehouse	210,000 – 350,000	210,000 – 350,000	470,000
Waste Tire & White Goods Storage Area	14,000 – 70,000	30,000 – 140,000	45,000
Maintenance/Administration Building	70,000 – 140,000	140,000 – 350,000	1,480,000
Household Hazardous Waste Collection Center	105,000 – 280,000	140,000 – 350,000	130,000
Miscellaneous Site Work and Utilities	70,000 – 140,000	105,000 – 140,000	85,000

NOTES:
a. Land development costs can vary greatly depending on location.
b. Acres of total landfill property.
c. Typical costs are based on engineering experience and judgment.
d. Costs are based on actual construction of Site B Sanitary Landfill, Cell 1.

Advantages

Conserving disposal capacity at the current Site B landfill is both prudent and cost effective and provides the County an alternate or emergency management option dependent on market conditions and needs.

In general, land disposal is the least costly waste disposal option for a community the size of Frederick County available at the present time. Sanitary landfills are a proven disposal method that meet all applicable health and environmental regulations, and generally do so at a low cost per ton.

Local landfills provide easy, cost-effective access to communities, but do have disadvantages as listed below. Transfer to out-of-County landfills shifts some of the local disadvantages elsewhere but may have other discrete disadvantages (e.g. increased costs) as shown below.

Disadvantages

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 ground water monitoring. In addition, costs of construction are increasing, and the potential for adverse environmental impacts is present. Additionally, substantial amounts of land are diverted from other beneficial uses.

Processing/Transfer Facility

Constructing and operating a municipal solid waste transfer facility in the County provides several benefits of a fully integrated solid waste management program. These include:

1. Allows the County to effectively extend the life of the current Site B landfill by temporarily relying on out-of-County MSW disposal facilities while the County evaluates solid waste management alternatives and,

2. Facilitates long-term options for recycling and/or managing non-processible waste; and,

3. Facilitates convenient residential and commercial single-stream processing/transfer to contract material recovery facilities (MRF).

The potential for expanded landfill life is reflected in Table 4-1 shown as the 50 tpd option.

Table 4-4: Typical Landfill Operating Cost

Cost ($)		
Cost Description	**<500 acres (a)**	**500 - 1,000+ acres (a,b)*x***
Operations Personnel Equipment, Facilities and Maintenance	700,000 - 1,045,000	1,045,000 - 1,395,000
Leachate Collection/Treatment By Truck ($0.02 - $0.04 per gallon)	45,000 - 90,000	90,545 - 306,460
By Sewer ($0.01 - $0.04 per gallon)	14,000 - 85,000	30,000 - 95,000
Environmental Monitoring	35,000 - 140,000	70,000 - 210,000
Engineering Services, Staff	0 - 35,000	0 - 70,000
Annual Cost	$90,000 - 1,395,000	$1,235,000 - 2,075,000
Cost Per Ton	7.70 - 8.70	5.60 - 6.70

a. Acres of total landfill site.
b. Typical Costs are based on County's engineering experience and judgment.

Table 4-5: Typical Landfill Closure and Post-Closure Cost

Closure Cost	Costs $/Acre		
Cost Description	**Based on Engineering & Experience**	**Actual Site A Cap Costs 1997**	**Site B Engineers' estimate 2005**
Site Preparation	500 - 1,500	15,000	3,643.10
Final Cover			
Subliner Soils (12 inches @ S5410/cy)	8,100 - 16,200	5,000	39,401.97
Liner-clay or synthetic ($0.40/sf)	17,400	18,750	23,431.53
Composite Drainage Net ($0.40/s0	17,400	19,160	36,611.78
Drainage Layer (6 inches @ $10-$15/cy)	8,000 - 12,100	-	9,748.64
Cover Soil (24 inches @ S5-$10/cy)	16,000 - 32,200	26,000	31,305.16
Fertilize, Seed & Mulch ($.50-$t/sy)	2,400 - 4,800	2,300	-
Stormwater Management	2,000 - 4,000	2,750	26,544.83
Active Landfill Gas Collection Systems	7,000 - 8,000	11,500	17,848.28
SUBTOTAL	78,900 - 113,600	100,460	188,535.28
Engineering, Construction Services & Geotechnical Testing	12,000 - 17,000	8,500	14,141.38
Contingencies	12,000 - 17,000	1,000	20,775.86
TOTAL	**100,000 - 150,000**	**109,960**	**223,452.52**

Post-Closure (PC) Cost	Annual Costs for overall site		
Cost Description	**Based on Engineering & Experience**	**Site A, 15th PC yr**	**Site B, 30 yr PC**
Annual Inspection	3,000 - 10,000	10,000	19,531
Landfill Surface Monitoring	3,000 - 8,000	9,600	18,750
Environmental Monitoring (groundwater, surface water, landfill gas & leachate)	25,000 - 100,000	30,333	21,667
Leachate Handling & Treatment ($0.02~$0.03 per gallon)	10,000 - 60,000	160,000	117,167
Mowing	2,000 - 5,000	6,000	11,719
TOTAL	**43,000 - 183,000**	**215,933**	**188,833**

1. Site B Closure Construction are SCS Engineer's cost estimate per 2005 Permit Modification Drawings.
2. Sites A & B Post Closure costs are estimates per Accounting Department worksheet.
3. Groundwater cost estimates will be adjusted per bid receipts and groundwater quality.
4. Leachate operating cost estimates will be adjusted based on options selected and leachate quality.
5. Gas monitoring, repair & maintenance costs are estimated to remain constant.
6. Site A is in its fifteenth year of Post Closure. Site B Post Closure is estimated to begin in year 2045.

Table 4-5 (Continued): Typical Landfill Closure and Post-Closure Cost

Engineer's Cost Estimate for Site B Closure Construction (Per SCS 2005 Permit Modification Drawings)

Site Prep	$211,300.00
LFGCC	$1,035,200.00
Cap System	$8,148,900.00
SWM System	$1,539,600.00
Subtotal	$10,935,000.00
Mob/demob 5%	$546,750.00
CQC Testing 1.5%	$164,025.00
Surveys/as-built 1%	$109,350.00
Subtotal	$11,755,125.00
CQA/RE 5%	$587,756.25
Subtotal	$12,342,881.25
Contingency 5%	$617,144.06
Total Est. Construction Costs (2005$)	**$12,960,025.31**

8/10/2005	$12,960,025.31
acre w/LFGCC (Cell 3)	**$223,448.71**

Depending upon the quantity of solid waste transferred out of Frederick County, the life of the current landfill could be considerably extended. Some quantity of solid waste would be retained in Frederick County to enable the County to maintain the Refuse Disposal Permit in active status.

Table 4-1 demonstrates the extended life that is made available at the current landfill given the specified landfilling rates, with the balance of the solid waste transferred to out-of-jurisdiction sites.

Pennsylvania and Virginia host several "megafills" which charge very competitive tipping fees, and offer long-term contracts for solid waste acceptance. However, ever increasing transportation costs makes this option less viable, particularly for long-term planning and cost containment. Often, because of the economy of scale that can be achieved at large landfills, the design standards for liners and leachate collection systems that are provided at megafills exceed the current federal and state standards for Subtitle D solid waste disposal facilities. With long-term contracts, the County has established an acceptable interim waste disposal system relying on transfer to out-of-state landfills.

Advantages

Transferring waste allows the County to effectively extend the life of the current Site B landfill by relying on out-of-County MSW disposal facilities. At the present time, the County is able to capitalize on low fuel and disposal costs, while conserving space in the local landfill. The transfer facility also allows convenient residential and commercial single-stream transfer to a contracted MRF.

Transferring also avoids the immediate need for siting new landfills, which is often unpopular and met with public resistance. This also allows land that could potentially be used for a new landfill to be used for what is deemed as more beneficial uses.

Disadvantages

Reliance on solid waste transfer may expose the County to problems in the event that the transfer option becomes unavailable. If intrastate or interstate solid waste movement is impeded by legal or logistical developments, the County must still be able to manage the solid waste that is generated and collected on a daily basis, which may place increased pressure on local disposal capacity and considerably shorten the life span of the local landfill. However, with contingency planning in place, and continued disposal capacity available at the County Landfill, the potential for an impediment to waste transfer adversely impacting the County is minimized.

Another potential disadvantage to reliance on waste transfer is the volatility associated with fuel costs. A substantial increase in fuel prices would result in an increase in transfer costs to the County. But as mentioned previously, with contingency planning in place, and continued disposal capacity available at the County Landfill, the potential for increased costs to the County is minimized since a local disposal outlet is available.

Another potential disadvantage to reliance on solid waste transfer is the exposure to increased market pricing by private entities involved in the transportation and disposal of solid waste.

Another potential disadvantage to reliance on transfer is the issue for potential liability in the event that the solid waste is improperly managed or disposed. However, by practicing due diligence in the development of the transfer contracts and verification of the compliance status of the host landfill, this liability is minimized.

RECYCLING

Recycling is a viable component of an integrated solid waste management system.

In the past, recycling was thought of as a way to make "cash from trash". However, recycling is best thought of as a part of an integrated solid waste management system rather than strictly a money-making proposition. In some instances it may be deemed worthwhile even at a net loss, in order to conserve landfill space and preserve resources. It is important to continually evaluate the factors impacting a county recycling program, such as the composition of the waste stream, what systems can be successfully applied to collect and process recyclables, and where strong, stable raw material markets exist for recyclables which may be recovered from the County's waste stream. A discussion of the existing and available recycling options for Frederick County follows.

EXISTING PROGRAM

Frederick County's report to MDE for calendar year 2014 shows an overall waste reduction rate of 55.4 percent. This includes a 50.4 percent recycling rate and a 5 percent source reduction rate. This includes recycling accomplished by commercial, institutional and industrial facilities, the residential recycling program, the drop-off facility at the solid waste management facility, special programs such as Christmas tree mulching, and yard waste recycling efforts.

The County actively seeks to enhance and increase the rate of recycling. In October 2007 County adopted a goal to reach a 60% Waste Diversion rate (using MRA formulas and calculation methodology) by year 2025. The Waste Diversion Rate is comprised of the Recycling Rate and the Source Reduction Rate. Commercial recycling is a recommended waste management alternative in the County Comprehensive 10-Year Solid Waste Management Plan.

Current recycling efforts can be placed in one of three major categories: residential recycling, commercial recycling, and organics recycling.

Organics/Yard Waste Recycling

County Government-operated yard waste recycling programs now recover an annual average typically over 16,000 tons of yard trimmings (grass, leaves, brush and branches and mixed material) from the waste stream. Private sector composting efforts are underway with landscapers who compost at their business and farmers who compost or mix yard waste into manure pits. Tree-trimming companies are also providing wood chips to farmers, landscapers, and municipal parks and recreation departments. Municipalities may divert grass clippings and leaves to farmers.

Yard waste collection has expanded within the County, particularly within various Homeowner Associations (HOA) and certain municipalities. This varies by area and may include drop-off containers at central locations or door-to-door seasonal yard waste collection. This collection activity is primarily handled by private sector collection, although the City of Frederick does collect certain yard waste material using municipal collection service. Emphasizing on-site

diversion by residents at their own homes, backyard composting and grasscycling is promoted by Frederick County Government on an ongoing basis.

Commercial

Non-residential/commercial entities are responsible for their own recycling programs as a component of managing their waste stream. Recycling for the non-residential sector is provided primarily through private industry contractors who collect their recyclables. This method applies to businesses from small sole proprietorships to large corporations. Some of these haulers may process and market the recyclables directly or they may bring them to the Reichs Ford Road solid waste management facility for a fee, $25.00 per ton as of 2016.

Some businesses collect specific materials and redeem them at a local private recycling center. It is common for larger retailers to ship their materials directly to market or to a centralized warehouse.

The Frederick County Office of Economic Development estimates that there were more than 6,400 businesses in Frederick County that employee over 101,000 workers according to 2016 fourth quarter data.

The potential in the non-residential sector to increase recycling efforts is seen mostly in the recovery of mixed recyclable containers, organics and construction and demolition materials (as there are many commercial entities already recycling corrugated cardboard and mixed paper.) These materials can account for 10 to 65 percent of the unrecovered waste stream depending on the specific businesses.[2]

Residential

Recycling is provided in the residential sector primarily through government programs. Items recycled through these programs include: magazines and catalogs, newspapers (including all inserts); junk mail and envelopes; clean paper products – colored and white (such as typing, fax, copy, letterhead, file folders, cardstock, etc.), shredded paper; brown paper bags; non-metallic wrapping paper; paperboard boxes (such as cracker and cereal boxes without liners); corrugated cardboard; books (including paperbacks, hardbacks and telephone books); aseptic/gable top milk and juice cartons; plastic bags; plastic containers such as peanut butter, margarine tubs, yogurt, mayonnaise, prescription bottles, etc.; glass food and beverage containers such as jars and bottles; tin and steel food and beverage containers; aluminum food and beverage containers; aluminum foil and aluminum pie pans; and empty aerosol cans.

Potential for increasing residential recycling recovery is seen primarily through increased recovery of material through the existing curbside program.

The County operates curbside collection and one drop-off center at the Reichs Ford Road solid waste management facility. The drop-off center accepts single-stream recyclables, metals and appliances, lead acid batteries, scrap tires, motor oil, antifreeze, flexible foam, bulk rigid plastics, yard waste and electronics. Several Frederick County municipalities operate recycling drop-off centers for single stream recyclable materials as well.

[2] Source: Montgomery County 2009 Waste Characterization Study.

CURBSIDE COLLECTION

In curbside programs residents place their recyclables at the curb where they are collected and delivered to the transfer station located at the Reichs Ford Road solid waste management facility.

Operations

There are several variations of curbside recycling:

- Resident- or Multi-Sort – Residents segregate target materials by type into separate containers. Typically, three containers are provided to each resident for collection of newspaper or mixed paper, metal cans, glass and plastic.
- Dual-Stream Sort – In these programs target materials are placed into two different containers, typically one for bottles and cans and the other for mixed paper. Collection crews keep the materials separate as they place recyclables in the collection vehicle.
- 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. Frederick County converted from a dual-stream program to a single-stream program on January 26, 2009.

When evaluating curbside collection program variations, it should be recognized that differing approaches may affect the level of participation achieved, materials 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.

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.

In 2009 the County expanded the residential single-family home curbside recycling program to all eligible properties within the County. This program now serves over 76,000 single-family homes. In addition, the collection methodology was changed from a bin-based dual stream program to a cart-based single stream program.

Equipment

Municipal refuse collection crews and private haulers both have been used to service curbside routes using everything from flatbed trucks carrying 55-gallon drums to compartmentalized specialty 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.

Costs

Curbside collection of recyclables could be accomplished by franchising, licensing, contracting or public operation. In general, the public operation of a curbside collection program would be a greater cost to the County than a franchised program or licensing.

Equipment associated with curbside collection programs includes collection vehicles, collection containers and processing equipment. Operating costs include labor, fuel, supplies and maintenance. Collection equipment costs can range from $9,880 for a flatbed trailer to over $200,000 for a self-loading truck. Labor costs can range from $22.00 to $174.00 per ton of material collected. As of 2016, Frederick County pays a base fee of $3.25 per household per month for every other week collection to the County's collection contractor. This base fee is subject to fuel and CPI adjustments in accordance with the terms of the Service Agreement.

Advantages

If curbside programs are based on separating the materials at the source of generation, the materials may be less contaminated and may command higher prices in the marketplace, although commingled processing lines have greatly advanced, often equaling or exceeding the quality of dual-stream sorting facilities. Curbside programs provide a convenient way for homeowners to recycle. Single-stream collection programs provide greater convenience to residents since no source separation is required and are believed to result in higher participation rates due to their ease of use.

Disadvantages

Curbside collection programs experience high start-up and operating costs. The success of the curbside collection program is dependent on an ongoing public education program. Curbside collection is less cost-effective or efficient in remote, rural areas of Frederick County although this collection methodology is achievable in these areas. Dual-stream programs may experience lower participation than single stream due to the necessity of residents to source separate; however, single-stream programs may be slightly more contaminated due to the commingling of all recyclables.

DROP-OFF CENTERS

Drop-off center recycling is accomplished through the establishment of stations where recyclable materials can be brought by the public. As with curbside programs, no payment is made for the recyclable materials.

Drop-off centers can range from small, unsupervised operations to fully staffed processing facilities which accept, process, and store recyclables until they are shipped to market. Currently, MDE permits are not required for these facilities.

Operations

Currently, Frederick County's existing drop-off is located at the Reichs Ford Road solid waste management facility. Several Frederick County municipalities operate recycling drop-off centers for single stream recyclable materials as well. Small drop-off centers can use a number of containers for collection of recyclables. Containers successfully used for drop-offs include roll-offs, 55-gallon drums, and igloo bins, which are bell-shaped containers.

Equipment

Stations such as those located in the County require containers for depositing the recyclables. Collection vehicle requirements are dependent on the type of container. Staffed drop-off centers require office or warehouse facilities and storage containers.

Material processing requirements are dependent upon the type of drop-off center operation. Materials from unstaffed centers would typically require a higher level of intermediate processing due to excessive levels of contamination.

Costs

Costs associated with drop-off centers include the collection containers, transportation of the materials to a central facility, site maintenance, cost of managing illegal dumping and loss of associated tipping fees, administrative costs of record keeping and staff labor.

Advantages

Capital and operating costs are lower than curbside programs. Unstaffed locations can be located close to population centers and can operate 24 hours per day.

Disadvantages

Drop-off centers are less convenient than curbside programs. Vandalism, theft and illegal dumping may be present problems at drop-off centers. Often, drop-off centers can become unkempt and littered with trash; community or municipal workers must be committed to keep the site clean. Material recovery levels are typically lower than curbside programs. Contamination of recyclable materials is higher than for curbside collection programs.

RECYCLABLE MATERIAL PROCESSING FACILITIES

There are two basic types of recyclable material processing facilities: mixed waste processing facilities (MWPF) and material recovery facilities.

Processing facilities are used to recover recyclables from both residential and commercial/institutional sources. Both facilities produce a sorted, recyclable material which is prepared for the end-use market.

The MWPF must obtain a permit from MDE prior to construction and operation; a material recovery facility does not currently require an MDE permit.

Mixed Waste Processing Facility (MWPF)

For a typical MWPF, mixed municipal solid waste is dumped onto the tipping floor and pushed onto a below-ground infeed 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 is most often performed manually, although some specialized bag-breaking devices are now available. Screening drums or other special equipment such as air classification units are used to separate the mixed waste stream generally into two compartments:

- an "undersize" stream, which consists mostly of fine particles fewer than one or two inches in diameter; this stream contains fine aggregate materials (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. Because the fines have 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 and "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. Because 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 deposit the materials either:

- into concrete storage bunkers, located underneath the sorting conveyors
- directly into processing equipment (e.g., glass crushers, aluminum can flatteners or plastics granulators)
- onto 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. In Frederick County 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), meaning 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.

Costs

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. A typical cost range is $49,400 to $74,100 per ton for daily capacity.

For Frederick County, capital cost for a 400 TPD MWPF are estimated to range from $19,760,000 to $29,640,000. Operation and maintenance costs are estimated to range from $99 to $148 per ton of municipal waste processed.

Advantages

The primary advantage of a MWPF is the convenience to residents and business; there is no need to segregate wastes at the source. This typically results in higher recovery rates for recyclables.

Disadvantages

Capital and operations costs are significantly higher than for a MRF. Contamination of materials is a problem, resulting in lower quality recyclables which are more difficult to market. The potential exists for environmental impacts from odors, aesthetics, and contaminated runoff from the facility.

Material Recovery Facility (MRF)

Material recovery facilities 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 MRF's will include concrete storage bunkers and compaction and baling equipment.

Sophisticated MRFs can include conveyer lines, screening and picking stations, electromagnetic separators, and air classifiers as previously described for the MWPF.

Costs

As with the MWPF, capital and operations costs vary over a wide range, dependent on the level of technology employed by the facility. A typical capital cost range is $24,700 to $54,340 per ton of daily capacity. For Frederick County capital costs for a 100 ton-per-day MRF are estimated to

range from $3,705,000 to $5,434,000, exclusive of land acquisition. Operations and maintenance costs can range from $20 to $60 per ton, exclusive of revenues gained from marketing recycled materials.

Advantages

MRFs generally produce a higher quality of recyclable materials than a MWPF; capital and operations costs are significantly lower. There is better control over the types and sources of waste that is accepted. Environmental impacts, including odors, are less of a concern than with a MWPF.

Disadvantages

MRFs can be capital intensive to construct. Sale of product is subject to market volatility. Per ton processing costs can be cost prohibitive without economies of scale.

BUY-BACK CENTERS

Frederick County has several processors/redemption centers now operating within the County. Buy-back centers operate similar to drop-off centers; however, individuals are paid for their materials based on current market prices.

Operations

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.

Costs

Frederick County encounters no costs associated with the use of buy-back centers since they are privately owned.

Advantages

Paying the public for recyclables provides an incentive to some who would otherwise not recycle. There are several buy-back centers located within Frederick County and these can be easily included within the recycling program.

Disadvantages

Low material recovery rates are typical of these facilities. Market prices may significantly affect participation.

YARD WASTE COMPOSTING

Yard waste composting is a popular waste management option as communities such as Frederick County look for ways to divert this portion of the waste stream from landfills. Yard waste

composting is an operation which can handle a portion of the waste stream and when conducted correctly benefit other waste management operations.

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 trimming products can be generated for use as a, soil amendment, topsoil blends, or potting soil blends. The production and sale of Compost is regulated by the Maryland Department of Agriculture and in some instances the Maryland Department of the Environment. The processing of unadulterated wood waste and the production of mulch in some cases may be regulated by the Maryland Department of the Environment and require a Natural Wood Waste Processing Permit.

The County began producing both double-grind wood mulch and a finished general use compost in 2009. Both products are offered for sale at rates determined by the County Executive with the funds for these sales used to partially off-set the programs operating costs.

Collection

Collection of yard trimmings can take a number of forms. For example, collection may occur simply by residents transporting their yard trimmings to various collection locations or sites (such as roll-off containers); or it may be as formal as some type of curbside collection service, either seasonally, monthly or even as often as weekly collection. Various programs in other jurisdictions permit their residents to use any type of container for their yard trimmings while others required reusable or biodegradable collection bags. Frederick County Government has a drop-off collection program for yard trimmings, which allows residents to transport their materials (grass clippings, leaves, brush, branches and Christmas trees) to either of the County- supported yard trimming collections sites: Walkersville Heritage Park or Reichs Ford Road Landfill.

Various refuse haulers, most municipalities and homeowner associations (HOAs) do offer separate collections of yard waste for their residents. Periodically some municipalities and HOAs will offer limited collection of Christmas trees immediately following the holiday which can then be recycled through Frederick County's program.

Markets

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 and municipal operations (parks and landfills).

Although compost can generate revenue, generally the revenue alone is not likely to meet or exceed the cost of collecting, processing, and distributing the compost unless front-end tipping fees for these materials are put in place. Front-end (tipping fees) and back-end (product sales) revenues are a funding strategy used by many governmental and private sector entities to fund such operations. Reduced disposal costs and environmental benefits may also be attractive features of yard waste composting programs.

TYPES OF YARD WASTE

Yard waste consists of any materials normally generated in the maintenance of gardens, yards, lawns or landscaped areas whether residential, commercial or public, including leaves, grass clippings, plants, shrubs, prunings and trimmings no greater than eight feet in length and no greater than six inches in diameter. Yard waste does not include other tree waste, land clearing debris, waste pavement, soil or any edible product from any garden, yard, lawn or landscaped area. Leaves and wood generally decompose more slowly than green material. Woody material is the slowest to compost because of its density and its high carbon content and low nitrogen content. Green material 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 products made from yard waste include mulch and compost which are often used soil amendments and soil additives. Mulch is partially composted wood material which can be used as a barrier to retain moisture and insulation to protect plants. Types of mulch include 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 grinder, and then composting it to stabilize the material.

Compost can be 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.

Technologies

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

Backyard Composting: The type of backyard system is only limited by the imagination of the homeowner or possibly the regulations or covenants of the subdivision. Systems include:

- 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
- Store bought bins – made of wood or plastic
- Pallets – free resource, four are used to form a large holding unit

Low-Level Technology for Large Scale Operations: This involves forming large windrows that are turned once a year with front-end loaders. Compost is ready for use in approximately

one to two 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.

Mid-Level Technology for Large Scale Operations: This involves medium size piles. The composting process is roughly 16 to 18 months. Piles are turned more frequently, hence the odor problem occurs less often.

High-Level Technology for Large Scale Operations: This involves 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 three to six months. Capital and initial operating costs are higher due to the additional shredding, grinding, mixing, and screening equipment. A typical aerobic (oxygen-based) windrow composting process flow diagram and composting facility layout are provided in Figure 4-1 and Figure 4-2 respectively.

Figure 4-1: Composting Process Flow Diagram

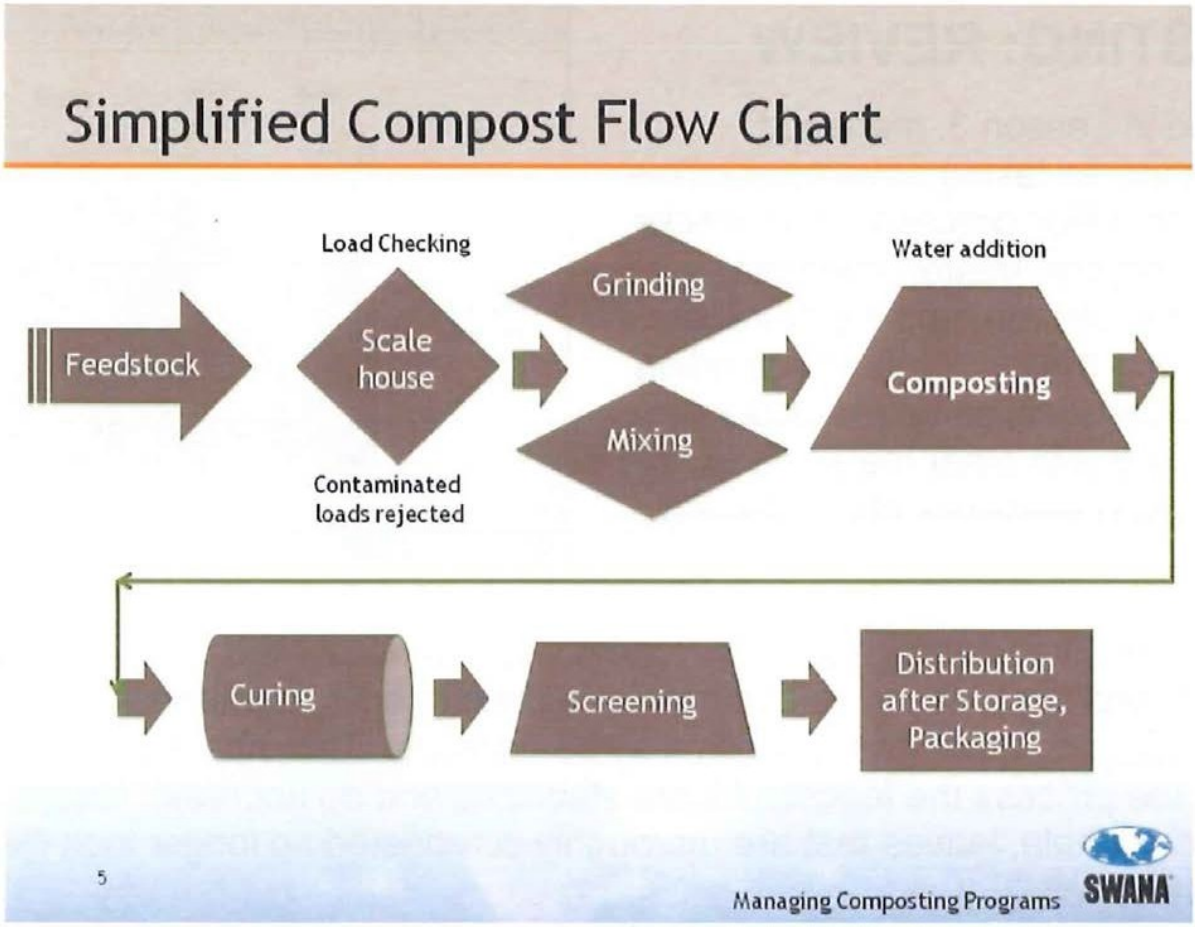
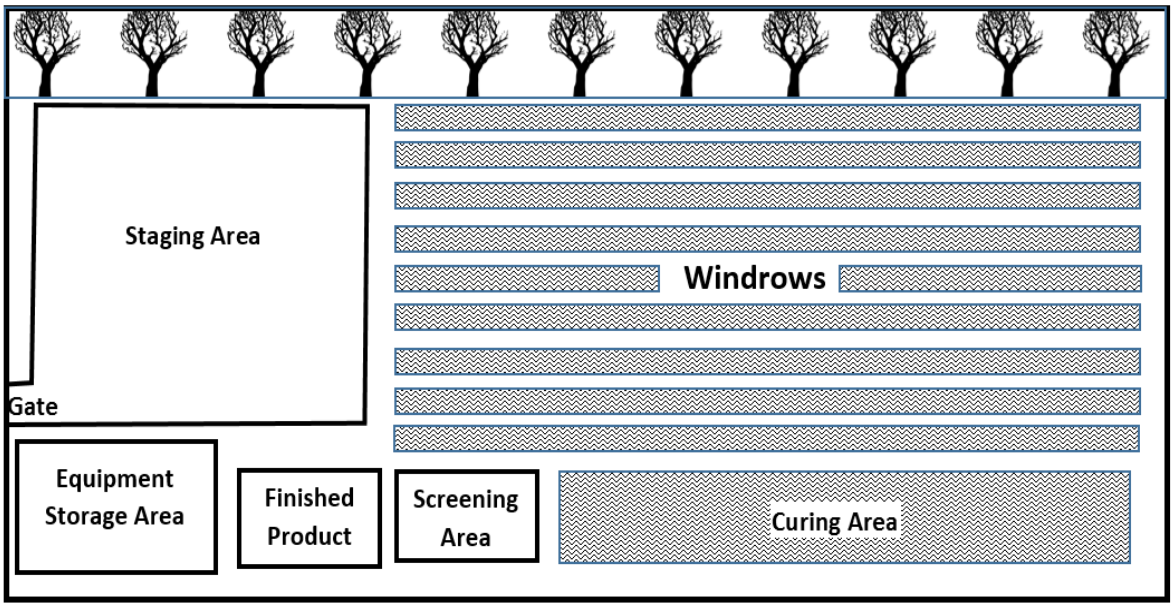


Figure 4-2: Composting Facility Layout



Costs

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

- Capital costs of processing facilities and possibly transfer stations
- Potential annual site operation and maintenance costs
- Annual yard trimming 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 and the amount and type of material received. A careful evaluation of options versus cost implications is required when planning and financing such facilities.

According to the U.S. Composting Council®, a national organization, mean cost per ton of material processed is $25, but costs can vary from $8 to $72 per ton.

Generally, the greatest cost associated with yard waste management arises from collection. Curbside pickup 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.

Marketing costs can 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 citizen "giveaway" programs consume the entire product.

If revenue is desired from product sales, increasing levels of marketing are required. A good rule of thumb is that wholesale "bulk" marketing results in high volume sales and low revenue; whereas, wholesale "bagged' marketing results in low volume but high revenue.

Advantages

Depending on the operation used, yard waste composting can be a low- to mid-cost operation. The final product is useable and is potentially marketable.

Disadvantages

Yard waste composting has the potential for odor problems. Markets for compost may vary and excess compost may require a separate storage area. Depending upon the method used, composting can be a high-cost operation.

SOLID WASTE COMPOSTING

Municipal solid waste (MSW) composting has been practiced for many decades around the world. In the United States it has met with limited success because of high cost, production odors, faulty technology, and poor product quality. In the past decade, however, interest in solid waste composting has increased in the United States and more facilities are being built.

Typically, the economics of solid waste composting require high landfill tipping fees to justify the high cost of capital, operation, maintenance, and product marketing. Solid waste composting is often used to further process residual wastes generated by a MWPF.

Markets

About 70 to 75 percent of a typical solid waste stream consists of newspaper, corrugated cardboard, mixed paper, food, and yard waste which will degrade biologically. The remaining 25 to 30 percent must be landfilled, recycled or processed in some other method. The composted material may be used as landfill cover material, for agricultural purposes, or for landscaping depending on its classification and composition. The market for composted municipal solid waste within Frederick County and the State of Maryland has not been investigated. In the event that a MSW composting facility is considered for Frederick County, the determination of markets for the composted material should be a priority.

Technologies

There are several composting technologies available; however, the general process involves mechanical preparation of the incoming waste, materials recovery (in some cases), active composting, curing, and product screening.

The composting processes considered potentially applicable for Frederick County are the windrow-with-forced air aeration (WWFA), aerated static pile (ASP), horizontal silo, and in-vessel methods. When used for MSW all of these processes normally include pre-processing, post processing, and curing stages. Despite having different digestion processes, all systems have three distinct phases; namely, pre-processing, composting or digestion, and post-screening. The specific design of the composting facility and equipment used depends on:

- the quantity and composition of the waste stream being processed
- the desired quality of the end product
- the desired recovery levels of auxiliary products such as recyclables and fuel products
- the site conditions and proximity of the plant to its neighbors

In particular the degree of pre- and post-processing depends on the market for the final compost product. If it will be used as landfill cover, non-compostable materials may be allowed to remain in the compost. If it will be used as a soil conditioner for landscaping, nearly all inorganic material will need to be removed.

A general discussion of the pre-processing, digestion, and post-processing systems is provided below.

Pre-Processing: Purely organic waste streams, such as yard wastes, food waste or agricultural wastes may require little or no pre-processing. However, MSW is normally more heterogeneous in composition and will contain a large percentage of inorganic material. The objective of pre-processing is to remove inorganic materials and recyclables from the waste stream and isolate the organic fraction for composting.

Pre-processing at MSW composting facilities may include the following processes:

- removal of bulky, non-processible wastes
- size reduction (shredding and bag-breaking)
- size classification (screening, air separation, density separation)
- magnetic separation and recovery of ferrous metals

Often water and/or sewage sludge is added to the organic fraction of the waste stream to promote decomposition of the material into compost. Water must be added since MSW does not contain a sufficient water content for rapid and efficient composting to occur. Sludge is an optional ingredient that can increase the nitrogen content of the MSW and thus maintain a suitable carbon/nitrogen ratio of composting. Forced air is required for the completion of the

composting process. Often a biofilter consisting of a bed of mature compost or bark chips, three to six feet thick, is used to filter the exhaust air.

Digestion: The four types of digestion (composting) are briefly discussed below.

The WWFA process is performed in a large, enclosed hanger with concrete floors. The incoming waste stream is deposited into windrows (long piled rows), which are then routinely and strategically moved by windrow turners so that the completed compost is located at an outermost windrow by the end of the process. The windrow turners turn and rebuild the windrows by picking up the material with a screw-like conveyor and transferring it to an adjacent windrow. Water is added to the material as it is being turned to maintain the material's optimum moisture content for effective composting. The WWFA process uses forced aeration to activate the biological digestion process. This process takes approximately 60 days.

The ASP process is similar to the WWFA process, except that the piles are not turned for approximately two weeks. During this time anaerobic (oxygen-lacking) decomposition of the material occurs and negative forced aeration occurs. The exhaust air is processed through a biofilter prior to release into the ambient atmosphere. The measurement and monitoring of oxygen and carbon dioxide concentrations within the piles alerts the operators when the majority of the material has begun to decompose aerobically. At this occurrence, the forced air is reversed (air is blown into the process). The material is then sent through a trommel where oversized elements are removed. The pile is then processed again using the ASP method for approximately 4 weeks. After the second processing, the material is placed outdoors into a static pile for stabilizing the material.

In the horizontal silo system, shredded waste from the pre-processing area is placed into the concrete silos by conveyor belts. The silos are usually between 5 and 15 feet wide, 4 and 8 feet high, and may be over 200 feet in length. The entire composting area is covered by a roof to prevent rainwater from entering the piles and subsequently leaching out. Agitation is provided by a turning machine which is mounted on the silo walls. Forced aeration, which may be activated by temperature, is supplied to the silos. Often the exhaust air from the silos is conveyed through a biofilter to reduce odors.

In-vessel systems have a unique vessel design, but they can be identified as rotating drums and stationary domes.

Rotating drums introduce waste into the digester after the pre-processing procedure. In some cases, the drums are equipped with metal spikes or bars to assist in the breaking of garbage bags and in agitating the waste to quicken the degradation process.

The drums are usually between 10 and 15 feet in diameter and range from 80 to 150 feet in length. The drums may contain a single chamber or be divided into multiple chambers, with the waste being transferred from one chamber by screw conveyors. The MSW, water, and a nitrogen source are added to the drum, which is rotated from 12 hours to 3 days. Forced aeration is also provided to the drums.

Dome reactors are usually constructed of concrete/steel and range from 20 to 150 feet in diameter. MSW is piled to a depth of 6 to 10 feet in the dome, and is placed and removed from the dome with a screw conveyor. Aeration is activated by temperature sensors located in the waste. The material remains inside the dome for a period ranging from three days to two weeks.

In-vessel systems generally utilize a secondary digestion process to promote further decomposition and stabilization of the raw compost. This process consists of an aerated static pile, windrows, horizontal silos, or even a second vessel. In most systems, the material will remain in the secondary digestion system for a period of three weeks.

Curing and Post-Processing: In many systems compost emerging from the horizontal silos or digester vessels must be further stabilized or cured. It is necessary because if compost is applied to the land before the compost process has completely ceased, it may chemically remove essential nutrients, such as nitrogen, from the soil.

Like pre-processing, post-processing operations concentrate on removing inorganic material from the compost. These contaminants include glass, grit, paper, plastic, and textiles. The methods for extracting these materials include:

- screening
- magnetic separation
- fluidized-bed "destoners" which remove paper, plastics, glass grit and rocks

The residuals generated from this process may be further processed and either landfilled or recovered for fuel.

Costs

Typical costs associated with municipal solid waste composting include capital costs and operation and maintenance costs. Depending on the process selected and the quality of the end product, these costs can vary greatly. Costs for a municipal solid waste composting facility, excluding land, range from $135,850 to $185,250 per ton per day.

Advantages

Composting has the potential to result in large-scale weight and volume reduction of the MSW stream. Depending on the composition of the input waste stream and the process used, a volume reduction of between 55 and 70 percent could be achieved, thus reducing the disposable waste volume.

MSW composting systems are able to accept yard trimmings directly into the waste process. In fact, the addition of the yard trimmings may improve the efficiency of the process because of its high nitrogen and moisture content.

Disadvantages

The majority of operating MSW composting facilities in the U.S. has fewer than two years of operating experience. Moreover, few are designed to process substantially more than 200 tons per day (TPD) of waste. Frederick County's municipal waste stream is projected to be in excess of 675 TPD in 2017.

Several facilities with greater than 400 TPD design capacity have either recently opened or are under construction or in advanced stages of planning; if their operations prove successful, the applicability of the technology to large- and moderate-sized waste streams such as that generated in Frederick County will be greatly enhanced.

For compost used in agricultural or landscaping applications, the risks posed by heavy metals are not well understood. This has prompted several states, including Maryland, to investigate stringent standards regarding heavy metals content of the compost and permissible rates of application to the land.

A number of operating U.S. facilities have had serious problems controlling odor, thus arousing complaints from neighbors and sometimes compelling the facilities to shut down or install expensive odor control systems. The facility must utilize effective odor control equipment and techniques, such as aeration systems, exhaust air treatment (biofilters and/or scrubbers), enclosed digestion buildings, and frequent turning/agitation of the decomposing material.

The financial community is aware of the problems composting facilities have had in the past securing necessary state approvals for marketing their end product and in obtaining reliable customer outlets. Any MSW composting project that wishes to be financed will have to demonstrate a sound outlet for the compost or a well-conceived marketing plan with realistic, achievable goals.

MUNICIPAL WASTE COMBUSTION AND WASTE TO ENERGY

Before 1970, municipal waste incinerators in the U.S. were refractory-lined units that functioned solely to reduce the volume of waste destined for disposal. Over the past several decades, the vast majority of new incinerators are "waste-to-energy" facilities that also produce steam and/or electricity through the combustion process. Waterwall combustion chambers are used to generate steam that is either sold directly or is used to drive turbines to generate electricity.

Technologies

Mass-Burning: The singular identifying feature of mass-burn facilities is they do not process incoming waste prior to combustion, other than the removal of and recycling of bulky white goods and other bulky items that may inadvertently be delivered to the facility. 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 or wood fired power plants. The quantities of steam and/or electricity produced largely depend on the quantity and heating value of the waste processed at the WTE facility. As in any

combustion process, a solid ash residue is produced. The ash is tested for compliance with EPA and State of Maryland requirements for disposal or use as daily cover at Subtitle D (non-hazardous) landfills.

Refuse-Derived Fuel (RDF) Waste-to-Energy Technology: The fuel properties of mixed municipal solid waste (MSW) can be improved by reducing it to particles less than six inches in diameter and removing the materials that have little or no heat value. This is precisely what 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 MSW composting facilities.

Municipal solid waste is dumped onto a tipping floor where front-end loaders and dozers compact the waste and push it onto infeed conveyors. Bulky and non-processible items are segregated either on the tipping floor or are lifted off the infeed 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:

- low-speed shredders or 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 MMRFs), 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 MSW 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 is normally 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 infeed 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. For these reasons:

- 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, an RDF facility will produce approximately five percent more energy than a mass-burn facility of equivalent size
- 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 thus not have to be landfilled.

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 from $123,500,000 to $247,000,000 per 500 tons of rated daily capacity.

An extensive market survey was conducted in the Regional Solid Waste Management Study for the counties of Carroll, Frederick, Howard, and Washington, Task Two Report: Energy and Materials Markets. This survey identified only one potential energy market within Frederick County; the ESSROC Cement Company. The report stated that the company would be able to consume approximately 64,000 tons of municipal solid waste per year for use as refuse derived fuel. In calendar year 2011 the ESSROC Cement Company was no longer operating its RDF plant within Frederick County.

Advantages

The primary environmental benefit of waste-to-energy facilities is the conservation of natural resources. Solid waste that would otherwise end up in a landfill is used to generate energy, thus conserving fossil fuels.

Both mass-burn and RDF systems 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 multiple vendors with strong business positions and significant amounts of construction and operational experience.

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.

Disadvantages

The primary environmental issues associated with municipal waste combustion are air pollution and ash disposal.

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.

SUMMARY OF SOLID WASTE MANAGEMENT ALTERNATIVES

Table 4-6 presents a summary of the alternatives discussed above and their ability to meet the goals and objectives of this plan.

Table 4-6: Summary of Solid Waste Management Alternatives

Alternative	Potential for Meeting Goals and Objectives of the Solid Waste Management Plan (SWMP)
Existing System	This system does not meet the SWMP objectives of cost effectiveness and increasing recycling and waste reduction.
Franchising	Provides opportunities for flow control and waste reduction incentives. However, private haulers could be negatively impacted and bureaucracy is increased. Best alternative for flow control.
Licensing	Allows for customer selection of haulers and a potential means for the County to implement policies for flow control and recycling.
Public Operation	Provides highest level of flow control. This alternative is not judged to be as cost-effective or efficient. Does not provide a mechanism for efficient integration of County and municipal efforts.
Land Disposal (Public Ownership Only)	Element of integrated solid waste management system that can protect public health and the environment. Cost-effective alternative for management of wastes that cannot be or are not recycled, reused, or treated.
RESIDENTIAL RECYCLING	
Curbside Recycling Collection (Existing Program)	Curbside collection will continue to partially meet the objective for increased recycling; program will have to be expanded. Most productive means of maximizing recycling within populated residential areas of the County.
Dropoff Centers	A more cost-effective and efficient means of recycling within the remote, rural residential areas of the County.
Material Recovery Facility (MRF)	Not recommended for inclusion within the County program due to the availability of capacity in regional facilities and the cost associated with economies of scale.

Table 4-6 (Continued): Summary of Solid Waste Management Alternatives

Alternative	Potential for Meeting Goals and Objectives of the Solid Waste Management Plan (SWMP)
Mixed Waste Recovery Facility (MWRF)	This system does not meet the SWMP objectives of cost effectiveness, environmental protection, and increased recycling. Does not provide for a high quantity and quality of recyclables.
Buy-Back Centers	Buy-back centers provide an incentive to some who would otherwise not recycle. Existing centers are privately owned and operated and no cost is incurred by the County. Can help achieve the objective of maximizing recycling.
Commercial Recycling	Commercial waste comprises about 20 percent of the waste stream; commercial recycling provides an excellent opportunity for Frederick County to reduce the amount of solid waste requiring final disposal. This option is recommended to remain as private market initiative.
Yard Waste Composting	Cost-effective and efficient method in which to reduce the amount of waste requiring final disposal, conserving land and landfill space.
Solid Waste Composting	At the present time, the relatively high cost for solid waste composting eliminates this alternative from further consideration. Technology is not proven in the long run.
Mass Burn Incineration without energy recovery	Mass burning of municipal waste does not meet the resource recovery, environmental, or economic goals and objectives of the plan.
Mass Burn with energy recovery	This alternative is considered superior to landfill disposal of waste based on the EPA waste management hierarchy. It facilitates increased metal recovery and recycling, recovers energy from post-recycling waste, and reduces overall emissions, including greenhouse gas emissions when compared to the sanitary landfill alternatives.
Refuse Derived Fuel	This alternative requires a market for this processed fuel material. Previously, ESSROC Cement Company was identified as a potential user of such fuel. However, ESSROC has since decommissioned their cement kiln and is no longer operating a kiln in Frederick County.

SITING NEW ACCEPTANCE FACILITIES

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 socioeconomic, and sociopolitical 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 effect that the facility will have on the ecosystem of the site and surrounding area, and permitting requirements. It includes impacts on wetlands, ground water, 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, storm water management, and site utilization.
- Economic and socioeconomic concerns involve costs incurred to establish the site and the financial impact on nearby neighbors of the facility.
- Sociopolitical concerns deal 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 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, as described in Table 4-7. 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.

Figure 4-3 presents a depiction of these first level screening exclusionary areas for solid waste processing facilities, including recycling facilities, transfer stations and composting facilities within Frederick County. Figure 4-4 illustrates locations within the County which would be unsuitable for the siting of landfills; this map adds additional exclusionary areas for limestone bedrock and buffer zones for airports.

These maps are intended to be used to determine whether proposed sites for new solid waste management facilities are consistent with this plan. They are not intended to represent accurate physical descriptions of site conditions.

If a site passes first level screening, it is subjected to more stringent site-specific criteria as described in Table 4-7. The suitability of the site will also be evaluated through the requirements of the MDE permitting process, and through extensive public review through the County Executive, SWAC and Frederick County citizens.

Table 4-7: General Procedure for Siting Solid Waste Management Facilities

The process of site selection can be defined as stages or levels by which numerous possible sites are reduced to a few probable sites. Involvement of and communication with the Solid Waste Advisory Committee 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, or areas excluded, minimum buffer zone requirements, compatible surrounding and adjacent land uses, preferred site distance from Frederick City and acreage requirements.

Data Collection of Baseline Information including previous studies and reports and conducting meetings with interested County, citizen groups, Solid Waste Advisory Committee 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 driving survey, U.S.G.S. Topographic maps, floodplain maps, aerial photographs, plat maps, zoning maps, project planning parameters, meetings with County officials, the Solid Waste Advisory Committee 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; and,
- have the support of elected officials and the Solid Waste Advisory Committee

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 (to ensure it does not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in a washout of solid waste), site boundaries with reasonable direct access not more than two miles from 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 monetarily) 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 as documentation of the non-feasible sites and why they were eliminated.

Conduct Field Inspection of the potential sites with the Solid Waste Advisory Committee and County officials.

Second Level Screening (non-absolutes) involves accessing 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 are 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 Solid Waste Advisory Committee 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 criteria is of equal importance.

The ranking system uses a weighted numerical value to each criteria. 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 County to present the findings and list of preferred sites and the recommendations of the Solid Waste Advisory Committee and 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 County and the Solid Waste Advisory Committee shall oversee this meeting.

Final Site Selection shall be made by the County, based on the final site investigation data, the recommendations of the Solid Waste Advisory Committee and public opinion. The site will be selected and procured by the County.

CONSTRAINTS ON THE SITING OF SOLID WASTE MANAGEMENT FACILITIES

Existing physical features and existing and planned uses of the land within Frederick County affect the siting of waste management facilities. Solid waste management facility siting should be planned to minimize impacts on the citizens of Frederick County and the environment.

A brief description of the constraints imposed on solid waste acceptance facilities based on technical, environmental, and land use concerns, follows.

TOPOGRAPHY

Topography in Frederick County is quite varied, with elevations ranging from 200 feet at the southeastern corner to 1,917 feet near Thurmont. The topography ranges from low, wide flat river valleys to high, steep mountain slopes. The flattest areas are located in the Monocacy River Valley with other areas in Walkersville, Creagerstown, Lewistown, Thurmont, and Emmitsburg.

Landfill sites are generally located in ravines, topographic sinks, broad flat plateau areas, and areas which do not have steep slopes. 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 local laws protecting these areas due to critical areas and non-tidal wetlands.

Other waste management facilities may be sited on areas of steeper slopes, provided the land is developable and appropriate for the facility.

SOILS

Predominant soil types of Frederick County are sands, silts and clays. 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 Frederick 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. However, this survey is somewhat limited as it is primarily concerned with the first five 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 water quantity should be addressed during the site selection process.

Screening for solid waste management facilities generally is accomplished on a primary and secondary screening basis. The primary or first level screening identifies sites that are generally restricted from hosting such facilities, either due to their environmental sensitivity or deemed value to the community, e.g. 100-year floodplain or National Battlefield. These areas are shown or identified in black on the following maps.

The secondary screening level identifies locations that may be suitable to host solid waste facilities, but may be deemed as less than desirable or more valuable for alternate uses by the host community, e.g. dense residential areas or institutional properties. These are shown and labeled accordingly on the maps below.

Clayey, 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.

Figure 4-3: First and Second Level Exclusion Screening Areas: Processing Facilities

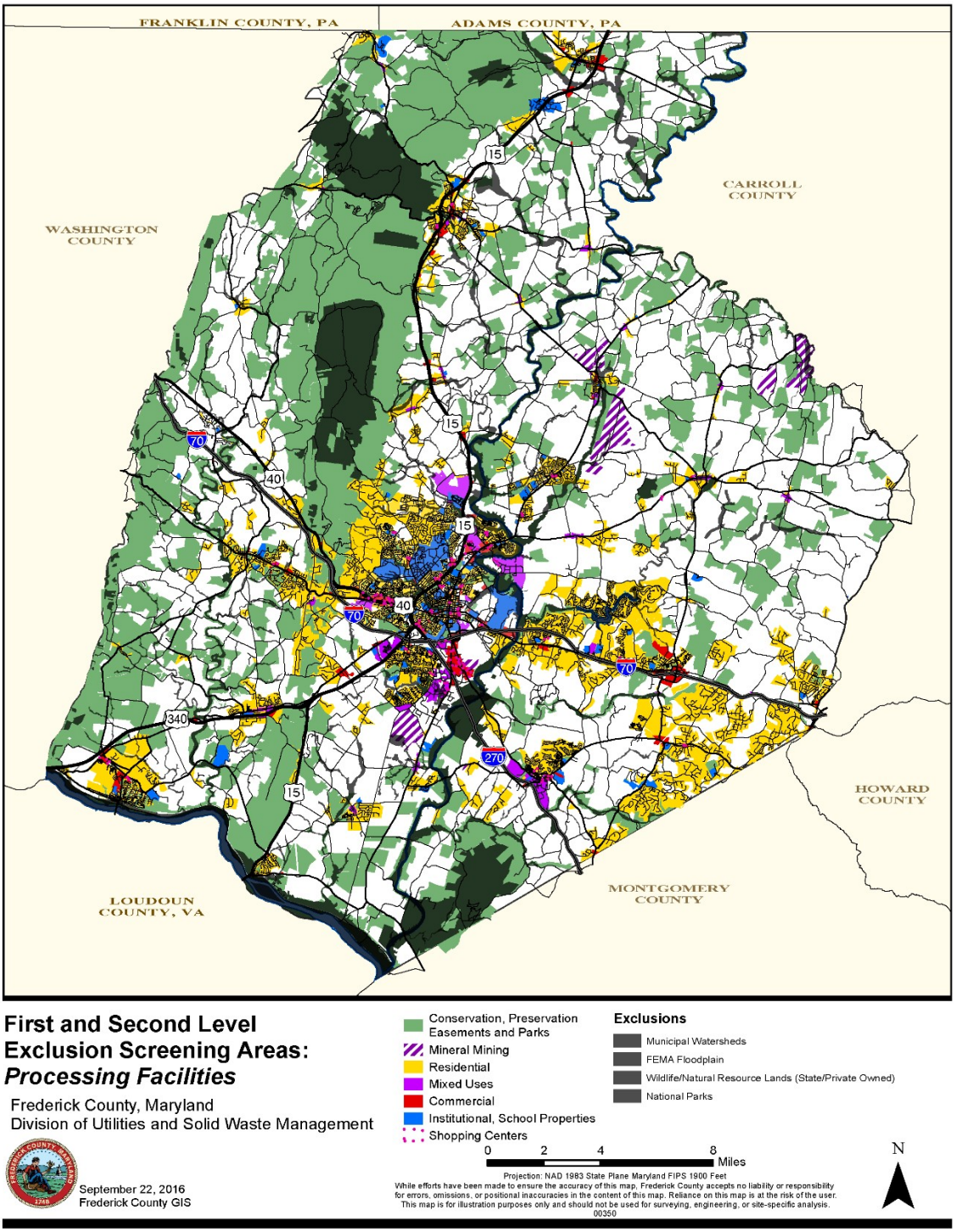
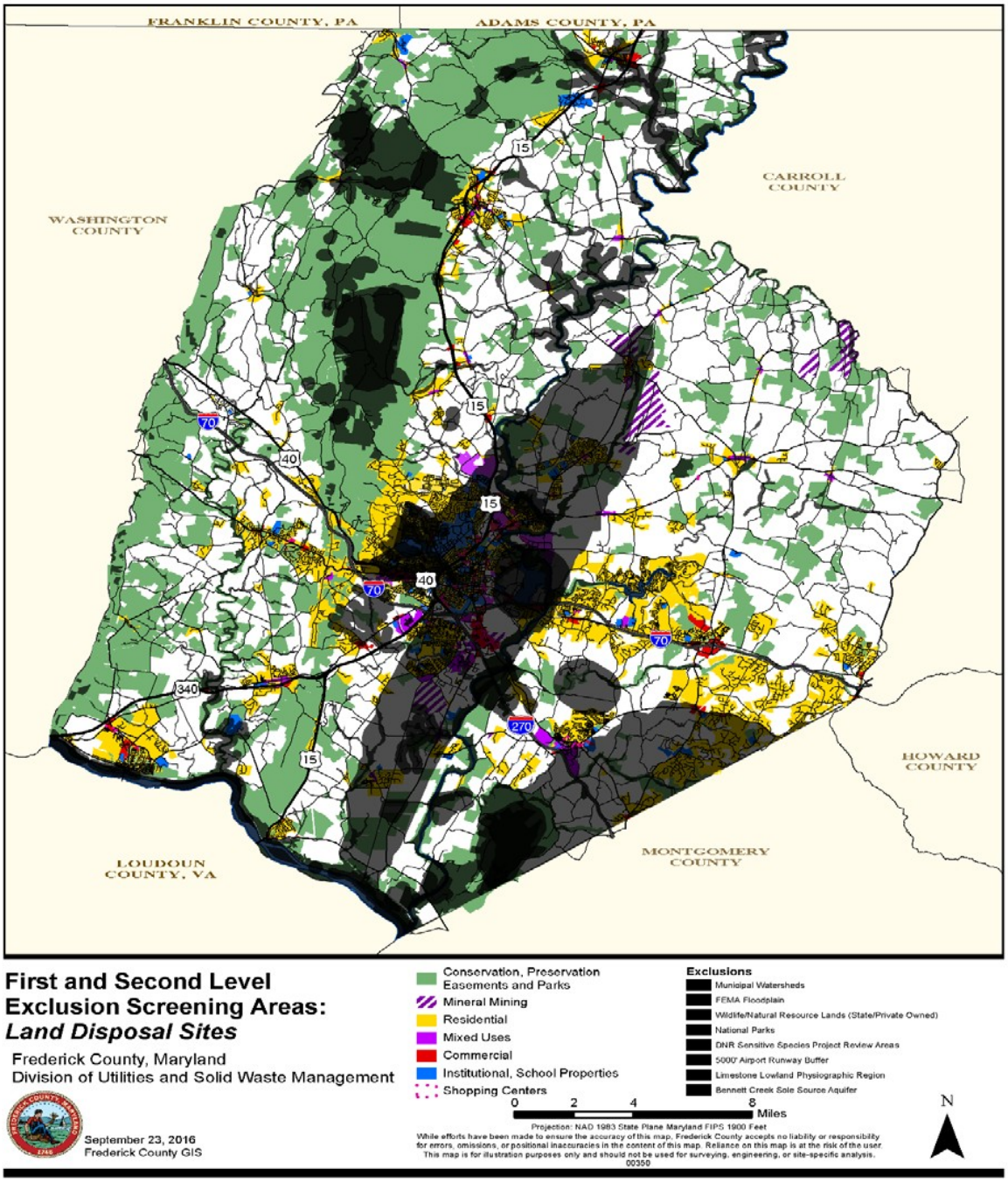


Figure 4-4: First and Second Level Exclusion Screening Areas: Land Disposal Sites



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. Optimum geologic conditions for a landfill site include the lack of permeable fault zones underlying the site, and adequate depth to ground water and bedrock. Geologic conditions should be such that an effective ground water monitoring system can be established.

Frederick County lies within two major physiographic provinces. The eastern part of the County is in the Piedmont Province and the western part is in the Blue Ridge province.

The geology of the Piedmont Province is divided into the upland formed over schist and phylite bedrock, the Frederick Valley (limestone) and the Triassic Plain (shales and sandstone). The Blue Ridge Province overlies quartzite and shist bedrock formations.

Limestone bedrock found in the Frederick Valley provides an unstable foundation with numerous channels, caverns, and other unpredictable paths for ground water flow; formation of sinkholes in limestone is a concern.

Because of the difficulty of monitoring for leachate migration in limestone and the possibility of settlement or sinkhole formation, Frederick County intends to exclude future landfills from being sited in areas of known limestone formations.

Other waste management facilities may be located in areas of limestone formation, provided that no other constraints prohibit the facility from being sited at that location.

LOCATION

Locating a site for a solid waste management facility involves the interaction of regulatory, environmental, technical, economic, and sociopolitical considerations. General regulatory, legal, environmental, technical, and economic concerns for siting a waste management facility are discussed in other chapters of this plan. Sociopolitical considerations are dynamic and volatile.

Frederick County encourages and provides procedures and policies for public involvement in considerations associated with proposed solid waste management facilities within the County. The County Executive, SWAC, DSWM, and citizens within Frederick County have established a cooperative attitude and means for assuring that the solid waste management goals and objectives are achieved. Although there may be heated discussions and arguments, the general intent is to provide for the best interests of Frederick County citizens.

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. These concerns are addressed in other sections of this plan. The variables for siting solid waste management facilities are that of sociopolitical issues which are constantly changing and are not easily documented. The sociopolitical issues are very dynamic and are a function of historic and recent events within the County.

AQUIFERS

Ground water in Frederick County is generally discharged near the location at which it enters the ground. The limestone bedrock contributes to the ability of the water to move readily to the surface through faults, solution channels, and joints. Flat lands, an extensive stream network, and deep soils provide for shallow aquifers or water-bearing formations.

Frederick County is divided into three hydrologic areas:

- Hydrologic Area I provides the most productive aquifers of the County. This hydrologic area is primarily located within the two limerock formations of the Frederick Valley and is not suitable for landfill sites. Limited areas within the Piedmont contain two carbonate marble formations: Wakefield Marble and Cockeysville Marble formations.
- Hydrologic Area II located in the central Piedmont comprises two formations: the Marburg and Catoctin Metabasalt of the central Piedmont.
- Hydrologic Area III has the largest number of formations (over ten); however, it is the poorest producer of water in the County. This area is generally located within the South and Catoctin Mountains, and an area within the Piedmont Upland surrounding Mt. Airy.

Contamination of the aquifers within Frederick County is a possibility due to the geology of the area, limestone formations, and the numerous recharge areas. It is important that landfill sites be engineered properly with geomembranes, leachate collection systems, and leachate treatment and disposal systems to reduce the possibility of such contamination.

On August 27, 1980, several drainage basins in the southeastern portion of the County and in Montgomery County were designated by the US Environmental Protection Agency (EPA) as a Sole Source Aquifer under the Safe Drinking Water Act of 1974 Section 1424(e). The EPA defines a sole or principal source aquifer as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas can have no alternative drinking water source(s), which could physically, legally, and economically supply all those who depend upon the aquifer for drinking water. The designation means that any future project in the area funded with federal assistance would be subject to review by EPA for potential impact on the groundwater system and additional pollution prevention requirements. The drainage basins in Frederick County, which ware included in this area, are Bennett Creek and Little Bennett Creek to their confluence, and Fahrney Branch to its confluence with Bennett Creek. This area is also known as "Green Valley" and the Sole Source Aquifer designation is reflective of the substantial amount of low-density residential development on individual groundwater wells that exist outside of designated public water and sewer service areas in this portion of the county. The general location of the sole source aquifer is shown in Figure 4-4.

WETLANDS

All wetlands within the County are classified as non-tidal. These areas are primarily due to the low-relief areas and the many bodies of surface water. Section 1-19-10.800 of the Frederick

County Zoning Ordinance prohibits the siting of a facility in wetlands. Therefore, wetland areas are considered unsuitable for siting waste management facilities.

Generalized locations of wetland areas are included within the conservation areas shown in Figure 4-3 and Figure 4-4; it is important to realize that these are generalized locations and that a site-specific study is required to determine the exact locations of wetlands within a potential site for a solid waste management facility.

SURFACE WATER AND FLOOD PLAINS

Rivers, streams, and smaller tributaries are present in Frederick County. The two main drainage basins within the County are the Catoctin Creek and Monocacy River, both of which drain into the Potomac River.

There are two low impoundments on the main stem of the Monocacy River and several located on tributaries of the Monocacy. The largest impoundment, Lake Linganore, stores approximately 900 million gallons of water. The second largest Cunningham Falls Lake, stores approximately 300 million gallons. Both of these impoundments are for recreational use and water supply.

Several municipalities obtain drinking water from surface water sources. Therefore, it is not recommended that the sub-basins associated with the respective watersheds of these water sources be considered suitable for waste management facility development.

Along these rivers, streams, and tributaries are areas associated with the 100-year flood plain. Landfills located within the 100-year flood plain may not hinder the flow, reduce the temporary storage capacity of the flood plain, or wash out the waste within the landfill and endanger human health and the environment.

WATER QUALITY

Surface water within Frederick County drains into the Potomac River. The State of Maryland has classified waterways according to the most critical use for which it must be protected and has set standards for water quality parameters for each classification. Frederick County has each classification of waterway, except Class II.

Class I – Suitable for Recreation
Class II – Shellfish Harvesting
Class III – Natural Trout Streams
Class IV – Recreational Trout Streams

ADJACENT INCOMPATIBLE LAND USE

It is important that solid waste management facilities are sited in areas appropriate for such land uses. Adjacent incompatible land uses for solid waste management facilities include airports, hospitals, and residential areas.

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:

- Landfill sites may not be located within 10,000 feet of any runway end (used or proposed) to be used by a turbine powered aircraft.
- Landfill sites may not be located within 5,000 feet of any runway end used by piston-powered aircraft.
- Landfill sites may not be located within a five-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.

The Annotated Code of Maryland Environment Article 9, Section 225, prohibits the location of any landfill within ½ mile radius of any hospital.

Solid waste management facilities have the potential to create odor, noise, dust, and/or adverse traffic impacts for adjacent land users. Frederick County is aware of the problems and nuisances which may be created by solid waste management facilities. The Frederick County Zoning Ordinance, comprehensive land-use plan, and equipment 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.

PLANNED GROWTH PATTERNS

The Frederick Countywide 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 County zoning regulations.

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

AREAS OF CRITICAL FEDERAL, STATE OR COUNTY CONCERN

Critical state concern areas 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 a site is vacant and is designated as such due to its unique location of 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.

Frederick County has several areas considered to be of critical concern. These areas are discussed below.

Monocacy Scenic River

The Monocacy River is the largest Maryland tributary to the Potomac River. The river watershed encompasses more than 970 square miles of Maryland and Pennsylvania. The Monocacy River is formed at the Mason-Dixon Line by the confluence of Marsh and Rock Creeks. From there the river meanders 58 miles to the Potomac River. The Monocacy drops 170 feet along its course, giving it an unusually gentle and peaceful stream gradient for a Piedmont river.

The Monocacy River has been identified as a significant state resource and designated as a State Scenic River. The designation as a State Scenic River protects the river corridor from potential harmful development.

Frederick Secondary and Maryland Midland Railways

The area along the Frederick Secondary and Maryland Midland Railways has been designated as a third level of state concern. This area has been designated as such to provide for the development of Frederick County's industrial area and protect the economic resource. Therefore, solid waste disposal facilities may not be developed in this area.

Parks

Additional areas of critical concern include national and state parks which are located throughout the County.

SPECIAL WASTE MANAGEMENT

Special waste management requirements for asbestos, special medical waste and hazardous waste will be discussed in this section.

ASBESTOS

The Frederick County Reichs Ford Road solid waste management facility has a provision which allows the disposal of asbestos at the site. Asbestos may be disposed of by landfilling provided that the disposal site is permitted by MDE, has state and local health department approval, and is authorized by MDE to accept asbestos. Asbestos disposed at the site must be packaged and labeled in accordance with COMAR 26.11.15.04. Procedures for disposal are as specified in COMAR 02.04.07.13.

- A minimum 24-hour notice to the landfill supervisor is required to provide the following information: delivery time, source, and quantity.
- Personnel handling the asbestos must wear 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.

SPECIAL MEDICAL WASTE

The County landfill and transfer station will not accept special medical wastes, including infectious and/or bio-hazardous medical waste. Special medical waste generated at the Frederick Memorial Healthcare Systems is steam sterilized on-site.

The management of special medical waste is not under the jurisdiction of the County and will not be addressed in this plan; management of these wastes 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.

HAZARDOUS WASTE

The County landfill does not accept hazardous substances for disposal, other than small quantities of household hazardous wastes. Hazardous waste generators within the County contract with a licensed hauler of hazardous waste for collection and disposal.

The management of hazardous waste is not under the jurisdiction of the County and will not be addressed in this plan. 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.

The County holds household hazardous waste (HHW) collection events at the Public Safety Training Facility located on Reichs Ford Road. These collection events are limited to Frederick County residents. The County provided administrative and operations support to the collection event. To conduct the event, the County used the statewide HHW collection contract available through the Maryland Environmental Service. The hazardous waste management contractor that provides collection service is under the provisions of a statewide contract. The contractor accepts waste delivered to the event, consolidates compatible materials in bulk containers, provides labels and manifests and removes the collected materials from the site for off-site

management at permitted hazardous waste treatment, storage and disposal facilities. Disposal of HHW in a sanitary landfill is authorized under current federal and state hazardous waste management regulations. However, HHW collection efforts serve to divert this material from landfills. Consolidation of HHW into bulk shipments of compatible materials allows for more disposal options, including use in fuel blending operations in specific permitted facilities to recover energy. Other HHW materials are shipped to processing and other waste disposal facilities that are designed and constructed to provide higher levels of environmental protection than are available in conventional municipal sanitary landfills.

EMERGENCY RESPONSE FOR HAZARDOUS WASTE SPILLAGE OR LEAKAGE

Spillage or leakage of materials suspected to be a hazardous material is handled through the Frederick County Central Alarm. Central Alarm then notifies the nearest fire, police, state Fire Marshal, and the hazardous material teams. Specially trained hazardous material (hazmat) teams from the state and Montgomery County are available to respond to accidents in Frederick County.

NON-HAZARDOUS CONTAMINATED SOILS

The disposal method for soil contaminated with petroleum or petroleum products which are generated within Frederick 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 of
- 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. The following test methods shall be used to test the contaminated soil:

- The presence of any free liquid shall be determined by using accepted EPA methods.
- The total petroleum hydrocarbon (TPH) concentrations shall be determined by using accepted EPA methods for chemical analysis of water and wastewater, which has been modified for use with soil.
- The sum of benzene, toluene, ethyl benzene, and xylene (BTEX) concentrations shall be determined by using accepted EPA methods.
- The soil shall be tested for total organic halogens (TOX) in accordance with accepted EPA methods.
- The soil contaminated by leakage from an underground tank shall be tested for EP toxicity using accepted EPA methods. If the tank contained motor oil, the testing may be limited to heavy metals; tanks that contained all other petroleum products shall be

tested for lead and any other compound covered by that test that were known to be present.

- The soil contaminated as a result of anything other than leakage from an underground storage tank must be tested by the Toxicity Characteristic Leaching Procedure (TCLP). If other TCLP constituents are not tested for, the generator shall be able to certify that the soil is not a hazardous waste, and certify that it did not contain those constituents not tested.
- In the case of soil contaminated with gasoline, the testing requirements for EP toxicity or TCLP for lead, TOX, or the Paint Filter Liquids Test may be waived if the request for disposal contains sufficient documentation that the material was contaminated with unleaded halogenated hydrocarbons, or free liquids
- Waiver for BTEX testing requirements may be granted if the generator can provide sufficient documentation that the material does not contain any benzene, toluene, ethyl benzene, or xylenes, and the amount of material to be disposed is less than 20 cubic yards.

Disposal criteria for petroleum contaminated soils is outlined below:

- Soils failing the EP toxicity or the TCLP test shall be managed in accordance with the Maryland Hazardous Waste Management Regulations.
- Soils exhibiting greater than 100 milligram per kilogram (mg/kg) of TOX may not be disposed of until separate approval from the MDE is granted. This request shall document the cause for the high TOX level.
- If the concentration of total BTEX is greater than 10 mg/kg or TPH is greater than 500 mg/kg, the soil cannot be disposed of in any sanitary or industrial landfill unless the facility permit expressly allows such disposal.
- If the concentration of TPH is less than 500 mg/kg and total BTEX is less than 10 mg/kg, the disposal of the contaminated soil may be approved for permitted sanitary or industrial landfills equipped with liners and leachate collections systems.
- If the concentration of TPH is less than 100 mg/kg and total BTEX is less than 10mg/kg, the disposal of the contaminated soil may be approved for any permitted sanitary or industrial landfill.
- Soil containing less than 50 mg/kg TPH and total BTEX is less than 10 mg/kg may be used as clean fill. This soil, however, may not be disposed of closer than: 100 feet from any regularly flowing surface water body or river; 500 feet from any well, spring, or other ground water source of drinking water; and 200 feet from any residence, school, hospital, nursing home, or recreational park area. In addition, if the soil is not to be disposed of on the generator's property, the generator shall notify the property owner that the soil is contaminated and with what it is contaminated.
- Contaminated soil resulting from an underground storage tank spill may be considered for a variance from these guidelines where the total volume of contaminated soil from a cleanup site is less than 20 cubic yards. This variance may only be granted by the MDE.
- The disposal of contaminated soil resulting from an emergency cleanup of a spill of petroleum products, may be considered for a variance from these guidelines, provided

that the waste is non-hazardous as defined by the Maryland Hazardous Waste Management Regulations or by federal regulations under Subtitle C of RCRA.

COMPREHENSIVE PLAN REQUIREMENTS

Frederick County's Countywide Comprehensive Plan is a general guidance tool and is not intended to provide specific guidelines concerning solid waste management. In general the plan encourages the search for short- and long-term solutions for solid waste management. The plan has established guidelines for the County to develop an integrated solid waste management system. It implies no discouragement from future consideration of new technologies not addressed within it, or of new developments in existing technologies that at present are not recommended, provided they are consistent with goals and objectives of the Solid Waste Management Plan.

Chapter 5 – Solid Waste Management Plan of Action (2018-2037)

An integrated solid waste management plan provides specific management tools to handle the various components of the waste stream. The numerous programs which comprise the integrated solid waste management plan should complement each other. A solid waste management plan should not only include the programs, but also should address when and how these programs will be implemented, and at what cost.

Frederick County's solid waste management plan must respond to the requirements of state-mandated recycling goals and all other federal, state and County regulations and laws. The goals and objectives in Chapter 1 address many of these requirements.

Based on the evaluations of existing and alternative technologies presented in Chapter 4, a recommended Action Plan for the Frederick County solid waste management program during the years 2018 through 2037 is presented in this chapter. A summary of the long-term (1998-2037) Action Plan is described in Table 5-2.

A summary of the plan recommendations to meet stated goals and objectives is presented below, followed by a description of individual recommended technologies and policies. Details of the proposed actions are presented in the following sections.

1. The County has moved forward in the area of source reduction. In 2014, the County received five out of a possible five points for source reduction activities.

2. As a result of increased solid waste tonnage delivered to the site, the projected life expectancy of the Reichs Ford Road Landfill has been significantly reduced, from 21 years to 8 years at 750 to 900 tons per day (TPD) on a 6-day per week basis. The County initiated a temporary waste transfer operation to move waste out of Frederick County. To preserve disposal capacity and extend the life of the Reichs Ford Road Landfill, the County took the action of permitting and constructing a solid waste transfer facility at the Reichs Ford Road Landfill. The landfill's remaining airspace (capacity) will provide emergency disposal capacity in the event of a major waste transfer interruption. In the interim the Landfill can accept solid waste at a reduced rate, to serve as a buffer to transfer operations and as an alternative waste management option in the event that conditions develop that preclude solid waste transfer to another disposal site. In addition, the County has pursued design and operational changes at the landfill to increase the quantity of solid waste that can be disposed of on the site. In May 2008, MDE approved the vertical expansion and side slope remediation of the Site B Landfill. This change increased the effective cubic yard capacity from 3,768,222 to 7,723,616, as detailed in Table 4-1.

Table 5-1: Historic Action Plan Summary – 1998-2011

Program or Facility	Description	Date
Waste Exchange	· Inventory of existing resources in Frederick · County re-use industry · Conduct feasibility study of potential for school system re-use organization	January 1999
Site B Sanitary Landfill	· Cell 1 construction began · Cell 1 construction 45% complete · Cell 1 conditional acceptance · Site B, Cell 1 opened, selected waste filling operation began	January 1996 July 1996 January 1997 January 1997
Optimize Site-B Landfill Disposal Cell Capacity	· Re-design Disposal Cells 2 and 3 liner design to increase available airspace	September 2001
Pursue Permit to Increase Site B Landfill Capacity	· Seek permit modification to allow the vertical expansion of the Site B landfill and modification of side slopes from 3:1 to 4:1	March 2003 – May 2008
Construct Landfill Disposal Cell 2A	· Cell 2 construction began · Cell 2A complete · Cell 2B complete, including grant-funded recycled tire chip drainage laver demonstration project	April 2001 September 2001 November 2003
Construct Landfill Disposal Cell 3	· Cell 3 construction began · Cell 3 complete	September 2005 August 2006
Cover Requirements Treated Sewage Sludge Utilization as Cover	· Synthetic daily cover in use Site B, Cell 1 · Meet with neighbors, schedule a site visit · Utilize treated sewage, sludge & soil mixture as intermediate daily and final covers · The mixture for topdressing on stabilized vegetative areas included in capping construction document	January 1998 November 1996 December 1996 October 1997
Household Hazardous Waste	· Evaluate feasibility of methods to increase HHW participation (other geographic area collections, increase frequency). · Return to centralized semi-annual HHW events for increased participation · Added residential compact fluorescent lamps (CFL) and pharmaceuticals for collection/recycling/disposal	July 1999 November 2001 October 2007
Commercial Hazardous Waste and Regional Cooperation	· Inventory need of small businesses regarding hazardous waste collection · If feasible, work with trade organization to meet biggest need in small business sector	November 1999
Recycled Products Purchasing	· Include other institutions in County - Interagency Task Force · Explore cooperation with Chamber of Commerce for paper purchasing	July 1998 October 1999

Table 5-1 (Continued): Historic Action Plan Summary – 1998-2011

Program or Facility	Description	Date
Source Reduction Public Information Program	· Planning for introduction of concepts and ideas of Source Reduction · Development/production of support material, literature, brochures, etc. · Staged implementation to residents, private businesses, & County government · Evaluation of program's effectiveness for possible expansion · Continue successful forms of outreach and education	December 1998 July 1999 September 1999 January 2000 June 2000
Comprehensive Yard Waste Management Program	· Evaluation of effectiveness of current program · Expansion of outreach thru clinics, bin sale programs, fairs, etc. · Coordination of activities with City of Frederick yard trimming program efforts · Explore possibility of working with County schools on developing a pilot school composting project · Continued contacts with private composting companies and with businesses in Frederick County interested in developing onsite composting operations · County Commissioners ban acceptance of yard waste commingled with other disposal waste via Ordinance # 06-03-399 · Initiate yard waste processing operation on closed/capped rubble landfill · County Commissioner approval of compost and mulch sales · Began operation of windrow composting operation	Ongoing Ongoing March 1999 July 1998 Ongoing May 2006 May 2008 May 2008 June 2008
County-wide Collection: Licensing	· Adoption of Agreement · Implementation of Licensing Process	August 1998 February 1999
Volume-Based Billing	· Continue contacts with HOAs, haulers & municipalities · Develop a pilot program · Pursue Enabling Legislation for Solid Waste Collection Franchising	July 1998 April 1999 November 2005[1]

[1] The Frederick County Commissioners in their 2006, 2007, 2008, 2009 legislative package pursued this legislation without success.

Table 5-1 (Continued): Historic Action Plan Summary – 1998-2011

Program or Facility	Description	Date
Residential Recycling	· Begin evaluation of dropoff center program · Begin pilot program for multi-family recycling · Evaluation of curbside program service areas · Expansion of materials collected in program · Expand collection to all single-family homes in County · Increase outreach and education · Elimination of residential satellite recycling drop-off centers · Add dedicated recycling positions (Residential, Commercial and Educational Outreach Coordinators) · Secure MRF Processing Services · Secure necessary contracts to facilitate conversion to Single Stream Recycling collection · Expand curbside recycling collection to all County residential properties · Implement program to capture (recycle) bulky plastics · Implement GIS, GPS, and RFID systems to improve collection services to residents	July 1999 December 1998 July 2000 January 2009 May 2009 Ongoing July 1, 2011 July 2008 November 2008 January 2009 May 2009 September 2009 January 2009
Waste Stream Analysis	· Four season analysis complete · Begin mini-waste stream sort project	Completed January 2000
Commercial/Institutional Recycling	· Research how waste reduction can be bottom-line tool for Frederick County Commercial/Industrial sector · Campaign to increase collection of office paper · Secure public/private partnership for downtown cardboard collection · Begin downtown collection · Campaign to increase collection of cardboard · Advisory visits to large firms · Form purchasing co-op for recycled products purchased for businesses · Established two tiered tipping fee for MSW and Commercial Single Stream recycling via resolution #08-19 · Expand outreach to non-residential (commercial) waste generators. · Convert Frederick County Office Recycling program to Single Stream · City of Frederick initiated pilot downtown commercial recycling collection · Facilitate single-stream collection programs for BOE and FCC	January 2000 July 1999 July 1998 October 1998 April 1999 April 2000 July 2000 May 2008 October 2008 June 2009 November 2009 August 2009

Table 5-1 (Continued): Historic Action Plan Summary – 1998-2011

Program or Facility	Description	Date
Site A Capping Construction	· Hired consultant to design closure · Awarded construction bid · Capping construction 11% complete · Original completion date	May 1995 September 1997 February 1998 October 1998
Comply with Amended COMAR 26.04.07 (Rubble Fill Requirements)	· Close Rubblefill · Cap Rubblefill · Transfer Rubble	September 2001[2] August 2006 December 2005
Temporary Waste Transfer	· Began operation of working face waste transfer off-site · Ceased working face waste transfer off-site	December 2005 January 2009
Permit and Construct Waste Transfer and Processing Station	· Begin Transfer Station Site Selection Evaluation · Complete Transfer Station Site Selection Evaluation · Design and Permit Transfer Station · Construction of Transfer Station Completed	August 2002 April 2004 July 2006[3] December 2008
Landfill Gas to Electricity Project	· Procure full-service LFGE contract · NMWDA begins procurement of new LFGE proposals · Requests LFGE best and final offers · Execute LFGE agreement with NMWDA ·Begin installation 2 MW LFG power plant · Commission LFGE power plants · Expand active gas extraction to Site B (Cells 1 & 2)	January 2004[4] September 2007 August 2008 January 2009 October 2009 January 2010 July 2010
Pursue Necessary Solid Waste Legislative Actions	· Pursue Membership in the NMWDA · Became Member of NMWDA · Pursue Establishment of System Benefit Charge (SBC) · Established System Benefit Charge (SBC) · Pursue Enabling Legislation for Beverage Container Deposit Return System · Pursue Enabling Legislation for Beverage Container Excise Tax	September 2003 September 2004 September 2003 July 2006 November 2007[5] November 2005[6]
Complete Waste Management Alternatives Study	· Secure Solid Waste Consultant, (RW Beck) · Complete Draft Alternatives Report · Present Alternatives Report to the BoCC · BoCC adopts Resolution 06-05, WTE Disposal Facility	March 2005 October 2005 February 2006 February 2006

[2] Consent Order MDE #CO-01-SW-090 authorized Frederick County to defer suspension of rubblefill operation until Cell 2A became operational.
[3] The facility permit was delayed due to a legal challenge by a local citizens group. The County prevailed in both the Circuit Court and the Maryland Court of Special Appeals; however, construction bidding was delayed until appeals were exhausted.
[4] Initial contract with PEPCO ended with contractor withdrawing one year after execution of agreement.
[5] The Frederick County Commissioners in their 2006, 2008 and 2009 legislative package pursued this legislation without success.
[6] The Frederick County Commissioners in their 2006 and 2009 legislative package pursued this legislation without success.

Table 5-1 (Continued): Historic Action Plan Summary – 1998-2011

Program or Facility	Description	Date
Establish Long Term Solid Waste Management Strategies/Recycling Program Goals	· Develop comprehensive recommendations to the BoCC to expand and improve the recycling services to County residents and other users of the waste disposal facilities. · Present recommendation to the BoCC for their consideration/adoption	January 2007 October 2007
Waste To Energy Facility Approvals/Permitting[1]	· Execute necessary agreements with the NMWDA and others as necessary for regional WTE project · Begin necessary state and federal permitting for WTE facility construction · Secure necessary permits · Begin Construction of WTE Facility · Complete Construction of WTE Facility (commission)[1]	July 2009 August 2010 November 2011 March 2012 July 2015

[1] This project was cancelled and is no longer being actively pursued.

Table 5-2: Long-Term Action Plan Summary – 2001-2037

Program or Facility	Description	Date
Implementation of Recycling Program Goals	· Conduct food waste composting demonstration project · Pursue BoCC adopted MRA Waste Diversion Goal of 60% diversion by 2025 · Allow certain on-farm food waste composting operations for on-farm compost use only as determined by the BoCC and allowed by local planning and zoning rules and regulations · Various planning and zoning text amendments allowing on-farm food waste composting with on-farm composting use only · Allow certain commercial food waste anaerobic digestion operations as determined by the BoCC and allow by local planning and zoning rules and regulations · Various planning and zoning text amendments allowing commercial food waste anaerobic digestion operations	TBD October 2007 – October 2025 BoCC Conceptual Approval – April 2011 TBD BoCC Conceptual Approval –April 2011 TBD
Solid Waste Steering Committee	· County Executive announced a facilitated process to develop Frederick County's long-term solid waste strategy · Begin the facilitated process with a community brainstorming sessions · Ideas are short-listed and evaluated for feasibility and cost · A steering committee is formed of experienced members with various viewpoints, including the Solid Waste Advisory Committee, the Sustainability Commission and others who have been engaged in conversations about solid waste · County officials who manage solid waste programs will provide guidance to the steering committee · Alternatives are discussed with citizens regarding resource recovery, composting, anaerobic digestion, zero waste initiatives and other options - Geosyntec issued Phase I Report on September 30, 2016	June 2015

Table 5-3: Financial Requirements for Recommended Solid Waste Program

FREDERICK COUNTY, MARYLAND
PROJECTED REVENUE REQUIREMENTS
Fiscal Year Ending June 30

System Expenses	Actual 2008 [1]	Budget 2009 [2]	Projected 2010 [3]	Projected 2011	Projected 2012	Projected 2013	Projected 2014	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024
1 Bulk Trash Pickup	87,544	110,224	105,380	109,595	113,979	118,538	123,280	128,211	133,339	138,673	144,220	149,989	155,988	162,228	168,717	175,465	182,484
2 Citizens Dropoff Center	120,323	140,830	170,132	176,937	184,015	191,375	199,030	206,992	215,271	223,882	232,837	242,151	251,837	261,910	272,387	283,282	294,614
3 Household Hazardous Waste	30,185	43,847	46,925	48,802	50,754	52,784	54,896	57,091	59,375	61,750	64,220	66,789	69,460	72,239	75,128	78,134	81,259
4 Landfill Operations [4]	4,561,904	4,744,380	4,934,155	5,131,521	5,336,782	5,550,254	5,772,264	6,003,154	6,243,280	6,493,012	6,752,732	7,022,841	7,303,755	7,595,905	7,899,741	8,215,731	8,544,360
5 Transfer/Long Haul Operations [5]	14,456,985	11,841,402	11,504,737	12,099,517	12,773,952	13,470,686	14,188,996	14,922,825	15,111,064	15,345,023	15,600,236	15,877,777	16,182,558	16,528,449	16,901,111	17,351,160	17,837,885
6 Regulatory Compliance	591,122	2,353,045	2,366,441	2,461,099	2,559,543	2,661,924	2,768,401	2,879,137	2,994,303	3,114,075	3,238,638	3,368,183	3,502,911	3,643,027	3,788,748	3,940,298	4,097,910
7 Residential Recycling	2,971,488	4,675,267	4,521,249	4,702,099	4,890,183	5,085,790	5,289,222	5,500,791	5,720,822	5,949,655	6,187,641	6,435,147	6,692,553	6,960,255	7,238,665	7,528,212	7,829,340
8 Scalehouse/Billing Function	648,203	698,506	746,428	776,285	807,337	839,630	873,215	908,144	944,470	982,248	1,021,538	1,062,400	1,104,896	1,149,092	1,195,055	1,242,857	1,292,572
9 Yard Trimming Recycling	214,974	187,585	242,764	252,475	262,574	273,076	284,000	295,360	307,174	319,461	332,239	345,529	359,350	373,724	388,673	404,220	420,389
10 Total Revenue Requirements	$23,682,728	$24,795,086	$24,638,211	$25,758,330	$26,979,119	$28,244,057	$29,553,304	$30,901,705	$31,729,098	$32,627,779	$33,574,301	$34,570,806	$35,623,308	$36,746,829	$37,928,225	$39,219,359	$40,580,813

[1] Actual Expenditures
[2] 2009 Adopted Budget
[3] 2010 Recommended Budget
[4] Based on continuation of 50 tpd
[5] T & D per ton fees based on NMWDA "blended rate" estimates
[6] NMWDA Model

3. Because of changes in the State regulations pertaining to design standards for rubble landfills, on September 28, 2001, the County ceased operation of the separate rubble cell at the County solid waste management facility and commenced incorporating the waste material in the municipal solid waste cell at the landfill. The County no longer proposes to construct separate rubble cells at the County solid waste management facility. In addition, the County is abandoning plans to seek a site for a separate rubble landfill.

4. Use of the Extec mechanical grinder to process construction and demolition waste (C&D) for recycling was deemed to be unsuccessful. Efforts to increase private industry's participation in recovery and recycling of rubble waste will continue, and residual material will be incorporated into the municipal waste disposal cells at the County Landfill.

5. To reduce the quantity of certain residential hazardous materials being disposed of at the County solid waste disposal facility, and to provide enhanced service to county residents, the County proposes to continue the Household Hazardous Waste (HHW) Collection effort. These were determined to be most effective when conducted near a location central within the County and on a semi-annual basis.

6. The County has increased efforts to purchase recycled products. In 2009, a County Sustainable Action Team was created through the Office of Sustainability and Environmental Resources. One of the sustainability goals adopted by the Board of County Commissioners in 2010 is to apply environmentally-preferred purchasing procedures to all County operations, including the purchase of recycled-content products. The County also promotes the reuse of office furniture and equipment and redistribution of supplies. Future plans include adopting Environmentally-Preferred Purchasing procedures; setting a target for the percentage of green products purchased; continuing promotion of reuse for surplus equipment and furniture; encouraging vendors to deliver supplies in minimal energy efficient packaging using energy efficient methods and recycled materials; enhancing the Purchasing Department's Intranet site to showcase and promote surplus items to employees; etc.

7. In 2010, the Frederick County Board of County Commissioners sought and received approval from the Maryland General Assembly to institute a pilot Pay-As-You-Throw Program. Under the program, solid waste haulers would charge residents a fee for solid waste curbside collection based on the volume collected. This is provided that the pilot program occurs in a municipal area and receives permission from the governing body of the municipal area.

MEETING THE GOALS AND OBJECTIVES

This section provides a summary of how the solid waste management goals and objectives will be met by this Action Plan.

PROTECTION OF HEALTH AND THE ENVIRONMENT

Most of the recommended actions directly or indirectly address a solid waste management program that will provide continuous protection of the environment in Frederick County. Facility siting criteria presented in Chapter 4 will be used to ensure the required new solid waste

management facilities are sited in areas of the County that will cause the least impact on health and the environment.

CONSERVE NATURAL RESOURCES

A recycling and waste reduction program is outlined to minimize the amount of land required for disposal facilities throughout the planning period.

Implementation of a two-tiered tipping fee for MSW and Single Stream Recycling processing provide direct incentives for waste reduction by businesses and citizens.

Education campaigns directed at residents, businesses and schools will target the following areas to reduce impacts on raw materials and benefit the community as a whole; recycling, source reduction, purchasing products made from recycled materials and composting and grasscycling.

FINANCIAL SELF-SUFFICIENCY

The Solid Waste Management Enterprise is a proprietary fund established to account for the operations of the County solid waste disposal and recycling programs. Revenues from user fees and system benefit charges are the primary source of funds for operations, debt service payments and capital projects. The System Benefit Charge (SBC), effective January 26, 2006, is applied Countywide to all properties with improvements greater than $5,000, including within municipalities, to both residential and non-residential properties. Expenditures required to implement this plan are financed through solid waste enterprise revenue sources. Projected revenue requirements associated with the recommended program are presented in Table 5-3.

MULTI-JURISDICTIONAL SOLUTIONS

Regularly scheduled meetings of the SWAC throughout the planning period are recommended as the best method to ensure coordination between the municipalities and the County solid waste program. Active involvement of the municipal representatives on the SWAC should be sought as a means of integrating municipal needs into the County planning process. Individual municipalities have unique concerns with regard to collection systems, recycling programs and transportation of the waste to management facilities. The licensing system for waste collection will enable individual municipalities to tailor their collection systems and recycling programs to their individual needs. Each municipality that desires to have a subsidiary plan incorporated by reference into the County plan should immediately initiate the data-gathering and planning efforts required to produce a detailed plan. Based on the recommendation of the MDE, the organization of each subsidiary plan should parallel the organization of the County plan as stipulated in COMAR 26.03.03.

A Metropolitan Washington Council of Governments 1993 study of federal facilities concluded that there is adequate capacity for recycling materials recovery in the Baltimore-Washington Region. It is recommended that until some determination is made that there is a shortage of capacity, that a government or private MRF in Frederick County is unnecessary. Any revisiting of the issue due to capacity shortage should involve consultation with surrounding counties for any regional potential for solving capacity problems.

PUBLIC EDUCATION

Public education is an integral part of the recycling and waste reduction portion of the solid waste hierarchy. A public information plan has been in place as part of the 1990 Recycling Plan and has been expanded upon beginning in 2008 to target all generation sectors (residential, commercial and institutional.) Educational areas of focus are on recycling, source reduction, purchasing products made from recycling materials and composting and grasscycling. The public education campaign includes continual updates on the County's recycling website, multiple educational mailings to residents, participation at public events (for example, The Great Frederick Fair, In the Street Festival, Colorfest, etc.), educational literature, a Recycling Event Container Lending Program and technical assistance from Department staff.

MAINTAIN THE SOLID WASTE MANAGEMENT PROGRAM

As stated above, the activities of the SWAC should be maintained and potentially expanded to supplemental monitoring of solid waste management facilities. The County Division of Utilities and Solid Waste Management will prepare annual reports on the implementation of the recommendations of this plan.

SOURCE REDUCTION

Source reduction can reduce the volume of waste generated through product reuse and minimization of packaging. It is supplemental to recycling and is used to contain a waste stream that otherwise would grow strictly due to population growth. Source reduction is also a less expensive waste reduction method in that it requires little capital investment or infrastructure; its primary costs are in educational materials and programs, which are comparatively small.

In past years, the County did not focus efforts on source reduction programs. Successful source reduction programs actually serve to reduce a County's annual recycling rate by reducing the total tonnage available to be recycled. However, beginning in 2001, the County implemented a source reduction credit program, which was designed by the Maryland Department of the Environment. These credits are in addition to the Maryland Recycling Act (MRA) recycling rate calculations.

County's annual recycling rate. In 2009, Frederick County received five out of a possible five points for implementing specific source reduction activities. The County source reduction initiatives included the following:

- Education on the County's website
- Education in all outreach displays
- Educational literature
- Education to businesses
- Education to other County agencies
- Education to County schools and other community programs

Additionally, the County should continue to work with, support and coordinate the efforts of local non-profit agencies whose indirect goal is waste reduction, such as Frederick ReStore, Goodwill, Rescue Mission and other re-use agencies.

COLLECTION

The County received legislative approval to conduct a municipal pilot pay-as-you-throw program per public local law (Frederick County, Maryland Code of Ordinances 2-13-35, 2010, Chapter 692, §1). Such a pilot program would need approval from the applicable municipal government in order to proceed. It could be conducted in a number of manners such a sticker-based approach or a container-based approach to be determined between the County and the applicable municipality.

With the change to Charter government, the County now has legislative authority to establish franchise or contract collection districts or areas if it so desires. Although solid waste collection, with the exception of residential recyclables, has historically been private subscription-based in the unincorporated portions of the county and contract-based in the municipal and large HOA portions, a change to franchising may be investigated in the future as a means to potentially increase recycling goals beyond the established 55% goal.

DISPOSAL FACILITIES

Frederick County should continue to provide alternate disposal capacity for municipal wastes and rubble within the County throughout the planning period. Full reliance on disposal facilities in other states or counties can mean the loss of control of the availability of capacity and charges that will be incurred for disposal. Such reliance should be considered as an intermediate waste management solution with disposal capacity guarantees secured through contracts when possible.

County Solid Waste management facilities will continue to be evaluated to ensure their continued long-term viability. The County plans to continue with efforts to provide solid waste management capacity sufficient to accommodate all of the solid waste generated within the County through a combination of public and private facilities. The County's integrated Solid Waste Management System will consist of a combination of waste processing, land disposal, waste reduction education and recycling. In accordance with the goals of the Plan, the County fully intends to make every effort to preserve solid waste disposal capacity that is available within the current sanitary landfill site, and to extend the life of the current landfill to the maximum extent feasible.

SANITARY LANDFILLS

The Site B Landfill, relying on the current waste transfer operation as the primary disposal method, will provide necessary disposal capacity for approximately 45 years (see Chapter 4, Table 4-1 Estimated Landfill Life). Based on recycling and waste reduction rates achieved, the projected life of the facility could be extended several additional years.

Closure of the municipal waste area of the Reich's Ford Road Site A Landfill was completed in 1998. The quality and quantity of landfill gas at the gas collection, control and flaring system was

evaluated extensively. In January 2009, the BoCC entered into an agreement with the NMWDA to develop the landfill gas for the generation of electricity. The NMWDA contractor, FCLE, LLC anticipates system operation to begin as early as January 2010 and revenues from a gas recovery system will be retained by the Solid Waste Fund as another revenue source to fund its programs.

A 1995 study of landfill mining at five local and East Coast projects found that landfill mining is of limited value and should only be considered as an emergency method. Cost of mining the 80-acre, 3 million ton Reichs Ford Road Landfill was found to be approximately $36.7 million, after estimated revenues from potentially recyclable materials; unrecyclable and unburnable "fines" were found to make up a majority of the mined material in the case studies. The study estimated that after re-burying those materials and the ash from the burnable materials in the Frederick County Landfill, only 5% space savings would be gained.

Based upon analysis completed by MES in 2000, the life of the existing landfill was projected to be exhausted within an 8-year period, if waste deliveries to the landfill remained at the 750 to 900 TPD rate experienced in 2000. The County took specific actions to extend the life of the current sanitary landfill including:

Short-Term Actions:

1. The County is on an interim basis, relying on existing solid waste disposal capacity available within other jurisdictions, until other long-term solid waste management alternatives are identified. To accomplish this, the County initiated a temporary solid waste transfer operation during 2000 – 2001 while additional landfill cell capacity was constructed. The County aggressively pursued the siting and construction of a permanent municipal solid waste transfer station, on the existing landfill property. Following an additional temporary working face waste transfer operation from December 2005 – January 2009, a permanent waste transfer and processing station came on line in January 2009.

2. The County competitively procured long-term contracts with private industry for waste hauling and disposal services to minimize the cost to the County for out-of-jurisdiction disposal of solid waste. All solid waste materials generated in the County that are not transferred to the contracted out-of-jurisdiction disposal facilities will be disposed of in the County Landfill.

3. The County examined current landfill permits, design elements and construction documents and identified cost-effective means to maximize solid waste disposal capacity available within the current permitted landfill footprint, including increasing allowable side slopes and cell elevations, as well as the use of alternative daily cover materials.

4. The County will evaluate other areas within the existing landfill property to determine their potential suitability for constructing additional solid waste containment cells.

5. In July 2009, after extensive evaluation and review of the regional waste-to-energy project, the BoCC entered into an agreement with the NMWDA to develop a 1,500 TPD Regional WTE facility in Frederick County, which at the time was intended to serve Frederick

and Carroll County's waste disposal needs and generate approximately 55 MW of electricity with approximately 45 MW available for sale.

6. In 2014, the BOCC voted to discontinue pursuing a regional WTE solution.

7. In 2015, the County Executive initiated a steering committee to evaluate new potential long-term waste management solutions.

8. On September 30, 2016, Geosyntec released Phase I Report: Solid Waste Management Options Study Frederick County.

9. The Solid Waste Steering Committee Draft Final Report for Phase II is anticipated to be released by Geosyntec in March 2017.

Using the actions specified above, the County has the ability to greatly extend the life of the current landfill site. Depending upon the solid waste tonnage retained in the County to maintain the landfill in an active mode, the current landfill life could be extended to for up to 45 years, as discussed in Chapter 4 and shown in Table 4.1. Extending the life of the current landfill site serves to postpone the need to search for and obtain additional land in Frederick County for constructing and operating another sanitary landfill.

The Essroc Frederick Facility Industrial Waste Landfill is a cement manufacturing plant located in Buckeystown. Essroc applied for a privately-owned 25-acre cement kiln dust (CKD) landfill on its existing property. The original refuse disposal permit (No. 2010-WIF-0640) was issued by the Maryland Department of the Environment. The average annual generation rate of CKD was 35,000 tons per year and the approximate life of the landfill was a minimum of 30 years. Only CKD waste generated at the Essroc Cement Corporation facility will be disposed of in this landfill. The Department renewed the permit on October 6, 2016 as Refuse Disposal Permit No. 2016-WIF-0640.

RUBBLE PROCESSING OPERATION

The County plans to abandon all efforts to process rubble waste or separately manage rubble waste in the County. Regulatory changes at the State level have imposed design standards on rubble waste disposal facilities that are very similar to those applied to municipal solid waste disposal facilities. With these regulatory standards in place, it is not cost effective to maintain separate disposal cells or separate landfills for rubble waste and municipal solid waste. The County will manage all rubble waste through its solid waste management programs and facilities. Efforts will continue to increase recovery and recycling of rubble waste, including metals recovery, and wood waste processing. However, use of the Extec maxi-grinder to process rubble waste materials has been discontinued due to the adverse economics of the operation and inability to successfully market recovered materials. Materials that could not be reused or marketed would eventually need to be disposed of in the County Landfill.

The County is no longer considering a plan to install and operate a cardboard baling operation. Market conditions for recovered cardboard and economic considerations are not currently favorable to such a baling activity. All recovered cardboard will continue to be marketed in bulk form.

RECYCLING

Frederick County shall reduce the solid waste stream by at least 35 percent through recycling. This 35 percent recycling rate has been met since 2006. This shall continue to be achieved using various methods, listed herein. Additional plans for continuing to achieve this rate are listed in the sections below. The DSWM will continue to provide recycling education and outreach, such as publishing an annual residential recycling collection calendar and making it available in various formats (such as direct mail, online, and various electronic applications). This will promote participant awareness of recycling collection dates and help encourage participation. The DSWM will also continue to promote the County's recycling initiatives through outreach such as brochures, mailers, tours, classes and staff presence at community events.

Given the large percentage of waste that is generated by the industrial and commercial sector, the DSWM will continue to provide outreach and education to these entities based on staffing availability to encourage increased recycling. Additionally, the County shall continue to identify and promote recycling initiatives from the non-residential sector by incentivizing this desired activity through initiatives such as the commercial single stream recycling tipping fee. This lower tipping fee offers significant fiscal incentive to divert recyclables from the traditional MSW stream and its associated higher tipping fee. The County shall continue to promote recycling through internal programs such as the County Office Recycling Program (CORP), which is currently utilized at all Frederick County Government operated office buildings. This program is funded by each County department's budget.

The DSWM will continue to manage programs such as the CORP and provide education and outreach as well as evaluate program efficacy. The Frederick County Public School (FCPS) recycling program has been instituted at all of the Frederick County Public Schools and administrative buildings. The FCPS provides the funding for this program. The DSWM provides education and outreach to the faculty, staff and students participating in the program. The DSWM will continue to maintain a centralized recycling drop off center for the collection of various waste products such as white goods, cans, plastics, glass containers, mixed paper, corrugated cardboard, motor oil, and antifreeze for recycling. The commodities recycled at such a center may vary based on the needs of the County and the ability to market the products. The DSWM will also continue to maintain and promote a robust yard trim processing facility to remove these products from the solid waste stream and to create useable organic products.

The combined recycling efforts identified in this plan summary as well as the more detailed recycling plan activities identified elsewhere in this Solid Waste Management plan shall achieve annual recycling rates of at least 35 percent in accordance with the Maryland Recycling Act accounting methods.

RESIDENTIAL RECYCLING

The curbside program serves 100% of the County's single family residential households. Unless markets expand for other recyclables, the current items collected in the single-stream program are recommended for continuation.

The current system is voluntary, and is recommended to remain that way based on citizen input during the 1990 Recycling Plan and the increase in recycling tonnages experienced in 2009 and 2010 with the addition of more materials.

Multi-family recycling was required by law in 2014 as a mechanism to increase recycling in this sector. Multi-family property owners or property managers must provide access to recycling for their tenants based on State and local multi-family recycling plan requirements. The County continues to incentivize increased multi-family recycling by way of a reduced tipping fee for commercial recyclables. The County continues to provide education in outreach assistance to multi-family complexes to help facilitate compliance with this law.

The Board of County Commissioners established a 60 percent waste diversion goal using Maryland Recycling Act calculations by the year 2025. In order to reach this goal, additional recycling potential may be reached by increasing the tonnage of recyclables collected from residents, as well as increasing the tonnage of recyclables collected from businesses and other non-residential entities. Educational campaigns should be carefully and creatively displayed to inform residents that source reduction is the first method of choice, and that recycling should take place if the waste could not first be reduced.

Residential recycling is an important element in the County's recycling program. Presently, the Solid Waste Enterprise Fund finances the recycling program through tipping fees and the Systems Benefit Charge (SBC). Currently, the Enterprise Fund and SBC is spending in excess of $4.5 million dollars per year to fund the recycling program. To insure that the Solid Waste Enterprise Fund can continue to provide recycling programs as well as adequate waste disposal alternatives for the County, it was necessary to secure a funding source independent of the tipping fees. This was done through the establishment of the SBC discussed elsewhere in this Plan. The County will continue to search for cost effective means to increase residential recycling rates.

COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL RECYCLING

The commercial sector consists of offices, stores, institutions and industries, as well as multi-family housing. This sector is responsible for generating 35 to 45 percent of the municipal solid waste stream in Frederick County. To effectively address commercial recycling, it will be analyzed by the two major subcategories, business (offices, manufacturers, restaurants and retail establishments) and multi-family.

An effective commercial recycling program is critical to meeting diversion rate objectives. Commercial wastes contain a high percentage of recyclable materials. In the business subcategory, this includes food waste and paper products, glass, aluminum, tires, ferrous metals and landscaping debris. It should be noted that the composition of the waste stream can vary greatly depending on the type of business.

The potential for increasing commercial recycling in the County can be reached by expanding participation by businesses and increasing recovery of the two materials that provide 35 percent of traditional commercial waste: corrugated cardboard and office paper.

Frederick County's business community strongly supports channeling as many programs as possible though the private sector. That philosophy, combined with limited public funds, means Frederick County's emphasis will be on privately provided recycling collection and marketing. However, some public involvement should be investigated and implemented to encourage increased private collection, such as the establishment and continued monitoring of a market rate commercial single stream recycling tipping fees, since the customer base is extremely diverse and the economics are heavily influenced by fluctuating market prices at times hindering collection by the private sector. The Department of Solid Waste Management works with the Frederick County Office of Economic Development, City of Frederick, Frederick County Chamber of Commerce and Downtown Frederick Partnership to arrive at a private-public partnership to serve the wide spread and diverse businesses community.

Strategies outlined for accomplishing additional business recycling are:

- Continued participation in the applicable Chamber of Commerce Committees. This committee is the County's primary link to the business community for reporting of recycling rates and outreach to various sectors.
- Biannual update of a Business Recycling Brochure. This brochure, first published in Spring 1993 and updated in 1995 and 2009, summarizes how to begin recycling programs, including waste audits, market information, government and private resources, and how to buy recycled products.
- Conduct a campaign to increase recovery of cardboard and office paper from the commercial sector The campaign could include focusing on these commodities for a business forum; developing a private-public partnership for collection; and a joint advertising campaign with markets and collectors of the commodity.
- Encourage more municipalities that facilitate trash collection for businesses within that municipality to add single-stream recycling collections, as the City of Frederick initiated in November 2009.
- Encourage additional non-residential recycling materials collection by establishing an appropriate market rate commercial single stream recycling tipping fee with sufficient difference from the traditional MSW tipping fee to provide some level of financial incentive for increase recycling activity.
- Recognize the business community for achievements in recycling and waste reduction through various awards programs that can also help incentivize increased private sector recycling.

YARD WASTE AND FOOD WASTE

There are no current plans to expand local yard waste sites. Property owners are encouraged to reduce the quantity of yard waste that is included in the waste stream by disposing of those materials in an ecologically sound manner.

Yard waste has been one of the largest recycling growth areas during the previous solid waste management plan years and continues to show tremendous potential for diversion from the

landfill through waste reduction and recycling efforts. Continued federal and state efforts to ban the material from landfills, along with market-driven forces that cause haulers to discontinue collection for their customers, will keep recycling and reduction of this material in the public spotlight in the short-term planning period.

Even by minimizing collection costs with satellite drop off and processing facilities, capital and operations costs for processing sites are high. In an Options Paper presented to the community in 1994-95, community consensus concluded that emphasis should instead be placed on teaching residents to handle their yard waste themselves on their own property. This eliminates both collection and processing costs, provides the resident with a ready source of mulch/compost and gives the resident an outlet for their yard waste.

Education methods should include continuation of the backyard composting clinics held on a periodic basis to reach a higher proportion of the population. The County should continue participation in teaching the composting portion of the master gardeners' classes.

School science programs are also good candidates for composting education, including demonstration worm composting bins and a pilot program for composting of school kitchen waste on-site.

Additionally, grasscycling should have a great deal of educational emphasis since it reduces collection and processing costs associated with recycling grass clippings. The County should continue to promote at-home management of organics where practical as a low-cost management option. Grass clippings that are collected for recycling as opposed to home composting should continue to be composted within the County through commercial composting operations.

In April 2011, the Board of County Commissioners provided County staff conceptual approval to: (a) develop zoning ordinances that provide definition and usage, as well as text amendments allowing Limited Commercial On-Farm Food Waste Composting with on-site use and Limited Commercial On-Farm Anaerobic Digestion of Food Waste; (b) amend the Solid Waste Management Plan to allow Limited Commercial On-Farm Food Waste Composting with On-Site Use and Limited Commercial On-Farm Anaerobic Digestion of Food Waste.

In reference to the County's 10-year Solid Waste Management Plan, the purpose of this action was to encourage such food waste recycling activities at a local level without site-by-site Solid Waste Management Plan amendments. Such facilities and/or food waste recycling activities would still need to meet all State and Federal rules and regulations as well as the newly-developed local zoning ordinances. Since this conceptual improvement, the Maryland Department of the Environment has placed new permit requirements on certain composting activity within the State, including the on-farm acceptance of food waste generated separate from the farming activity.

HOUSEHOLD HAZARDOUS WASTE

The County conducts two centralized residential HHW collection events per year so that County residents can deliver their material for proper management by a fully-accredited hazardous waste management company.

The County continues to assess the need to expand or contract acceptable materials for these programs based on other programs already in place, the public needs, product stewardship and private take-back programs.

PURCHASING OF RECYCLED PRODUCTS

The past decade has proven that despite accelerated collection of recyclables, without sustained demand for recycled products market fluctuations continue to be volatile, making it difficult for private industry to establish a recycling infrastructure, as well as for government/institutions planning for contracts and costs/revenues.

The County has increased efforts to purchase recycled products. In 2009, a County Sustainable Action Team was created through the Office of Environmental Sustainability. One of the sustainability goals adopted by the Board of County Commissioners in 2010 is to apply environmentally-preferred purchasing procedures to all County operations, including the purchase of recycled-content products. The County is continuing its existing program to subsidize the purchase of 30 percent recycled copy paper (through the Solid Waste Management Enterprise Fund) for use in County Government agencies and facilities. The County also promotes the reuse of office furniture and equipment and redistribution of supplies.

The private sector should be encouraged to follow the lead of government agencies through education and coordination of a purchasing "co-op" arranged through a business group such as the Chamber of Commerce to enable small businesses to purchase recycled products more cost-effectively.

Citizen attention is currently and should continue to be directed to the need for buying recycled products through educational campaigns, such as making sensible environmental shopping choices, which can usually be coupled with source reduction campaigns.

The County plans to increase efforts to improve the success of purchasing recycled products for use in County offices and facilities. To increase the purchase of recycled products, the County plans to take the following specific actions:

- Frederick County Government shall continue to practice recycling and waste reduction in accordance with the Board of County Commissioners Frederick County Government Recycling and Waste Reduction Policy adopted February 1995;
- The County will continue to purchase recycling bins constructed with no less than 25% post-consumer recycled content material and distribute the recycling bins to County residents eligible for curbside recycling collection.
- The County will continue to promote the reuse of surplus equipment, and will enhance the Purchasing Department's Intranet site for promotion to employees;
- The County will adopt Environmentally-Preferred Purchasing procedures and establish a target for the percentage of green products purchased through the County's office supply contractor.
- Educate staff on the importance and policies established for the purchase of recycled-content products.

CONTROLLED HAZARDOUS SUBSTANCES

Industries and commercial establishments in the County that generate and ship controlled hazardous substances, including special medical wastes, are closely regulated by the Hazardous Waste Management Division of the Maryland Department of the Environment and are not under the scope of this plan. Each shipment must be manifested, and volumes and types of materials reported to the MDE. No acceptance facilities exist, or planned within the County. No additional actions are for direct hazardous waste management are recommended under this plan; however, the County reserves the right to address the management of controlled hazardous substances under a separate plan.

The County and Chamber of Commerce should work together to do a poll of membership to find out whether there are business types that have difficulty disposing of hazardous substances because of costs, logistics or education. If needed, the County should work with the Chamber to investigate firms willing to provide "umbrella" commercial collection more cost effectively for any businesses needing the service.

OTHER WASTES

Miscellaneous or special wastes that must be managed include asbestos, dead animals, tires, waste water treatment sludge, septage, water treatment sludge and agricultural wastes. Existing and proposed management practices for these wastes were described in Chapter 3, Table 5-1 and Table 5-2. Septage will be managed according to the approved Frederick County Septage Management Plan. The management plan developed by the Sludge Task Force will be included in a subsequent update to this plan, once it is approved by the BOCC.

FINANCING

The current system of financing the County's solid waste program through an enterprise fund, based on tipping fees and the System Benefit Charge (SBC), will continue. Table 5-3 represents a detailed breakdown of projected capital and operating costs for implementation of the recommended solid waste program for the planning period.

Major capital expenditures funded by bonds during the period include a rubblefill, capping and remediation of the existing County landfill, and the construction of required cells for the Site B Landfill, the transfer station and its allied improvements. The WTE facility will be financed by the issuance of Revenue Bonds by the NMWDA.

There are no current plans to finance a rubblefill or replacement sanitary landfill.

It is imperative that costs for solid waste management be kept separate from general revenue taxes; in this way, citizens are made aware of the actual cost of the program. The County has the flexibility to institute financial incentives for waste reduction and recycling. When citizens and businesses are reminded by each month's bill of the growing solid waste management costs, there will be more public support for recycling and other programs that will ultimately help

control costs. Under this "user pays" system, commercial establishments have an incentive to initiate programs that will lower their monthly solid waste bill.

Tipping fees should be monitored to ensure that they are low enough to attract an adequate amount of waste to cover operations and closure costs. One method the County should explore is contracting with willing municipalities and waste haulers to secure long-term deliveries of waste to Frederick County's facility.

Financing for the recycling program will come from the enterprise fund made up of tipping fees, SBC, and other miscellaneous revenue. To ensure maximum participation the residential recycling services offered by the County (i.e., curbside pick-up, drop-off centers, education, promotion, etc.) will be funded by the solid waste fund at no direct charge to the citizens. This "no charge" policy applies to municipalities, homeowner associations, unincorporated areas or any other County citizen.

LEGAL INITIATIVES

Specific regulatory and legislative authority may be needed to fully implement all goals and objectives presented in this plan. Many of these legislative actions have already been put in place. A summary of these legislative initiatives are provided in Table 5.1 and Table 5.2.

Glossary

Aeration - The process of exposing waste material, such as compost, to air to promote aerobic decomposition. Forced aeration refers to the use of blowers in compost piles.

Aerobic - A biochemical process or condition occurring in the presence of oxygen.

Agricultural Waste - "Domestic animal manure or residuals in liquid or solid form generated in the production of poultry, livestock, fur-bearing animals and their products. Agricultural waste includes residuals generated in the production and harvesting but not of subsequent processing of all agricultural, horticultural or aquacultural commodities. Agricultural waste does not include land clearing debris unless the cleared land is intended solely for agricultural purposes." (COMAR 26.04.07.01)

Air Classification - A process in which a stream of air is used to separate mixed material according to the size, density and aerodynamic drag of the pieces.

Anaerobic - A biochemical process or condition occurring in the absence of oxygen.

Baler - A machine used to compress recyclables into bundles to reduce volume. Balers are often used on newspaper, plastics and corrugated cardboard.

Biodegradable Material - Waste material which is capable of being broken down by micro-organisms into simple, stable compounds such as carbon dioxide and water. Most organic wastes, such as food wastes and paper, are biodegradable.

Biosolids - A recently adopted industry term for wastewater treatment sludge.

Bulking Agent - A material used to add volume to another material to make it more porous to air flow. For example, municipal solid waste may act as a bulking agent when mixed with water treatment sludge.

Bulky Waste - Large items of refuse including, but not limited to, appliances, furniture, large auto parts, non-hazardous construction debris, demolition materials, trees, branches and stumps which cannot be handled by normal solid waste processing, collection and disposal methods.

Buy-Back Center - A facility where individuals bring recyclables in exchange for payment.

By-Pass Waste - For an incinerator, the waste that must be diverted to landfill burial due to bulkiness, plant shutdowns, etc.

Coal Ash - Residue from the combustion of coal, which may include bottom ash and fly ash.

Co-Composting - Simultaneous composting of two or more waste types.

Co-Disposal Plants - Facilities that burn sewage sludge combined with either prepared processed or unprocessed municipal solid waste.

Coal-Fired Plants - Facilities that burn coal as the fuel.

Co-Generation - The production of electric power and steam for sale by a non-utility which is then sold to an energy purchaser in accordance with contracted guidelines.

Commercial Waste - Waste materials originating in wholesale, retail, institutional or service establishments, such as office buildings, stores, markets, theaters, hotels or warehouses.

Commingled Recyclables - A mixture of several recyclable materials in one container.

Compactor - Power-driven device used to compress materials to a smaller volume.

Compost - The relatively stable decomposed organic material resulting from the composting process. Also referred to as humus.

Composting - "The process in which organic solid waste is biologically decomposed under controlled conditions to yield a nuisance-free humus-like product." (COMAR 26.04.07.04).

Construction and Demolition Waste - Materials resulting from the construction, remodeling, repair or demolition of buildings, bridges, pavements and other structures.

Corrugated Paper - Paper or cardboard manufactured in a series of wrinkles or folds, or into alternating ridges and grooves.

Cullet - Clean, generally color-sorted, crushed glass used to make new glass products.

Curbside Collection - Programs where recyclable materials are collected at the curb, often from special containers, to be brought to various processing facilities.

Decomposition - Breaking down into component parts or basic elements.

Diversion Rate - A measure of the material being diverted for recycling compared with the total amount that was previously thrown away.

Drop-off Center - A method of collecting recyclable or compostable materials in which the materials are taken by individuals to collection sites and deposited into designated containers.

Electronic Waste or E-Waste – Waste material that use electricity to operate, such as televisions and computers.

Emission - Discharge of a gas into atmospheric circulation.

Energy Recovery from Waste - Conversion of solid waste to energy, generally through the combustion of processed or raw refuse to produce steam and electricity.

Enterprise Fund - A fund for a specific purpose that is self-supporting from the revenue it generates.

Ferrous Metals - Metals that are derived from iron. They can be removed using large magnets at separation facilities.

Flow Control - A legal or economic means by which waste is directed to particular destinations, (See Supreme Court Case, Oneida-Herkimer).

Garbage - Spoiled or waste food that is thrown away, generally defined as wet food waste. It is used as a general term for all products discarded.

Generator - Any person whose act or process produces a waste governed by this plan.

Grasscycling - Recycling grass clippings through use of mulching mowers or leaving clippings on the lawn.

Ground Water - Water beneath the earth's surface that fills underground pockets (known as aquifers) and moves between soil particles and rock, supplying wells and springs.

Hammermill - A type of crusher or shredder used to break up waste materials into small pieces.

Hazardous Waste - Waste material that may pose a threat to human health or the environment, the disposal and handling of which is regulated by federal law.

Heavy Metals - Hazardous elements including cadmium, mercury and lead which may be found in the waste stream as part of discarded items, such as batteries, lighting fixtures, colorants and inks.

High Grade Paper - Relatively valuable types of paper such as computer printout, white ledger and tab cards. Also used to refer to industrial trimmings at paper mills that are recycled.

Humus - Organic materials resulting from decay of plant matter. Also referred to as compost.

Incinerator - A furnace for burning waste under controlled conditions (incineration without energy recovery).

Industrial Waste - "Any liquid, gaseous, solid, or other waste substance, or combination thereof, resulting from: a) any process of industry, manufacturing, trade or business; or b) the development of any natural resource, including agriculture." (COMAR 26.08.01 B(40)).

Infectious Waste - "Any waste that comes from a hospital, clinic or laboratory and that is known or suspected to be contaminated with organisms capable of producing disease or infection in humans. Infectious waste includes disposable equipment, instruments, utensils, contaminated needles, scalpels and razor blades, human tissue and organs that result from surgery, obstetrics, or autopsy, feces, urine, vomitus, and suctionings, live vaccines for human use and blood products, laboratory specimens such as tissue, blood elements, excreta and secretions." (COMAR 26.04.07.02.13).

Institutional Waste - Waste materials originating in schools, hospitals, prisons, research institutions and other public buildings.

Integrated Solid Waste Management - A practice of using several alternative waste management techniques to manage and dispose of specific components of the municipal solid waste stream. Waste management alternatives include source reduction, recycling, composting, energy recovery and landfilling.

Intermediate Disposal - "The preliminary or incomplete disposal of solid waste including, but not limited to, transfer stations, incineration, or processing." (COMAR 26.04.07.02.04)

In-Vessel Composting - A composting method in which the compost is produced in an enclosed mechanical reactor under controlled environmental conditions.

Leachate - Precipitation that has percolated through solid waste or another medium and has extracted, dissolved, or suspended materials from it, which may include potentially harmful materials. Leachate collection and treatment is of primary concern at municipal waste landfills.

Magnetic Separation - A system to remove ferrous metals from other materials in a mixed municipal waste stream. Magnets are used to act the ferrous metals.

Manual Separation - The separation of recyclable or compostable materials from waste by hand sorting.

Mass Burn - A municipal waste combustion technology in which the municipal solid waste is burned in a controlled system without prior sorting or processing.

Mechanical Separation - The separation of waste into various components using mechanical means such as cyclones, trommels and screens.

Methane - An odorless, colorless, flammable and explosive gas produced by municipal solid waste undergoing anaerobic decomposition. Methane is emitted from solid waste landfills.

Microbiological Laboratory Waste - Waste from a microbiological laboratory that contains an infectious agent and includes cultures and stocks of infectious agents and associated biologicals.

Microorganisms - Microscopically small living organisms that digest decompostable materials through metabolic activity. Microorganisms are active in the composting process.

Modular Incinerator - Smaller-scale waste combustion units prefabricated at a manufacturing facility and transported to the facility site.

Monitoring Well - "Any hole made in the ground to examine ground water." (COMAR 26.04-07.02, 17).

MSW Composting - Municipal Solid Waste Composting - The controlled degradation of municipal solid waste after some form of pre-processing to remove non-compostable inorganic materials.

Mulch - Ground or shredded wood waste used as a protective ground covering around plants to prevent evaporation of moisture and freezing of roots and to nourish the soil.

Municipal Sanitary Landfill - An engineered solid waste acceptance facility permitted under the requirements of MDE. The facility is designed, installed, and operated to minimize public health and environmental hazards. The municipal sanitary landfill is the final disposal site for wastes generated by a community with the exception of those wastes specifically prohibited by MDE and Frederick County regulations.

Municipal Solid Waste (MSW) - Includes non-hazardous waste generated in households, commercial and business establishments, institution and light industrial wastes, agricultural wastes, mining waste and sewage sludge.

Open Dump - "A land disposal site that is not designed or operated in accordance with the requirements for a sanitary landfill."

Organic Waste - Waste material containing carbon. The organic fraction of municipal solid waste includes paper, wood, food wastes, plastics and yard wastes.

Participation Rate - A measure of the number of people participating in a recycling program compared to the total number that could be participating.

Person - An individual, trust, firm, joint stock company, federal agency, corporation (including a government corporation), partnership, association, state, municipality, political subdivision of a state, any interstate body and any combination of persons using a common disposal collection device.

Processing Facility - "A combination of structures, machinery, or devices used to reduce or alter the volume, chemical or physical characteristics of solid waste. For the purpose of these regulations, collection points serving rural residential areas are not considered to be processing facilities, provided that solid waste is not transferred from collection vehicles to another transportation unit. A generator who processes his or her own solid waste at the site of generation and disposes of the processed solid waste off the site of generation at a disposal site permitted by the MDE is not considered to be a processing facility." (COMAR 26.04.07.02.22)

Recyclables - Materials that still have useful physical or chemical properties after serving their original purpose and that can, therefore, be reused or remanufactured into additional products.

Recycling - The process by which materials otherwise destined for disposal are collected, reprocessed or remanufactured and reused.

Refuse - See Solid Waste.

Refuse-Derived Fuel (RDF) - Product of mixed waste processing system in which certain recyclable and non-combustible materials are removed and the remaining combustible material is converted for use as a fuel to create energy.

RDF, Coarse - Shredded municipal waste with minimal separation of recyclable materials.

RDF, Prepared - Municipal waste is shredded and mechanically processed to remove recyclable metals and glass. Optionally the material can be further shredded to produce a "fluff" or compacted into pellets, prior to incineration.

Residential Waste - Waste materials generated in single and multiple-family homes.

Residue - Materials remaining after processing, incineration, composting or recycling have been completed. Residues are usually disposed of in landfills.

Resource Recovery - A term describing the extraction and utilization of materials and energy from the waste stream. The term is sometimes used synonymously with energy recovery.

Resource Recovery Facility - "A processing facility at which component materials of solid waste are recovered for use as raw material or energy sources." (COMAR 26.04.07.02)

Retention Basin - An area designed to retain run-off and prevent erosion and pollution.

Reuse - The use of a product more than once in its same form for the same purpose; e.g., a soft-drink bottle is reused when it is refined to the bottling company for refilling.

Scrap - Discarded or rejected industrial waste material often suitable for recycling.

Septage - Material removed from chemical toilets, septic tanks, seepage pits, privies or cesspools.

Sewage - "Any water-carried human, domestic or mixture of industrial waste including animal excreta." (9-201(K) Environment Article, Annotated Code of Maryland)

Sharp - A syringe, needle, surgical instrument or other article that is capable of cutting or puncturing human skin.

Single Stream Collection –The collection of certain recyclables in one container.

Sludge - A semi-liquid residue remaining from the treatment of municipal and industrial water and wastewater.

Soil Liner - Landfill liner constructed of compacted soil having a low permeability that is used for the containment of leachate.

Solid Waste - "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. (COMAR 26.03.03.01)

Solid Waste Acceptance Facility - "Any landfill, incinerator, transfer station, resource recovery (WTE) or processing facility whose primary purpose is to dispose of, treat or process solid waste.

Solid Waste Advisory Committee - A 12-member committee created by the Board of County Commissioners to recommend the soundest methods of waste disposal, recycling and waste reduction.

Solid Waste Management - "The systematic administration of activities which provide for the collection, source separation, storage, transportation, transfer, processing, treatment, re-use or disposal of solid waste." (COMAR 26.03.03.01.11).

Source Reduction - The design, manufacture, acquisition and reuse of materials so as to minimize the quantity and/or toxicity of waste produced. Source reduction prevents waste either by redesigning products or by otherwise changing societal patterns of consumption, use and waste generation.

Source Separation - The segregation of specific materials at the point of generation for separate collection. Residents source separate recyclables as part of a curbside recycling program.

Special Medical Waste - A solid waste that is not excluded under COMAR 26.13.07 and is composed of: (1) anatomical material, (2) blood, (3) blood-soiled articles, (4) contaminated material, (5) microbiological laboratory waste, (6) sharps.

Special Waste - Refers to items that require special or separate handling, such as household hazardous wastes, bulky wastes, tires and used oil.

Subtitle C - The hazardous waste section of the Resource Conservation and Recovery Act (RCRA).

Subtitle D - The solid, non-hazardous waste section of the Resource Conservation and Recovery Act (RCRA).

Tipping Fee - A fee, usually dollars per ton, for the unloading or disposal of waste at a landfill, transfer station, recycling center, or waste-to-energy facility, usually stated in dollars per ton; also called a disposal or service fee.

Transfer Station - A permanent facility where waste materials are taken from smaller collection vehicles and placed in larger vehicles for transport, including truck trailers, railroad cars or barges. Recycling and some processing may also take place at transfer stations, only if specifically authorized by permit conditions.

Tub Grinder - Machine to grind yard and wood wastes for mulching, composting or size reduction.

Variable Container Rate - A charge for solid waste services based on the volume of waste generated measured by the number or size of containers set out for collection.

Volume Reduction - The processing of waste materials so as to decrease the amount of space the materials occupy, usually by compacting or shredding (mechanical), incineration (thermal) or composting (biological).

Waste Stream - A term describing the total flow of solid waste from homes, businesses, institutions and manufacturing plants that must be recycled, converted to energy or disposed of in landfills; or any segment thereof, such as the "residential waste stream" or the "recyclable waste stream."

Waste-To-Energy - Conversion of solid waste to energy, generally through the combustion of processed or raw refuse to produce steam and/or electricity, also referred to as a waste-to-energy resource recovery, and sometimes referred to as municipal waste combustor facilities.

Water Table - Level below the earth's surface at which the ground becomes saturated with water. Landfills and composting facilities are designed with respect to the water table in order to minimize potential contamination.

Wet Scrubber - Anti-pollution device in which a lime slurry (dry lime mixed with water) is injected into the flue gas stream to remove acid gases and particulates.

Wetland - Area that is regularly wet or flooded and has a water table that stands at or above the land surface for at least part of the year. Coastal wetlands extend back

from estuaries and include salt marshes, tidal basins, marshes and mangrove swamps. Inland non-tidal wetlands consist of swamps, marshes and bogs. Federal regulations apply to landfill sites at or near wetlands.

White Goods - Large household appliances such as refrigerators, stoves, air conditioners and washing machines.

Windrow - A large, elongated pile of composting material.

Yard Trimmings - Leaves, grass clippings, brush, prunings and other natural organic matter discarded from yards and gardens.

Many of the definitions in this glossary were obtained from "Decision-Makers Guide to Solid Waste Management", U.S. EPA, 1989.

APPENDIX A

CODE OF MARYLAND REGULATIONS (COMAR)

Title 26 Department of the Environment Subtitle 3 Water Supply, Sewerage, Solid Waste, and Pollution Control and Funding, Chapter 03

Development of County Comprehensive Solid Waste Management Plan

TITLE 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 03 WATER SUPPLY, SEWERAGE, SOLID WASTE, AND POLLUTION CONTROL PLANNING AND FUNDING

Chapter 03 Development of County Comprehensive Solid Waste Management Plans

Authority: Environment Article, Title 9, Subtitle 5, Annotated Code of Maryland

.1 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.

.2 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.

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.

.3 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).

(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 concerns (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), above, 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);

(c) Demonstrate, through tables, charts and graphs, that the sizing, staging, and capacity of all systems and facilities in § F(2)(a) and (b), above, 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, above.

.4 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.

.5 Plan Revisions.

A. Except as provided in § B, below, 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); and

(3) Information listed in Regulation .03D(5) is provided for the facility when the county plan is reviewed and revised in accordance with § A(2), above.

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, above, 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 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 seven copies of 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 90 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's Office of Hearings at 201 West Preston Street, Baltimore, Maryland 21201.

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)

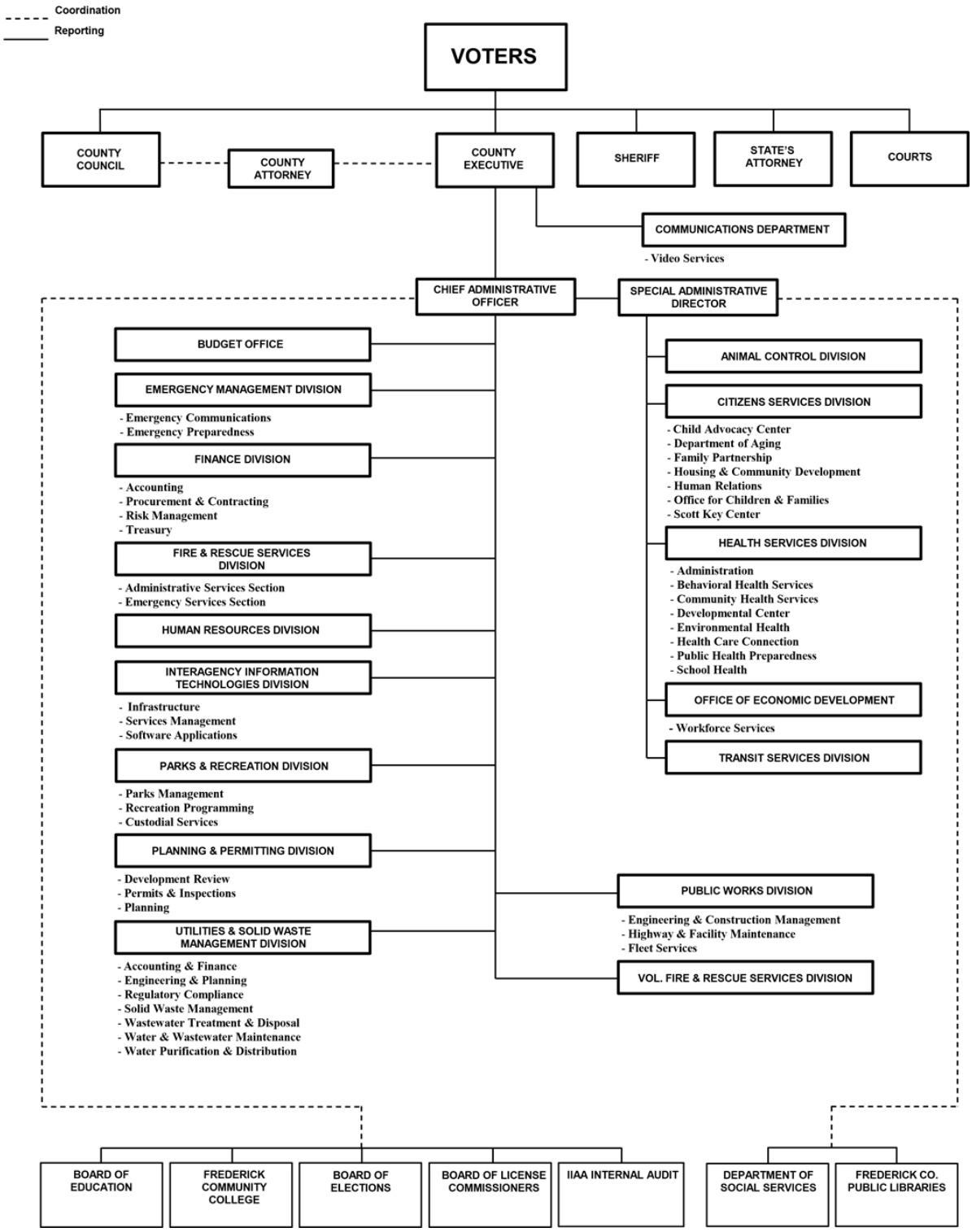
Chapter recodified from COMAR 10.17.08 to COMAR 26.03.03

APPENDIX B

COUNTY ORGANIZATIONAL CHART

FREDERICK COUNTY GOVERNMENT

Organization Chart



APPENDIX C

COMBINED MUNICIPAL SOLID WASTE MANAGEMENT PLAN FOR THE MUNICIPALITIES OF FREDERICK COUNTY

COMBINED MUNICIPAL SOLID WASTE MANAGEMENT PLAN FOR MUNICIPALITIES OF FREDERICK COUNTY

INTRODUCTION

The Code of Maryland Regulations (COMAR) allows Maryland municipalities to choose a number of alternatives to a county plan. A municipality may choose to accept a county plan. It may choose to submit an alternative plan which may be reviewed and accepted by the county commissioners. A third choice is to submit a separate plan directly to the Maryland Department of the Environment, and this may be done at any times (see attached COMAR regulations.)

The municipalities of Frederick County feel that a number of factors require them to have a separate plan, but they also feel it should be made part of the county plan. Furthermore, by consensus agreement, they have decided to present a Combined Municipal Plan (CMP) for inclusion in the county plan.

GOALS AND RELATIONSHIP TO THE COUNTY PLAN

The purpose of the municipality plan is to help the county meet the state mandated goal for recycling and to safety and economically deal with solid waste. The municipalities accept the general framework of the county plan, providing the municipalities are consulted on a regular basis concerning implementation of the county plan; and providing changes to that plan are brought before the municipalities with adequate notification and approval by the municipalities prior to final county approval.

It is the position of the municipalities, representing at the time of this CMP plan development 60,547 residents, 40 % of the entire county population, 73% of the commercial and industrial establishments and 51 % of the "municipal solid waste" generated in the county, that they represent a significant group in the county deserving greater voice and consideration than merely the ability to give comments at a public hearing. It is also the position of the municipalities that the waste stream in their communities is of such major difference with such major collection variances that they must be allowed to capitalize on those differences and benefit directly from them.

This plan has been reviewed at public hearing by those bodies in each of the municipalities where such review is needed, and it has received the required approvals.

MAKEUP OF WASTE STREAM

The municipalities have delivered to the landfill during the past fiscal year (Fiscal '92) an estimated 56,253 tons of waste material, defined as "municipal solid waste" in the county plan. Delivery has occurred via governmental pickup and charged through the tax rate, governmental contracting with private collectors and charged though the tax rate or governmental contracting with each household paying its charges directly to the contractor.

Theses deliveries contain more yard wastes, more wastes from commercial sites and more specialized wastes such as corrugated cardboard and office paper than that collected from rural areas.

It is noted in the county solid waste management plan that offices, stores, institutions and industries typically generate a high percentage of recyclable materials, such as corrugated (30 to 50 percent), office paper (20 to 40 percent) and other more typical recyclables. Frederick City, alone, contains 1,261 of the 2,477 commercial establishments in the county. Commercial is defined by the assessment office as anything other than residential and industrial. Thus the City contains 51% of such major generators of recyclables.

A survey of the incorporated towns and city's tax records indicates that over 2,741 commercial and industrial businesses exist within their respective boundaries. This is 73% of all the commercial and industrial businesses with the county (3,751 total).

An inventory of shopping center footage in Frederick County by the Frederick County Planning Commission indicates that such shopping areas located in the municipalities represent 76 % of the footage in the entire county. Thus by interpolation, the municipalities together contain substantially more than two-thirds of the major waste generators in the county.

Table 3-1, Projection of Solid Waste Generation in the county plan for the year 1991 forecasts 36,753 tons produced throughout the county by commercial and industrial establishments out of the total 110,307 tons of municipal waste generation, as defined in the plan. Using the 73% factor explained above, the commercial and industrial establishments produce 26,833 tons of waste in municipalities.

With the extremely high percentage of recyclables found in such waste and the relatively minor amounts of food and non-recyclables, this waste represents a mother lode for meeting the state goals. Furthermore, it is concentrated among a relatively small number of users, easily reached and generally highly educated in environmental issues.

With 50 % of the population, municipalities produce or estimated 29,420 tons of residential waste. Together with commercial and industrial wastes, this represents 56,253 tons of waste generated and controlled by the municipalities or 51 % or such wastes in the county.

Additionally, yard wastes represent a major portion of the wastes generated in municipalities. The municipalities contain 24,010 of the 54,872 housing units in Frederick County according to me 1990 census or almost 44 % of the total. The concentration of housing with smaller yards limits the ability for backyard composting due to odor problems and the attraction of insects. Thus yard wastes are set out for normal collection in a number of municipalities at a much greater rate than in rural areas where the densities are less and the lots are of a larger size.

EDUCATION AND COOPERATION OF RESIDENTS

The municipalities in Frederick County have their own elected governments to which residents of those communities feel closer than they do to county government. Since these elected officials are historically responsible for rendering certain services, it will be difficult to sell new concepts without enlisting the aid of the local municipal officials.

In order for these officials to educate their respective communities, they must be involved in the formation of waste management policies. And since these officials are closer to their residents than are the elected county officials, they will need to formulate those waste management programs that best serve their respective communities based upon that familiarity. For instance in Frederick City, the concentration of public housing and rent support units requires a different

approach toward enlisting the cooperation of residents than may be required in the Green Valley area.

It is those significant differences that are better understood by local officials than may be understood by county officials. In many cases, local officials are on a first name basis with many of the residents in their respective communities. They know who the neighborhood movers and shakers leaders are and how to approach them in order to gain their interest and participation.

THE COSTS OF RECYCLING

In most Frederick County municipalities, the cost of waste collection is part of the tax rate. The municipal officials are expected by the residents to whom they are accountable to keep taxes at the lowest possible rate. The county has decided not to spread the costs of waste management equally over all the taxpayers, preferring that the costs be spread over the users.

Under that approach, since 40 % of the users live in municipalities, it is only reasonable to expect that any savings gained through municipal operation is returned to the municipal users in the county.

The municipalities have been very resourceful. Walkersville has found a way to dispose of yard wastes in cooperation with the farm community. Other communities are working with farmers to use newspapers for livestock bedding. Some communities shred Christmas trees and have for years in order to produce mulch for their own use and for the use of their residents.

There has been discussion within the Maryland Municipal League, Frederick County Chapter, for over two years to join together to study and develop ways to divert wastes from the county landfill in order to benefit their communities. Moving forward has been hampered by a lack of inclusion of the municipalities in the formulation of the county's waste management policies. With the cooperation of all parties, recycling goals can be reached.

The municipalities represent an informed group of public officials who historically have produced those services demanded by their residents in an efficient and least costly way. The mere fact that houses are grouped rather than spread out allows for more effective services. Recycling is accepted as a new service that must be rendered, but the municipalities want to have the flexibility to apply cost effective methods in order to attain the county and state goals, but at the same time retain the full benefits that have been produced.

COLLECTION

Municipalities generally contain a more dense population than rural areas. The concentration of housing and commercial uses produces greater traffic than occurs in rural areas. In some cases, the streets are narrow. In most cases, there is parking on these streets during both the day and night.

Consequently, collection of wastes can be more costly than need be unless the municipalities develop strategies to control parking or use alternative collection methods. In some areas, such as Frederick City, collection occurs along alleys where that is possible. Where it is not possible, then parking is prohibited on collection nights. In this manner, workers do not have to walk around parked cars, thus keeping costs of collection down.

Frederick City is unique in that it is the only area in Frederick County with its own collection capability. Any change in the way waste is collected can have both a major requirement for new

equipment and an increased labor costs. It is important that the city tailor its plan to keep capital costs to a minimum while maximizing the use of its labor.

ILLEGAL DUMPING

Though illegal dumping is a problem throughout the county, placing of wastes within municipalities by non-residents compounds the recycling problem. Mt. Airy recently stepped up enforcement to discourage illegal placing of wastes along its streets by non-residents and found considerable non-town waste placed within the city boundaries.

The taxpayers in the municipalities end up paying for wastes delivered to the landfill that were not generated by the residents of the communities. Policing for this is also costly and the greater the enforcement, the greater illegal dumping will take place along county roads. Furthermore, this waste stream more than likely will not be separated into recyclable/non-recyclable materials, distorting the success of the CMP.

A study should be made to determine the approximate violations as a percentage of the total waste stream in each community, and the county should assume the responsibility for this waste, rather than penalizing the municipalities which have not generated that waste.

LOCATION OF SOLID WASTE PROJECTS

Certain solid waste projects can have a major impact on an area. Traffic, odors, noise and the esthetics of some of these projects located within a mile of a municipality can have a devastating effect on the community. Consequently, the Frederick County Chapter of the Maryland Municipal League should be notified of any project being planned, be it a landfill, processing facility, transfer station or other installation. It should be given every opportunity to respond accordingly with sufficient lead time to study the project in detail.

THE SOVEREIGNTY OF MUNICIPALITIES

Municipalities exist under the Maryland State Code to protect the health, welfare and safety of its residents. Thus they are given policing and regulation powers to accomplish those goals.

That is why a countywide plan must provide protection to the municipalities to police and monitor any public or private solid waste facility within their boundaries. A county plan must provide for recognition of municipal ordinances and respect of the municipal zoning regulations so that interjurisdictional issues do not arise. It must provide to protect municipal owned streets and roads from intrusion by carriers of solid waste not generated within that community.

CONCLUSIONS

Municipalities represent a major portion of Frederick County's population. Therefore the inclusion of a CMP benefits not only the municipalities but also the entire county.

Communication through municipal governments can occur much more rapidly with greater results, because the elected officials of the municipalities are closer to their communities.

Because such officials are familiar with the unique characteristics of their own communities, they are better able to create recycling plans that will be more effective and efficient. Any savings created should remain with that community.

The physical characteristics of each municipality are different. The collection methods are different. Therefore the collection requirements should be left to each municipality.

Several municipalities may desire to combine their waste streams and attain recycling goals differently than the way they are attained in more rural areas. Those with numerous commercial users and large yard waste production can attain the goals by recycling these products without substantial curbside separation. Other municipalities may find creative ways to meet the goals more easily than rural users sprawled across the countryside.

Municipalities with a more educated population will find education concerning recycling easy while communities with pockets of less educated residents will find the task difficult.

The sovereignty of municipalities must be respected to prevent interjurisdictional disputes relating to the location of solid waste facilities, to protect the health, welfare and safety of residents who live in towns and cities and to prevent the use and damage to community infrastructure by haulers of waste not generated in those communities.

Consequently, the county and the municipalities working together, each respecting the problems of the other, will successfully meet state recycling requirements.

Maryland Environment Code Annotated, Section 9-504: (1) 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 corporation, sanitary district, privately owned facilities, and local, state, and federal agency 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.

APPENDIX D

PUBLIC AND COUNTY REVIEW PROCESS FOR SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATIONS

AND

PROCEDURES FOR AMENDING THE SOLID WASTE MANAGEMENT PLAN FOR NEW APPLICANTS

To be considered consistent with this Solid Waste Management Plan, any solid waste acceptance facility (also known as "solid waste facility" or "facility") or expansion of an existing solid waste facility, whether public or private, must be specifically described and identified, by name, in the Plan. Additions, expansions and/or enlargements shall be considered as construction that will occupy a greater area of land than that currently in use. No additional principal structures may be added nor shall any uses be added that would change the facility from one category to another, (e.g., incinerator, municipal solid waste landfill, processing facility, construction and demolition rubble fill, material recovery facility, land clearing debris fill, transfer station, recycling center or recycling collection point). A partial list of requirements is shown in **Exemptions to the Amendment Process**.

For a proposed facility to be formally included in the Plan, application must be made for an amendment, as follows:

1. Preliminary Public Informational Meeting:

a. A copy of the application is given to the Department of Solid Waste Management (DSWM)/Solid Waste Advisory Committee (SWAC) with appropriate information (application criteria listed in Application Criteria) in order to begin the process of establishing consistency with the Solid Waste Management Plan (SWMP).

b. Applications will be accepted from the first of the month through the fifteenth. The DSWM will notify the applicant that the application is complete one week after receipt. DSWM will notify the Planning and Permitting Division (PPD), the County Executive, the County Council and any other County agency that would have interest in or be directly affected by the application.

c. Within ninety (90) days of the acceptance of the application, the applicant and DSWM will establish dates for a SWAC, Planning Committee and public hearing (See Flow chart). Within these ninety (90) days, SWAC, Planning Commissioners or the County Executive or County Council may request any additional information it deems necessary for those meetings. The applicant will be responsible for advertising the notice of public hearing in at least one (1) newspaper of general circulation to announce this hearing. The notice must run for two (2) consecutive weeks. The applicant must also notify adjacent landowners in writing by certified mail, provide proof of that certified mailing and provide a listing of the property owners to the DSWM for the public hearing.

d. At these meetings, the applicant shall display a concept plan in sufficient detail to describe the nature and extent of activities to be conducted on site, the location and operation proposed and compliance with the established siting criteria.

e. Before the County may adopt a revision of, or an amendment to the Solid Waste Management Plan, the Planning and Permitting Division shall certify that the Plan revision or amendment is consistent with the County Plan, and SWAC shall certify that the proposed plan revision or amendment is consistent with the Solid Waste Management Plan.

2. Final Approval of Plan Amendment by State:

If the County adopts an amendment to the Plan, upon submittal to the Maryland Department of the Environment (MDE), MDE has ninety (90) days to approve, disapprove or partially approve or disapprove the amendment.

3. Zoning Authorization for Facility Operation:

Once a facility has been formally included in this Plan, County zoning authorization for development and operation of the new or expanded facility may be pursued per current regulations.

Exemptions to the Amendment Process:

The following solid waste activities are examples of installations that would not require an amendment to the Frederick County Solid Waste Management Plan:

a. Any additional recycling bins in conjunction with the County's recycling contract/efforts. However, any structural changes such as the addition of retaining walls to accommodate additional compactors would require an amendment.

b. Recycling collection bins located outdoors at County-owned buildings, parks and local businesses.

c. Recycling bins located indoors for schools, County-owned buildings and businesses.

d. Temporary bins for special events such as the County Fair and Fall Festivals. Bins will be removed within two (2) days after the event.

e. Pursuant to Sections 2-13-3 and 2-13-5 of the Frederick County Code, which are public local laws enacted by the General Assembly and applicable in Frederick County, Maryland, the County may acquire, construct, operate and maintain county government solid waste operations without being subject to any planning regulations or zoning ordinances enacted under the provisions of Article 66 B of the Annotated Code of Maryland.

Application Criteria

The following format is an example for an application with appropriate information in order to begin the process of establishing consistency with the Solid Waste Management Plan (SWMP) for installations that would require an amendment to the Frederick County SWMP:

A. The application shall be on a company letter head

B. The applicant shall provide the following preliminary information in the application:

   i) Name, address and telephone number of the applicant.
   ii) Name, address and telephone number of the applicant's representative.
   iii) Identify owner and operator, if different from the applicant.

C. The applicant shall attach the following reports as part of the submittal. These reports shall contain the pertinent information with respect to the characterization of the site; engineering evaluation and review of consistency with the Frederick County SWMP, Zoning Ordinance and Comprehensive Plan.

   i) Site Selection Study.
   ii) Site Investigation Report.
   iii) Engineering Report.

iv) Statement of Consistency.

D. The applicant shall attach the following reports and documentation which would include detailed information required for the application.

i) Scaled site map.
ii) Total site capacity.
iii) A written discussion of how the plan amendment shall meet the consistency criteria.
iv) A conceptual monitoring plan.
v) Planned design life.
vi) A description of the solid waste stream to be disposed.
vii) A description of how the waste is generated and how it will be disposed.
viii) A discussion of how this facility would be compatible with existing facilities/processes/programs.
ix) Recycling options, if any.
x) A schedule for all major permits including the name of the permit and the time frame for submission to the appropriate agency.
xi) The specific proposed language for an amendment to the SWMP.
xii) Discuss, if any provision of a community advisory panel has been established consisting of the local community within proximity to the facility. The panel shall have an opportunity to review and comment on the proposed facility.

1. Request to amend is forwarded to SWAC and Planning Commission within 5 days of receipt by the DSWM.

2. During the next 64 days, items #3 through #5 can be scheduled.

3. DSWM schedules amendment for discussion and recommendations at the next SWAC meeting.

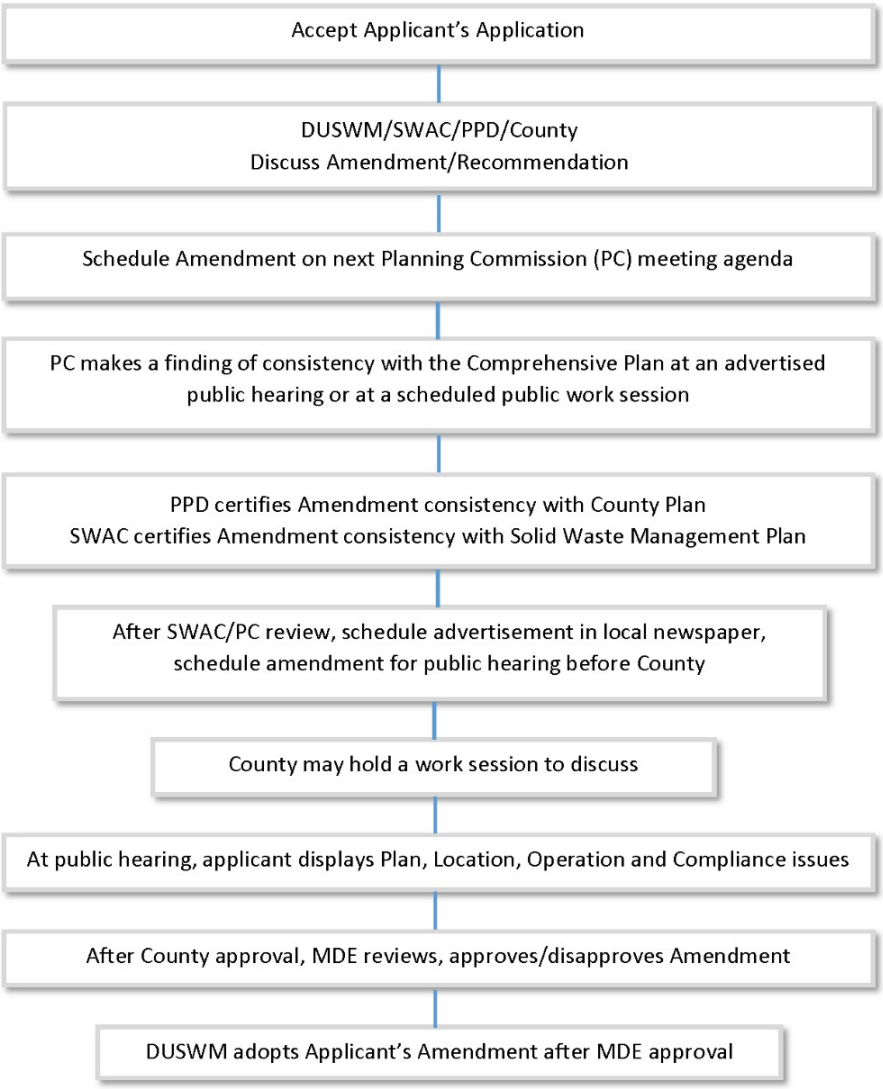
4. DSWM scheduled with the Planning commission to place the amendment request on the next Planning Commission meeting agenda.

5. After SWAC and Planning Commission review the DSWM schedules the requested amendment for public hearing after ensuring the notice has a minimum of 14 days' notice in a local newspaper.

7. Upon the public hearing the County make a final determination on the requested amendment at either the public hearing or at a following meeting.

SWMP Amendment Flow Chart

Solid Waste Management Plan Amendment
Time-line Flow Chart



APPENDIX E

PARTICIPATING APARTMENT BUILDINGS AND CONDOMINIUMS

Owners Name	Mailing Address	Property Address
(Park Place) At Mill Island	c/o Claggett Management, 7540 North Market Street, Frederick, MD 21701	
(Park Place) On the Tuscarora	c/o Swank Property Management, 4460 Lewis Mill Court, Jefferson, MD 21755	
26 E Patrick St LLC	c/o Anson Smith, 8012 Old Georgetown Rd, Bethesda, MD 20814	26 Patrick St, Frederick, 21701
Albert Courts Condo	c/o Raymond E. Bentz-President, 125 Cody Drive #33, Thurmont, MD 21788	
Ambertowne	c/o Property Management People, 92 Thomas Johnson Drive, Suite 170, Frederick, MD 21702	
AMS Enterprises LLC	c/o Diane Miller Marsden, 4025-A Fishers Hollow Rd., Myersville, MD 21773	620 Sixth Ave, Brunswick, 21716
Applegate Ltd Part	c/o Md. Management Co., 2613 Cabover Drive, Hanover, MD 21076	1418 Taney Ave, Brunswick, 21716
ASN Sunset LLC	5307 Randolph Rd, Rockville, MD 20852	0 Ninth St, Frederick, 21701
ASN Sunset LLC	5307 Randolph Rd, Rockville, MD 20852	1000 Columbine Dr, Frederick, 21701
Avondale Condo	c/o Swank Property Management, 4460 Lewis Mill Court, Jefferson, MD 21755	
Ballenger Creek Condo	c/o Property Management People, 92 Thomas Johnson Drive, Suite 170, Frederick, MD 21702	
Ballenger Pointe Condo	c/o Claggett Management, 7540 North Market Street, Frederick, MD 21701	
Bkt Properties Llc	c/o Todd Buckman, Po Box 758, Mount Airy, MD 21771	304 Ninth Thru 312 Ave, Brunswick, 21716
Briercrest Associates Llc	c/o Secretary/Treasurer, 113 Adingham Ct, Richmond, VA 23229	0 Jefferson Pike, , 21701
Briercrest Condo	c/o Swank Property Management, 4460 Lewis Mill Court, Jefferson, MD 21755	
Broadway Apartments Ltd Part	731 N Market St,, Frederick, MD 21701	222 Broadway St, Frederick, 21701
Broadway Apartments Ltd Part	731 N Market St, Frederick, MD 21701	222 Broadway St, Frederick, 21701

Brunswick VOA Affordable	Housing LP, c/o Vol. Of American National Services,1660 Duke St, Alexandria, VA 22314	1100 Peach Orchard Ln, Brunswick, 21716
Brunswick VOA Affordable	Housing LP, c/o Vol. Of American National Services,1660 Duke St, Alexandria, VA 22314	1100 Peach Orchard Ln, Brunswick, 21716
Buckingham Condominiums	c/o Swank Property Management, 4460 Lewis Mill Court,, Jefferson, MD 21755	
Cammeby's Princeton Realty LLC	45 Broadway Fl 25, New York, NY 10006	0 Foxcroft Dr, Frederick, 21701
Cammeby's Princeton Realty LLC	45 Broadway Fl 25, New York, NY 10006	5797 Brook Hill Ln, Frederick, 21703
Carroll Parkway LLC	30 W Patrick St Ste 600, Frederick, MD 21701	0 Carroll Pky, Frederick, 21701
Carrollton Associates Limited P/s	c/o E Property Tax, 340 Pemberwick Rd, Greenwich, CT 6831	349 Prospect Blvd, Frederick, 21701
Centrum-Frederick Ltd Part	c/o First Centrum LLC, 11200 Rockville Pk, Suite 100, Rockville, MD 20852	100 Burgess Hill 100-110 Way, Frederick, 21701
College Estates Limited Part	c/o Maryland Management Co., 2613 Cabover Drive, Hanover, MD 21076	1200 W Taney Ave, Frederick, 21701
Copenhaver Darlene Frances	11906 Taneytown Pk, Taneytown, MD 21787	406 thru 410 Main St
Country Hill Limited Partnership	2613 Cabover Dr, Hanover, MD 21076	1000 Heather Ridge Dr, Frederick, 21701
Creekside Plaza Condo	c/o Creekside Plaza Condominium Assoc., Inc., 50 Citizens Way, Suite 400, Frederick, MD 21701	
Crocker & Little Prop Inc	612 West Patrick St, Frederick, MD 21701	610 Patrick St, Frederick, 21701
Crocker & Little Prop Inc	612 West Patrick St, Frederick, MD 21701	1309 East St, Frederick, 21701
Crocker & Little Prop Inc	612 West Patrick St, Frederick, MD 21701	1499 East St, Frederick, 21701
Dearbought Condos	c/o ComSource Management, Inc., 16 Executive Park Court, Germantown, MD 20874	
Demlen LLC	178 Thomas Johnson Dr Ste 201, Frederick, MD 21702	101 South St, Frederick, 21701

Depaul Street LLC	178 Thomas Johnson Dr Ste 201, Frederick, MD 21702	50 Depaul St, Emmitsburg, 21727
Echo Glen Condo	c/o Clagett Management, 7540 North Market Street, Frederick, MD 21701	
Elmwood Venture LLC	c/o Home Properties of NY, Property Tax Dept, 850 Clinton Square, Rochester, NY 14604	90 Waverly Dr, Frederick, 21702
Elmwood Venture LLC	c/o Home Properties of NY, Property Tax Dept, 850 Clinton Square, Rochester, NY 14604	90 Waverly Dr, Frederick, 21702
Elmwood Venture LLC	c/o Home Properties of NY, Property Tax Dept, 850 Clinton Square, Rochester, NY 14604	90 Waverly Dr, Frederick, 21702
Emmitsburg-Creekside Apts Inc	c/o David B Aloie, Po Box 1846, Frederick, MD 21702	239 Seton Ave, Emmitsburg, 21727
Espinoza Albert M	8801 Potomac Station Lane,, Potomac, MD 20854	6724 Jefferson Blvd, Frederick, 21703
Fairfield Condo	c/o Claggett Enterprises, 7540 North Market Street, Frederick, MD 21701	
FCP Brookside LLC	5425 Wisconsin Avenue #202, Chevy Chase, MD 20815	148 Willowcrest Dr, Frederick, 21701
FCP Brookside LLC	5425 Wisconsin Avenue #202, Chevy Chase, MD 20815	148 Willowdale Dr, Frederick, 21701
FCP Crystal Park LLC	5425 Wisconsin Avenue #202, Chevy Chase, MD 20815	100 Alessandra Ct, Frederick, 21701
FCP Overlook LLC	5425 Wisconsin Avenue #202, Chevy Chase, MD 20815	1208 Alban Ct, Frederick, 21701
FCP Overlook LLC	5425 Wisconsin Avenue #202, Chevy Chase, MD 20815	1208 Alban Ct, Frederick, 21703
FCP Overlook LLC	5425 Wisconsin Avenue, Chevy Chase, MD 20815	1208 Alban Ct, Frederick, 21701
Frederick Commons LLC	c/o Deloitte & Touche LLP, P.O. Box 1368, Carlsbad, CA 92018	0 Ballenger Center Dr, Frederick, 21703
Frederick Heights LLC	75 2nd Ave Ste 200, Needham, MA 02494	1072 Redfield Ct, Frederick, 21701
Frederick Villas Ltd Partnership	5721 Heming Ave, Springfield, VA 22151	0 New Design Rd

Fredericktown Assoc Ltd Part	c/o Craig M. Henry, 10073 Vista Ct., Myersville, MD 21773	1701 Seventh St, Frederick, 21701
Fredericktowne Condo	c/o Claggett Management, 7540 North Market Street, Frederick, MD 21701	
Fredwood Limited Liability L/p	2613 Cabover Dr, Hanover, MD 21076	1469 Key Pky, Frederick, 21702
Glade Towne Condo	c/o Claggett Management, 7540 North Market Street, Frederick, MD 21701	
Great Lakes Investors LLC	Attn Nancy Kolsch, Po Box 170872, Milwaukee, WI 53217	5804 Rosebay Ct, Frederick, 21703
Hampton Court Condo	c/o Property Management People, 9090 Ridgefield Drive, Frederick, MD 21701	
Hickory Hill SPE LLC	C/o Finesa Management Co., 15850 Crabbs Branch Way, Rockville, MD 20855	1445 Key Pky, Frederick, 21701
Home Properties Hunters Glen LLC	850 Clinton Square, Rochester, NY 14604	1461 Key Pky, Frederick, 21701
Hurley Ralph E	606 E Patrick St, Frederick, MD 21701	606 Patrick St, Frederick, 21701
Interfaith Housing Of Western Md	731 North Market St, Frederick, MD 21701	731 Market St, Frederick, 21701
James Street Ltd Part	c/o Nelson Tyler Sr, 3280 Urbana Pike No. 207, Ijamsville, MD 21754	2 James St, Frederick, 21701
Jefferson Chase Condo	c/o Prospect Managers LLC, 175 Admiral Cochrane Dr, Suite 201, Annapolis, MD 21401	201 Prospect Blvd, Frederick, 21701
Johnston Jerry D	111 Bedrock Dr, Walkersville, MD 21793	130 Main St, Emmitsburg, 21727
Julia & James Properties L L C	316 N Market St, Frederick, MD 21701	326 thru 330 Market St, Frederick, 21701
KCI Group LLC	2301 Champlain St, NW, Apt 301, Washington, DC 20009	1599 East St, Frederick, 21701
Key Parkway East	c/o Home Properties, 1421 Key Parkway, Frederick, MD 21702	
King Walter W	5305 Kings Ct, Frederick, MD 21703	60 Main St, Thurmont, 21788

Kingscrest Apartments Assoc	c/o Sentinel Real Estate Corp, Attn Kathleen J. Cawley, 1251 Avenue Of The Americas, New York, NY 10020	0 Corporate Dr, Frederick, 21703
Kingscrest Apartments Assoc	c/o Sentinel Real Estate Corp, Attn Kathleen J. Cawley, 1251 Avenue Of The Americas, New York, NY 10020	6957 Castle Ct, Frederick, 21703
KMKL Property LLC	8939 Old Harmony Rd,, Myersville, MD 21773	108 Boundary Ave, Thurmont, 21788
Lafayette Square Condo	c/o Classic Property Management, 5 Hillcrest Drive, Suite B102, Frederick, MD 21703	
Laketree Condo	c/o Vanguard Management, 19536 Amaranth Drive, Germantown, MD 20874	
Lavender Plaza	c/o Condo Association, 5701 Lavender Plaza, Frederick, MD 21703	
Lesmar Limited Partnership	178 Thomas Johnson Dr Ste 201, Frederick, MD 21702	117 Market St, Frederick, 21701
Liberty Garden Condos	c/o Condo Association, 11920 Liberty Road, Libertytown, MD 21762	11920 Liberty RD, Libertytown, 21762
Lincoln On The Park Ltd Part	7170 Riverwood Dr, Columbia, MD 21046	0 Lincoln Ave, Emmitsburg, 21727
Lincoln On The Park Ltd Part	7170 Riverwood Dr, Columbia, MD 21046	0 Lincoln Ave,
Little Brook Apartments LLC	18020 Edwards Ferry Rd, Poolesville, MD 20837	1200 thru 1214 Patrick St, Frederick, 21701
Maerk Limited	178 Thomas Johnson Drive,Suite 201, Frederick, MD 21702	0 Seton Ave, Emmitsburg, 21727
Market Street Partnership LLC	6919 Baltimore Nat'l Pike #D, Frederick, MD 21702	313 Market St, Frederick, 21701
Maxwell Place Condo	c/o Claggett Management, 7540 North Market Street, Frederick, MD 21701	
Mercer Teddy T &	Earl Mercer JR Rev Trust, 1509 Homestead Ave, Frederick, MD 21702	817 Market St, Frederick, 21701
MI Frederick Greenes LLC	6106 McArthur Blvd, Bethesda , MD 20816	0 Motter Ave, Frederick, 21701
MI Frederick Greenes LLC	6106 McArthur Blvd, Bethesda, MD 20816	0 Motter Ave, Frederick, 21701
Moser Manor Limited Partnership	5209 Reels Mill Rd, Frederick, MD 21704	1 Moser Rd, Thurmont, 21788

Moser Manor Limited Partnership	5209 Reels Mill Rd, Frederick, MD 21704	1 Moser Rd, Thurmont, 21788
Mountainview Assoc Ltd Part	c/o Ratan Kumar, Po Box 1380, Great Falls, VA 22066	0 Albert Staub Rd, Thurmont, 21788
Mt Village at Frederick Condo	c/o Claggett Management , 7540 North Market Street, Frederick, MD 21701	
New Design Lmtd Partnership LLP	C/o Steve Weinstein, 4101 Century Towne Rd, Randallstown, MD 21133	0 Sugar Maple Ct, Frederick, 21703
New Design Lmtd Partnership LLP	C/o Steve Weinstein, 4101 Century Towne Rd, Randallstown, MD 21133	0 Trailview Ct, Frederick, 21703
New Design Lmtd Partnership LLP	C/o Steve Weinstein, 4101 Century Towne Rd, Randallstown, MD 21133	0 Magnolia Tree Ct, Frederick, 21703
Old Farm Condo	c/o Swank Property Management, 4460 Lewis Mill Court, Jefferson, MD 21755	
Overlook Condo	c/o Claggett Management, 7540 North Market Street, Frederick, MD 21701	
Prospect Managers LLC	175 Admiral Cochrane Dr, Suite 201, Annapolis, MD 21401	0 Prospect Blvd, Frederick, 21701
Real Estate Properties LLC	240 S Houcksville Rd, Hampstead, MD 21074	604 Main St, Emmitsburg, 21727
Ridgeview Condominiums (Ridgeview II & III)	c/o Property Management People, 82 Wormans Mill Court, Suite A, Frederick, MD 21701	
River Walk Apartments LLC	4101 Century Towne Rd, Randallstown, MD 21133	1000 Riverwalk Pl, Frederick, 21701
Rocking R LLC	7999 Mills Manor Ct, Thurmont, MD 21788	302 Baughmans Ln, Frederick, 21701
Rosewood Condominiums	c/o Swank Property Management, 4460 Lewis Mill Court, Jefferson, MD 21755	
Sappington Properties LLC	3615 Denison St, Frederick, MD 21704	12 Main St, Woodsboro, 21798
Second Waverly Limited Partnership	c/o Joseph F Horning, 1350 Conn. Ave., N.W., Suite 800, Washington, DC 20036	1300 Baker Pl, Frederick, 21701

Smith Jack A & Mary Ann	6202 Holter Rd, Jefferson, MD 21755	201 thru 205 Main St, 0
Spring Ridge Condo	c/o Property Management People, 9090 Ridgefield Drive, Frederick, MD 21701	
Stewart Howard T	208 West South Street, Frederick, MD 21701	0 North St
Stuart Mechanic Condo	c/o Property Management People, 82 Wormans Mill Court, Suite A, Frederick, MD 21701	
Stull Roland C & Carolyn V	14 Stull Dr, Thurmont, MD 21788	0 Carroll St
Summit Clearbrook LLC	C/o Ntrg, P.O. Box 638, Addison, TX 75001	0 Ballenger Creek Rd
Sun Kenny K & Tracy T	22416 Overture Cir, Boca Raton, FL 33428	107 Bentz St, Frederick, 21701
Sunsreng Channarin	613 Bushytail Dr, Frederick, MD 21703	106 Market St, Frederick, 21701
SWRF Brooklawn LP	C/o Zom Inc, 2001 Summit Park Dr Ste 300, Orlando, FL 32810	1001 Carroll Pky, Frederick, 21701
Taney Village Part Ltd	C/o Lamar Mangement Inc., 300 Willowbend Rd. Ste 200, Peachtree City, GA 30269	1421 Taney Ave, Frederick, 21701
Thacker D Ralph & Betty J	20021 Thacker Dr, Boonsboro, MD 21713	0 Main St
Third Waverly Limited Part	c/o Horning Brothers, 1350 Connecticut Ave NW, Suite 800, Washington, DC 20036	1200 thru 1205 Baker Pl, Frederick, 21701
Thurmont Garden Apartments LLC	1024 Siesta Key Ct, Moneta, VA 24121	0 Catoctin Mountain Hwy, Thurmont, 21788
Thurmont-Howard Street Apartments	9506 Bethel Rd, Frederick, MD 21702	0 Howard St, Thurmont, 21788
Tri M Properties LLC	8000 Beechcraft Ave, Gaithersburg, MD 20879	795 Wembly Dr, Frederick, 21701
Tri M Properties LLC	8000 Beechcraft Ave, Gaithersburg, MD 20879	770 Wembly Dr, Frederick, 21701
United States of America	c/o Mid Atlantic San Diego, 2100 Independence BLVD, Virginia Beach, VA 23455	0 Manahan Rd, Sabillasville, 21780
Van Metre Chesterbrook Apartments	9900 Main Street Suite 50,, Fairfax, VA 22031	0 Broad St, Middletown, 21769

Walkersville Senior LLC	C/o Osprey Property Co., 175 Admiral Cochrane Dr Ste 2,, Annapolis, MD 21401	105 Sandstone Dr, Walkersville, 21793
Walsh Janice A &	Wellschlager Earl, C/o Steven T. Swank, 4460 Lewis Mill Ct., Jefferson, MD 21755	0 8th-rear Of St, Frederick, 21701
Waterside Condo	c/o Claggett Management, 7540 North Market Street, Frederick, MD 21701	
Waverly Limited Partnership	C/o Joseph F. Horning, 1350 Connecticut Ave NW # S800, Washington, DC 20036	119 Willowdale Dr, Frederick, 21701
Wayside Apartments LLC	P.O. Box 807, Frederick, MD 21705	423 Patrick St, Frederick, 21701
Wellington Trace Apartments LLC	c/o Home Properties LP, Attn Property Tax Dept, 850 Clinton Sq., Rochester, NY 14604	4901 Meridian Way, Frederick, 21703
Wells Lee J Jr & Kelley A	1730 Castle Rock Rd, Frederick, MD 21701	7 Fourth St, Frederick, 21701
Westerleigh Limited Partnership	C/o Clark & Associates, 7525b Old Receiver Rd, Frederick, MD 21702	412 South St, Frederick, 21701
Wickrun LP	C/o Tm Associates, 15825 Shade Grove Rd., Suite 55, Rockville, MD 20850	0 Brunswick Hts, Brunswick, 21716
Wickrun LP	C/o Tm Associates, 15825 Shade Grove Rd., Suite 55, Rockville, MD 20850	0 Brunswick Hts, Brunswick, 21716
Windsor Garden Ltd Part	C/o Equity Management Inc, 8975 Guilford Road - Suite 100, Columbia, MD 21046	1101 Key Pky, Frederick, 21701
Worman's Mill	c/o Claggett Management, 7540 North Market Street, Frederick, MD 21701	

APPENDIX F

PARTICIPATING PUBLIC SITES

Municipally-Owned Sites:

Facility Name	Owner Mailing Address	Property Address
Edward P. Thomas, Jr. Memorial Swimming Pool	101 North Court St, Frederick, MD 21701	500 Fleming Ave, Frederick, 21701
William R. Diggs Memorial Swimming Pool	101 North Court St, Frederick, MD 21701	125 West All Saints St, Frederick, 21701
Baker Park	101 North Court St, Frederick, MD 21701	121 North Bentz St, Frederick, 21701
Harry Grove Stadium	101 North Court St, Frederick, MD 21701	21 Stadium Dr, Frederick, 21703
McCurdy Field	101 North Court St, Frederick, MD 21701	210 South Jefferson St, Frederick, 21701
Frederick Municipal Airport	101 North Court St, Frederick, MD 21701	310 Aviation Way, Frederick, 21701
Max Kehne Park	101 North Court St, Frederick, MD 21701	1100 West Seventh St, Frederick, 21701
William R. Talley Recreation Center	101 North Court St, Frederick, MD 21701	121 North Bentz St, Frederick, 21701
Brunswick Sports Complex	1 West Potomac St, Brunswick, MD 21716	210 Thirteenth Ave, Brunswick, 21716
Brunswick Municipal Pool	1 West Potomac St, Brunswick, MD 21716	99 Cummings Dr, Brunswick, 21716
Brunswick City Park	1 West Potomac St, Brunswick, MD 21716	655 East Potomac St, Brunswick, 21716
Middletown Memorial Park	31 West Main St, Middletown, 21769	South Church ST & Franklin St, Middletown, 21769
Wiles Branch Park	31 West Main St, Middletown, 21769	Knoll Side Ln, Middletown, 21769
Doubs Meadow Park	P.O. Box 295, Myersville, MD 21773	Ellerton Rd, Myersville, 21773
Myersville Volunteer Fire Company	P.O. Box 295, Myersville, MD 21773	301 Main St, Myersville, 21773
Thurmont Community Park	P.O. Box 17, Thurmont, MD 21788	Frederick Rd, Thurmont 21788
East End Park	P.O. Box 17, Thurmont, MD 21788	800 East Main St, Thurmont, 21788

Eyler Road Park	P.O. Box 17, Thurmont, MD 21788	Eyler Rd, Thurmont, 21788
Thurmont Senior Center	P.O. Box 17, Thurmont, MD 21788	806 East Main St, Thurmont, 21788
Emmitsburg Community Park	300A South Seton Ave, Emmitsburg, MD 21727	201 West Lincoln Ave, Emmitsburg, 21727
Emmitsburg Memorial Park	300A South Seton Ave, Emmitsburg, MD 21727	11 Chesapeake Ave, Emmitsburg, 21727
Woodsboro Community Park	P.O. Box 88, Woodsboro, MD 21798	Woodsboro Rd, Woodsboro, 21798
Heritage Farm Park	P.O. Box 249, Walkersville, MD 21793	9224 Devilbiss Bridge Rd, Walkersville, 21793

County-Owned Sites:

Facility Name	Owner Mailing Address	Property Address
Frederick County Public Schools		See listing on Page 3-16
Green Valley Fire Station	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	3939 Green Valley Rd, Monrovia, 21770
United/Westview Fire Station	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	5525 New Design Rd, Frederick, 21773
Spring Ridge Fire Station	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	6061 Spring Ridge Pkwy, Frederick, 21701
Ballenger Creek Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	5420 Ballenger Creek Pike, Frederick, 21703
Buckeystown Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	7221 Michaels Mill Rd, Buckeystown, 21717
Catoctin Creek Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	2929 Sumantown Rd, Middletown, 21769
Creagerstown Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	12014 Penterra Manor Ln, Thurmont, 21788
Fountain Rock Park & Nature Center	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	8511 Nature Center Pl, Walkersville, 21793
Fountaindale Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	7213 Beechtree Dr, Middletown, 21769
Green Hill Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	2810 Decatur Dr, Adamstown, 21710
Kemptown Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	3456B Kemptown Church Rd, Monrovia, 21770

Libertytown Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	12201 Liberty Rd, Libertytown, 21762
Loy's Station Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	13506 Old Frederick Rd, Thurmont, 21788
Middletown Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	7628 Coblentz Rd, Middletown, 21769
Old National Pike District Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	12406 Old National Pike, Mount Airy, 21771
Pinecliff Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	8350 Pinecliff Park Rd, Frederick, 21704
Point of Rocks Park & Community Center	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	1637 Ballenger Creek Pike, Point of Rocks, 21777
Rocky Ridge Landing	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	10611 Rocky Ridge Rd, Thurmont, 21788
Roddy Road Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	14760 Roddy Rd, Thurmont, 21788
Rose Hill Manor Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	1611 North Market St, Frederick, 21701
Urbana Community Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	3636 Urbana Pike, Frederick, 21704
Urbana District Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	3805 Urbana Pike, Frederick, 21704
Utica Park	c/o Parks & Recreation, 12 East Church St, Frederick, MD 21701	10200B Old Frederick Rd, Frederick, 21701
Brunswick Branch Library	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	915 North Maple Ave, Brunswick, 21716
C. Burr Artz Public Library	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	110 East Patrick St, Frederick, 21701
Edward F. Fry Library at Point of Rocks	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	1635 Ballenger Creek Pike, Point of Rocks, 21777
Emmitsburg Branch Library	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	300 South Seton Ave, Emmitsburg, 21727
Middletown Branch Library	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	101 Prospect St, Middletown, 21769
Thurmont Regional Library	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	76 East Moser Rd, Thurmont, 21788

Urbana Regional Library	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	9020 Amelung St, Frederick, 21704
Walkersville Branch Library	c/o MSD/Maintenance, 12 East Church St, Frederick, MD 21701	57 West Frederick St, Walkersville, 21793

State-Owned Sites:

Facility Name	Owner Mailing Address	Property Address
Greenbriar State Park	Department of Natural Resources, 580 Taylor Ave, Tawes State Office Building, Annapolis, MD 21401	Grindstone Run Rd, Myersville, 21773
Cunningham Falls State Park	Department of Natural Resources, 580 Taylor Ave, Tawes State Office Building, Annapolis, MD 21401	14039 Catoctin Hollow Rd, Thurmont, 21788
Gambrill State Park	Department of Natural Resources, 580 Taylor Ave, Tawes State Office Building, Annapolis, MD 21401	8602 Gambrill Park Rd, Middletown, 21769
Armory	Military Department, 301 West Preston St, Baltimore, MD 21201	8501 Old National Pike, Frederick, 21704
Maryland School for the Deaf	P.O. Box 250, Frederick, MD 21705	101 Clarke Pl, Frederick, 21701

Federally-Owned Sites:

Facility Name	Owner Mailing Address	Property Address
C&O Canal National Historic Park	1850 Dual Highway, Suite 100, Hagerstown, MD 21740	
Monocacy National Battlefield	4632 Araby Church Rd, Frederick, MD 21704	5201 Urbana Pike, Frederick, 21704
Catoctin Mountain Park	6602 Foxville Rd, Thurmont, MD 21788	6602 Foxville Rd, Thurmont, 21788
National Emergency Training Center	16825 South Seton Ave, Emmitsburg, MD 21727	16825 South Seton Ave, Emmitsburg, 21727

APPENDIX G

PARTICIPATING OFFICE BUILDINGS

Owner Name	Premise Address	Structure Area
FREDERICK COUNTY COMMISSIONERS	350 Montevue Ln, Frederick, MD 21702	202,040 sf
OAK CORPORATE CENTER LLC	800 Oak St, Frederick, MD 21703	209,184 sf
FREDERICK VIEW LLC	1 State Farm Dr, Frederick, MD 21701	383,394 sf
RIVER X LLC & RIVER X2 LLC	8480 Stagecoach Cir, Frederick, MD 21701	310,006 sf
FANNIE MAE	Bennett Creek Blvd, Frederick, MD 21704	183,550 sf
SP JOMA CORP & SP 511 CORP	5202 Presidents Ct, Frederick, MD 21704	196,854 sf
RP WESTVIEW LLC	5280 Corporate Dr, Frederick, MD 21704	213,234 sf
GATEWAY FRANKLIN INC	5265 Westview Dr, Frederick, MD 21704	169,965 sf